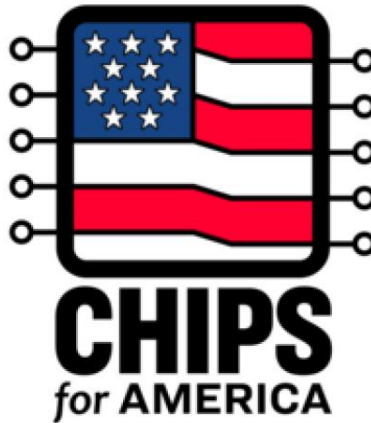


Working Draft Environmental Assessment
for Micron ID1, Boise, Idaho

APPENDICES

Volume 2



NIST-CPO/EA-004

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U.S. Department of Commerce
National Institute of Standards and Technology
CHIPS Program Office
Herbert C. Hoover Building
1401 Constitution Avenue NW
Washington, D.C. 20230

**APPENDIX A AIR QUALITY – PROPOSED ACTION: OPERATIONS
EMISSIONS CALCULATIONS**

Table 1-1. Facility-Wide Emissions (tpy)

	PM10	PM2.5	SO2	CO	NOx	VOC	Lead	Individual HAPs	Aggregate HAPs	CO2e
Existing FEC Limits	62.00	49.00	17.00	75.00	92.00	96.00	0.04	<10	<25	385984
Boilers and Furnaces	0	0	0	0	0	0	0	0	0	0
Cooling Towers	14.24934	0.136095	0	0	0	0	0	0	0	0
Emergency Engines	9.17E-01	9.17E-01	0.21	5.71	23.93	1.45	0	3.39E-02	8.43E-02	7174.52
Ammonia Scrubbers	59.53	5.95E+01	0	0	0	0	0	0.00E+00	0.00E+00	0
Acid Scrubbers	47.95	47.95	7.36	47.62	100.68	2.93	2.66E-04	1.08E+01	1.32E+01	64330.40
Storage Silo	0	0	0	0	0	0	0	0	0	0
VOC	2.56	2.56	0.26	28.32	33.71	103.19	1.69E-04	4.05E-01	4.25E-01	27160
WBV	0.64	0.64	0.14	3.10	3.06	0.46	4.28E-05	1.54E-01	1.62E-01	9.66E+03
Wastewater Treatment	0	0	0	0	0	0.55	0	0	0	0
Fabrication	0	0	0	0	0	0	0	0	0	0
Total	125.85	111.74	7.97	84.74	161.38	108.58	4.78E-04	11.34	13.85	108325.3
Post-Alternative Facility-Wide Emissions	187.85	160.74	24.97	159.74	253.38	204.58	0.04			494309

Table 2-1. Project Change TAPs Analysis

Pollutant	CAS #	Emergency Generators ¹		Ammonia Scrubbers		Acid Scrubbers		VOC		WBV		Total		EL	Below
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	(lb/hr)	EL?
Acrolein	107-02-8	0.00E+00	0.00E+00			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-02	Yes
Ammonia	7664-41-7	0.00E+00	0.00E+00	1.48E-01	6.50E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-01	6.50E-01	1.20E+00	Yes
Barium	7440-39-3	0.00E+00	0.00E+00			5.35E-04	2.34E-03	2.26E-04	9.90E-04	3.76E-04	3.76E-04	1.14E-03	3.71E-03	3.30E-02	Yes
Chlorine	782-50-5	0.00E+00	0.00E+00			4.68E-02	2.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-02	2.05E-01	2.00E-01	Yes
Chromium	7440-47-3	0.00E+00	0.00E+00			1.70E-04	7.46E-04	7.19E-05	3.15E-04	1.20E-04	1.20E-04	3.62E-04	1.18E-03	3.30E-02	Yes
Cobalt	7440-48-4	0.00E+00	0.00E+00			1.02E-05	4.48E-05	4.32E-06	1.89E-05	7.18E-06	7.18E-06	2.17E-05	7.08E-05	3.30E-03	Yes
Copper	7440-50-8	0.00E+00	0.00E+00			1.03E-04	4.53E-04	4.37E-05	1.91E-04	7.27E-05	7.27E-05	2.20E-04	7.17E-04	1.30E-02	Yes
Dichlorobenzene	95-50-1	0.00E+00	0.00E+00			1.46E-04	6.40E-04	6.16E-05	2.70E-04	1.03E-04	1.03E-04	3.10E-04	1.01E-03	2.00E+01	Yes
Hexane	110-54-3	0.00E+00	0.00E+00			2.19E-01	9.59E-01	9.25E-02	4.05E-01	1.54E-01	1.54E-01	4.65E-01	1.52E+00	1.20E+01	Yes
Hydrogen Chloride	7647-01-0	0.00E+00	0.00E+00			2.77E-01	1.21E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-01	1.21E+00	5.00E-02	No
Manganese	7439-96-5	0.00E+00	0.00E+00			4.62E-05	2.03E-04	1.95E-05	8.55E-05	3.25E-05	3.25E-05	9.83E-05	3.21E-04	6.70E-02	Yes
Molybdenum	7439-98-7	0.00E+00	0.00E+00			1.34E-04	5.86E-04	5.65E-05	2.47E-04	9.41E-05	9.41E-05	2.84E-04	9.28E-04	3.33E-01	Yes
Naphthalene	91-20-3	0.00E+00	0.00E+00			7.42E-05	3.25E-04	3.13E-05	1.37E-04	5.22E-05	5.22E-05	1.58E-04	5.14E-04	3.33E+00	Yes
Pentane	109-66-0	0.00E+00	0.00E+00			3.16E-01	1.39E+00	1.34E-01	5.85E-01	2.22E-01	2.22E-01	6.72E-01	2.19E+00	1.18E+02	Yes
Selenium	7782-49-2	0.00E+00	0.00E+00			2.92E-06	1.28E-05	1.23E-06	5.40E-06	2.05E-06	2.05E-06	6.21E-06	2.02E-05	1.30E-02	Yes
Toluene	108-88-3	0.00E+00	0.00E+00			4.14E-04	1.81E-03	1.75E-04	7.65E-04	2.91E-04	2.91E-04	8.79E-04	2.87E-03	2.50E+01	Yes
Vanadium	1314-62-1	0.00E+00	0.00E+00			2.80E-04	1.23E-03	1.18E-04	5.17E-04	1.97E-04	1.97E-04	5.95E-04	1.94E-03	3.00E-03	Yes
Xylenes	1330-20-7	0.00E+00	0.00E+00			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E+01	Yes
Acetaldehyde	75-07-0	0.00E+00	0.00E+00			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-03	Yes
Arsenic	7440-38-2	0.00E+00	0.00E+00			2.43E-05	1.07E-04	1.03E-05	4.50E-05	1.71E-05	1.71E-05	5.17E-05	1.69E-04	1.50E-06	No
Benzene	71-43-2	0.00E+00	0.00E+00			2.56E-04	1.12E-03	1.08E-04	4.72E-04	1.80E-04	1.80E-04	5.43E-04	1.77E-03	8.00E-04	Yes
Beryllium	7440-41-7	0.00E+00	0.00E+00			1.46E-06	6.40E-06	6.16E-07	2.70E-06	1.03E-06	1.03E-06	3.10E-06	1.01E-05	2.80E-05	Yes
Cadmium	7440-43-9	0.00E+00	0.00E+00			1.34E-04	5.86E-04	5.65E-05	2.47E-04	9.41E-05	9.41E-05	2.84E-04	9.28E-04	3.70E-06	No
Formaldehyde	50-00-0	0.00E+00	0.00E+00			9.13E-03	4.00E-02	3.85E-03	1.69E-02	6.41E-03	6.41E-03	1.94E-02	6.33E-02	5.10E-04	No
Nickel	7440-02-0	0.00E+00	0.00E+00			2.56E-04	1.12E-03	1.08E-04	4.72E-04	1.80E-04	1.80E-04	5.43E-04	1.77E-03	2.70E-05	No
7-PAH	NA	3.93E-03	1.97E-04			1.39E-06	6.08E-06	6.69E-07	2.93E-06	9.75E-07	9.75E-07	3.94E-03	2.07E-04	9.10E-05	Yes
Total PAH	NA	0.00E+00	0.00E+00			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.10E-05	Yes
POM	NA	0.00E+00	0.00E+00			1.07E-05	4.70E-05	5.18E-06	1.98E-05	7.54E-06	7.54E-06	2.35E-05	7.44E-05	9.10E-05	Yes

1. Emergency Generator TAP emission rates included only for TAPs that are not HAPs. Per IDAPA 58.01.01.210.20, sources covered by 40 CFR Part 60 and Part 63 Regulations do not count TAPs that are HAPs as part of the project emissions increase for comparison to ELs. The emergency generators are covered by NSPS IIII, NSPS JJJJ, and NESHAP ZZZZ. Therefore, generator TAPs that are also HAPs are not included in this analysis.

Table 3-1. Pollutants Routed to IWS Acid Scrubbers

Pollutant	Release to unit (lb/day)¹
Total PM	1,542.50
Non-HF/HCl PM	567.04
HF	819.84
HCl	155.62
NOx	183.86
CO	0
SOx	0
Cl2	0

1. Daily usage values are based on expected production capacity, as provided by Micron.

Table 3-2. Pollutants Routed to Process Acid Scrubbers

Pollutant	Release to unit (lb/day)¹
Total PM	2,085.54
Non-HF/HCl PM	80.87
HF	1,857.91
HCl	146.76
NOx	52.2
CO	8.76
SOx	25.32
Cl2	1.02

1. Daily usage values are based on expected production capacity, as provided by Micron.

Table 3-3. VOCs Routed to VOC Scrubbers

Pollutant	Release to unit (lb/day)^{1,2}
IPA	15926.57
Other VOCs	7563.38
Non-abated	1409.40
SST-A47	2353.34

1. Daily usage values are based on expected production capacity, as provided by Micron.
2. 6% of IPA and Other VOCs are not abated in scrubbers based on Fab 4 operations, as provided by Micron. These are designated as Non-abated.

Table 4-1. Diesel Generator Emission Factors

Pollutant	AP-42 Factors ¹		Manufacturer Specifications (lb/hr)	
	Section 3.4 (lb/hr) 0.024	Section 3.4 (lb/hr) 0.024	Commins QST30-617	CAT 3516C (Tier 4)
NOx			1.99	0.84
CO	7.05E-04	0.13	0.28	0.04
PM ₁₀	7.05E-04	0.15	0.15	0.04
SO ₂	1.21E-05	-	-	-
Exhaust NO _x /NO _x Ratio ²	20%	20%	20%	20%

1. Emission factors from AP-42, Section 3.4 - Large Stationary Diesel and All Stationary Diesel Fuel Engines, Table 3.4-1.
 2. AP-42 Section 3.4 SO₂ emission factor based on Micron fuel which contains 15 ppm sulfur content.
 3. Ratio from San Joaquin Valley APCD (via IDEQ): $\frac{1.0}{1.0} = 1.0$

$$15 \text{ ppm S} = \frac{0.0011 \text{ wt\% S}}{100} = 1.1 \times 10^{-5} \text{ wt\% S}$$

Table 1: http://www.valleyair.org/burnandtoxic_resource/assessment%20for%20Non-Regulatory%20Dipnol%2030%202042020.pdf

Table 4-1. GASEOUS EMISSION FACTORS FOR LARGE STATIONARY DIESEL AND ALL STATIONARY DIESEL-FUEL ENGINES¹

Pollutant	Emission Factor (lb-hp-hr) (per engine)	Diesel Fuel (SEC 2.02-004-01) (lb-hp-hr) (per engine)		EMISSION FACTOR (lb-hp-hr) (per engine)	Dual Fuel ² (SEC 2.02-004-02) (lb-hp-hr) (per engine)	
		EMISSION FACTOR (lb-hp-hr) (per engine)	EMISSION FACTOR (lb-hp-hr) (per engine)		EMISSION FACTOR (lb-hp-hr) (per engine)	EMISSION FACTOR (lb-hp-hr) (per engine)
NO _x Uncontrolled	0.013	1.2	B	0.018	2.7	D
NO _x Controlled	0.013	1.9 ³	B	ND	ND	NA
CO	0.04	1.0	C	7.5 E-03	1.16	D
H ₂	0.0002	1.0	B	4.0E-04	0.055 + 0.0055 ⁴	NA
CO ₂	1.16	165	B	0.772	110	B
PM	0.0002	0.1 ³	B	ND	ND	NA
THC (as CH ₄)	0.0002	0.09	B	5.2E-04	0.8	D
Methane	0.0002	0.1	F	F	0.6	E
Nonmethane	F	F	F	1.32 E-03	0.28	E

Table 4-2. ID01 Expansion Diesel Emergency Generators Criteria Pollutant Potential to Emit

Equip ID ¹	Description	Make & Model	Engine Full Load			PM ₁₀			PM _{2.5}			SO ₂			CO			NO _x			VOC			Exhaust HC/NO _x		
			HP	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	lb/hr ²	tpy ²	
EGEN01	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN02	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN03	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN04	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN05	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN06	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN07	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN08	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN09	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN10	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN11	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN12	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN13	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN14	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN15	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN16	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN17	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN18	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN19	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN20	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN21	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN22	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN23	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN24	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN25	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN26	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN27	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN28	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN29	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN30	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN31	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN32	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN33	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN34	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN35	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN36	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN37	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN38	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.15	0.007	0.15	0.007	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04	0.00	0.84	0.04
EGEN39	CUB Diesel Emergency Generator	CAT 3516C (Tier 4)	2941	0.																						

Table 4-3. ID01 Expansion Diesel Emergency Generators HAP/TAP Potential to Emit

Pollutant	Emission Factor ¹ (lb/MMBtu)	HAP?	SOS TAP?	SOS TAP?	HAP PTE		TAP PTE ²	
					(lb/hr) ³	(tpy) ³	(lb/hr) ³	(tpy) ³
Benzene	7.76E-04	Yes	No	Yes	6.75E-01	3.35E-02	0.00E+00	0.00E+00
Toluene	2.81E-04	Yes	Yes	No	2.46E-01	1.23E-02	0.00E+00	0.00E+00
Xylenes	1.93E-04	Yes	Yes	No	1.69E-01	8.44E-03	0.00E+00	0.00E+00
Formaldehyde	7.89E-05	Yes	No	Yes	6.90E-02	3.45E-03	0.00E+00	0.00E+00
Acetaldehyde	2.52E-05	Yes	No	Yes	2.20E-02	1.10E-03	0.00E+00	0.00E+00
Acrolein	7.88E-06	Yes	Yes	No	6.89E-03	3.45E-04	0.00E+00	0.00E+00
Naphthalene	1.30E-04	Yes	Yes	No	1.14E-01	5.68E-03	0.00E+00	0.00E+00
Acenaphthylene	9.22E-06	Yes	No	No	8.07E-03	4.04E-04	0.00E+00	0.00E+00
Acenaphthene	4.68E-06	No	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluorene	1.28E-05	No	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	4.68E-05	No	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Anthracene	1.23E-06	No	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluoranthene	4.02E-06	No	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pyrene	3.71E-06	No	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo[a]anthracene	6.22E-07	No	No	Yes	0.00E+00	0.00E+00	5.44E-04	2.72E-05
Chrysene	1.52E-06	No	No	Yes	0.00E+00	0.00E+00	1.34E-03	6.89E-05
Benzo[b]fluoranthene	1.11E-06	No	No	Yes	0.00E+00	0.00E+00	9.71E-04	4.89E-05
Benzo[k]fluoranthene	2.18E-07	No	No	Yes	0.00E+00	0.00E+00	1.91E-04	9.53E-06
Benzo[a]pyrene	2.57E-07	No	No	Yes	0.00E+00	0.00E+00	2.25E-04	1.12E-05
Indeno[1,2,3-cd]perylene	4.14E-07	No	No	Yes	0.00E+00	0.00E+00	3.63E-04	1.81E-05
Dibenz[a,h]anthracene	3.46E-07	No	No	Yes	0.00E+00	0.00E+00	3.03E-04	1.51E-05
Benzo[g,h,i]perylene	3.56E-07	Yes	No	No	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7,8-DiH	N/A	Yes	No	Yes	0.00E+00	0.00E+00	3.93E-03	1.97E-04
Total PAH	2.12E-04	Yes	No	Yes	1.85E-01	9.27E-03	0.00E+00	0.00E+00
PM ₁₀	8.15E-02	Yes	No	Yes	7.13E-02	3.56E-03	0.00E+00	0.00E+00

1. HAP/TAP emissions are calculated based on emission factors for diesel engines per AP-42 Section 3.4, Table 3.4-3 and 3.4-4. PM₁₀ emission factor is the sum of all polycyclic organic matter.
 2. Emergency equipment annual PTE emissions based on annual operating hours: 100 hrs/yr
 3. Energy Conversion Factor: 1 MMBTU/hr = 392.75 bhp (mechanical) AP-42 Appendix A
 4. Emergency Generator TAP emission rates included only for TAPs that are not HAPs. Per IDAPA 58.01.01.210.20, sources covered by 40 CFR Part 60 Regulations do not count TAPs that are HAPs as part of the project emissions increase for comparison to ELS. The emergency generator is covered by NSPS Subpart IIII.

Table 4-4. Diesel Emergency Generators GHG Emissions

Pollutant	Emission Factor ¹ (kg/MMBtu)	PTE	
		(lb/hr) ²	(tpy) ²
CO ₂	72.96	1.43E+05	7.13E+03
CH ₄	0.0030	5.78E+00	2.89E-01
N ₂ O	0.00060	1.16E+00	5.78E-02
CO ₂ e	-	1.43E+05	7153.54

1. CO₂, N₂O and CH₄ emission factors based on 40 CFR Part 98 Table C-1 and C-2 Default diesel emissions factors.
 2. Global warming potentials per 40 CFR Part 98, Table A-1 (Global Warming Potentials)
 CO₂ = 1
 CH₄ = 25
 N₂O = 298
 3. Emergency equipment annual emissions based on 100 hrs/yr
 4. Energy Conversion Factor: 392.75 bhp-hr/MMBtu (mechanical) in AP-42 Appendix A

Table 5-1. CAT 3516C [Tier 4] Emission Factors

Parameter ¹	Load					
	10%	25%	50%	75%	100%	Max
Engine Power (bhp)	438	872	1552	2243	2941	2941
Fuel Consumption (gal/hr)	27.5	47.1	77.5	106.6	137.6	137.6
NOx emission factor (g/bhp-hr)	1.23	0.50	0.48	0.56	0.61	1.23
CO emission factor (g/bhp-hr)	0.19	0.12	0.11	0.11	0.13	0.19
VOC emission factor (g/bhp-hr)	0.23	0.09	0.07	0.05	0.03	0.23
PM ₁₀ emission factor (g/bhp-hr)	0.06	0.06	0.04	0.03	0.02	0.06
NOx emission factor (lb/hr)	1.19	0.96	1.64	2.77	3.96	3.96
CO emission factor (lb/hr)	0.18	0.23	0.38	0.54	0.84	0.84
VOC emission factor (lb/hr)	0.22	0.17	0.24	0.25	0.19	0.25
PM ₁₀ emission factor (lb/hr)	0.06	0.12	0.14	0.15	0.13	0.15

1. Engine power and emissions factors from manufacturer specifications

Table 5-2. Cummins QST30-G17 Emission Factors

Parameter ¹	Load					
	1/4	1/2	3/4	Full Standby	Full Prime	Max
Engine Power (bhp)	371	741	1112	1482	1322	1482
Fuel Consumption (gal/hr)	19	36	54	72	64	72
NOx emission factor (g/bhp-hr)	0.72	0.40	0.35	0.42	0.39	0.72
CO emission factor (g/bhp-hr)	1.06	0.64	0.60	0.61	0.6	1.06
VOC emission factor (g/bhp-hr)	0.02	0.01	0.03	0.04	0.03	0.04
NOx emission factor (lb/hr)	0.59	0.65	0.86	1.37	1.14	1.37
CO emission factor (lb/hr)	0.87	1.05	1.47	1.99	1.75	1.99
VOC emission factor (lb/hr)	0.02	0.02	0.07	0.13	0.09	0.13

1. Engine power and emissions factors from manufacturer specifications

Table 6-1. Natural Gas-Fired Generator Characteristics

Source ID	EGENS1
Description	Electrical Substation Emergency Generator
Fuel Consumption	3426.3 ft ³ /hr
Fuel Consumption	3.56 MMBtu/hr
Heat Content of Fuel =	1038.46 BTU/ft ³
Annual Operation	100 hrs/yr

1. Average value from Intermountain Gas Billing records (2012-01-31 through 2019-04-17).

Table 6-2. Natural Gas-Fired Generator Criteria/GHG Emissions

Pollutant	Emission Factor ¹	Corrected Emission Factor ¹	Potential to Emit	
	lb/MMBtu	lb/MMBtu	lb/hr	tpy
PM10	9.50E-03	9.67E-03	3.44E-02	1.72E-03
PM2.5	9.50E-03	9.67E-03	3.44E-02	1.72E-03
SO2	5.88E-04	5.99E-04	2.13E-03	1.07E-04
CO	3.72E+00	3.79E+00	1.35E+01	6.74E-01
NOx	2.27E+00	2.31E+00	8.22E+00	4.11E-01
NO2	--	--	8.22E-01	4.11E-02
VOC	2.96E-02	3.01E-02	1.07E-01	5.36E-03
CO2	1.10E+02	1.12E+02	3.98E+02	1.99E+01
CH4	2.30E-01	2.34E-01	8.33E-01	4.17E-02
N2O	2.20E-04	2.24E-04	7.99E-04	3.99E-05
CO2e3	1.16E+02	1.18E+02	4.20E+02	2.10E+01

1. Emission Factors from AP-42 Section 3.2 for 4-Stroke Rich Burn Engines.

2. N2O emission factor based on 40 CFR Part 98 Table C-2 Default natural gas emissions factors.

3. Global warming potentials per 40 CFR Part 98, Table A-1 (*Global Warming Potentials*)

CO ₂ =	1
CH ₄ =	25
N ₂ O =	298

4. In-Stack NO₂/NO_x ratio from San Joaquin Valley APCD:

ISR =

Table 1: http://www.valleyair.org/busind/pto/tox_resources/Assessment%20of%20Non-Regulatory%20Option%20in%20AERMOD.pdf

10%

Table 6-3. Natural Gas-Fired Generator HAP/TAP Emissions

Pollutant	HAP?	585 TAP?	586 TAP?	Emission Factor ¹	Corrected Emission Factor ¹	HAP PTE		TAP PTE ²	
				lb/MMBtu	lb/MMBtu	lb/hr	tpy	lb/hr	tpy
1,1,2,2-Tetrachloroethane	Yes	No	Yes	2.53E-05	2.58E-05	9.16E-05	4.58E-06	0.00E+00	0.00E+00
1,1,2-Trichloroethane	Yes	No	Yes	1.53E-05	1.56E-05	5.54E-05	2.77E-06	0.00E+00	0.00E+00
1,1-Dichloroethane	No	No	Yes	1.13E-05	1.15E-05	0.00E+00	0.00E+00	4.09E-05	2.05E-06
1,2-Dichloroethane	No	No	Yes	1.13E-05	1.15E-05	0.00E+00	0.00E+00	4.09E-05	2.05E-06
1,2-Dichloropropane	No	No	No	1.30E-05	1.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	Yes	No	Yes	6.63E-04	6.75E-04	2.40E-03	1.20E-04	0.00E+00	0.00E+00
1,3-Dichloropropene	Yes	No	Yes	1.27E-05	1.29E-05	4.60E-05	2.30E-06	0.00E+00	0.00E+00
Acetaldehyde	Yes	No	Yes	2.79E-03	2.84E-03	1.01E-02	5.05E-04	0.00E+00	0.00E+00
Acrolein	Yes	Yes	No	2.63E-03	2.68E-03	9.53E-03	4.76E-04	0.00E+00	0.00E+00
Benzene	Yes	No	Yes	1.58E-03	1.61E-03	5.72E-03	2.86E-04	0.00E+00	0.00E+00
Butyr/isobutyraldehyde	No	No	No	4.86E-05	4.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	Yes	No	Yes	1.77E-05	1.80E-05	6.41E-05	3.21E-06	0.00E+00	0.00E+00
Chlorobenzene	Yes	Yes	No	1.29E-05	1.31E-05	4.67E-05	2.34E-06	0.00E+00	0.00E+00
Chloroform	Yes	No	Yes	1.37E-05	1.39E-05	4.96E-05	2.48E-06	0.00E+00	0.00E+00
Ethane	No	No	No	7.04E-02	7.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	Yes	Yes	No	2.48E-05	2.52E-05	8.98E-05	4.49E-06	0.00E+00	0.00E+00
Ethylene Dibromide	Yes	No	Yes	2.13E-05	2.17E-05	7.72E-05	3.86E-06	0.00E+00	0.00E+00
Formaldehyde	Yes	No	Yes	2.05E-02	2.09E-02	7.43E-02	3.71E-03	0.00E+00	0.00E+00
Methanol	Yes	Yes	No	3.06E-03	3.12E-03	1.11E-02	5.54E-04	0.00E+00	0.00E+00
Methylene Chloride	Yes	No	Yes	4.12E-05	4.19E-05	1.49E-04	7.46E-06	0.00E+00	0.00E+00
Naphthalene	Yes	Yes	No	9.71E-05	9.89E-05	3.52E-04	1.76E-05	0.00E+00	0.00E+00
PAH	Yes	No	Yes	1.41E-04	1.44E-04	5.11E-04	2.55E-05	0.00E+00	0.00E+00
Styrene	Yes	Yes	No	1.19E-05	1.21E-05	4.31E-05	2.16E-06	0.00E+00	0.00E+00
Toluene	Yes	Yes	No	5.58E-04	5.68E-04	2.02E-03	1.01E-04	0.00E+00	0.00E+00
Vinyl Chloride	Yes	No	Yes	7.18E-06	7.31E-06	2.60E-05	1.30E-06	0.00E+00	0.00E+00
Xylene	Yes	Yes	No	1.95E-04	1.99E-04	7.06E-04	3.53E-05	0.00E+00	0.00E+00

1. Emission Factors from AP-42 Section 3.2 for 4-Stroke Rich Burn Engines.

2. Emergency Generator TAP emission rates included only for TAPs that are not HAPs. Per IDAPA 58.01.01.210.20, sources covered by 40 CFR Part 60 Regulations do not count TAPs that are HAPs as part of the project emissions increase for comparison to ELs. The emergency generator is covered by NSPS Subpart IIII.

Table 7-1. Ammonia Scrubber Emission Calculations

Equipment ID	Description	Operating Status	Installation Status ⁴	Exhaust Flow	Exhaust PM ₁₀ /PM _{2.5} ¹	PM Typical Mol. Wt. ²	Exhaust PM ₁₀ /PM _{2.5} Emission Rate ³		Exhaust NH ₃ ¹	NH ₃ Typical Mol. Wt.	Exhaust NH ₃ Emission Rate ³	
				ft ³ /min	max ppmv	g/mol	lb/hr	tpy	max ppmv	g/mol	lb/hr	tpy
ID1AME01	ID01 Process Ammonia Scrubbers	Active	Project	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME02	ID01 Process Ammonia Scrubbers	Active	Project	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME03	ID01 Process Ammonia Scrubbers	Active	Project	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME04	ID01 Process Ammonia Scrubbers	Redundant	Project	43,000	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
ID1AME05	ID01 Process Ammonia Scrubbers	Active	Future	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME06	ID01 Process Ammonia Scrubbers	Active	Future	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME07	ID01 Process Ammonia Scrubbers	Active	Future	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME08	ID01 Process Ammonia Scrubbers	Redundant	Future	43,000	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
ID1AME09	ID01 Process Ammonia Scrubbers	Active	Project	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME10	ID01 Process Ammonia Scrubbers	Active	Project	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME11	ID01 Process Ammonia Scrubbers	Active	Project	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME12	ID01 Process Ammonia Scrubbers	Redundant	Project	43,000	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
ID1AME13	ID01 Process Ammonia Scrubbers	Active	Future	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME14	ID01 Process Ammonia Scrubbers	Active	Future	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME15	ID01 Process Ammonia Scrubbers	Active	Future	43,000	1.5	104	1.03	4.50	0.1	17.0	0.01	0.05
ID1AME16	ID01 Process Ammonia Scrubbers	Redundant	Future	43,000	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
HPMAME17	ID01 CUB/HPM Ammonia Scrubbers	Active	Project	23,700	1.5	104	0.57	2.48	0.1	17.0	0.01	0.03
HPMAME18	ID01 CUB/HPM Ammonia Scrubbers	Redundant	Project	23,700	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
HPMAME19	ID01 CUB/HPM Ammonia Scrubbers	Active	Project	23,700	1.5	104	0.57	2.48	0.1	17.0	0.01	0.03
HPMAME20	ID01 CUB/HPM Ammonia Scrubbers	Redundant	Project	23,700	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
WWTAME21	ID01 WWTP Ammonia Scrubbers	Active	Project	2,700	1.5	104	0.06	0.28	0.1	17.0	0.00	0.00
WWTAME22	ID01 WWTP Ammonia Scrubbers	Redundant	Project	2,700	1.5	104	0.00	0.00	0.1	17.0	0.00	0.00
WWTAME23	ID01 WWTP Ammonia Scrubbers	Active	Project	2,700	1.5	104	0.06	0.28	0.1	17.0	0.00	0.00

Exhaust Density = $n/V = P/RT = \frac{0.9 \text{ atm}}{0.08206 \text{ gmol} \cdot \text{K}} = 0.037 \text{ gmol/L} \Rightarrow 26.9 \text{ L/gmol}$

Conversion Factors:
 $1 \text{ ppmv}/(\text{mL}/\text{m}^3)$
 $453.6 \text{ g}/\text{lb}$
 $35.3 \text{ ft}^3/\text{m}^3$
 59.53

1. Scrubber maximum PM exhaust load set at 1.5 ppmv based on associated building activities and tool sets. Scrubber maximum NH3 exhaust load from manufacturer specs.
2. Scrubber exhaust particulate matter MW estimated using worst-case components that might result in particulate emissions provided by Micron:

NH ₃ Scrubber	PM Conc.	MW	Gas MW
HF	25%	20	104
NH ₄ SO ₄	75%	132	

3. Hourly and annual emissions scaled up with safety factor of 10%

Table 8-1. Natural Gas Combustion Emission Factors

Pollutant	Emission Factor ¹ (lb/10 ⁶ scf)	Corrected Emission Factor _c
NO _x	100	101.8
SO ₂	2.3	2.3
PM ₁₀	7.6	7.7
CO	84	85.5
VOC	5.5	5.6
Lead	0.0005	0.0
CO ₂	120000	122171.7
CH ₄	2.3	2.3
N ₂ O	2.2	2.2

1. Emission Factors from AP-42 Section 1.4 Table 1.4-1 and 1.4-1 for Small Boilers

2. Heat Content of Fuel = 1038.46 BTU/R³

Table 8-2. Point of Use Abatement Natural Gas Usage

Associated Scrubbers	Total POU NG Usage (scf/year)
ID01 Process Acid Scrubbers	180,354,828
ID01 CVD Process IWS Scrubbers	866,538,438
ID01 Process VOC Scrubbers	63,108,722

Table 8-3. Pre-Abatement Point of Use Abatement Units Natural Gas Combustion Criteria Pollutant and GHG Emissions

Associated Scrubbers	Emissions (tpy)											
	NO _x	SO ₂	PM _{2.5}	PM ₁₀	CO	VOC	Lead	CO ₂	CH ₄	N ₂ O	CO _{2e}	
ID01 Process Acid Scrubbers POU	9.18	0.21	0.70	0.70	7.71	0.50	0.00	11017.13	0.21	0.20	11082.60	
ID01 CVD Process IWS Scrubbers POU	44.11	1.01	3.35	3.35	37.05	2.43	0.00	52933.25	1.01	0.97	53247.80	
ID01 Process VOC Scrubbers POU	3.21	0.07	0.24	0.24	2.70	0.18	0.00	3853.06	0.07	0.07	3877.86	

Table 8-4. Point of Use Abatement Units Destruction Efficiency

Associated Scrubbers	DRE (%)											
	NO _x	SO ₂	PM _{2.5}	PM ₁₀	CO	VOC	Lead	CO ₂	CH ₄	N ₂ O	CO _{2e}	
ID01 Process Acid Scrubbers POU	0%	0%	70%	70%	0%	0%	0%	0%	0%	0%	0%	
ID01 CVD Process IWS Scrubbers POU	0%	0%	87%	87%	0%	0%	0%	0%	0%	0%	0%	
ID01 Process VOC Scrubbers POU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Table 8-5. Post-Abatement Point of Use Abatement Units Criteria Pollutant and GHG Emissions

Associated Scrubbers	Emissions (tpy)											
	NO _x	SO ₂	PM _{2.5}	PM ₁₀	CO	VOC	Lead	CO ₂	CH ₄	N ₂ O	CO _{2e}	
ID01 Process Acid Scrubbers POU	9.18	0.21	0.21	0.21	7.71	0.50	0.00	11017.13	0.21	0.20	11082.60	
ID01 CVD Process IWS Scrubbers POU	44.11	1.01	0.44	0.44	37.05	2.43	0.00	52933.25	1.01	0.97	53247.80	
ID01 Process VOC Scrubbers POU	3.21	0.07	0.24	0.24	2.70	0.18	0.00	3853.06	0.07	0.07	3877.86	

Table 8-6. Post-Abatement Point of Use Abatement Units HAP/TAP Emissions

Pollutant	HAP?	SBS TAP?	S86 TAP?	Emission Factor ¹ lb/MMscf	Corrected Emission Factor ² lb/MMscf	ID01 Process Acid Scrubbers POU		ID01 CVD Process IWS Scrubbers POU		ID01 Process VOC Scrubbers POU	
						HAP PTE	TAP PTE	HAP PTE	TAP PTE	HAP PTE	TAP PTE
Benzene	Yes	No	Yes	2.10E-03	2.14E-03	1.93E-04	1.93E-04	9.26E-04	9.26E-04	6.75E-05	6.75E-05
Formaldehyde	Yes	No	Yes	7.50E-02	7.64E-02	6.89E-03	6.89E-03	3.31E-02	3.31E-02	2.41E-03	2.41E-03
Toluene	Yes	No	Yes	3.40E-03	3.46E-03	3.17E-04	3.17E-04	1.55E-03	1.55E-03	1.09E-04	1.09E-04
2-Methylnaphthalene	Yes	No	Yes	2.40E-05	2.44E-05	2.20E-06	2.20E-06	1.06E-05	1.06E-05	7.71E-07	7.71E-07
3-Methylchloranthrene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
7,12-Dimethylbenz(a)anthracene	Yes	No	Yes	1.60E-05	1.63E-05	1.47E-06	1.47E-06	7.06E-06	7.06E-06	5.14E-07	5.14E-07
Acenaphthylene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Benz(a)pyrene	Yes	No	Yes	1.20E-06	1.22E-06	1.10E-07	1.10E-07	5.29E-07	5.29E-07	3.86E-08	3.86E-08
Benz(b)fluoranthene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Benz(k)fluoranthene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Dibenz(a,h)anthracene	Yes	No	Yes	1.20E-06	1.22E-06	1.10E-07	1.10E-07	5.29E-07	5.29E-07	3.86E-08	3.86E-08
Dichlorobenzene	Yes	No	Yes	1.20E-03	1.22E-03	1.10E-04	1.10E-04	5.29E-04	5.29E-04	3.86E-05	3.86E-05
Hexane	Yes	Yes	No	1.80E+00	1.83E+00	1.65E-01	1.65E-01	7.94E-01	7.94E-01	5.78E-02	5.78E-02
Naphthalene	Yes	Yes	No	6.10E-04	6.21E-04	5.60E-05	5.60E-05	2.69E-04	2.69E-04	1.96E-05	1.96E-05
Acenaphthene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Anthracene	Yes	No	Yes	2.40E-06	2.44E-06	2.20E-07	2.20E-07	1.06E-06	1.06E-06	7.71E-08	7.71E-08
Benz(a)anthracene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Benz(a,h)perylene	Yes	No	Yes	1.20E-06	1.22E-06	1.10E-07	1.10E-07	5.29E-07	5.29E-07	3.86E-08	3.86E-08
Chrysene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Fluoranthene	Yes	No	Yes	3.00E-06	3.05E-06	2.75E-07	2.75E-07	1.32E-06	1.32E-06	9.64E-08	9.64E-08
Fluorene	Yes	No	Yes	2.80E-06	2.85E-06	2.57E-07	2.57E-07	1.24E-06	1.24E-06	9.00E-08	9.00E-08
Indeno(1,2,3-cd)pyrene	Yes	No	Yes	1.80E-06	1.83E-06	1.65E-07	1.65E-07	7.94E-07	7.94E-07	5.78E-08	5.78E-08
Phenanthrene	Yes	No	Yes	1.70E-05	1.73E-05	1.56E-06	1.56E-06	7.50E-06	7.50E-06	5.46E-07	5.46E-07
Pentane	No	Yes	No	2.60E+00	2.65E+00	0.00E+00	2.39E-01	0.00E+00	1.15E+00	0.00E+00	8.35E-02
Pyrene	Yes	No	Yes	5.00E-06	5.09E-06	4.59E-07	4.59E-07	2.21E-06	2.21E-06	1.61E-07	1.61E-07
Arsenic	Yes	No	Yes	2.00E-04	2.04E-04	1.84E-05	1.84E-05	8.82E-05	8.82E-05	6.43E-06	6.43E-06
Barium	No	Yes	No	4.40E-03	4.48E-03	0.00E+00	4.04E-04	0.00E+00	1.94E-03	0.00E+00	1.41E-04
Beryllium	Yes	No	Yes	1.20E-05	1.22E-05	1.10E-06	1.10E-06	5.29E-06	5.29E-06	3.86E-07	3.86E-07
Cadmium	Yes	No	Yes	1.10E-03	1.12E-03	1.01E-04	1.01E-04	4.85E-04	4.85E-04	3.53E-05	3.53E-05
Chromium	Yes	Yes	No	1.40E-03	1.43E-03	1.29E-04	1.29E-04	6.18E-04	6.18E-04	4.50E-05	4.50E-05
Cobalt	Yes	Yes	No	8.40E-05	8.55E-05	7.71E-06	7.71E-06	3.71E-05	3.71E-05	2.70E-06	2.70E-06
Copper	No	Yes	No	8.50E-04	8.65E-04	0.00E+00	7.80E-05	0.00E+00	3.75E-04	0.00E+00	2.73E-05
Lead	Yes	No	No	5.00E-04	5.09E-04	4.59E-05	0.00E+00	2.21E-04	0.00E+00	1.61E-05	0.00E+00
Manganese	Yes	Yes	No	3.80E-04	3.87E-04	3.49E-05	3.49E-05	1.68E-04	1.68E-04	1.22E-05	1.22E-05
Mercury	Yes	No	No	2.60E-04	2.65E-04	2.35E-05	0.00E+00	1.15E-04	0.00E+00	8.35E-06	0.00E+00
Molybdenum	No	Yes	No	1.10E-03	1.12E-03	0.00E+00	1.01E-04	0.00E+00	4.85E-04	0.00E+00	3.53E-05
Nickel	Yes	No	Yes	2.10E-03	2.14E-03	1.93E-04	1.93E-04	9.26E-04	9.26E-04	6.75E-05	6.75E-05
Selenium	Yes	Yes	No	2.40E-05	2.44E-05	2.20E-06	2.20E-06	1.06E-05	1.06E-05	7.71E-07	7.71E-07
Vanadium	No	Yes	No	2.30E-03	2.34E-03	0.00E+00	2.11E-04	0.00E+00	1.01E-03	0.00E+00	7.39E-05
Z-Pb	Yes	No	Yes	N/A	N/A	1.05E-06	1.05E-06	5.03E-06	5.03E-06	3.66E-07	3.66E-07
DDM	Yes	No	Yes	N/A	N/A	8.10E-06	8.10E-06	3.89E-05	3.89E-05	2.83E-06	2.83E-06

1. HAP/TAP emission factors are from AP-42, Section 1.4, Tables 1.4-3 and 1.4-4. Emissions factors corrected for actual heating value from standard of 1020 BTU/R³.

Heat Content of Fuel = 1038.46 BTU/R³ - Average value from Intermountain Gas billing records (2012-01-31 through 2019-04-17).

Table 9-1. Acid Scrubber Characteristics

Scrubber	Flow Rate (acfm)	Flow Rate ¹ (scfm)
ID01 Process Acid Scrubbers	86,000	85,679
ID01 CUB/HPM Acid Scrubbers	86,000	85,675
ID01 CVD Process IWS Scrubbers	28,500	28,392
ID01 WWTP Acid Scrubbers	16,000	15,940

1. acfm to scfm conversion using:
 Standard Ambient
 Temperature (F) 68 70

Table 9-2. POU Emissions Routed to Scrubbers of Each Listed Type

Scrubber ¹	PM ₁₀		PM _{2.5}		SO _x		CO		NO _x		VOC		Lead		CO ₂ e	
	lb/hr	tpy ²	lb/hr	tpy ²	lb/hr	tpy ²	lb/hr	tpy ²	lb/hr	tpy ²	lb/hr	tpy ²	lb/hr	tpy ²	lb/hr	tpy ²
ID01 Process Acid Scrubbers	0.048	0.21	0.05	0.21	0.05	0.21	1.76	7.71	2.10	9.18	0.12	0.50	1.05E-05	4.59E-05	2530	11083
ID01 CVD Process IWS Scrubbers	0.10	0.44	0.10	0.44	0.23	1.01	8.46	37.05	10.07	44.11	0.55	2.43	5.04E-05	2.21E-04	12157	53248

1. Combusted natural gas is routed to the ID01 Process Acid Scrubbers and ID01 CVD Process IWS Scrubbers from small scrubbers at the point of use (POU) of individual tools. This includes POU and GHG abatement units. The natural gas combustion from these POU's is calculated in Table 8-5 based on the maximum natural gas usage of the POU's.
 2. Annual Emissions based on operation 8760 hr/yr

Table 9-3. Fab 4 July 2020 - December 2022 Speciated Usage Data

Associated Scrubbers	Accounted Chemicals (lbs)	Unaccounted Chemicals (lbs)	Unaccounted Ratio ¹
CVD Process IWS Scrubbers	38,543.55	523.37	1.34%
Process Acid Scrubbers	1,445.70	254.86	14.99%

1. Current chemical usage data for ID01 is not yet complete. The chemicals used in large quantities are included in the estimates, while other chemicals used in smaller amounts are unaccounted for in the ID01 chemical usage estimations. The ratio of the "Unaccounted Chemicals" to the total chemicals (Unaccounted and Accounted) used in Fab 4 is used to estimate the "Unaccounted Chemicals" in ID01.

Table 9-4. ID01 Acid Scrubbers Emission Factor Development

Pollutant ^{1,2,3}	Scrubbers	Number of Active Scrubbers	Daily Formation (lbs)	DRE	Hourly Emissions (lbs)	Unit Hourly Emissions (lbs)
Non-HF/HCl PM	ID01 CVD Process IWS Scrubbers	10	567.04	85%	3.54	0.440
	ID01 Process Acid Scrubbers	36	80.87	70%	1.01	0.079
	ID01 CUB/HPM Acid Scrubbers	2				1.07
SO _x	ID01 WWTP Acid Scrubbers	2				0.20
	ID01 CVD Process IWS Scrubbers	10	0	0%	0.00	0.00
	ID01 Process Acid Scrubbers	36	25.32	0%	1.06	0.03
CO	ID01 CVD Process IWS Scrubbers	10	0	0%	0.00	0.00
	ID01 Process Acid Scrubbers	36	8.76	0%	0.37	0.01
NO _x	ID01 CVD Process IWS Scrubbers	10	183.86	0%	7.66	0.77
	ID01 Process Acid Scrubbers	36	52.2	0%	2.18	0.06
	ID01 CVD Process IWS Scrubbers	10	155.62	98%	0.13	0.01
HCl	ID01 Process Acid Scrubbers	36	146.76	98%	0.12	0.00
	ID01 CVD Process IWS Scrubbers	10	819.84	98%	0.68	0.07
HF	ID01 Process Acid Scrubbers	36	1857.91	98%	1.55	0.04
	ID01 CVD Process IWS Scrubbers	10	0	0%	0.00	0.00
Cl ₂	ID01 CVD Process IWS Scrubbers	10	0	0%	0.00	0.00
	ID01 Process Acid Scrubbers	36	1.02	0%	0.04	0.00

1. Particulate emissions from the Process Scrubbers (ID01 CVD Process IWS and ID01 Process Acid) are based on the amount and type of chemicals routed to the scrubbers. Current chemical usage data for ID01 is not complete. Only the chemicals used in large quantities are included in the estimates. Other chemicals used in smaller amounts are unaccounted for in the ID01 chemical usage estimations. To estimate total PM emissions due to chemical usage, the ratio of unaccounted chemicals to the total chemical usage from Fab 4 historical data is used to estimate the missing portion of PM emissions. Additionally, it is assumed all HCl and HF may emit as particulate matter.

2. PM emission from CUB/HPM and WWTP Acid scrubbers scaled up from existing scrubber 39FS. Scrubbers will be similar, so emissions from 39FS are scaled up based on scrubber flow rates

39FS Characteristics

Flow Rate (scfm)	7500
PM Emissions (tpy)	0.412

3. Annual operating hours 8760

Table 9-5. Acid Scrubber Criteria and Chemical Usage HAPs emissions - Including POU's

Equip ID ⁶	Description	Operating Status	Installation Status ⁵	PM ₁₀		PM _{2.5}		SO ₂		CO		NO _x		EXHAUST NO _x /NO _x Ratio ²	NO ₂	
				lb/hr ³	tpy ⁴	lb/hr ³	tpy ⁴	lb/hr ³	tpy ⁴	lb/hr ³	tpy ⁴	lb/hr ³	tpy ⁴		lb/hr ³	tpy ⁴
ID1AE01	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE02	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE03	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE04	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE05	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE06	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE07	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE08	ID01 Process Acid Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1AE09	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE10	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE11	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE12	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE13	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE14	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE15	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE16	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE17	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE18	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE19	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE20	ID01 Process Acid Scrubbers	Redundant	Future	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1AE21	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE22	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE23	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE24	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE25	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE26	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE27	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE28	ID01 Process Acid Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1AE29	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE30	ID01 Process Acid Scrubbers	Active	Project	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE31	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE32	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE33	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE34	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE35	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE36	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE37	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE38	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE39	ID01 Process Acid Scrubbers	Active	Future	0.09	0.38	0.09	0.38	0.03	0.15	0.06	0.26	0.12	0.55	50%	0.06	0.27
ID1AE40	ID01 Process Acid Scrubbers	Redundant	Future	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
HPMAE41	ID01 CUB/HPM Acid Scrubbers	Active	Project	1.18	5.18	1.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
HPMAE42	ID01 CUB/HPM Acid Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
HPMAE43	ID01 CUB/HPM Acid Scrubbers	Active	Project	1.18	5.18	1.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
HPMAE44	ID01 CUB/HPM Acid Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1CVD01	ID01 CVD Process IWS Scrubbers	Active	Project	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD02	ID01 CVD Process IWS Scrubbers	Active	Project	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD03	ID01 CVD Process IWS Scrubbers	Active	Project	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD04	ID01 CVD Process IWS Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1CVD05	ID01 CVD Process IWS Scrubbers	Active	Future	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD06	ID01 CVD Process IWS Scrubbers	Active	Future	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD07	ID01 CVD Process IWS Scrubbers	Redundant	Future	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1CVD08	ID01 CVD Process IWS Scrubbers	Active	Project	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD09	ID01 CVD Process IWS Scrubbers	Active	Project	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD10	ID01 CVD Process IWS Scrubbers	Active	Project	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD11	ID01 CVD Process IWS Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
ID1CVD12	ID01 CVD Process IWS Scrubbers	Active	Future	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD13	ID01 CVD Process IWS Scrubbers	Active	Future	0.49	2.17	0.49	2.17	0.02	0.10	0.85	3.71	1.85	8.10	50%	0.92	4.05
ID1CVD14	ID01 CVD Process IWS Scrubbers	Redundant	Future	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
WWTAE45	ID01 WWTP Acid Scrubbers	Active	Project	0.22	0.96	0.22	0.96	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
WWTAE46	ID01 WWTP Acid Scrubbers	Active	Project	0.22	0.96	0.22	0.96	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
WWTAE47	ID01 WWTP Acid Scrubbers	Redundant	Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50%	0.00	0.00
B28FS01	Water Treatment Acid Scrubber	Active	Project	0.04	0.15	0.04	0.15	0.24	1.05	0.25	1.10	0.00	0.00	50%	0.00	0.00

1. Emissions based on emission factors from Table 9-4 above and additional natural gas emission from the POU units in Table 9-2 above. POU emissions for each scrubber type are split evenly between associated scrubbers.

2. 50% default NO₂/NO_x ratio used in air dispersion modeling due to lack of scrubber unit-specific data.

3. Hourly emissions have safety factor of 10%.

4. Annual emissions based on

8760 hr/yr

5. This permitting action is only for phases 1 and 2 of the facility expansion as the design of phases 3 and 4 is subject to change and phases 3 and 4 will not commence construction until after the expiration of the facility's permit. Phases 3 and 4, noted as "Future" units, will be included in a future permitting action. Emissions from all phases are calculated to incorporate into a modeling analysis of the full expansion. However, the project emissions only 1

6. B28FS01 is not part of the ID01 expansion, but will be constructed concurrently. It will be identical to existing scrubber B22FS02, so the PTE is set equal to B22FS02 PTE in the permits SOB Table D-4.2 and Table D-4.5.

Table 9-6. Acid Scrubber Chemical Usage and POU Combustion HAPs/TAPs

Pollutant	HAP?	585 TAP?	586 TAP?	Total POU Emissions (tpy)		Project HAP PTE ¹		Project TAP PTE ²	
				HAP	TAP	lb/hr	tpy ²	lb/hr	tpy ²
Benzene	Yes	No	Yes	1.12E-03	1.12E-03	2.59E-04	1.12E-03	2.59E-04	1.12E-03
Formaldehyde	Yes	No	Yes	4.00E-02	4.00E-02	9.13E-03	4.00E-02	9.13E-03	4.00E-02
Toluene	Yes	Yes	No	1.81E-03	1.81E-03	4.14E-04	1.81E-03	4.14E-04	1.81E-03
2-Methylnaphthalene	Yes	No	Yes	1.28E-05	1.28E-05	2.92E-06	1.28E-05	2.92E-06	1.28E-05
3-Methylchloranthrene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
7,12-Dimethylbenz(a)anthracene	Yes	No	Yes	8.53E-06	8.53E-06	1.95E-06	8.53E-06	1.95E-06	8.53E-06
Acenaphthylene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Benzo(b)pyrene	Yes	No	Yes	6.40E-07	6.40E-07	1.46E-07	6.40E-07	1.46E-07	6.40E-07
Benzo(k)fluoranthene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Benzo(c)fluoranthene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Dibenzo(a,h)anthracene	Yes	No	Yes	6.40E-07	6.40E-07	1.46E-07	6.40E-07	1.46E-07	6.40E-07
Dichlorobenzene	Yes	Yes	No	6.40E-04	6.40E-04	1.46E-04	6.40E-04	1.46E-04	6.40E-04
Hexane	Yes	Yes	No	9.59E-01	9.59E-01	2.19E-01	9.59E-01	2.19E-01	9.59E-01
Naphthalene	Yes	Yes	No	3.25E-04	3.25E-04	7.42E-05	3.25E-04	7.42E-05	3.25E-04
Acenaphthene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Anthracene	Yes	No	Yes	1.28E-06	1.28E-06	2.92E-07	1.28E-06	2.92E-07	1.28E-06
Benzo(a)anthracene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Benzo(g,h,i)perylene	Yes	No	Yes	6.40E-07	6.40E-07	1.46E-07	6.40E-07	1.46E-07	6.40E-07
Chrysene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Fluoranthene	Yes	No	Yes	1.60E-06	1.60E-06	3.65E-07	1.60E-06	3.65E-07	1.60E-06
Fluorene	Yes	No	Yes	1.49E-06	1.49E-06	3.41E-07	1.49E-06	3.41E-07	1.49E-06
Indeno(1,2,3-cd)pyrene	Yes	No	Yes	9.59E-07	9.59E-07	2.19E-07	9.59E-07	2.19E-07	9.59E-07
Phenanthrene	Yes	No	Yes	9.06E-06	9.06E-06	2.07E-06	9.06E-06	2.07E-06	9.06E-06
Pentane	No	Yes	No	0.00E+00	1.39E+00	0.00E+00	0.00E+00	3.16E-01	1.39E+00
Pyrene	Yes	No	Yes	2.66E-06	2.66E-06	6.08E-07	2.66E-06	6.08E-07	2.66E-06
Arsenic	Yes	No	Yes	1.07E-04	1.07E-04	2.43E-05	1.07E-04	2.43E-05	1.07E-04
Barium	No	Yes	No	0.00E+00	2.34E-03	0.00E+00	0.00E+00	5.35E-04	2.34E-03
Beryllium	Yes	No	Yes	6.40E-06	6.40E-06	1.46E-06	6.40E-06	1.46E-06	6.40E-06
Cadmium	Yes	No	Yes	5.86E-04	5.86E-04	1.34E-04	5.86E-04	1.34E-04	5.86E-04
Chromium	Yes	Yes	No	7.46E-04	7.46E-04	1.70E-04	7.46E-04	1.70E-04	7.46E-04
Cobalt	Yes	Yes	No	4.48E-05	4.48E-05	1.02E-05	4.48E-05	1.02E-05	4.48E-05
Copper	No	Yes	No	0.00E+00	4.53E-04	0.00E+00	0.00E+00	1.03E-04	4.53E-04
Lead	Yes	No	No	2.66E-04	0.00E+00	6.08E-05	2.66E-04	0.00E+00	0.00E+00
Manganese	Yes	Yes	No	2.03E-04	2.03E-04	4.62E-05	2.03E-04	4.62E-05	2.03E-04
Mercury	Yes	No	No	1.39E-04	0.00E+00	3.16E-05	1.39E-04	0.00E+00	0.00E+00
Molybdenum	No	Yes	No	0.00E+00	5.86E-04	0.00E+00	0.00E+00	1.34E-04	5.86E-04
Nickel	Yes	No	Yes	1.12E-03	1.12E-03	2.59E-04	1.12E-03	2.59E-04	1.12E-03
Selenium	Yes	Yes	No	1.28E-05	1.28E-05	2.92E-06	1.28E-05	2.92E-06	1.28E-05
Vanadium	No	Yes	No	0.00E+00	1.23E-03	0.00E+00	0.00E+00	2.80E-04	1.23E-03
7-PAH	Yes	No	Yes	6.08E-06	6.08E-06	1.39E-06	6.08E-06	1.39E-06	6.08E-06
POM	Yes	No	Yes	4.70E-05	4.70E-05	1.07E-05	4.70E-05	1.07E-05	4.70E-05
Hydrogen Chloride	Yes	Yes	No	0.00E+00	0.00E+00	2.77E-01	1.21E+00	2.77E-01	1.21E+00
Hydrogen Fluoride	Yes	No	No	0.00E+00	0.00E+00	2.45E+00	1.08E+01	0.00E+00	0.00E+00
Chlorine	Yes	Yes	No	0.00E+00	0.00E+00	4.68E-02	2.05E-01	4.68E-02	2.05E-01

1. Project HAP and TAP Emissions are the sum of POU HAP/TAP emissions and the Chemical Usage Emissions for HCl, HF, and O2 in Table 9-5 above.

2. Annual operating hours

Table 10-1. VOC Scrubbers Natural Gas Combustion Emission Factors

Pollutant	Emission Factors (lb)/MMBtu ¹	Corrected Emission Factors (lb)/MMBtu ²
PM ₁₀	7.6	7.74
PM _{2.5}	7.6	7.74
SO _x	0.26	0.24
CO	84	85.52
NO _x	100	100.00
Lead	0.0005	0.00
VOC	5.2	5.00

¹ Other pollutant emission factors are from AP-42, Section 1.4, Tables 1.1 and 1.4.2. Conversion factors conversion for actual heating value from standard of 1025 BTU/lb.
Heat Content of Fuel =

² 1038.46 BTU/lb³. Average value from Informational Gas Billing records (2012-01-31 through 2019-04-17).

Table 10-2. VOC Usage and Destruction Efficiency in VOC Scrubbers

Pollutant	Number of Active Scrubbers	Daily Usage (lbs)	Fraction to Solvent	VOC To SW	VOC To abatement	Not Emitted ²	VOC Hourly Emissions	VOC Hourly Emissions per
			(lb/lb)	(lb/day)	(lb/day)	(%)	(lb/hr)	(lb/hr/scrub)
BSL	35	10027	0.30	3008	3215	99%	4.11	0.11
Other VOCs		2583	0.659	4920	2644	99%	1.10	0.03
Non-halogenated		4409				74%	15.27	0.48
STL/SLP		2333	0.62	1472	727	99%	0.32	0.04
							Total Abatement	0.14

¹ Fraction sent to solvent waste is based on P&ID waste data.
² For pollutants equal to or greater than the percent not emitted is based on the destruction and removal efficiency of the scrubbers. The percentage not emitted for non-abated pollutants is the percent of pollutants which are not volatile and do not emit.
³ These emissions include a safety factor of 10%.

Table 10-3. FGD Combustion Emissions Routed to ID01 Process VOC Scrubbers

Scrubbers ¹	PM ₁₀		PM _{2.5}		SO _x		CO		NO _x		VOC		Lead		Cd _e	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ID01 Process VOC Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

¹ Combustion exhaust gas is routed to the ID01 Process VOC Scrubbers from small scrubbers at the ports of gas (FGD) of individual units. This includes PM₁₀ and GSD abatement units. The natural gas composition from these FGDs is tabulated in Table 8-5 based on the maximum natural gas usage of the FGDs.
² Annual Emissions based on operation 8700 hr/yr

Table 10-5. VOC Scrubbers Criteria Pollutant Emissions - Including POUs

Equip ID#	Description	Operating Status	Installation Status ¹	Natural Gas Flow (SCFH)	Burner Rating ² (MMBtu/hr)	VOC Gas Combustion Factor ³	PM ₁₀		PM _{2.5}		SO ₂		CO		NO _x		Lead		VOC ⁴		Process VOC Out ⁵		Emission NO _x /NO ₂ Ratio ⁶				
							lb/hr	tpy ⁷	lb/hr	tpy ⁷	lb/hr	tpy ⁷	lb/hr	tpy ⁷	lb/hr	tpy ⁷	lb/hr	tpy ⁷	lb/hr	tpy ⁷	lb/hr	tpy ⁷		lb/hr	tpy ⁷	lb/hr	tpy ⁷
							1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19		0.85	0.48	2.10	50%
RVUC001	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC002	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC003	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC004	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC005	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC006	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC007	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC008	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC009	RV01 Process VOC Scrubbers	Redundant	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC010	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC011	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC012	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC013	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC014	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC015	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC016	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC017	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC018	RV01 Process VOC Scrubbers	Redundant	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC019	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC020	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC021	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC022	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC023	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC024	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC025	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC026	RV01 Process VOC Scrubbers	Redundant	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC027	RV01 Process VOC Scrubbers	Active	Project	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC028	RV01 Process VOC Scrubbers	Redundant	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC029	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC030	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC031	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC032	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC033	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC034	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC035	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
RVUC036	RV01 Process VOC Scrubbers	Active	Future	1.204	1.25	162%	0.02	0.07	0.02	0.07	0.00	0.01	0.19	0.82	0.22	0.57	1.11E-06	4.85E-06	0.19	0.85	0.48	2.10	50%				
HMHV017	RV01 CIL/EMM VOC Scrubbers	Active	Project	867	0.00	147%	0.01	0.04	0.01	0.04	0.00	0.00	0.11	0.48	0.13	0.57	4.47E-07	2.83E-06	0.19	0.82	0.48	2.10	50%				
HMHV018	RV01 CIL/EMM VOC Scrubbers	Redundant	Project	867	0.00	147%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	50%				
HMHV019	RV01 CIL/EMM VOC Scrubbers	Active	Project	867	0.00	147%	0.01	0.04	0.01	0.04	0.00	0.00	0.11	0.48	0.13	0.57	4.47E-07	2.83E-06	0.19	0.82	0.48	2.10	50%				
HMHV020	RV01 CIL/EMM VOC Scrubbers	Redundant	Project	867	0.00	147%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	50%				
WMVUC-41	RV01 WMVTP VOC Scrubber	Active	Project	3,000	3.12	113%	0.03	0.12	0.03	0.12	0.00	0.01	0.29	1.28	0.35	1.52	1.78E-06	7.59E-06	0.20	0.80	0.48	2.10	50%				
WMVUC-42	RV01 WMVTP VOC Scrubber	Redundant	Project	3,000	3.12	113%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	50%				

1. Base Condition of Fuel = **1208.45588 BTU/lb** - Average value from Drummanium Gas Selling Invoice (2013-03-31 through 2019-04-15)
 2. Included to account for pollutants generated from combustion of process VOCs during manufacturing. Additional VOC mass flow from manufacturing is calculated in Table 10-5.
 3. Natural and Non-natural VOCs treated by the scrubbers are calculated in Table 10-2 based on chemical usage data and the destruction efficiency of the VOC scrubbers.
 4. 50% default NO_x/NO₂ ratio used in an emissions modeling due to lack of VOC unit-specific data.
 5. Annual operating hours = 8760 hours
 6. Note that WMV VOC scrubbers are no longer included in the design of the EDO expansion and are therefore not included in the application or emissions inventory. These items have not been removed from the model to conservatively show that with the additional scrubbers, this project does not violate any MAQDL.

Table 10-7. Natural Gas Combustion SO₂ Emission Factors

Pollutant	Emission Factor (lb/MMBtu) ¹	Corrected Emission Factor (lb/MMBtu) ²
CO	122172	
SO ₂	3.14	
NO _x	3.28	

1. CO₂, SO₂ and O₂ emission factors are from EPA-402, Section 1.4, Table 1.1-2. Emission factors corrected for actual heating value from standard of 1020 BTU/LB.

Table 10-8. VOC Scrubbers Exhaust Gas Emissions - Including FDUU

Equip ID	Munters Model	Operating Status	Installation Status	Natural Gas Flow (scfh)	Burner Rating ¹ (MMBtu/hr)	CO ₂		CO		NO _x		CO ₂ ^{2,3}	
						lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EVV001	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV002	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV003	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV004	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV005	J601 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV006	J601 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV007	J601 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV008	J601 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV009	J601 Process VOC Scrubbers	Redundant	Project	1204	1.25	0	0	0.00	0.00E+00	0.00	0.00E+00	0	0
EVV010	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV011	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV012	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV013	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV014	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV015	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV016	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV017	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV018	ES1 Process VOC Scrubbers	Redundant	Future	1204	1.25	0	0	0.00	0.00E+00	0.00	0.00E+00	0	0
EVV019	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV020	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV021	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV022	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV023	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV024	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV025	ES1 Process VOC Scrubbers	Active	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV026	ES1 Process VOC Scrubbers	Redundant	Project	1204	1.25	147	644	0.00	0.00E+00	0.00	0.00E+00	0	0
EVV027	ES1 Process VOC Scrubbers	Project	Project	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV028	ES1 Process VOC Scrubbers	Redundant	Future	1204	1.25	0	0	0.00	0.00E+00	0.00	0.00E+00	0	0
EVV029	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV030	J601 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV031	J601 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV032	J601 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV033	J601 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV034	J601 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV035	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
EVV036	ES1 Process VOC Scrubbers	Active	Future	1204	1.25	147	644	0.00	1.23E-02	0.00	1.18E-02	176	369
HMV017	ES1 CUBMPP VOC Scrubbers	Active	Project	887	0.90	106	464	0.00	8.89E-03	0.00	8.50E-03	107	467
HMV018	ES1 CUBMPP VOC Scrubbers	Redundant	Project	887	0.90	0	0	0.00	0.00E+00	0.00	0.00E+00	0	0
HMV019	ES1 CUBMPP VOC Scrubbers	Active	Project	887	0.90	106	464	0.00	8.89E-03	0.00	8.50E-03	107	467
HMV020	ES1 CUBMPP VOC Scrubbers	Redundant	Project	887	0.90	0	0	0.00	0.00E+00	0.00	0.00E+00	0	0
WMTV04	ES1 WMTF VOC Scrubber	Active	Project	3009	3.12	367	1605	0.01	3.19E-02	0.01	2.98E-02	369	1815
WMTV04	ES1 WMTF VOC Scrubber	Redundant	Project	3009	3.12	0	0	0.00	0.00E+00	0.00	0.00E+00	0	0

¹ Heat Content of Fuel = 1039.45 Btu/lb¹ - Average value from SteamGeneration Gas Billing records (2012-01-31 through 2019-04-17).

² CO₂ arises from a Global Warming Potential per Table A-1 to Subpart 4 of 40 CFR Part 98. CO₂ = 1.04 × 25.8 × 2.08 = 54.4.

³ CO₂ emissions added to the CO₂ calculation by dividing the total FDUU emissions added to the Process VOC Scrubbers, and dividing by the number of active Process VOC Scrubbers.

⁴ Note that WMTF VOC scrubbers are no longer included in the design of the EDCO expansion and are therefore not included in the application or emissions inventory. These items have not been removed from the model to conservatively show that with the additional combustion, this project does not violate any MAQDs.

Table 10-9. VOC Scrubber HAP/TAP Emissions of Active Units - Including FDUU

Pollutant	Emission Factor		HAP	SBS TAP ¹	SBS TAP ¹	PM Emissions (tpy)		Project HAP PTE		Project YAP PTE	
	(lb/MMscf)	Corrected Emission Factor (lb/MMscf)				HAP	TAP	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
Benzene	2.49E-03	2.49E-03	Yes	No	Yes	5.79E-06	5.79E-06	4.39E-04	4.39E-04	4.72E-04	4.72E-04
Bromobenzene	1.85E-03	1.85E-03	Yes	No	Yes	2.61E-05	2.61E-05	1.99E-06	1.99E-06	1.65E-06	1.65E-06
Toluene	3.49E-03	3.49E-03	Yes	Yes	No	1.69E-04	1.69E-04	1.79E-04	7.63E-04	1.72E-04	7.63E-04
1,2-Dimethylbenzene	2.89E-03	2.89E-03	Yes	No	Yes	7.74E-07	7.74E-07	5.99E-06	1.22E-06	5.99E-06	1.22E-06
1,3-Dimethylbenzene	1.85E-03	1.85E-03	Yes	No	Yes	5.79E-06	5.79E-06	4.39E-07	8.23E-07	4.39E-07	8.23E-07
2,4-Dimethylbenzene	1.85E-03	1.85E-03	Yes	No	Yes	5.79E-07	5.79E-07	4.39E-07	8.23E-07	4.39E-07	8.23E-07
Arsenic	1.85E-06	1.85E-06	Yes	No	Yes	5.79E-08	5.79E-08	4.39E-07	8.23E-07	4.39E-07	8.23E-07
Benzofuran	1.85E-06	1.85E-06	Yes	No	Yes	5.79E-08	5.79E-08	4.39E-07	8.23E-07	4.39E-07	8.23E-07
Benzothiazole	1.85E-06	1.85E-06	Yes	No	Yes	5.79E-08	5.79E-08	4.39E-07	8.23E-07	4.39E-07	8.23E-07
Benzofuranthione	1.85E-06	1.85E-06	Yes	No	Yes	5.79E-08	5.79E-08	4.39E-07	8.23E-07	4.39E-07	8.23E-07
Benzothiazolethione	1.85E-06	1.85E-06	Yes	No	Yes	5.79E-08	5.79E-08	4.39E-07	8.23E-07	4.39E-07	8.23E-07
Chlorobenzene	2.20E-03	2.20E-03	Yes	Yes	No	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorobenzene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachlorocyclopentadiene	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05	4.16E-05	6.16E-05	4.16E-05	6.16E-05
Hexachloroethane	1.20E-03	1.20E-03	Yes	No	Yes	3.96E-05	3.96E-05				

Table 10-5. VOC Mass Flow Calculations

VOC Constituents	%	Mass of Fuel	Constituent Mass of Total VOC, lb/mol	Constituent Mass of Total VOC, lb/yr/acre-ft
Chloroform	35%	112.12	11.1305	1.23E-04
IPA	25%	80.1	15.826	1.76E-04
Ethyl acetate	22%	68.13	20.2613	2.27E-04
PCMB	2%	12.159	2.64318	2.17E-05
MEP	2%	56.1	1.897	1.99E-05
Cyclohexanone	4%	84.12	3.3689	2.73E-05
HMDS	1%	16.126	1.6126	1.33E-05
VOC	1%	22.12	0.2212	8.15E-06
Total VOC Mass (lb/yr/acre-ft) =				2.48E-04

1. Mass of Total VOCs calculated using the following values:
 Exhaust Density = 4.94 x 10³ lb/m³ 0.15 gpm 0.007 gpm/ft³ 27.3 L/gpm

Inlet VOC Concentration:
 Conversion Factors: 1 90 gpm from manufacturer specifications ppmv/(M/LbM)
 43.6 g/lb
 35.2 lb/yr/3

Equip ID	Max Process Flow (gpm)	Process VOC to Redesign Heating Value ¹			
		Monomers Oxidizer VOC Load (lb/hr)	Net Gas Equivalent (MMBTU/hr)	Butane Equivalent (MMBTU/hr)	% of Oxidizer Duty
EWVOC01	5000	17.10	0.76	0.76	62%
EWVOC02	5000	17.10	0.76	0.76	62%
EWVOC03	5000	17.10	0.76	0.76	62%
EWVOC04	5000	17.10	0.76	0.76	62%
EWVOC05	5000	17.10	0.76	0.76	62%
EWVOC06	5000	17.10	0.76	0.76	62%
EWVOC07	5000	17.10	0.76	0.76	62%
EWVOC08	5000	17.10	0.76	0.76	62%
EWVOC09	5000	17.10	0.76	0.76	62%
EWVOC10	5000	17.10	0.76	0.76	62%
EWVOC11	5000	17.10	0.76	0.76	62%
EWVOC12	5000	17.10	0.76	0.76	62%
EWVOC13	5000	17.10	0.76	0.76	62%
EWVOC14	5000	17.10	0.76	0.76	62%
EWVOC15	5000	17.10	0.76	0.76	62%
EWVOC16	5000	17.10	0.76	0.76	62%
EWVOC17	5000	17.10	0.76	0.76	62%
EWVOC18	5000	17.10	0.76	0.76	62%
EWVOC19	5000	17.10	0.76	0.76	62%
EWVOC20	5000	17.10	0.76	0.76	62%
EWVOC21	5000	17.10	0.76	0.76	62%
EWVOC22	5000	17.10	0.76	0.76	62%
EWVOC23	5000	17.10	0.76	0.76	62%
EWVOC24	5000	17.10	0.76	0.76	62%
EWVOC25	5000	17.10	0.76	0.76	62%
EWVOC26	5000	17.10	0.76	0.76	62%
EWVOC27	5000	17.10	0.76	0.76	62%
EWVOC28	5000	17.10	0.76	0.76	62%
EWVOC29	5000	17.10	0.76	0.76	62%
EWVOC30	5000	17.10	0.76	0.76	62%
EWVOC31	5000	17.10	0.76	0.76	62%
EWVOC32	5000	17.10	0.76	0.76	62%
EWVOC33	5000	17.10	0.76	0.76	62%
EWVOC34	5000	17.10	0.76	0.76	62%
EWVOC35	5000	17.10	0.76	0.76	62%
EWVOC36	5000	17.10	0.76	0.76	62%
EWVOC37	2300	20.09	0.41	0.42	47%
EWVOC38	2300	20.09	0.41	0.42	47%
EWVOC39	2300	20.09	0.41	0.42	47%
EWVOC40	2300	20.09	0.41	0.42	47%
EWVOC41	2300	20.09	0.41	0.42	47%
EWVOC42	2300	20.09	0.41	0.42	47%

¹ Heating equivalents calculated using the following values:

	Molecular weight (lb/lb-mol)	Heating Value (MMBTU/lb)
Natural Gas:	19	100
Butane:	58.12	100
Total Gas:	37.3	100

CT 42B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 42C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 42D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 43A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 43B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 43C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 43D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 44A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 44B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 44C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 44D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 45A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 45B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 45C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 45D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 46A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 46B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 46C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 46D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 47A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 47B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 47C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 47D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 48A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 48B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 48C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 48D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 49A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 49B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 49C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 49D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 50A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 50B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 50C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 50D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 51A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 51B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 51C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 51D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 52A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 52B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 52C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 52D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 53A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 53B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 53C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 53D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 54A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 54B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 54C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 54D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 55A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 55B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 55C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 55D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 56A	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 56B	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 56C	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 56D	CUB Cooling Tower	0.0020%	2,500	0.019	0.0822	0.014	0.0609	0.000136	0.0006
CT 57A	Gas Yard Cooling Tower	0.0005%	14,500	0.027	0.1192	0.023	0.1009	0.000112	0.0005
CT 57B	Gas Yard Cooling Tower	0.0005%	14,500	0.027	0.1192	0.023	0.1009	0.000112	0.0005
CT 57C	Gas Yard Cooling Tower	0.0005%	14,500	0.027	0.1192	0.023	0.1009	0.000112	0.0005
CT 58A	Gas Yard Cooling Tower	0.0005%	14,500	0.027	0.1192	0.023	0.1009	0.000112	0.0005
CT 58B	Gas Yard Cooling Tower	0.0005%	14,500	0.027	0.1192	0.023	0.1009	0.000112	0.0005
CT 58C	Gas Yard Cooling Tower	0.0005%	14,500	0.027	0.1192	0.023	0.1009	0.000112	0.0005

1. The drift loss and flow rate for each new cooling tower is based on manufacturer's specifications.

2. Estimated Solids in Cooling Water, TDS = 750 ppm

Water Density = 8.34 lb/gal

3. The percentage of PM10 and PM2.5 emissions of TDS is based on cooling tower data compiled by Environmental Canada: <https://www.canada.ca/en/environment-climate-change/services/national-pollutant-release-inventory/report/sector-specific-tools-calculate-emissions/wet-cooling-tower-particulate-guide.html>

% of PM Emissions based on Drift and 750 ppm TDS in Circulating Water

Drift	PM ₁₀	PM _{2.5}
0.01%	24.12%	1.09%
0.002%	74.11%	0.72%
0.005%	55.36%	0.86%
0.0005%	84.66%	0.41%
0.0003%	85.96%	0.39%

* Bold values were interpolated from calculated data.

Induced Draft Cooling Tower PM Emissions

The purpose of this spreadsheet is to determine the annual TPM emissions, as well as the PM10 and PM2.5 fractions of TPM from the pertinent drift data tables (see Tables 1, 2, and 3 below).

Instructions: Enter in the yellow cells the appropriate number. Results are shown in blue cells in the three drift data tables below for the PM10 and PM2.5 fractions, and in red cells in row 16 for the TPM emissions.

Use one of the tables below that is the most representative of your cooling tower drift rate for the resulted percentage values of PM10 and PM2.5 in TPM. Multiply these percentages by the TPM value in row 16 for the respective calculations of PM10 and PM2.5 emissions (see the calculation example in the guide).

Substance	Circulating Water (m ³ /hr)	Emission Rate (g/hr)	Annual Operation Period (hr)	Emission Quantity	Unit
TPM		0.00	8760	0.00	tonnes
Drift, % of water flow	0.0005	0.02%	0.001%	AP-42, > 20 year old towers	
		0.0005%		standard new tower (source: www.ctdepotinc.com)	
				new tower, best demister (source:www.ctdepotinc.com)	
TDS, ppmw:	750	33,000		sea water	
		12,000		AP-42, high dissolved solids	
		3,000		Great Lakes water * concentration factor ~10	
DS Sp. Gr. :		2.2		Specific gravity of NaCl	

Table 1 - Drift Data From Old Wood Herringbone Mist Eliminators (0.01% WF)

CTI 0.01% drift data			Particulate emissions		
Droplet Ø (µm)	Fraction % smaller	Calculated residue Ø (µm)	TPM mg/m ³ H ₂ O	PM-10 mg/m ³ H ₂ O	PM2.5 mg/m ³ H ₂ O
15	0.15	1.05	0.56		
25	0.29	1.75	1.09		
35	0.99	2.45	3.71		4.08
45	2.22	3.14	8.33		
55	3.79	3.84	14.21		
65	5.54	4.54	20.78		
80	9.25	5.59	34.69		
100	13.52	6.99	50.70		
120	18.15	8.38	68.06		
140	22.97	9.78	86.14	90.43	
165	32.07	11.53	120.26		
195	42.56	13.62	159.60		
225	53.43	15.72	200.36		
255	63.24	17.81	237.15		
285	71.38	19.91	267.68		
325	80.88	22.70	303.30		
375	87.36	26.20	327.60		
425	90.89	29.69	340.84		
475	94.04	33.18	352.65		
550	97.54	38.42	365.78		
650	99.52	45.41	373.20		
750	99.52	52.39	373.20		
850	99.52	59.38	373.20		
950	100.00	66.36	375.00		
mg/m ³ H ₂ O			375.00	90.43	4.08
%			100.0%	24.1%	1.1%

source: J. Missimer, D. Wheeler, and K. Hennon, The relationship between SP and HGBIK Drift Measurement Results, CTI paper TP98-16, 1998

**Table 2 - Interpolated Drift Data for the Intermediate Drift Eliminators (0.005% WF)
Representing the Averages of Table 1 and Table 3**

Interpolated data, 0.005% water flow			Particulate emissions		
Droplet Ø (µm)	Fraction % smaller	Calculated residue Ø (µm)	TPM mg/m ³ H ₂ O	PM-10 mg/m ³ H ₂ O	PM2.5 mg/m ³ H ₂ O
13	0.08	0.87	0.28		
23	0.24	1.57	0.91		
33	0.61	2.27	2.28		3.22
43	1.37	2.97	5.13		
53	2.80	3.67	10.51		
63	5.62	4.37	21.08		
75	15.30	5.24	57.37		
95	31.67	6.64	118.75		
115	44.33	8.03	166.24		
135	52.50	9.43	196.86	207.11	
158	60.04	11.00	225.15		
188	66.80	13.10	250.49		
218	72.95	15.19	273.56		
248	78.67	17.29	295.00		
278	83.03	19.39	311.38		
313	88.58	21.83	332.19		
363	92.19	25.32	345.70		
413	94.62	28.82	354.81		
463	96.56	32.31	362.08		
525	98.31	36.68	368.65		
625	99.76	43.66	374.10		
mg/m ³ H ₂ O			374.10	207.11	3.22
%			100.0%	55.4%	0.86%

Table 3 - Drift Data From New Cellular Drift Eliminators (0.0003% WF)

EPRI 0.0003% drift data			Particulate emissions		
Droplet Ø (µm)	Fraction % smaller	Calculated residue Ø (µm)	TPM mg/m ³ H ₂ O	PM-10 mg/m ³ H ₂ O	PM2.5 mg/m ³ H ₂ O
10	0.00	0.70	0.00		
20	0.20	1.40	0.74		
30	0.23	2.10	0.85		1.47
40	0.51	2.79	1.93		
50	1.82	3.49	6.81		
60	5.70	4.19	21.38		
70	21.35	4.89	80.06		
90	49.81	6.29	186.80		
110	70.51	7.68	264.41		
130	82.02	9.08	307.59	322.35	
150	88.01	10.48	330.05		
180	91.03	12.57	341.37		
210	92.47	14.67	346.76		
240	94.09	16.77	352.84		
270	94.69	18.86	355.08		
300	96.29	20.96	361.08		
350	97.01	24.45	363.79		
400	98.34	27.94	368.78		
450	99.07	31.44	371.52		
500	99.07	34.93	371.52		
600	100.00	41.91	375.00		
mg/m ³ H ₂ O			375.00	322.35	1.47
%			100.0%	86.0%	0.4%

source: J. Reisman and G. Frisbie, *Calculating Realistic PM10 Emissions from Cooling Towers*
AWMA, Proceedings Florida Conference 2001, Session No. AM-1b

Table 13-1. Wastewater Treatment Gas Stream Characteristics

Stream Flow	130	Nm ³ /hr	
IPA	200	ppm	
IPA Mass (g/mol)	Total IPA (IPA g/mol)	IPA Emissions	
		(lb/hr)	(tpy)
60.1	0.01	0.12	0.55

1. Mass of Total VOCs calculated using the following values:

$$\text{Exhaust Density} = n/V = P/RT = \frac{0.9 \text{ atm}}{0.08206 \frac{\text{L}\cdot\text{atm}}{\text{gmol}\cdot\text{K}} \cdot 303.15 \text{ K}} = 0.036 \text{ gmol/L} \Rightarrow 27.6 \text{ L/gmol}$$

Conversion Factors: 1 pmv/(mL/m³)
 453.6 g/lb
 35.3 ft³/m³

**APPENDIX B WATER RESOURCES - JURISDICTIONAL DETERMINATION
FOR NORTH FORK OF FIVEMILE CREEK AND WATER RIGHTS**



DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
BOISE REGULATORY OFFICE
720 EAST PARK BOULEVARD, SUITE 245
BOISE, IDAHO 83704-9754

REPLY TO
ATTENTION OF

December 21, 2022

Regulatory Division

SUBJECT: NWW-2022-00483, Micron Technology, Inc., Approved Jurisdictional Determination, North Fork of Fivemile Creek.

Mr. Bob Hardgrove
HDR Engineering, Inc.
412 E. Parkcenter Blvd. Suite 100
Boise, Idaho 83706

Dear Mr. Hardgrove:

Enclosed is our Department of Army (DA) Approved Jurisdictional Determination (AJD) requested on Behalf of Micron Technology Inc., that there are no waters of the United States, including wetlands, within the proposed project area. Therefore, no DA authorization is required. This decision is based upon our review of the information you provided, additional information available to our office, and our September 8, 2022 site inspection. Your project site is located within Section 5, 7, 8, 9, 16, and 17 of Township 2 North, Range 3 East, near latitude 43.521° N and longitude -116.117° W, in Ada County, in Boise, Idaho. Your request has been assigned file number NWW-2022-00483, which should be referred to in future correspondence with our office regarding this site.

The DA exerts regulatory jurisdiction over waters of the United States (U.S.), including wetlands, pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Section 404 of the Clean Water Act requires a DA permit be obtained prior to discharging dredged or fill material into waters of the U.S., which includes most perennial and intermittent rivers and streams, natural and man-made lakes and ponds, irrigation and drainage canals and ditches that are tributaries to other waters, and wetlands. Section 10 requires that a DA permit be obtained prior to building structures or conducting work in or affecting navigable waters of the U.S.

The waters on the proposed project area, as shown on the attached map, *HDR, Aerial Map Figure 3*, are isolated, intrastate, non-navigable, wetlands and/or waters of the U.S. which have no connection to interstate or foreign commerce and were

determined to have no significant nexus to traditionally navigable waters of the U.S. Therefore, pursuant to federal guidance on the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* and the consolidated *Rapanos v. United States and Carabell v. United States* cases, the discharge of dredged and/or fill material into these non-regulated isolated waters will not require a DA permit. Please be advised, this jurisdictional determination does not establish any precedent with respect to any other jurisdictional determination under Section 404 of the Clean Water Act.

This approved JD is valid for a period of 5-years from the date of this letter, unless new information supporting a revision is provided to this office before the expiration date. Also enclosed, you will find the Approved Jurisdictional Determination Form addressing wetlands and waters of the U.S. located within the JD review area, and a *Notification of Administrative Appeals Options and Process and Request for Appeal Form* (RFA) regarding this DA Approved Jurisdictional Determination. Should you disagree with certain terms and/or conditions this Approved JD, the Notification of Administrative Appeal Options form outlines the steps to take to file your objection. Please note, the RFA form must be received by the Northwest Division Office no later than **February 19, 2023**.

Nothing in this letter shall be construed as excusing you from compliance with other Federal, state, or local statutes, ordinances or regulations which may affect this work.

If you have any questions about this determination, please contact me by telephone at (208) 433-4470, by mail at the address in the above letterhead, or via email at christen.m.griffith@usace.army.mil. We appreciate your cooperation with the Corps of Engineers' Regulatory Program.

Sincerely,



Christen Marve Griffith
Project Manager, Regulatory Division

Enclosures:

Wetland/Waters Delineation Map

Approved JD Form

Notification of Administrative Appeal Options and Request for Appeal Form

All portions of undeveloped Micron and Simplot parcels within the northern drainage, roughly depicted by the red polygon

Stream channel has become isolated by gravel mining operations

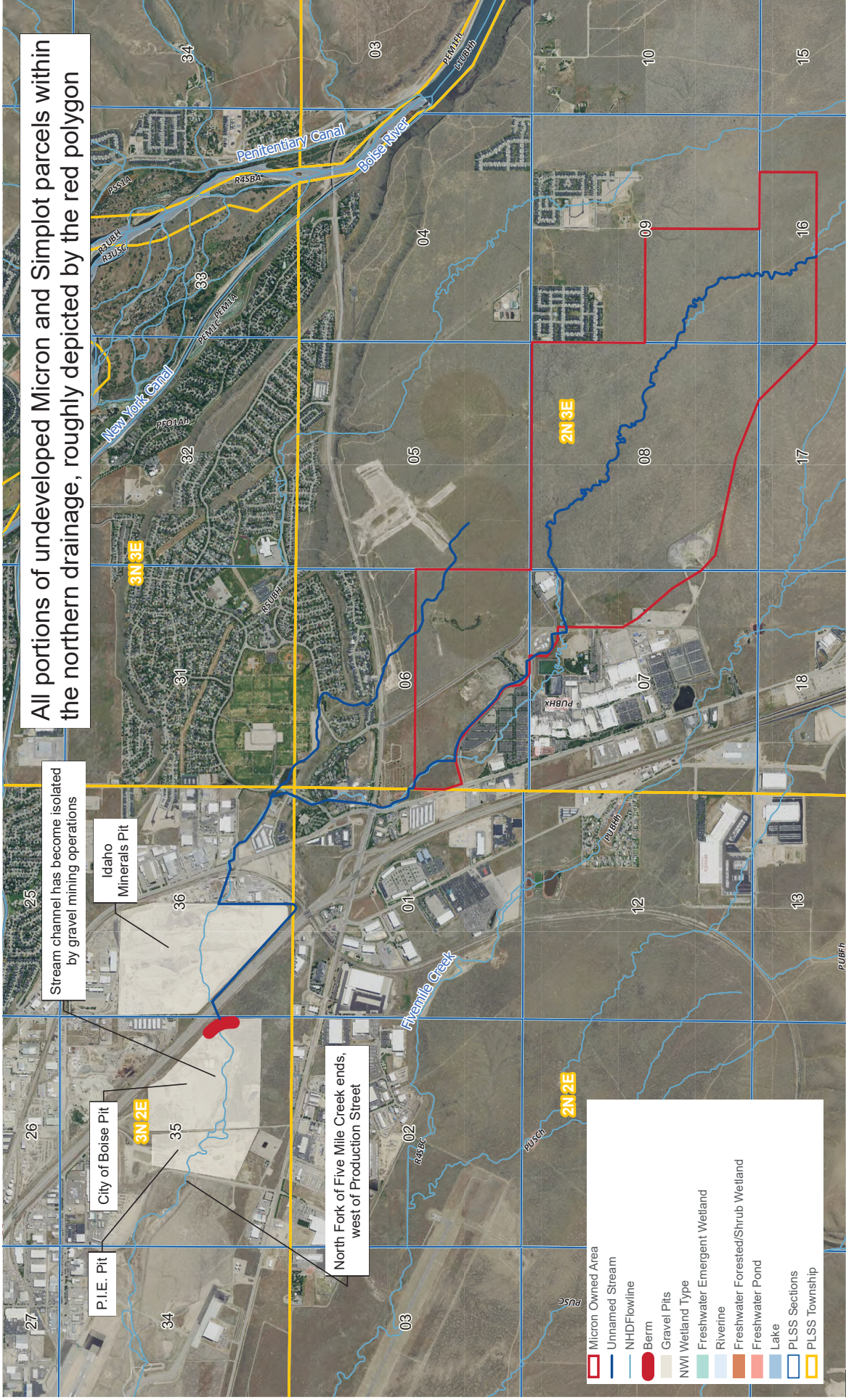
P.I.E. Pit

Idaho Minerals Pit

City of Boise Pit

North Fork of Five Mile Creek ends, west of Production Street

	Micron Owned Area
	Unnamed Stream
	NHDFlowline
	Berm
	Gravel Pits
	NWI Wetland Type
	Freshwater Emergent Wetland
	Freshwater Forested/Shrub Wetland
	Riverine
	Freshwater Pond
	Lake
	PLSS Sections
	PLSS Township



AERIAL MAP
Figure 3



0 1 mi



Existing Water Rights

Water Right Number	Priority Date	Status	Use	Source	Diversion Rate (cubic feet per second [cfs])	Annual Volume (acre-feet [af])	Points of Diversion	Remarks
Micron Water Rights								
63-8992	07/25/1977	Decree	Industrial, irrigation	Groundwater: Boise-Fan Aquifer	2.09	1,267.9	Micron Wells 4, 5, 6, 7, 8, and 9	6.09 cfs and 2,074.2 af in combination with 63-9029.
63-9029	09/09/1977	Decree	Industrial	Groundwater: Boise-Fan Aquifer	4	806.3	Micron Wells 4, 5, 6, 7, 8, and 9	6.09 cfs and 2,074.2 af in combination with 63-8992.
63-9357	03/12/1980	Decree	Fire protection, industrial	Groundwater: Boise-Fan Aquifer	0.60	362	Micron Wells 4, 5, 6, 7, 8, and 9	3.46 cfs and 2,432.5 af in combination with 63-10208 and 63-11293; 0.50 cfs industrial, 0.60 cfs fire. ¹
63-10208	11/22/1983	Decree	Domestic, industrial	Groundwater: Boise-Fan Aquifer	0.61	441.6	Micron Wells 4, 5, 6, 7, 8, and 9	3.46 cfs and 2,432.5 af in combination with 63-9357 and 63-11293; 0.61 cfs and 441.6 af industrial, 0.04 cfs and 28.9 af domestic. ²
63-11293	04/19/1990	Decree	Industrial	Groundwater: Boise-Fan Aquifer	2.25	1,628.9	Micron Wells 4, 5, 6, 7, 8, and 9	3.46 cfs and 2,432.5 af in combination with 63-9357 and 63-10208.
Total for Decreed Groundwater Rights					9.55	4,506.7		
63-10221	02/06/1984	License	Irrigation from storage, irrigation storage	Wastewater		4	Micron Lake ²	Source is plant wastewater, original permit was for small pond beneath B17.

Water Right Number	Priority Date	Status	Use	Source	Diversion Rate (cubic feet per second [cfs])	Annual Volume (acre-feet [af])	Points of Diversion	Remarks
63-12420	06/06/1997	License	Groundwater recharge, industrial	Boise River	5	402	Highway 21 pump station	"Floodwater" license, 5 cfs industrial and 3.34 cfs groundwater recharge.
63-31183	01/24/2001	License	Industrial, irrigation	Groundwater: Boise-Fan Aquifer	9.13	N/A	Micron Wells 4, 5, 6, 7, 8, and 9	License for out-of-priority recovery of recharged water; not to exceed 4,506.7 af in combination with decreed rights.
63-34614	09/13/2008	Permit	Groundwater recharge, industrial	Boise River	12	N/A	Highway 21 pump station	"Floodwater" permit, Groundwater recharge (up to 12 cfs) and industrial (up to 5.0 cfs) uses. Due to the junior-priority date of the water right, the right can be diverted only at times of flood control releases.
63-34615	09/13/2008	Permit	Industrial	Groundwater: Boise-Fan Aquifer	10	N/A	Micron Wells 4, 5, 6, 7, 8, and 9	Permit for out-of-priority recovery (water rights are curtailed) of recharged water.
Bureau of Reclamation Storage Water Contract								
63-3614	12/09/1940	Decree	Municipal, industrial	South Fork Boise River		1,500	Anderson Ranch Dam to Highway 21 pump station	3,000 af shared with John Richard (J.R.) Simplot Company.

Water Right Number	Priority Date	Status	Use	Source	Diversion Rate (cubic feet per second [cfs])	Annual Volume (acre-feet [af])	Points of Diversion	Remarks
Nampa and Meridian Irrigation District Annexation								
Various	Various	Decree	Irrigation, industrial, groundwater recharge	Boise River	26		Highway 21 pump station	1998 - Shared with J.R. Simplot Company (870 acres Micron, 430 acres Simplot); up to 5 cfs industrial and 16 cfs groundwater recharge at full delivery. 2000 - Increased to up to 5 cfs industrial and 16 cfs groundwater recharge at full delivery currently. 2023 - Micron annexed additional 400 acres. Adding 8 cfs (3 cfs industrial and 5 cfs groundwater recharge). New total is increased from 26 cfs to 34 cfs, with 8 cfs for industrial and 21 cfs for groundwater recharge, and 5 cfs for irrigation. ³

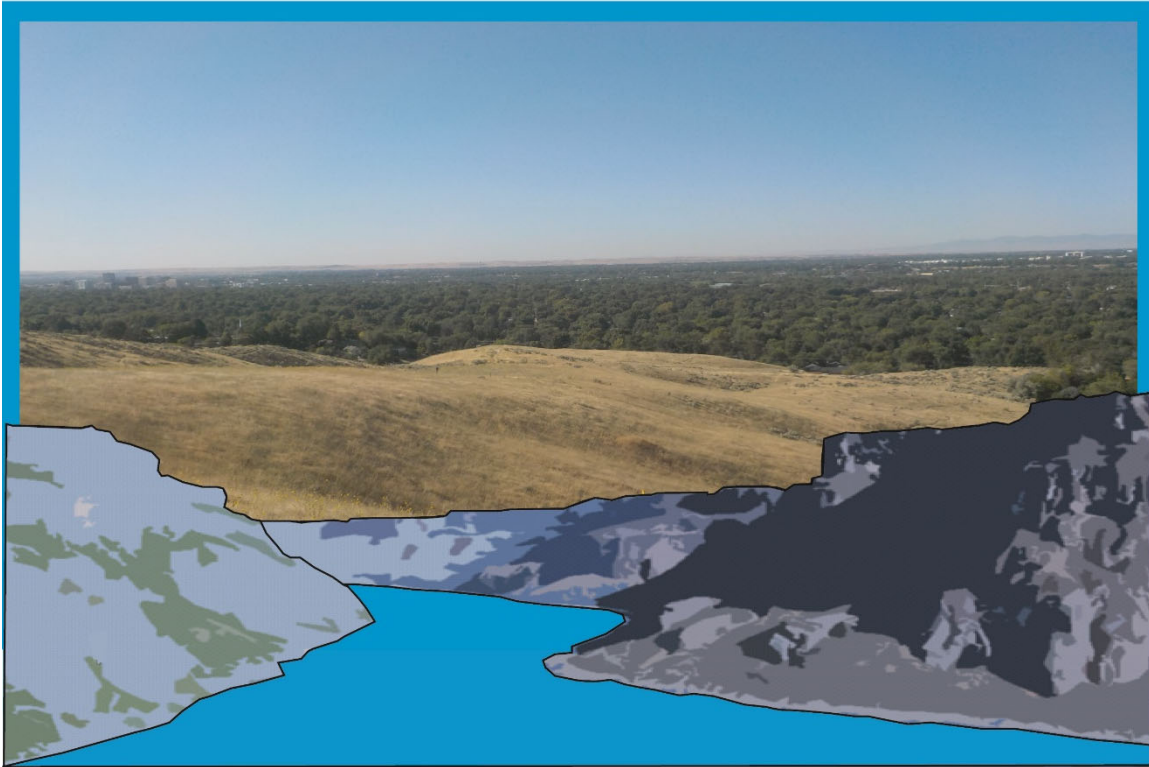
Source: 2022 Micron Water Master Plan (Micron Technology 2022)

- 1A. The total amount of the water right for both fire and industrial use combined is 1.1 cfs. If the diversion rate of 0.6 for fire is used for industrial use, the industrial amount would be reduced.
2. The total amount of the water right for both domestic and industrial use combined is 0.61 cfs and 441.6 af. If the diversion rate of 0.04 cfs and 28.9 af is used for domestic use, the industrial amount would be reduced by 0.04 cfs and 28.9 af.
3. Micron holds a 1984-priority water right license (63-10221) that allows for irrigation storage and irrigation from storage of 4 af annually from a process wastewater source. This water right was originally associated with the original process water pond that was located at the site of Building 17, and the storage use was subsequently moved to Micron Lake (the wastewater storage reservoir located at the current site of the ballfields and second lined lagoon). The water right is no longer in use.
4. Pending confirmation of approval from the Idaho Department of Water Resources

APPENDIX C CULTURAL RESOURCES

**PART 1 AN INTENSIVE CULTURAL RESOURCES INVENTORY FOR
THE MICRON BOISE EXPANSION PROJECT, ADA COUNTY, IDAHO**

An Intensive Cultural Resources Inventory for the Micron Boise Expansion Project, Ada County, Idaho



June 2023

By:

A. Craig Hauer, MA, RPA

ARH Archaeology and Architectural History, LLC.
4747 N. Glenwood Street, Building A, Suite 104
Garden City, Idaho 83714

ARH Project. No. 2023-004

Abstract

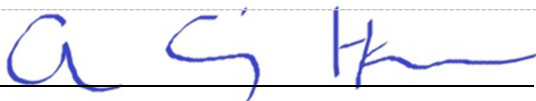
In March and April 2023, WSP USA (WSP) contracted ARH Archaeology and Architectural History (ARH) to complete an intensive cultural resources inventory at Micron Technology, Inc. (Micron) Boise headquarters campus south of Boise, Idaho. Micron is currently conducting site preparation activities to expand its Boise headquarters campus to construct a new semiconductor fabrication facility. The inventory was completed to fulfill anticipated obligations under Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended due and potential federal funding under the United States Chips and Science Act. An inventory area of 990.26 acres (ac.) was identified prior to the inventory. At the time of the inventory, ground disturbance activities had already commenced, and 307.5 acres (ac.) had been subject to vegetation removal, blasting, and cut and fill excavation in preparation of the building site and staging areas. As such, 682.76 ac. were intensively inventoried.

The inventory resulted in the recordation of 7 historic-aged sites, 11 isolated resources, and 10 cultural resources were noted, but not recorded (NBNR). All resources date to the historic period and represent the early to mid-twentieth century settlement of the rural area south of Boise's urban center. Sites include three previously recorded sites (01-22065, 01-23348, and 01-23617) and four newly recorded sites (ACH-001 through ACH-004). Previously recorded resources include segments of the Fivemile Creek Drain (01-22065) and two transmission lines. Newly recorded archaeological sites are homesteads (ACH-001 and ACH-004), an unassociated can scatter (ACH-002), and a corral and debris scatter (ACH-003). Isolated resources are historic-aged artifacts, small scatters (less than 10 artifacts) of historic debris in secondary context, and an isolated well (ISO-ACH-006). Noted, but not recorded resources are historic items post-dating 1960, or that are non-diagnostic. These include a heavy equipment fuel tank, a barrel hoop, sheet metal, and recent sanitary cans.

The Fivemile Creek Drain (01-22065) was previously recommended eligible to the National Register of Historic Places (NRHP) under Criteria A in 2007. However, the newly recorded segment is characteristic of water retention, not the designed purpose of the Fivemile Creek Drain, which was removal of excess water. As such, the newly recorded segment is recommended as non-contributing to the overall NRHP quality of the resource. The two transmission lines (01-23348 and 01-23617) are considered not eligible to the NRHP under any criteria. The newly recorded sites and isolated resources are recommended not eligible to the NRHP under any criteria. Noted, but not recorded resources were not evaluated for inclusion in the NRHP.

As ARH understands the project, the updated portion of the Fivemile Creek Drain (01-22065) will not be impacted. Due to the construction schedule, Micron will avoid newly recorded archaeological sites until Idaho SHPO concurrence is obtained. Based on field results and avoidance of newly recorded sites and resources previously determined eligible to the NRHP, a recommendation of **No Historic Properties Effected** is appropriate for the project in areas where the inventory could be conducted. In areas where construction activities had already taken place, determination of effects cannot be made; however, there is a low probability of historic resources in these areas.

Certification of Results



06/16/2023

Signature of Principal Investigator

Date

Key Information

PROJECT NAME

Micron Boise Expansion Project Cultural Resources Inventory, Ada County, Idaho

PROJECT NUMBER(S)

ARH Project No. 2023-004

LOCATION

Ada County

USGS QUADS

Boise South and Lucky Peak, Idaho

LEGAL LOCATION OF SURVEY

T2N, R3E Sec. 7, 8, 17 and 18

PROJECT AREA

990.26 acres

AREA SURVEYED

682.76 acres Intensive Survey
307.5 acres not surveyed due to ground disturbance.

PROJECT DATA

3 Previously recorded cultural resources
4 Newly identified cultural resources.
11 Isolated resources
10 Noted but not recorded resources.

AUTHORS

A. Craig Hauer

FEDERAL AGENCY

To be determined

REPORT PREPARED FOR

WPS USA and Micron Technologies

REPOSITORY

ARH Archaeology and Architectural History, Garden City, Idaho

PRINCIPAL INVESTIGATOR

A. Craig Hauer, M. A., RPA

DATE

6/09/2022

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Project Description

In March and April 2023, WSP USA (WSP) contracted ARH Archaeology and Architectural History (ARH) to complete an intensive cultural resources inventory at Micron Technology, Inc. (Micron) Boise fabrication plant south of Boise, Idaho (Map 1). Micron is currently expanding their Boise campus to construct a new, leading edge, semiconductor fabrication facility. Project construction is expected to take up to seven years. The inventory was completed to fulfill anticipated obligations under Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended due and potential federal funding under the United States Chips and Science Act of 2022.

In addition to the new fabrication facility, an administration building, probe building, central utility building, electrical substation yard, hazardous production material buildings, projects office building, and construction warehouse, a water and wastewater treatment facility, an additional wastewater treatment facility, gas plant, water tanks, industrial wastewater retention basin, stormwater retention basin, and surface parking and parking garage are planned. The newly proposed facility as well as supporting facilities will be located on vacant properties privately owned by Micron (Map 2). The fabrication facility is planned to be approximately 1.2 million square feet in area and four stories (160 ft.) high (Founder 2022). The gas plant will have two to three towers 185 ft. in height. In addition to these permanent facilities, ground disturbances associated with staging, temporary construction access, and laydown areas take place outside the footprint of the buildings. Ground disturbances will include vegetation removal, cut, and fill excavation with heavy equipment, and bedrock blasting.

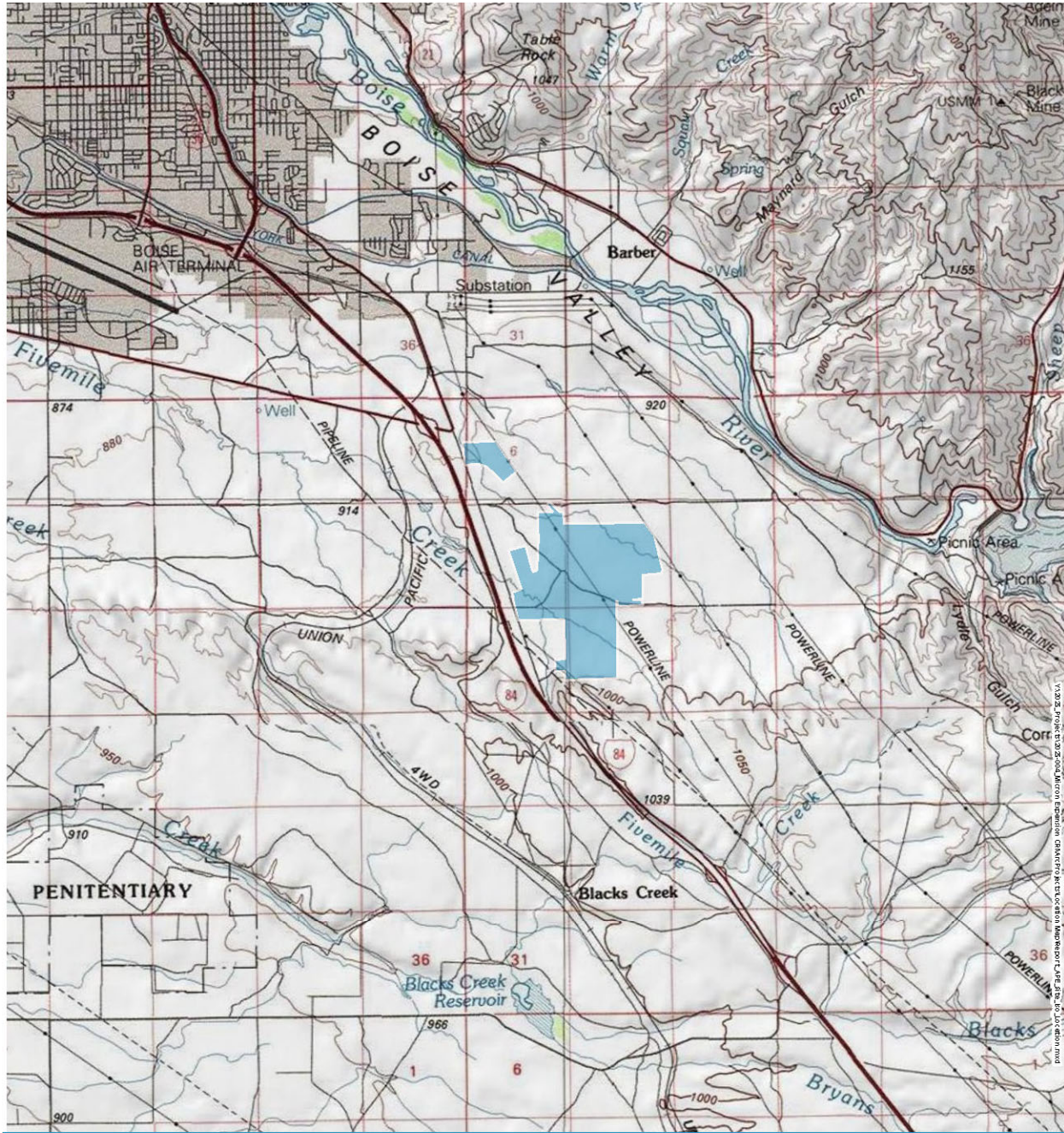
Ground disturbance activities commenced in the fall of 2022. In the time between initial groundbreaking and the cultural resources inventory approximately 307.5 ac. had been subject to cut and fill excavation (Map 3).

Project Area of Potential Effect

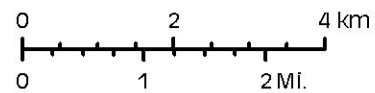
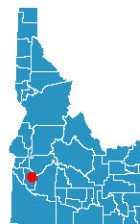
Considering that construction of the fabrication facility, associated supporting facilities, and project site preparation will result in ground disturbances, a direct area of potential effects (direct APE) of both the proposed footprint of the facilities and construction related disturbances is appropriate. Due to the length of construction, an additional area around the direct APE was inventoried to allow some flexibility (Map 4).

Considering the height (160 ft.) of the main fabrication facility and the height of the cooling towers for the gas plant (185 ft.), a larger visual area of potential effect (visual APE) is appropriate. Visual impacts were assessed using a modification of Pay et al. (2020) study.

The proposed facilities will include one of the largest buildings in Idaho (when constructed), and an initial visual APE of 4 mi. was arbitrarily implemented (Map 5). This buffer was further refined using the Viewshed 2 model in ArcGIS 10 to model the potential viewshed of the fabrication facility and the gas tower using the USGS 10-meter Digital Elevation Model (10 m DEM). As a result, the southern visual APE boundary is truncated roughly at the crest of Tenmile Bench. To the north and west recent urban development borders the Micron facilities, as such, the visual APE is also truncated in this area. The visual APE consists of the area east and south of the proposed facility (Map 5).



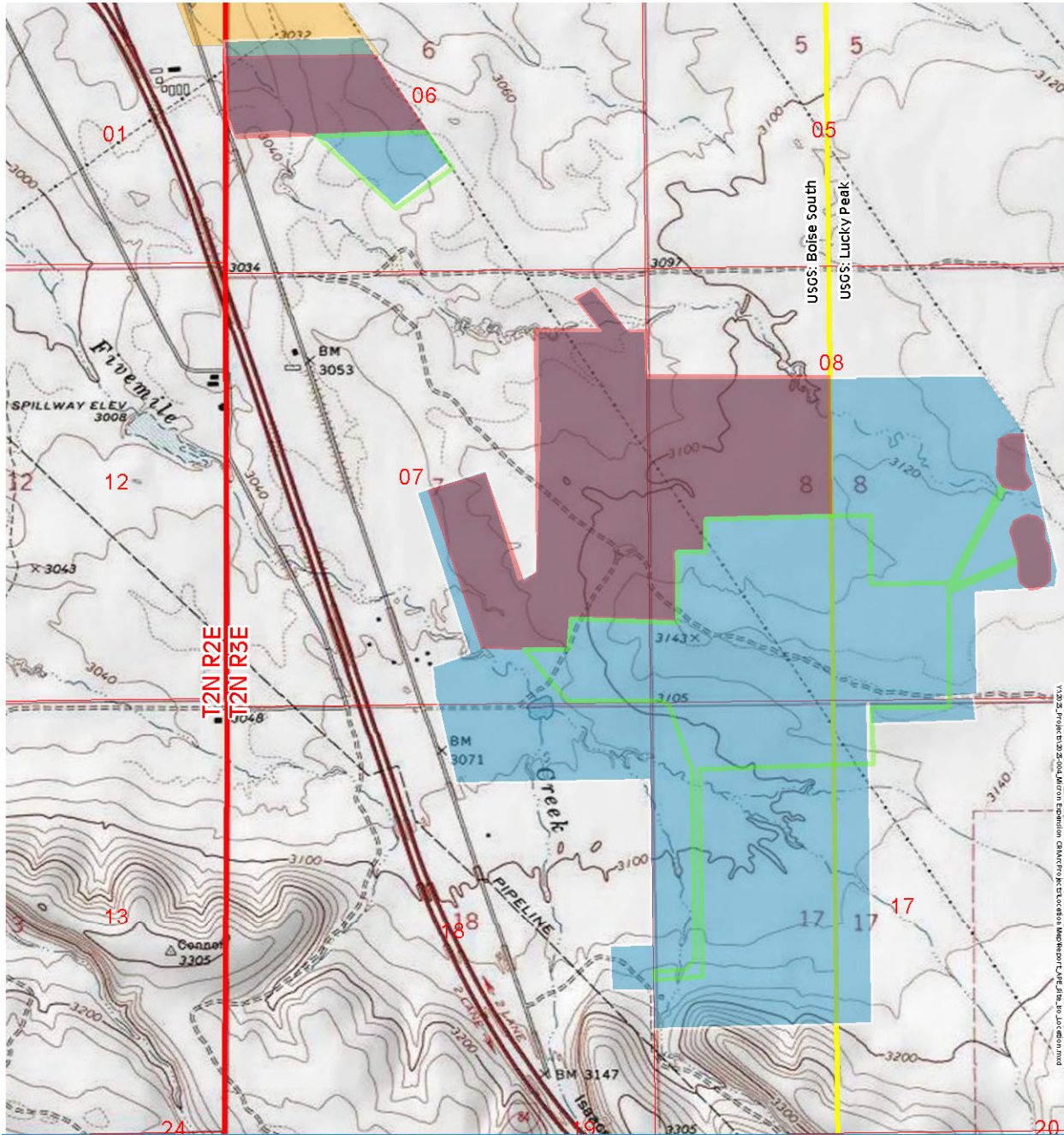
■ APE/Inventory Area



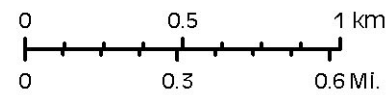
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Scale: 1:100,000 NAD 1983 UTM Zone 11N
Produced By: ACH T.2N; R.3E 6/16/2023

Base Map Source: Copyright:© 2013 National Geographic Society, I-cubed

Map 1. Vicinity Map.



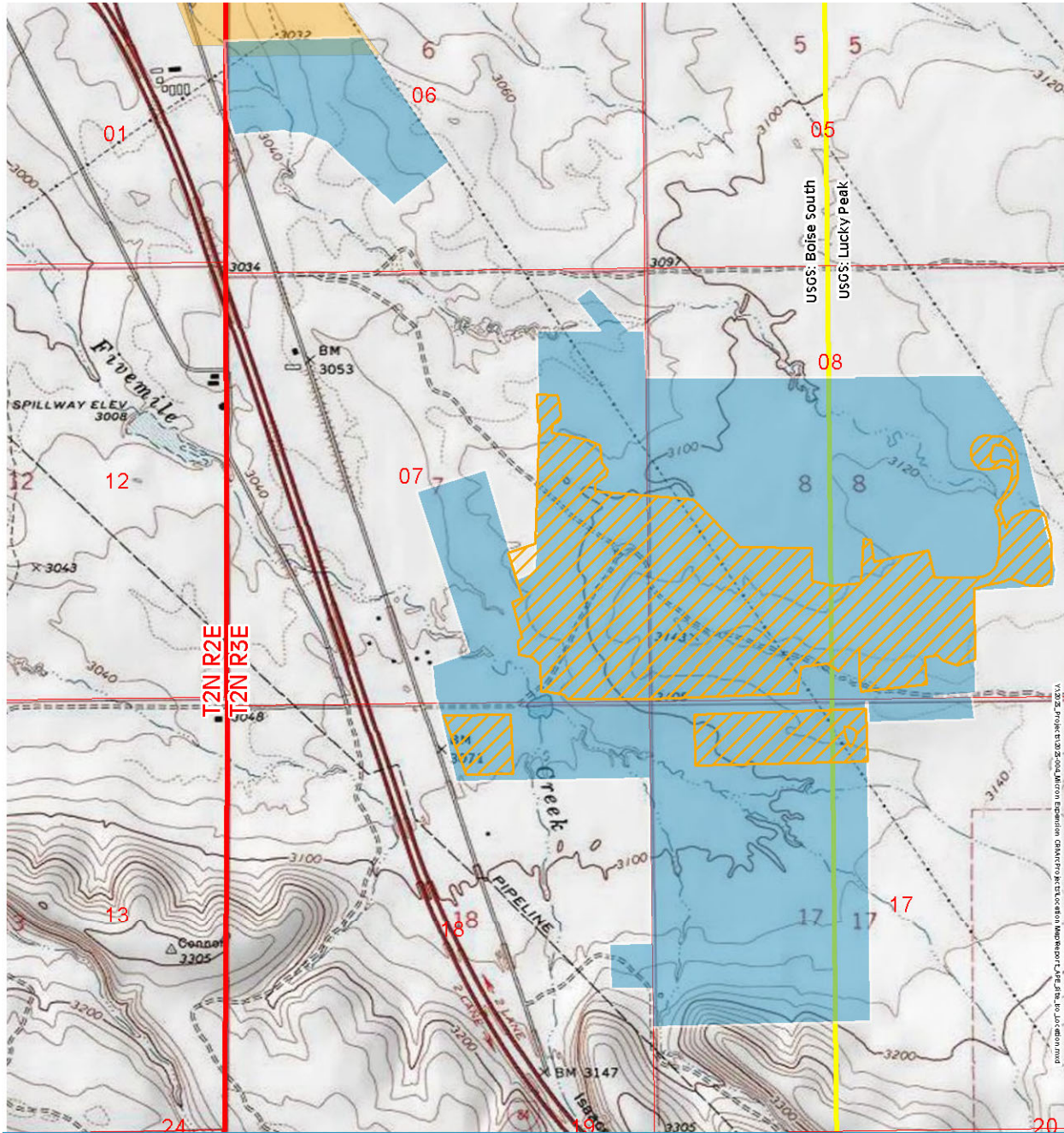
- | | |
|--|--|
| APE/Inventory Area | Land Use |
| Proposed Action | ST |
| Temporary Impact Area | PVT/ UND |
| Permanent Impact Area | |



1:24k USGS: Boise South & Lucky Peak
Scale: 1:24,000 NAD 1983 UTM Zone 11N
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Map 2. Planned Areas of Impact.



■ APE/Inventory Area

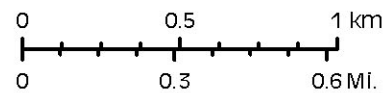
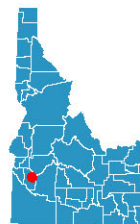
▨ Existing Ground Disturbance

Land Use

■ ST

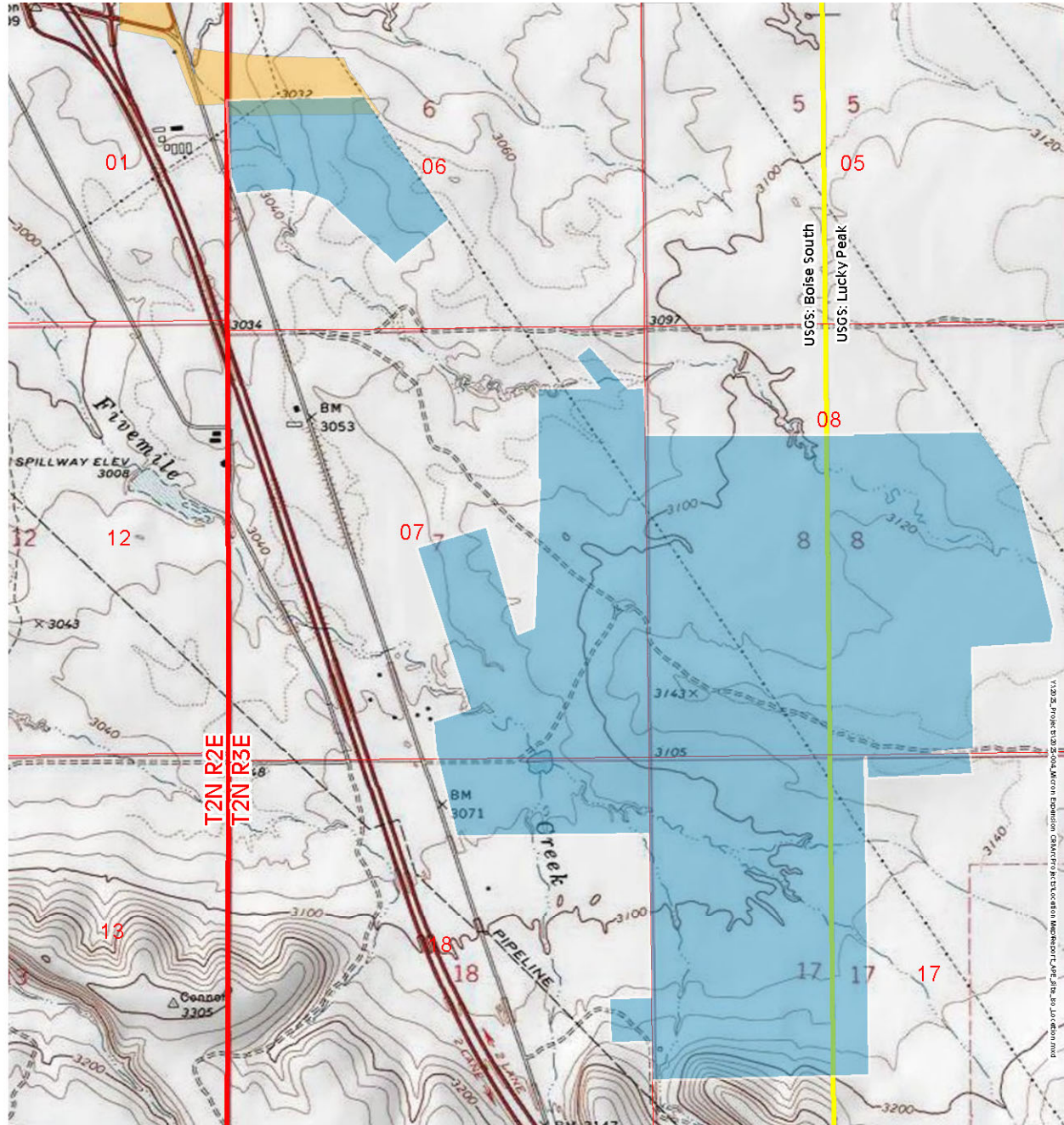
□ PVT/ UND

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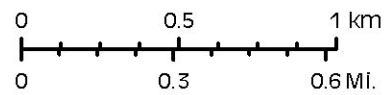
Map 3. Areas Impacted by Construction at Time of Inventory.



■ APE/Inventory Area

Land Use

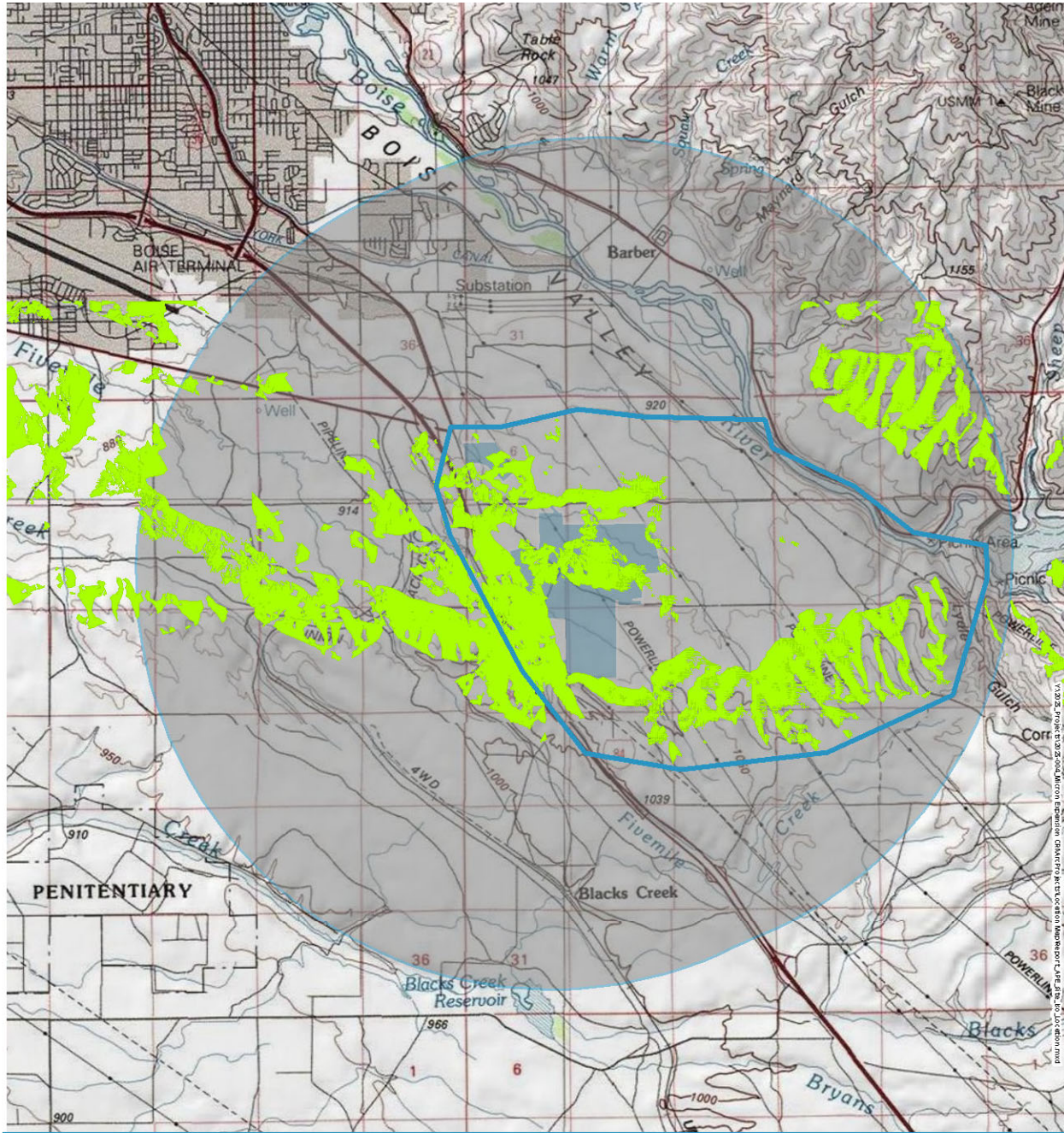
- ST
- PVT/ UND



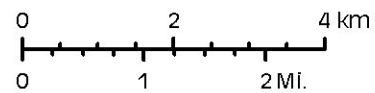
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Scale: 1:24,000 NAD 1983 UTM Zone 11N
Produced By: ACH T.2N; R.3E 6/16/2023

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Map 4. APE Map.



- Initial Visual APE
- Visual APE
- APE/Inventory Area
- Fab/Tower Visible



1:24k USGS: Boise South & Lucky Peak
 Scale: 1:100,000 NAD 1983 UTM Zone 11N
 Produced By: ACH T.2N; R.3E 6/16/2023

Base Map Source: Copyright:© 2013 National Geographic Society, I-cubed

Map 5. Visual Impact APE Map.

Environmental Setting

The project area is within the Treasure Valley Ecoregion. This ecoregion is characterized by rolling hills and valleys dissected by incised drainages (Figures 1 and 2). The project area is on the Fivemile terrace at the edge of urbanized Boise. To the west is the I-8 corridor and to the south the escarpment associated with the Tenmile terrace overlooks the project area. Fivemile Creek trends northerly through the western portion of the project area.



Figure 1. Project Overview Looking Toward the Southeast.



Figure 2. Project Overview Looking Toward the Northwest.

Geology

The project area is on the Fivemile Creek Surface in the Boise Valley (Othberg 1994). This terrace (one of six) was formed as the ancestral Boise River progressed through the valley. The Fivemile Creek Surface is composed of duripan, basalt, and gravels. Gravels are part of the Tenmile formation which are Pliocene to Pleistocene in age (Othberg 1994). The formation is composed of arkosic sand and stream and fan gravels. Basalt in the project area is part of the Fivemile Creek flow (Othberg and Stanford 1992). This late Pleistocene flow erupted from a small vent to the east of the Boise Valley. Basalt is shallowly buried in the northern portion of the project area and some pressure ridges are exposed here.

Sediments in the project area range from clay-loam to gravelly-loam, and include the Chilcott-Sebree complex, Jeness fine sandy loam, McCain stony silt-loam, and Tenmile very gravelly loam (Natural Resources Conservation Service 2023). The typical profile included a silt loam up to 1-ft. thick overlying silty clay (1-5 in. in thickness) grading into a cemented material (up to 11 in. thick) overlying a sandy loam, very gravelly loam, or bedrock depending on the geologic context. Bedrock is typically basalt. There is typically a duripan layer about .5 to 1 meter deep.

Fauna and Vegetation

Vegetation in the project area is dominated by invasive plants. Local vegetation includes cheatgrass, sagebrush, rabbitbrush, medusahead, and wild rye. Animals with the region include Mule Deer (*Odocoileus hemionus*), Pronghorn (*Antilocapra americana*), Coyote (*Canis latrans*), badgers (*Taxidea*

taxus), rabbits (*Brachylagus idahoensis*, *Lepus californicus*, and *Lepus townsendii*), and various other small mammals. Reptiles include snakes and lizards, and there are numerous birds present.

Climate/Paleoclimate

Winter temperatures rarely dip below 0° F while summer temperatures frequently rise above 100° F (Western Regional Climate Center 2017). November through January are the wettest months, while July and June are the driest. Precipitation is approximately 11 inches per year.

Paleoclimate indicates a gradual warming trend over the past 12,000 years that has been punctuated by several periods of cool, moist climates (Butler 1978; Goebel et al. 2011; Shuman and Marsicek 2016). The Younger Dryas (ca. 13,000–10,000 B.P.) was a period of increased temperature and aridity compared to the rest of the Late Pleistocene. During this period, the climate shifted from cool summers to more mesic conditions with higher temperatures and greater aridity (Goebel et al. 2011). In the northwestern United States, this change appears to be abrupt (Fulkerson 2012). Fulkerson (2012:21) notes that there are also fluctuations during this period, and in the Central Mountains, glacial activity increased on several occasions around ca. 11,000 cal B.P. With increasing temperatures, artiodactyls likely increased in abundance due to favorable conditions (Broughton et al. 2008). With the onset of the Early Holocene, climate gradually warmed; however, cooling events occurred between ca. 8500–8000 B.P. and ca. 5500–4700 B.P. Also, starting around ca. 5500 B.P., a series of droughts occurred between ca. 4700–4000 B.P., 3600–3300 B.P., 3000–2400 B.P. and 750–300 B.P. (Jones et al. 1999; Shuman and Marsicek 2016).

Cultural Setting

Pre-contact Overview

The project area is within the western Snake River Plain. Archaeological studies in southern Idaho indicate the area was accessed by pre-contact groups with cultural similarities to the Great Basin and Great Plains (Butler 1978, 1986; Henrikson 2008; Plew 2008; Scheiber and Finley 2011), but was more akin to the Great Basin than to the Great Plains. Lithic sourcing studies along the Snake River (Black 2014; Willson 2007) indicate that while interactions between Snake River groups and groups in the Northern Great Basin took place pre-historically, they were limited. Considering this, the following context draws mostly from Idaho sources and is supplemented with work completed south of the Snake River.

Within the region, evidence of human occupation extends back approximately 13,000 years. The cultural chronology of the area stems from Butler's (1978, 1986) and has recently been summarized by Plew (2008). Five cultural phases are identified for the Snake River Plain. These are the Paleo-Indian (ca. 13,000–8000 cal B.P.), Early Archaic (ca. 8000–5000 cal B.P.), Middle Archaic (ca. 5000–2000 cal B.P.), Late Archaic (ca. 2000–600 cal B.P.), and Late Prehistoric (ca. 700 B.P. to Historic era). These phases are based on projectile point sequences developed by Hester (1973). As such, the timing of the phases reflects a short chronology (c.f., Thomas 1981) instead of a long chronology (c.f., Holmer 2009) for projectile points.

Paleo-Indian/Initial Archaic

The Paleo-Indian period has been divided into an early and late period based on the presence of fluted projectile point technologies (early) and Plano or large-stemmed projectile point technologies (late). However, recent work at Paisley Cave and obsidian hydration data suggest that stemmed projectile

points were likely in use contemporaneous with fluted points (Beck et al. 2012). A similar overlap has also been suggested between Plano points. This data calls into question this dichotomy and suggests contemporaneous use of these different lithic technologies (Beck et al. 2012; Jenkins et al. 2010) rather than succession.

Paleo-Indian sites are generally limited to isolated projectile points, but caches, rock shelters, and kill sites with the butchered remains of extinct mammals have also been documented (Reid et al. 2015; (Butler 1986). Fluted Clovis and Folsom Spear points date to earlier portions of the period. These are large, well-made points with distinctive basal thinning scars referred to as flutes. Additional differences are seen in the frequent use of collateral and overshot flaking during the final stages of biface reduction within the Clovis technological system (Davis et al. 2012:54). Other aspects of the Clovis lithic technology include the reliance on bifacial cores, use of a formalized core and macro blade technology, and reliance on bifacial reduction (Davis et al. 2012:54; Beck et al. 2012). Reid et al.'s (2015) recent summary of Clovis-age resources in Idaho and Oregon indicates a date range between ca. 13,000 and 10,000 cal B.P. Analysis of lithic provenience of Clovis points indicates a reliance on local obsidian sources (Reid et al. 2015:56–61).

Plano and Western Stemmed projectile points generally represent a significantly different lithic technology than Clovis (Beck et al. 2012:28–32; Reid et al. 2015). Stemmed and Plano projectile points differ in that they are thick, well-flaked, but unfluted and often stemmed lanceolate points. Technological strategies reflect utilitarian tactics; there is more variability in flake blank production (i.e., use of unidirectional blade cores, bifacial cores, and multidirectional cores). Macro blades are not formally produced and are usually smaller than Clovis counterparts, and unifacial cores are often multifunctional (Davis et al. 2012:52). Based on radiocarbon dating at Paisley Cave and obsidian hydration data, stemmed projectile points likely were in use from ca. 10,000–7500 B.P. Within this period, there is a general relationship between size and age (Beck et al. 2012). In addition, there is an increase in the diversity of toolkits, indicating a broader diet (Willig and Aikens 1988).

The Archaic Tradition corresponds with a general warming and drying trend, culminating in the modern distribution of fauna and flora. Despite this general trend, paleo-climatic studies have demonstrated that this span was punctuated by several mesic reversals (ca. 8500–8000 B.P. and 5500–4000 B.P.) and droughts (ca. 4500, 3500, 2400, and 1000 B.P.) (Broughton et al. 2008; Fulkerson 2012; Grayson 2011; Jenkins et al. 2004; Keene 2016). This period is generally subdivided into three periods: Early, Middle, and Late Archaic (Butler 1978, 1986; Meatte 1990; Plew 2008); however, there is disagreement concerning the timing of each period. Generally, the break between the Early and Middle Archaic corresponds to the transition between the Early and Late Holocene. The transition to the Late Archaic may be associated with an increase in climatic variability, with periods of drought punctuated by intervals of increased moisture (Jenkins et al. 2004:Figure 3).

Early Archaic

At least during the beginning of this period, Early Archaic toolkits remained relatively unchanged, and the focus continued to be on big-game hunting (Butler 1986). Toolkits continue to be hunting-oriented; however, ground stone becomes more prevalent (Butler 1978, 1986; Meatte 1990; Plew 2008). Shortly after 8000 B.P., Plano-style lanceolate points are replaced by large side-notched and corner-notched points (Northern Side-notched, Elko Corner-notched) and indented base points (Gatecliff Split Stem or Pinto), with the introduction of the atlatl or spear-thrower (Holmer 2009; Justice 2002). The appearance of site types such as game drives and an increase in site assemblage diversity indicate a shift from redundant site types associated with a foraging pattern toward a logistical pattern (cf. Binford 1980). Cold storage of bison meat during the Middle Holocene is also evident at several sites on the eastern Snake River Plain, including Bobcat, Scaredy Cat, and Alpha Caves (Henrikson 2002), further supporting a shift toward logistical settlement systems.

Middle Archaic

The Middle Archaic was a time of fluctuations between drought and mesic conditions (Grayson 2011; Keene 2016). During this period, pre-contact cultural material in the west and Idaho expanded in diversity (Bettinger 1999; Butler 1986; Plew 2008; Roll and Hackenberger 1998). Projectile point types diversify and include types present during the Early Archaic (Northern Side-notched and Gatecliff), as well as Elko and Humboldt series. Despite the continuation of several projectile point series and similar representations of fauna in archaeological assemblages, there is a shift in the structure of archaeological sites. Specialized processing tools, construction of residential structures (Butler 1978; Franzen 1981; Green 1993; Meatte 1990; Plew 2008), and the emergence of complex burial practice in the western portion of the state (Pavesic 1985) are visible in the archaeological record for this period. A greater variety in landscape use and site type (e.g., drive line complexes and hunting blinds) is also evident, as is the increased occurrences of cache or storage features. Within the region, site diversity increases during this period. Ground stone is more common, as are rock alignments (Meatte 1990; Plew 2008). Closer to the Snake River, habitation sites are more established. At Givens Hot Springs, pit house structures dating between 4,500 and 5,100 B.P. have been excavated (Green 1993:Table 1). House structures at the site indicated both single (House 1) and multiple (House 2) occupations. Other riverine site assemblages suggest more generalized hunting-related use, possibly indicating logistical patterning. This, along with the occurrence of quarry and workshop locations and habitation structures that require increased effort, suggests a more strategically oriented subsistence and settlement system. This pattern is reminiscent of a collector-type mobility strategy where resources are procured and transported back to the camp by small, specialized parties (cf. Binford 1980).

Late Archaic

Another shift in hunting and residential technology follows during the Late Archaic (2000-250 B.P.), characterized by the appearance of small arrow points, including Rose Spring, Eastgate, Desert Side-notched, and Cottonwood Triangular styles. These small points are thought to represent the adoption of bow-and-arrow technology. East of the project area, this transition appears to have happened between ca 2,000 and 1,200 B.P., while in the west it appears to have taken place slightly earlier (ca. 2,300-1,500 B.P.) (Ames et al. 2010; Holmer 2009). However, a recent study on the Columbia Plateau suggests that the transition may have started as early as 4,300 B.P. (Ames et al. 2010). Additionally, the use of fired pottery and wickiup structures by Shoshone populations happens around 1,000 years ago (Gehr et al. 1982). Artifact assemblages are characterized by ground stone, flaked stone tools, and a variety of botanical and faunal remains. Large game animals continue to be important, though the high frequency of rabbit remains at Late Archaic sites indicate a focus on smaller mammals for subsistence. Groups continued to forage in wide-ranging areas. However, there is evidence for an increase in seasonal sedentism, reflected by the construction of more permanent dwellings at locations where groups aggregated during the winter season (Plew 2008). Late Archaic site types identified on the Snake River Plain include winter villages, resource-processing sites, and lithic quarries.

Gould et al's. (1996) analysis of tool kit composition at sites along the Snake River suggests the use of generalized tool kits. To reconcile these divergent data sets, it has been suggested that residential bases moved seasonally, and smaller groups exploited resources within a constricted catchment area. This pattern can be thought of as a logistical forager pattern where foraging traits, such as generalized tool kits, are redundant in composition, and collector traits such as specialized processing sites (e.g., large game drive lines), storage, and some specialized tool kits (e.g., Schelback Cave) are concurrently represented (cf. Binford 1980). There is also a general increase in the investment associated with habitation structures and greater utilization of upland resources (Henrikson 2002; Jenkins et al. 2004) also propose that the construction of large, defensive stone structures in the eastern Snake River Plain is associated with this period.

Late Prehistoric

Historically, Shoshone groups living along the middle reaches of the Snake River spent portions of the year living close to the river, sometimes with extended family groups in aggregated “villages,” and the rest of the year on Camas Prairie or in the mountainous areas to the north and south of the river. Winter encampments were common below Twin Falls, presumably to take advantage of salmon caches, trout, and other riverine resources (Steward 1938). Camas and other roots, berries, and small and large game were also important subsistence resources, seasonally drawing smaller logistical collector groups from residential camps near the river and its tributaries up onto the Camas Prairie and into the mountains (Plew 2008; Steward 1938). In addition, subsistence settlement patterns were generally the same as during the Late Archaic; however, the duration of occupations may have decreased.

Ethnographic Overview

As noted above, Native Americans have occupied southwestern Idaho for at least the past 13,000 years. The region has historically been home to both Northern Shoshone-Bannock, who through the ethnographic record has provided a window onto past lifeways. The peoples of the western Snake River Plain have linguistically been identified as Shoshone and Bannock, with the Idaho-Oregon border forming the boundary (Jenkins et al. 2004). Named groups in the boundary area were commonly identified as *Koa'gaiduka* or *Agaidkua*, meaning “Salmon Eaters” (Steward and Wheeler-Voegelin 1974). The Snake River was a thoroughfare, often used by the Bannock, Northern Shoshone, Nez Perce, Cayuse, Wallawalla, and other tribes, and the area was not occupied exclusively by any particular group (Steward and Wheeler-Voegelin 1974:231).

The Shoshone and Bannock along the Snake River shared a blend of Great Basin, Plateau, and Plain's cultural characteristics. Those Shoshone in southern Idaho and northern Nevada, with limited access to salmon fisheries, relied more heavily on small seeds, lomatium, and deer and small game hunting in a mobile settlement-subsistence pattern typical of the Great Basin (Steward 1938:169) (Steward 1938:169). Along the Snake and its tributaries, groups were engaged in a more semi-sedentary settlement-subsistence pattern based on the intensive exploitation of salmon and various highly productive root crops such as camas, lomatium, and yampah (Jenkins et al. 2004) (Jenkins et al. 2010). Winter villages were located along the Snake River, where dried salmon was stored in large boulder caches for the winter. In these ways, their lives, cultures, and settlement patterns were more closely aligned with those of the Plateau to the north and west (Jenkins et al. 2004).

Among these groups, the nuclear and extended family formed the basic organizational structure and was based on the seasonal harvesting of widely scattered resources. Highly productive resource areas, such as upland spring root camps and fishing sites, were important not only for the food they provided but because people congregated there, coming from great distances. During these times, the various groups engaged in root digging, socializing, and the trade of goods including horses, furs, buckskins, blankets, beads, roots, and obsidian (Fowler and Liljeblad 1986:437).

Steward (Steward 1938:172–173) notes that the Northern Paiute occupied both banks of the Snake River between the Powder River on the north and a point along the Snake River due south of Boise. They occupied the lower reaches of the Weiser, Payette, Owyhee, and Boise Rivers, sharing these streams in mixed villages along their eastern boundary with the Shoshone. Salmon and roots, especially camas, were primarily subsistence resources for both the Northern Paiute and Shoshone. The Northern Paiute, who occupied the lower Weiser, Payette, and Boise Rivers, were called “Groundhog Eaters,” while the Shoshone to the south and east were called “Salmon Eaters” (Steward 1938:172–173).

Various plant resources were important staples to both the Northern Paiute and Shoshone diet. Biscuitroot, (*Lomatium* Sp.), camas (*Camassia quamash*), yampa (*Perideridia* Sp.), bitterroot (*Lewisia Rediviva*), onion (*Allium* Sp.), and sego lily (*Calochortus macrocarpus*) were among the most abundant and valued resources sought during the spring and early summer seasons. Roots were dug with sticks from shallow, rocky soils and were then washed, peeled, and dried for later use or prepared fresh for immediate consumption. Biscuitroot was eaten raw, boiled, dried, or sliced and baked in underground ovens. Roots and tubers were also dried in the sun and stored for winter use. Once dried, they were ground into flour with stone manos and metates and made into bread-like cakes (Couture et al. 1986).

Historic Overview

Early Exploration and Travel

The arrival of the Lewis and Clark Expedition in 1805 marked the beginning of the historic period for central Idaho. The Corps of Discovery soon brought an influx of fur trappers to the Northwest in search of beaver. In 1811, Donald McKenzie of the Pacific Fur Company led a small contingent of trappers to Fort Astoria on the Oregon coast following a route along the western flank of the Nez Perce National Forest through Hells Canyon. The following year the Pacific Fur Company established a small post near present day Lewiston, Idaho along the Clearwater River. John Work of the Hudson's Bay Company led a trapping expedition east across the Lolo Trail corridor into Montana in 1831. Nathaniel Wyeth organized an expedition from Boston to Oregon with the intent to establish a trading post. The trading post became known as Fort Hall in 1834. Fort Hall became a primary stop for fur trappers and Euro-Americans travelling west on the Oregon and California Trails. The fort was eventually closed in 1856.

With the passing of the Oregon Donation Land Act in 1850 settlers began to arrive in the region along the Oregon Trail, which passed through southern Idaho from Soda Springs along the Snake River through the state. Thousands of emigrants are estimated to have traveled through the region on the Oregon Trail between 1840 and 1862 (Gehr et al. 1982). Closer to the Idaho-Utah border, the 1849 California gold rush led to the creation of the Hudspeth cutoff. This shortcut cut off the northernmost part of the California Trail leaving the Oregon Trail near Soda Springs and going directly west to the California Trail northeast of the City of Rocks which is about 30 miles south of what is now Burley, Idaho. closer to the project area, Goodale's Cut Off Passes through the Camas Prairie and enters the Boise Valley near what is now Bonneville Point (Hutchison and Jones 1993).

Travel routes evolved with technology. Stage routes followed established travel routes connecting mining districts, population centers, and agricultural areas. By 1883, the Oregon Short Line railroad (OSL RR) was constructed through the Snake River Plain (Robertson 1991). The OSL RR bypassed Boise, Idaho, but in 1887 a spur was built.

Development of Boise

Boise's history is intertwined with the establishment of the Idaho Territory in 1863. During this year, Major Pinkney Lugenbeel of the Union Army established a fort next to the foothills below the Boise Basin to protect gold and silver miners from Native Americans, and to protect the gold and silver deposits from threats from confederate sympathizers (Bird 1934). Boise City was platted a few days after construction of the new fort began. A meeting was held at the Davis-Ritchey cabin, home to Thomas Davis, an early settler in the valley who had been attracted to its agricultural potential. The city was platted to include ten blocks, split evenly on each side of Main Street. It stretched from today's 10th Street to 5th Street, and fronted Idaho, Main, and Grove streets. The lots were divided up between twenty people, including settlers and soldiers from the nearby fort, and their names were written on the plat. By September 1864, about 1600 people lived within the city limits. During this year, the territorial legislature battled over where



Figure 3. 1892 USGS Showing Project Location North of the Bench in the Lower Portion of the Map.

the capital should be. Southern members of the legislature argued that shifts in populations caused by gold discoveries in the Boise Basin and the Owyhee's justified the move and in December the resolution passed; however, the territorial seal and documents were not transferred to Boise from Lewiston until the following spring. Self-appointed Governor Clinton DeWitt Smith forcibly took the seal and as many documents that would fit in his saddle bag from the Lewiston Jail with the help of nearby troops from Fort Lapwai (Williams 2009). Boise City soon grew to include 140 blocks, and by early 1878 the city's first subdivision, Arnold's Addition, had been created.

In 1870, approximately 2,675 people were living in incorporated towns within the valley. By 1880, it had risen to 4,674, with an estimated equal number living outside city limits on farms. With the increase in irrigable land, the city of Boise grew to incorporate the surrounding area, absorbing some communities. The abundance of irrigable land brought new inhabitants and development to Boise and the surrounding valley (Figure 3). Between 1880 and 1900, the population increased from 1,899 to 17,358; a large portion of that was due to irrigation-related development. Numerous canal

systems and diversion dams were constructed to transport water from the Boise River to farms on the Boise Bench and other remote areas. However, by the late 1880s, agricultural development in the Boise Valley had reached its limits due to the inadequate water supply. The Boise Valley had met its maximum population and a decline was looming (Stacy 1993). Despite an inadequate water supply, Boise continued to develop. Before statehood in 1890, Boise was planning a streetcar system and the Idanha Hotel opened in 1901.

After 1909, Boise began to grow at an exponential rate; by 1910 the population was over 63,000 (an increase of over 135 percent from the population in 1900 of 27,034), and a new state capitol building was constructed. With the help of the newly formed United States Reclamation Service, the New York canal opened in 1912 (Simonds 1997). As part of the plan, called the Boise Project, workers built the Deer Flat reservoir near Nampa and a diversion dam east of Boise to carry the water above the Boise Bench. With the completion of Arrowrock Dam in 1915, the valley had a surplus of water allowing for year around irrigation (Simonds 1997). These irrigation canals allowed for a considerable increase in the number of

farms, and hence, population (U.S. Department of the Interior, Bureau of Reclamation 1982). By 1920, the number of farms had tripled, mostly as a direct result of the Boise Project (Stacy 1993). By the mid-1920s, Boise was considering building a municipal airfield (Idaho Statesman November 6, 1925 Page 4). In 1926, the Boise City Council voted to build Boise's first airfield along the Banks of the Boise River.

The onset of the Great Depression in 1929 stalled local and national economic growth and construction until the mid-1930s. In 1932, Boise Junior College opened on the former campus of the St. Margaret's School for Girls campus on 7th and Bannock (Anon 2018). Later that year, Joe Albertson opened his first store on State Street. Starting in 1934, the passing of the National Housing Act and immigration of dust bowl refugees caused the development of local agricultural fields and Boise saw an increase in population. The effort to curb the depression by the Federal Government also funneled money into the development of buildings, canals, roads, and the airport in the area. The Works Progress Administration (WPA), the Public Works Administration (PWA), the Civilian Conservation Corps (CCC), and the Federal Works Agency projects changed the urban landscape. The WPA constructed the National Guard Armory in 1936-37 and the Boise Gallery of Art (now Boise Art Museum). The airport was moved to its current location in 1936. At the time the airport had the longest runway in the country (8800 ft.) and in 1939 a hangar for Varney Airlines was built. With the moving of the airport, Boise Junior College (now Boise State University) in 1940-42, including the administration building, heating plant, and auditorium were built at the original airport site by the WPA. The PWA built North Junior High in 1936 and the former Ada County Courthouse in 1938 (City of Boise et al. 2013).

With the onset of WW II, the military presence in Boise grew. Gowen Field became a flying and training base in 1940. Servicemen from the base increased demand for rental housing, which caused shortages during and after the war. World War II also ignited economic enterprise (Wells and Hart 2000). Jack Simplot pioneered mass production of dehydrated vegetables during World War II and subsequently became the military's largest supplier of dried foods throughout the war. The Simplot Company later found a new use for the potato by inventing the frozen French fry (City of Boise et al. 2013).

Following WW II, the city expanded to new neighborhoods on the bench and in the foothills. The post-war economic boom helped stimulate the creation of local companies such as the Terteling Company, Inc., the Trus Joist Corporation in 1960 (the founders invented a novel joist system), Ore-Ida, Boise Cascade lumber company, and Albertson's grocery stores.

In the 1960s, a new charter allowed the city to annex suburban areas, which doubled the population from 34,481 in 1960 to 74,990 in 1970. Starting in the mid-1960s, Boise city planners started devising plans to redevelop portions of the city of Boise. The Boise Redevelopment Agency (BRA) began as a volunteer board in 1965. With funding from the U.S. Department of Housing and Urban Development, the BRA initiated an urban renewal program that changed the physical presence of the city through demolition of older buildings in hopes of spurring new development. At the time, the opening up of the Freeway system caused revenue declines in the railroad industry. This decline was felt in Boise where the Oregon Shortline Railroad (OSL RR) had a railyard, roundhouse, and station along Front Street. The rail yard was located between 13th and 8th streets with consisted of multiple spurs shunting off the main lines toward the Boise River starting around 6th street. The city was looking for a way to modernize and accommodate big business and demolished blocks of historic buildings in the hopes of luring in business developers. These development plans resulted in the razing of the OSL RR engine house and round table near River Street and 17th Street. In several cases the empty lots remain that way today, and the program's board has been severely criticized for their decisions.

Boise's Chamber of Commerce also advocated for the need for a four-year college to attract business. In 1965 Boise Junior College expanded from a two-year to a four-year college and became Boise State University in 1974. The computer revolution in the late 1970s saw another chapter in the development of Boise. California-based Hewlett Packard built new facilities in west Boise, and by the early 1980s new

endeavors by companies such as Micron Technology addressed the growing demand for computer technology. The combination of new industries and established companies encouraged rapid population growth in the late twentieth century and early twenty-first century.

Irrigation In the Boise Valley

Settlement in the Boise Valley is tied to agriculture. However, the natural aridity of the valley initially limited agriculture to areas of consistent water flow. By 1864 some important canal companies were getting started. Many early ditches were extended cooperatively by a group of interested farmers whose organization was informal at best. In order to get water onto more difficult bench lands, extensive capital investment was required for the large canals which had to be engineered and dug (Idaho State Historical Society 1971)

Several small canal companies contributed to the early success of agriculture in the Boise Valley. From 1863 to 1870, land under cultivation grew to 19,180 acres, and by 1880, there were 256 farms totaling 80,853 acres (Stevens 2015). Enterprises of this scale could be managed in the upper Snake River Valley by the Mormons who already were organized for community cooperative action. But in southwestern Idaho, privately incorporated canal companies began to do the job. Large scale projects were pitched by engineers and started but abandoned when investor funds dried up. Canals were constructed in irregular stages as funds became available. One of the first canals constructed in the Boise area was the Ridenbaugh Canal. This canal was started in 1837 but was not finished until 1891. At the time it had fifty-two miles worth of canals (Stevens 2015). The increased investment and development of irrigation systems in the late 1800s had an unintended consequence. While the canals and laterals allowed sagebrush deserts to be turned into farmland, they also brought water to areas that were normally dry. Runoff from the farms had to return to the Boise River through what were once intermittent drainages. Water absorbed in fields percolated down to create shallow aquifers. While novel, these changes were not seen as a nuisance due to the incremental nature of canal building (Stevens 2015).

Failures of canal companies, not only in Idaho, but over the West in general, to manage large-scale reclamation led to arrangements for state assistance. Under the Desert Land Act of 1894 (generally known as the Carey Act) the President of the United States was authorized to transfer up to one million acres of arid land to each of the reclamation states with public lands; the states then could sell the lands in 160 acre lots to the farmers who would be served by canal companies under arrangements approved by the state reclamation engineer. To qualify for lands under the Carey Act, Idaho immediately established the office of reclamation engineer and provided for the organization of irrigation districts of interested farmers.

In 1902 the United States Congress created the U.S. Reclamation Service (later reorganized into the Bureau of Reclamation), (Reclamation). The services mandate was to assist in the development of America's lands for farming and later, the electrification of the west. Reclamation came to the Boise area to implement plans to complete irrigation systems half completed (e.g., the New York Canal) and build new systems to irrigate the arid areas south of Boise. This project (the Boise Project) was adopted and implemented. With the introduction of the Boise Project and recently enacted state laws, farmers across the valley organized irrigation districts to manage (U.S. Department of the Interior, Bureau of Reclamation 1982). Users under the Ridenbaugh Canal formed the Nampa and Meridian Irrigation District in 1904 and bought the associated infrastructure in 1905. The district managed irrigation infrastructure for a large swath of land south of Boise, as well as a smaller area on Fivemile Bench between the Boise River, near the Lucky Peak Dam and I-84.

By 1915, Reclamation had completed the New York and Ridenbaugh canal systems as well as Arrowrock Dam, but excess groundwater was already a problem by 1910. Dry channels ran like streams, areas of stagnant water formed marshes, and thousands of acres of farmland and orchards were ruined (Stevens

2015). After asking for help, Reclamation drafted a plan to relieve the excess water and by 1913 a contract was signed. The Nampa and Meridian Irrigation District signed a contract with Reclamation in 1915 to construct a system of 11 deep surface drains utilizing natural ephemeral drainages and natural depressions to reclaim inundated land. Fivemile, Tenmile, and Indian creeks were deepened and straightened. By 1917 work on the drains had commenced and portions of Fivemile Creek were replaced with straight, deep channels. By 1918, the effects of the drainage system were noticeable.

Fivemile Drainage System

The following is taken from Stephens (2015:49–51).

The drains making up the Fivemile drainage system included Fivemile, Nine Mile, and Sky Pilot drains. Together, the drains made up the biggest section of the initial drainage system in the Nampa & Meridian Irrigation District.

The original plans for Fivemile Creek estimate the stream's post-construction discharge to be between 62 and 90 second feet, creating a water surface area of between 13.6 and 16.6 ft. and a water depth (as opposed to channel depth) of 1.2 – 2.2 ft. The drains were ultimately cut to a depth of about eight feet below the existing creek channels. To accomplish this, 358,920 cubic feet of soil was excavated in order to drain the 27,000+ acres of land in the system.

Work to deepen and widen Fivemile Creek was done in 1915. But the plans for the Fivemile drainage system were altered slightly over the course of the two years of construction. For instance, on November 8, 1915, the Nampa & Meridian Irrigation District Board met and entertained a change proposed by Reclamation Engineer J.L. Burkholder, in charge of drainage construction under the plan approved by the Board on August 25, 1914. Burkholder requested that instead of utilizing the Fivemile Creek channel all the way to the Boise River, that a change in course be made for the Fivemile Drain, diverting it from Fivemile Creek near the center of Section 21, Township 4 North, Range 2 West, and then running it westerly along the foot of the bluff through Sections 21, 20, and 19, ultimately discharging into the Lower Mason Creek Drain as it was then constructed in the NW 1/4 of the NW 1/4 of Section 19, Township 4 North, Range 2 West. The Board approved the change.¹⁷⁶ Additionally, as the construction entered into its final phase, the Nampa & Meridian Irrigation District board approved an extension for Sky Pilot in January 1917, taking it an additional one-half mile to the southeast, heading near the east quarter corner in Section 4, Township 3 North, Range 1 West.

Pre-Field Research

Archival research of a review of archaeological reports indicates a consistent use of the area for ranching in a rural setting.

Archival research

A General Land Office plat map that depicts the project area was reviewed (T2N R3E 1910) along with the 1938 Metsker Map. The GLO maps show cabin sites in the west central portion of Section 8, NW ¼ of Section 17, and the northeast ¼ of north-central portions of Section 18 (Figure 3). The Goodale Cut Off of the Oregon Trail is mapped to the west of the project area.

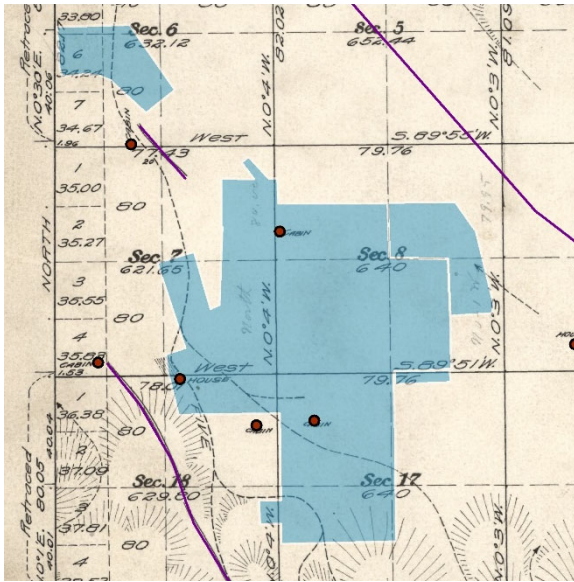


Figure 4. Historic Features mapped on the 1910 GLO.

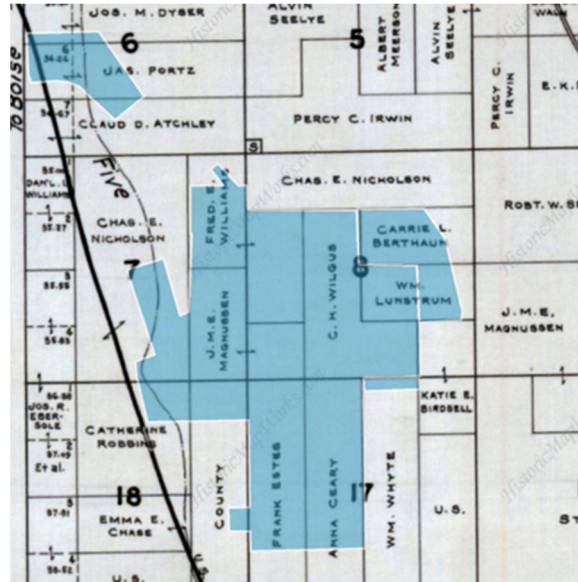


Figure 5. 1938 Metsker Map.

The 1938 Metsker map indicates Frank Estes as the owner of the land in the eastern half of Section 17 (Figure 4). Catherine Robbins owned land in Section 18. Historic aerial photographs also indicate sporadic occupation of the project area (Figures 5 and 6). The 1957 photographs show a homestead and possible barn in the parcel owned by Frank Estes in Section 17 (Figure 6). Aerial photographs of Section 18 suggest a more extensive amount of development (Figure 7). Structures are visible at the intersection of U.S. Highway 30 and an unnamed dirt road. There also appears to be a row of structures along the dirt road and a ranching corral near a reservoir along Fivemile Creek.



Figure 6. 1957 Aerial Photograph of the Estes Property.



Figure 7. 1957 Aerial Photograph of Portions of Section 18.

Previous Cultural Resources Studies

A records search of a one-mile buffer around the Area of Potential Effect (APE) was requested from the Idaho State Historical Society on April 24, 2023 (Records Search No. 23261). A total of 48 cultural resources inventories have been completed within the one-mile buffer (Table 1).

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
1993/249	Emigrant Trails of Southern Idaho Adventures in the Past – Idaho Cultural Resource Series, Number 1. Bureau of Land Management and Idaho State Historical Society	Hutchinson, Daniel J., and Larry R. Jones (editors)	1993	BLM / ISHS	
1994/331	Foothill's Land Exchange: Phase 1. BLM, Boise District.	Palmgren, Lois	1993	BLM	ID-1-93-37
1998/21	Micron/ Simplot Waterline. BLM, Boise District.	Hutchinson, Dan	1997	BLM	ID-1-98-B-05
2002/297	Columbia Village Owners Association Footpath. BLM, Boise District	Shaw, D.	2002	BLM	02-FRFO-14
2002/298	IdaCom Buried Fiber Optic Cable I-34008. BLM, Boise District	Shaw, D.	2002	BLM	02-FRFO-15
2003/773	IPC Transmission Line 902 Between Boise Bench Substation & Midpoint Substation FERC No. 1971. Prepared by SAIC, Boise, for Idaho Power, Boise	Gross, L., C. Wildt	1997	BLM, Burley	
2004/219	The Boise Foothills Land Exchange. Frontier Historical Consultants for BLM, Boise District	Frontier Historical Consultants	2003	BLM	04-FRFO-01
2015/207	Surprise Valley Fuelbreak	Kumiega, Karen	2014	BLM, Four Rivers	15-FRFO-03
2016/593	Greenbelt Pathway Design and CE&I Part II: Penitentiary Canal to Diversion Dam	Nickoloff, Nicki	2016	BLM, Four Rivers	16-FRFO-17
2017/278	Highway 21 Parcel Land Sale	Calkins, Adam T.	2016	BLM, Four Rivers	16-FRFO-23
1995/893	Spruce Goose Salvage Sale Addendum. Payette N.F.	Winfrey, James	1995	Payette NF	PY-95-1038
2000/634	Level 3 Proposed Fiber Optic Line, Idaho Segment. AINW	Ozbun, T. Et al.	2000	Wenatchee NF	
1989/2535	Idaho Bridge Inventory: Volume I History. Idaho Transportation Department	Herbst, Rebecca	1983	ITD	
1992/488	SH21-I-84 to Diversion Dam, Stage I. Idaho Transportation Dept.	Gaston, Jenna	1992	ITD	F-3291 (022)
1993/288	I-84 Diversion Dam Stage I. Borrow Source. Idaho Transportation Dept.	Gaston, Jenna	1993	ITD	STP-F-3291 (22)
1995/ 129	I-84 – Diversion Dam, SH 21. Idaho Transportation Department	Gaston, Jenna	1993	ITD	F-3291 (22)

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
1996/139	Isaacs Canyon Interstate 84 Interchange. Idaho Transportation Dept.	Gross, Lorraine	1995	ITD	NH-84-2 (047)59
1999/567	Oregon Trail Reserve Park Pathway and Trail Complex Cultural Resource Report, Ada County, Idaho. Dames & Moore	Dames & Moore	1999	ITD	PLH-0100 (157)
2003/296	U.P. Railroad Bridge to Gowen Road Overpass. ITD	Petersen, N.	2002	ITD	IM-84-2 (056)57
2005/811	Blacks Creek Rest Area I-84. Bionomics, Boise, ID	Pepalis, J.	2005	ITD	IM-IR-84-2(032)62
2006/213	I-84 Orchard IC to Gowen IC Study. Bionomics Environmental, Boise, ID.	Pepalis, J., Humphreys, M.	2005	ITD	NH-STP-84-2 (051)
2009/550	State, FY09 Highway Advisory Installation. ITD, Boise, ID.	Everhart, D.	2009	ITD	A010(631)
2020/190	Cultural Resources Review: FY21 Capital Maintenance, Phase 1, ACHD.	Kriegl, Matthew	2020	ITD	18710
2020/616	Historic Survey of Roads in Idaho's State Highway System Volume 1: Historic Context and Volume 2: Application of the National Register of Historic Places Criteria for Evaluation.	Mead & Hunt	2019	ITD	
1989/2469	Final Report on the Cultural Resources Inventory for the Proposed Arrowrock Hydropower Corridor from Arrowrock Dam to the Boise Bench Substation.	Harrison, Richard	1986	Boise-Kuna Irrigation	
1989/4937	Southwestern Idaho Transmission Line Heritage Resources Survey. University of Idaho Anthropological Research Manuscript Series No. 58	Moe, Jeanne M., William P. Eckerle, and Ruthann Knudson	1980	University of Idaho	
1989/5175	Boise River Drainage Archaeological Survey, Progress Reports 1-10. Idaho State Historical Society.	Ostrogorsky, Michael	1976	Idaho State Historical Society	
1989/641	Work Plan for Cultural Resource Mitigation of the AT&T Communications, Inc. Fiber optic Cable Project. Dames and Moore. Phoenix, Arizona	Bassett, Everett, and Brenda Rings	1989	Dames and Moore	
1992/463	Cultural Resource Inventory of the US West, Boise to Mountain Home Fiber Optic Cable Project, Ada and Elmore Counties, Idaho. US West Communications	Petersen, Nick	1992	US West Communications	
1994/517	Surprise Valley Archaeological and Historic Survey, Ada County, Idaho. SAIC.	Science Applications Internal Corporation	1993	SAIC	

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
1994/700	Proposed United States Postal Service Mail Processing Facility Sites, Boise, Ada County, Idaho.	Statham, William P.	1994	William P. Statham	
1995/610	Van Buren Blvd. Upgrade on the Idaho National Engineering Laboratory. Lockheed Idaho Technologies Company	Ringe, Brenda L.	1995	Idaho national Laboratory	LITCO-95-29
1995/612	Cultural Resources Inventory for the Boise Bench-Midpoint #1 230 kV Transmission Line Loop for New Micron Substation Idaho Power Company.	Druss, Mark	1995	Idaho Power Company	95-6
1995/759	Cultural Resources Survey of the Oregon Trail Along a Portion of the Boise Bench. SAIC.	Gross, Lorraine, and Teresa Rudolph	1994	SAIC	
1996/896	Petroglyphs Along the Oregon Trail Between the First and Second Benches South of the Boise River. Science Applications Internal Corporation	Gross, Lorraine	1995	SAIC	
2002/225	Micron Telecommunication Tower, Boise, Ada County. Prepared for ATC Associates, Salt Lake City, UT.	Mausser, L.	2002	Other	
2006/237	Idaho Power Company Transmission Lines 906 and 912 – Boise Bench to Midpoint Substation. Applied Paleoscience, Richland, WA.	Chatters, J., Ferguson, D.	1997	FERC	FERC No. 1971
2008/760	Winco Distribution Center Sewer Pipeline Extension, Ada County.	Mitchell, Kelly	2008	EPA	
2011/132	T- Mobile Candidate SL02082-A, Boise Outlet Mall. Jerrems, Boise, ID.	Jerrems, W.	2010	Other	
2016/521	Farewell Bend Subdivision	Gray, Dale	2016	EPA-Stormwater Permits	
2017/386	Historic Linear Resource Evaluation: Penitentiary Canal, Arrowrock Diversion Boise Project	Huang, Jennifer K.	2017	BOR	
2017/78	Archaeological Sensitivity Assessment SL90XCB57B/9IDX000045, 7458 South Federal Way, Boise, Ada County, Idaho 83716. EBI Counseling	Fink, Andrea	2016	FCC	TCNS 143754
2018/818	Proposed Disposal of Boise Diversion Dam Housing Complex Involving Four Historic Buildings – Boise Project, Idaho	Beardsley, Christopher J.	2013	BOR	
2019/494	A Study of Irrigation and the Development of Ada County. Prepared for Ada County Historic Preservation Commission.	Davis, Belinda	1990	Ada County CLG	

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
2020/518	Boise Airport Cultural Resources Report. Wright Consulting Services LLC & Preservation Solutions LLC.	Wright, Jeanne & Kerry Davis	2020	FAA	
2020/96	A Class III Cultural Resources Survey of the Proposed ID4312 Micron Telecommunications Facility, 2805 East Columbia Road, Boise, Ada County, Idaho. Terracon.	Sulkosky, Rita A. & John D. Hall	2019	FCC	CP197368
2021/74	Class III Cultural Resource Inventory for the Boise Gateway Industrial Park, ADA County, Idaho. Cannon Heritage Consultants, Inc.	Sanarone, Paul & Kenneth P. Cannon	2020	EPA	ID-20-013
2022/113	Cultural Resource Inventory for the Boise Gateway Industrial Park (2021), Ada County, Idaho. Cannon Heritage Consultants, INC.	Santarone, Paul & Kenneth P. Cannon	2021	EPA	ID-21-016

A total of fourteen sites have been recorded within one mile of the APE (Table 2, Appendix A: Map 6) as a result of the cultural resource inventories. Nine of these sites are not considered eligible, three are eligible, and two are undetermined.

Table 2. Sites Located within One-Mile of the APE

Site Number	Attributes	Name	Ownership	Eligibility
10AA69	Flakes/Point		Private	Undetermined
10AA338	2 Cans		Private	Ineligible
10AA343	Can scatter		Private	Ineligible
10AA344	2 Rock mounds, 2 flakes		Private	Ineligible
10AA579	Hunting blind in talus		BLM	Ineligible
19AA695	Historic Scatter; Glass, ceramic, metal, wire		Private	Ineligible
10AA798	Airway Beacon; Arrow-shaped foundation	Salt Lake City to Pasco Airway Site 28	Private	Undetermined
10AA577/01-19893	Oregon Short Line RR	Oregon Short Line RR		Eligible
01-21814	Two-Track			Ineligible
01-22065	Irrigation Feature	Fivemile Creek Drain		Eligible
01-22003	Transportation-Road	US. Highway 30		Ineligible
01-22138	Transportation-Road	US. Highway 20		Eligible
01-23348	Transmission Line			Ineligible
01-23617	Transmission Line			Ineligible

Expected Cultural Resources

Pre-contact site types are expected to consist of primarily non-diagnostic lithic scatters and isolated artifacts. Historic-aged resources are likely to be encountered in the project area. These will likely consist of homestead sites and debris scatters or isolated artifacts related to homesteading. The 1910 GLO plat map indicates a number of cabins and house sites in and around the project area. Pre-contact sites were not expected due to a lack of perennial water.

Field Methodology

ARH conducted a pedestrian survey of the project area on during April and May 2023, following the Idaho State Historic Preservation Office's guidelines for conducting archaeological inventories (*Consulting with the Idaho SHPO*). Mr. A.Craig Hauer, MA, RPA Ms. Sammantha Beier, and Mr. Brady McGir completed the inventory. Inventories were completed on 4/24 to 4/28, 5/2, 5/8, and 5/29.

The inventory was completed using systematic transects spaced 30 m apart. Archaeological sites were defined as areas with 10 or more artifacts and/or features of diverse types within a discrete area. Isolates are defined as fewer than 10 artifacts of similar type with minimal potential for buried artifacts or which have been displaced or single non-diagnostic feature. Cultural debris less than 50 years of age and non-diagnostic items were noted, but not recorded (NBNR).

Archaeological sites were defined through close interval survey. Site boundaries, loci, concentrations, features, and diagnostic artifacts were mapped using sub-meter accurate Global Positioning Units. In addition, archaeological sites were recorded on Archaeological Site Inventory forms, and diagnostic artifacts photographed.

In order to simplify NRHP eligibility determinations and facilitate analysis, a site typology was employed using the following criteria in Table 3.

Table 3. Site Type Definitions

Type	Characteristics	Artifacts And Features Present
Historic Road/Trail	Roadbed with associated generalized historic debris. Road should be near those depicted in historic documentation.	Road grades, retaining walls, culverts, cans, bottles, automotive or wagon parts
Historic Habitation Site	Tent platform(s) or dugout(s) with domestic debris.	Cans, bottles, ceramics, personal items.
Historic Settlement	Associated habitation sites with centralized debris scatter and possibly roads.	Domestic debris, personal items, construction materials, and foundations
Historic Agricultural Site	Cleared fields, irrigation features/impoundment basins, ditches with or without historic debris.	Cans, bottles, tools, wire, rock alignments, fence posts, dams, constructed ditches or channels, check dams, water diversion features, agricultural equipment
Historic Ranching Site	Debris scatter with associated ranching related artifacts or features	Food/beverage-related debris with items such as sheep bells, brands, sheep dip troughs, or corrals.
Historic Mining Site	Debris scatter with associated mining related artifacts or features	Prospects, shafts, adits, trams, placers, waste rock, tailings, mining equipment.

Table 3. Site Type Definitions

Type	Characteristics	Artifacts And Features Present
Unassociated Trash Scatter	Historic artifact concentrations not characteristic of a theme or function.	Any variety of historic artifacts and features which are functionally ambiguous

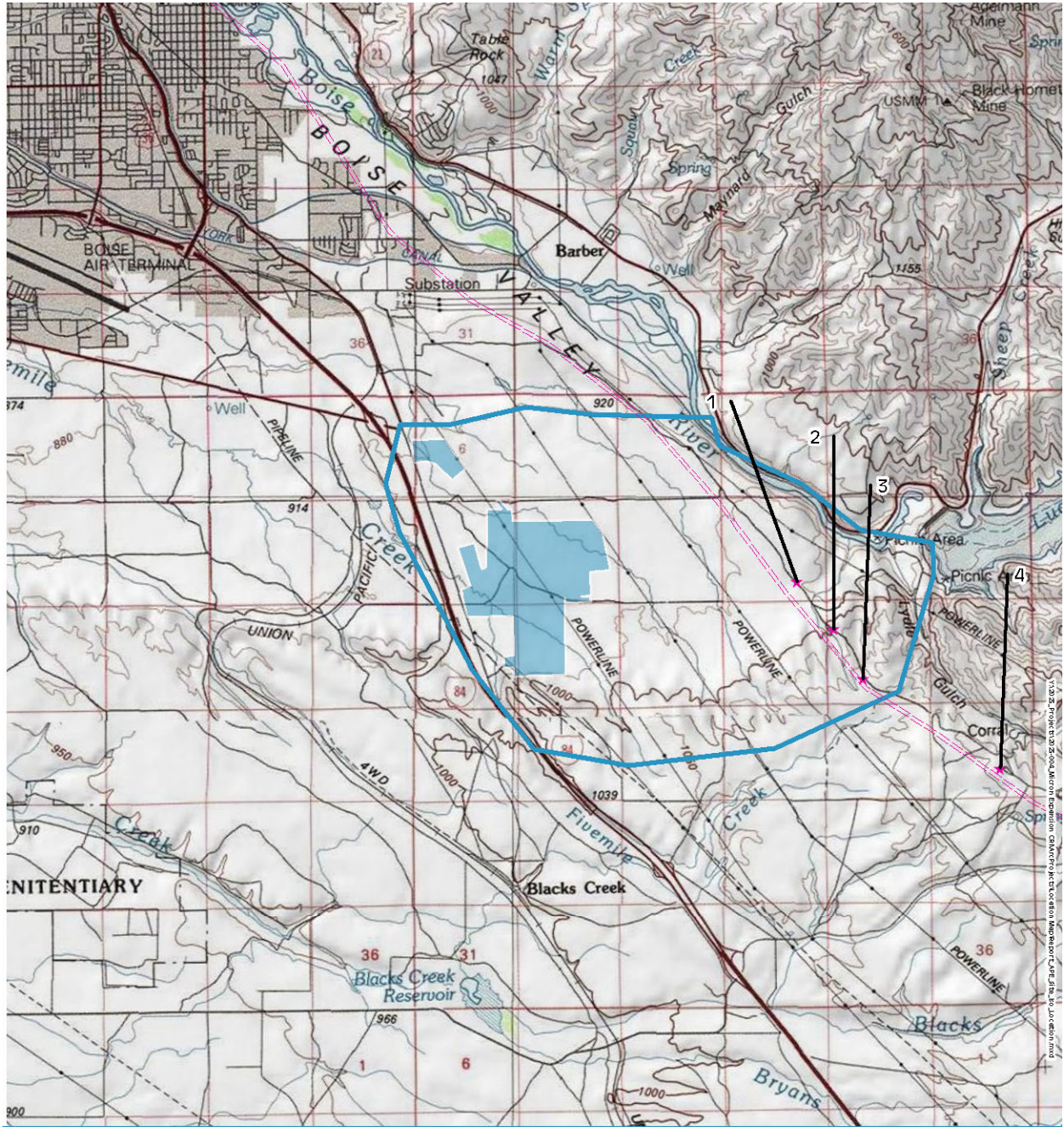
Artifacts were described based on function, if discernible, and artifact cross-dating was employed when appropriate. A total of 12 shovel test probes were conducted in the vicinity of ISO-ACH-006 to determine if additional features were nearby. Shovel test probes were dug to 60cm depth approximately 50 cm wide. Sediments were screened with 1/4-inch mesh for cultural material. Probes were roughly excavated in 20 cm levels. Cultural material, if encountered, was analyzed in the field. Sediments were also noted.

Visual assessment of impacts follows Pay et al. (2020) analysis and adopts the six levels of impact (Table 4)

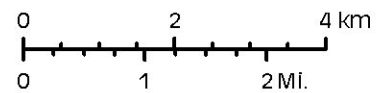
Table 4. Visual Assessment Definitions.

Level	Definition	Instructions
1	Visible only after extended, close viewing; otherwise, invisible.	An object/phenomenon is near the extreme limit of visibility. It could not be seen by a person who was not aware of it in advance and looking for it. Even under those circumstances, the object can only be seen after looking at it closely for an extended period of time.
2	Visible when scanning in general direction of study subject; otherwise, likely to be missed by casual observer.	An object/phenomenon is very small and/or faint, but when the observer is scanning the horizon or looking more closely at an area, it can be detected without extended viewing. It could sometimes be noticed by a casual observer; however, most people would not notice it without some active looking.
3	Visible after brief glance in general direction of study subject and unlikely to be missed by casual observer.	An object/phenomenon can be easily detected after a brief look and would be visible to most casual observers, but without sufficient size or contrast to compete with major landscape elements.
4	Plainly visible, could not be missed by casual observer, but does not strongly attract visual attention, or dominate view because of apparent size, for views in general direction of	An object/phenomenon is obvious and with sufficient size or contrast to compete with other landscape elements, but with insufficient visual contrast and insufficient size to strongly attract visual attention.
5	Strongly attracts visual attention of views in general direction of study subject, but not the most prominent or dominant feature in the view.	Attention may be drawn by strong contrast in form, line, color, texture, or luminance.
6	Dominates view because of structure or facility size (for views in its general direction) and strong contrasts in form, line, color, texture, or luminance.	An object/phenomenon with strong visual contrasts that is of such large size that it is the major focus of visual attention and dominates the view. The large apparent size is a major factor in its view dominance. In addition to size, contrasts in form, line, color, and texture, bright light sources associated with the study subject may contribute substantially to drawing viewer attention. The visual prominence of the study subject detracts noticeably from views of other landscape elements.

Following defining of the visual APE four key observation points were selected along the Oregon Trail. Three of these were within the visual APE and one is at the Bonneville overlook kiosk (Map 7).



- Visual APE
- ★ Key Observation Points
- APE/Inventory Area
- Oregon Trail



1:24k USGS: Boise South & Lucky Peak
 Scale: 1:100,000 NAD 1983 UTM Zone 11N
 Produced By: ACH T.2N; R.3E 6/16/2023

Base Map Source: Copyright: © 2013 National Geographic Society, I-cubed

Map 7. Key Observation Points for the Micron Boise Expansion Project.

NRHP Evaluation and Integrity

National Register of Historic Places (NRHP) eligibility recommendations are developed for archaeological sites using the appropriate aspects of the cultural background developed above. Site eligibility is based on property type, resource(s) present, and association with Time, Place, and Themes important to local, state, or national history.

The Keeper of the Register (National Park Service [NPS]) noted, “The significance of a historic property can be judged and explained only when it is evaluated within its historic context. Historic contexts are those patterns or trends in history by which a specific occurrence, property, or site is understood and its meaning (and ultimately its significance) within history or prehistory is made clear” ((Andrus and Shrimpton 2002:Part V, No. 1). A historic property is:

Any pre-contact or historic district, site, building, structure, or object included in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and the national register criteria (Advisory Council on Historic Preservation 2004:36CRF800.16 (i) 1).

As defined in 36 CFR Part 60.4 and stipulated in the NPS guidelines for a site to be eligible for the NRHP, a property must be at least 50 years old and meet at least one of four criteria (Andrus and Shrimpton 2002:Part II). Specifically, they state:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That is associated with the lives of significant persons in our past; or
- C. That embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That has yielded or may be likely to yield, information important in history or prehistory.

The integrity of a property – the ability of a resource to convey its importance – is also considered to determine eligibility. There are seven aspects of integrity (Andrus and Shrimpton 2002: Part VIII):

Location is the place where the historic property was constructed or the place where the historic event occurred. The relationship between the property and its location is often important to understand why the property was created or why something happened.

Design is the combination of elements that create the form, plan, space, structure, and style of a property. It results from conscious decisions made during the original conception and planning of a property (or its significant alteration) and applies to activities as diverse as community planning, engineering, architecture, and landscape architecture. Design includes such elements as the organization of space, proportion, scale, technology, ornamentation, and materials.

Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the character of the place in which the property played its historical role.

Materials are the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property. A property must retain the key exterior materials dating from its historic period.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. Workmanship can apply to the property as a whole or to its individual components.

Feeling is a property's expression of the aesthetic or historic sense of a particular period. It results from the presence of physical features that, taken together, convey the property's historic character.

Association is the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character.

Because Feeling and Association depend on individual perceptions, their retention alone is never sufficient to support the eligibility of a property for the NRHP. If an archaeological or architectural resource meets the above criteria, it is termed a "historic property."

Inventory Results

Between May 24 and 29th, 2023, ARH completed a 682.76-acre cultural resource inventory for Micron. At the time of the inventory, site preparation activities had already begun and were in progress. As such, over 307 ac. of the inventory area was un-surveyable due to blasting and cut and fill excavations. In addition, several large spoils piles are present (Figures 8-11).



Figure 8. Panorama View of Ongoing Excavations within the APE.



Figure 9. Ongoing Cut and Fill Excavations within the APE near the Micron Campus.



Figure 10. Spoils Pile in the Eastern Portion of the APE, Heavy Equipment on Top is Approximately 20 ft. Tall.



Figure 11. Overview of Micron Boise Campus and Existing Construction. Note the Large Soils Piles and Cut and Fill Excavations in the Right Portion of the Photograph.

Cultural Sites

Two historic homestead sites (ACH-001 and ACH-004) were recorded, as well as a historic ranching site (ACH-003) and a historic debris scatter (ACH-002). In addition, three previously recorded sites were revisited and updated (Appendix A: Map 8). Updated sites included a portion of the Fivemile Creek Drain (01-22065) and two transmission lines (01-23348 and 01-23617). In addition, 11 isolated resources were recorded and 10 NBNRs were observed.

01-22065

Site 01-22065, the Fivemile Creek Drain, is an irrigation feature that was originally an ephemeral stream before being altered to drain areas that had become inundated with water due to improper irrigation infrastructure (Stevens 2015). Portions of the drain were originally recorded by Zedalis and Joyce in 2007. Portions of the drain have been recorded at least eight times since 2007 and was last recorded by Santarone in 2022.

This newly recorded portion of 01-22065 is near the origin of Fivemile Creek. It is on an alluvial plain with silt-loam sediments and cobbles. Vegetation includes sagebrush, rabbitbrush, and various bunch grasses. The segment includes two improved channels with bermed sides (F-01 and -04) flowing north into a large retaining pond (F-02) which is approximately 400 x 400 ft. Along the main channel (F-01) is a smaller retaining pond and dam (F-01a). The dam is cement and boulder construction. The boulders are angular to blocky in form, and locally sourced. The dam is approximately 5 courses high (3 ft.), 20 ft. long and 2 ft. thick. This segment is in fair condition and retains its historic integrity within the portion surveyed during this project. Feature 4 is a possible shallow channel that splits from F-01 to the south and rejoins F-01 in the north near F-01a. The channel is 800 ft. long and 5 ft. wide in the channel bed and 15 ft. wide at the berms. It is 2 ft. deep, and the berms are 1 ft. high.

The newly recorded portion of the Fivemile Creek Drain are improvements meant to retain local runoff possibly in association with ranching in the area. The Fivemile Creek was primarily modified to remove excess water from agricultural lands inundated due to over irrigation during the early twentieth century. Feature 2, the large retaining pond is visible in a 1957 aerial photograph. Also apparent on the aerial are a large corral and several structures. The reservoir (F-02) is also evident on the 1954 7.5 min. Boise South USGS topographic map.

NRHP

The site, a drain and associated features was determined eligible to the NRHP under Criterion A by the SHPO in 2007. Fivemile Creek Drain is associated with the early development of the Nampa and Caldwell Irrigation District and was instrumental in helping drain agricultural lands that had become waterlogged through excessive irrigation. The drain transported water back to the Boise River. The segment recorded exhibits characteristics that clearly associate the drain with water collection. The presence of two retaining ponds (F-01a and F-02) indicate water storage, not water removal. Furthermore, the segment is near the headwaters of the creek and archival material does not indicate significant agriculture in the area. Considering that the drain's purpose during the period of significance was to remove water, and that features recorded were for the retention of local water, the currently recorded segment is a non-contributing element of the site under Criterion A. The site is not associated with any important persons in local, regional, or national history and is not eligible under Criterion B. It does not embody any distinctive characteristics of a type, period, or form of construction, nor does it represent the work of a master or a unique feat of engineering (not eligible under Criterion C.). It is unlikely to yield much information to address current questions within historic archaeology (not eligible under D).

01-23348

Site 01-23348 is the Idaho Power Transmission Line 210, originally recorded by Valentine in 2020. It is on an alluvial plane with silt-loam sediments. Vegetation consists of sagebrush, rabbit brush, cheat grass, and rice grass. Sediments are a silt-loam with occasional cobbles.

Valentine describes the line as consisting of single pole t-structures. ARH found the site to be in similar same condition described by Valentine in 2020. No additional features or artifacts were noted.

It was built in 1911 by Beaver River Power Company as a 44 kilovolt (kV) line, before later being converted into a three phase 69 kV line (Valentine 2020). Bear River Power Company was a Utah based power

company owned by Lucien Nunn, an entrepreneur who aggressively pushed his company's presence in Idaho by competing with other companies through rate wars, challenging other companies' right of ways, and even tearing down competing lines and shooting at their linemen (Valentine 2020). Line 210 was eventually taken over by Idaho Power, which had formed from the assets of the now-bankrupt Bear River Power Company, as well as four other power companies who had competed themselves into bankruptcy (Valentine 2020).

NRHP

The transmission line was determined not eligible to the NRHP under any criteria, ARH Archaeology concurs with this determination. It is not associated with nationally, regionally, or locally important events or people (not eligible under Criteria A or B). Constructed and engineered features are not unique and are common throughout the world (not eligible under Criterion C) and below surface deposits or other potential for new data is very unlikely (not eligible under Criterion D).

01-23617

This site is the Idaho Power Transmission Line 453. It is on an alluvial plane south of Boise. Sediments are a silt-loam with occasional cobbles. It was originally recorded by Valentine in 2020. Vegetation includes sagebrush, rabbit brush, and invasive grasses such as cheatgrass and ricegrass. The site is located within an alluvial plain, with silt-loam sediments and intermittent cobbles.

The main portion of the line was constructed in 1966, with a tap line running towards the Gowen substation (Valentine 2020). The main portion of the line is 11.26 miles long with 105 pole structures. The tap line is about 1.95 miles long, with 36 pole structures. (Valentine 2020). ARH noted no changes in the condition of the site.

NRHP

The site was determined not eligible to the NRHP under any criteria. ARH concurs with this determination. This line is not associated nationally, regionally, or locally with any important events or people, therefore it is not eligible under Criteria A or B. The construction and materials used on the line are not unique in any way and are standard to many other lines throughout Idaho and the US (not eligible under Criterion C). Additionally, the site has limited potential for additional data to address historical research issues pertaining to power generation and transmission, and it is recommended that it is not eligible under Criterion D.

ACH-001

This is a foundation and an associated well at the mouth of an unnamed north-trending drainage to the south of Boise. Sediments are a silty loam with cobbles. The vegetation is cheatgrass with sage and rabbitbrush. A two-track road is to the north of the site boundary and a north-trending drainage bisects the eastern portion of the site.

The features (F) are concentrated in the south and west portions of the site and include a foundation (F-02) and a possible entrance gate (F-01). There is also a concentration (Conc.) in the northeastern portion of the site. It has approximately 500 artifacts in it. A well (F-03), a weathervane well head are to the east of F-02, and a row of apple trees are along the western edge of the site. Outside the concentration, artifacts are sparsely scattered with no patterning.

Feature 01 (F-01) is a gate consisting of two poured concrete posts. It is near the western boundary of the site. The cement posts are square-shaped with an iron metal hinge and wire reinforcements. Posts are approximately 15 feet apart and are 12x12x36 in.

Feature 02 (F-02) is a structure with a concrete foundation and collapsed walls. It is on a northeast axis and measures approximately 30 by 20 ft. in area. On the southeast edge of the foundation is a collapsed concrete pillar approximately 1 ft. in diameter and about 15 ft. tall. At what would have been the top of the pillar there is a formed concrete bucket with an old milk jug bolted to it. On the southwest side at what appears to be the entrance are the poured concrete steps of a porch. One of the porch steps appears to have "Fred" inscribed. A 1938 Metsker map shows the land was owned by Fred Estes. Artifacts associated with the feature include milled lumber, a car seat spring, various varieties of glass including green, brown, and some aqua, and metal. Collapsed portions of the walls are on the foundation and extending to the east.

Feature 03 (F-03) is a well that is square in plan (4x4 ft.) and appears to have been constructed from poured concrete with forms. The foundation of the well is constructed from local cobbles and boulders with concrete mortar. The collar is approximately 3 ft. high. There is modern debris inside the well, and it is at least 4 ft. in depth.

Concentration 01 (Conc. 01) is a historic debris scatter that is approximately 100 ft. long and 20-30 ft. wide. The concentration is to the northeast of F-02 and is in a drainage that is north-trending. Within the concentration, sanitary cans (n=10), can parts (n=50), flat-top beverage cans (n=20), metal fragments (n=27), coffee cans (n=15), fuel tins (n=5), and meat tins (n=5) were noted. Also present are glass fragments of various colors including clear, green, blue, and aqua (n=100) glass, flat colorless glass, possible uranium glass, and milk glass. There is also milled wood and brick fragments present. Elsewhere hole-in-top cans, bottle fragments, metal, milled lumber, and wire are present. Numbered artifacts include bottles (A-01 through -04). Artifact 1 is a clear bottle base with "Pli0464/ 86" embossed on the base. Artifact 2 is a clear bottle body fragment with a red and white lithographic label stating "4.../...ontents." Artifact 3 is a square bottle base with "Ball/D-23." Artifact 4 is a colorless oval shaped bottle base with an indistinguishable maker's mark.

Based on the types of artifacts noted and features, it is likely that this homestead was occupied from the early 1900s to the 1950s. Archival research resulted in no additional information about Mr. Fred Estes. The 1957 aerial photographs indicate the site originally had a farmhouse (F-02) and a barn (razed). A cursory examination of the debris in F-03 suggests minimal depth. Elsewhere, the site appears to be mostly surficial in nature.

NRHP

This homestead is recommended not eligible to the NRHP under any criteria. The homestead is not associated with an important period of development in the history of settlement, agriculture or ranching in the region (not eligible under Criterion A). While the homestead is within property noted as being owned by a Mr. Fred Estes in 1938, no information could be found on this individual. As such, the site is not associated with an important individual on a local, regional, or national level (not eligible under Criterion B). The site does contain any intact architectural features and the archaeological features are ubiquitous (not eligible under Criterion C). Debris noted at the site and within F-03 is consistent with residential debris associated with a homestead. Buried deposits are unlikely based on the depositional context of the site. In addition, artifacts observed do not contribute to current research agendas concerning the settlement and expansion of rural Boise, Idaho beyond the current recordation (not eligible under Criterion D).

ACH-002

This is a sparse can scatter on an alluvial fan. Vegetation includes rabbitbrush, sagebrush, cheatgrass, and some rice grass and forbs are also present. A north-trending fence line bisects the site and there is an east-trending two-track road to the South.

Artifacts showing no patterning and appear to be displaced. They include single serve sanitary cans (n=3), flat top cans (n=6), and metal fragments (n=10). Flat top cans are church key opened. Considering the artifact assemblage, the site was likely the result of ranching or recreational activity in the 1950s.

NRHP

This resource, a historic debris scatter, is recommended not eligible to the NRHP under any criteria. The surface assemblage includes sanitary cans, flat-top beverage cans, and metal fragments. The site lacks temporal and functionally diagnostic artifacts or features and cannot be associated with nationally, regionally, or locally important events or people (not eligible under Criteria A or B). Constructed or engineered features were not noted, and the site is not a unique resource (not eligible under Criterion C). Artifacts noted during recordation show no patterning and the lack of diversity and sparse nature of the assemblage indicate minimal potential to encounter buried deposits. As such, the data potential of the site has been sufficiently captured through the current recordation and the site is not eligible under Criterion D.

ACH-003

This site is a ranching site on a flat bisected by Fivemile Creek. Sediments are a silty loam with occasional cobbles. Vegetation includes sagebrush, rabbitbrush, and invasive grasses. Portions of the Fivemile Creek Drain site (01-22065) intersect the western portion of the site and there is evidence of cattle activity along drainage channels.

The majority of artifacts are within three concentrations (Conc. 1-3) that are in the western portion of the site. The eastern edge of the site is defined by a sparse scatter of artifacts and Feature 05 (F-05), a modified north-trending drainage. The corral and stall (F-01) are in the northern portion of the site.

The corral is an L-shaped corral with F-01 at in the southwestern portion of the corral. The corral has been segmented into three fenced-in areas approximately 100x50 ft. in size. The majority of the posts have collapsed, and the fence is a combination of chicken wire and barbed wire. Posts are 4 in. in diameter and 5 to 6 ft. high. Within the corrals, metal fragments, can parts, wire nails, bolts, and milled lumber fragments are present.

Feature 01 is a collapsed stall (15x10 ft.) with associated corrals between Fivemile Creek and an unnamed intermittent drainage. The stall had a corrugated roof and was constructed with 2x6, 4x6, and 2x4s. Wire nails and bolts were used to join the boards. There are various metal fragments scattered around the structural debris.

Feature 05 is a northwest-trending wash that has been modified with two dams (F-05a and F-05b) and associated retaining ponds. The channel bed is 3 ft. wide and 10 ft. wide at the berms. It is 4 ft. deep, and the recorded portion is approximately 940 ft. in length. F-05a is a concrete and boulder dam (20x2 ft.) across the drainage. The boulders are local material and stacked 7 courses high (3 ft.). It is breached on the north end. The retaining pond upstream of the dam is 80x60 ft. in area. F-05b is a concrete and boulder dam (30x4 ft.) across an unnamed drainage. The boulders are local material and stacked 7 courses high (4 ft.). It is breached on the north end. The retaining pond is bermed and 100x50 ft. in area.

Concentration 01 is a confined scatter (8x4 ft.) of hole-in-top (n=13), single serve (n=18) and multi-serve sanitary cans (n=20), and wire. Hole-in-top cans date from 1900 (Simonis 1997). It is located in a depression adjacent to the main channel of Fivemile Creek Drain.

Concentration 02 is a dense debris scatter (40x20 ft.) in a channel of the Fivemile Creek. Artifacts consist of cans, a small blast furnace, car parts, small drums, sheet metal, stove parts, fuel tins, sanitary cans (43 single serving and 91 multi-serve), hole-in-top (n=229), coffee, external friction, flat top (n=81) oil cans, spice tins, barrel hoops, brown and green glass bottles, lumber, and wire. Also present are ceramics

including possible uranium ware plates and bowls (n= 5). Several oil cans have "SAE" and lithography denoting 76 brand oil. Debris dates from the 1920s to 1970s.

Concentration 03 is a discrete concentration (10 ft. in dia.) of paint cans (n=10), sanitary cans (n=4), a fuel tin, and jar fragments (n=5). It is near Concentration 02 and in the channel of the Fivemile Creek.

Outside of the concentrations, artifacts are sparsely scattered and include milled lumber, glass, and can parts. Diagnostic artifacts include a brown glass bottle with "6111 / 10 [H with anchor symbol] 62 / 12" Embossed on the base (A-01). A metal bucket with a "76" logo painted on it (A-02). Artifact 03 is a brown metal sign with "...LINE / SINCLAIR AHEAD". It is approximately 3 ft. by 6 ft. and partially crushed.

The site is in proximity to a house noted on the 1910 GLO plat map for T2S, R3E. The Metsker Map indicates that Catherine Robbins owned the property in 1938. No further information is available on this individual. A 1957 aerial photograph of the area indicates the site was an extensive ranching operation. The corrals and several buildings are visible along an unnamed dirt road leading to the site. Concentration 1 dates to the early portion of the twentieth century, while Conc. 2 and 3 postdate 1940 and contain mostly commercial items possibly associated with a gas station. Considering this, the site likely consists of deposition from two occupational activities, one associated with the ranching operations and another associated with the historic highway U.S. 30 which is to the west approximately 100 meters from Conc. 2 and 3.

NRHP

This ranching site consisting of a corral and three concentrations, is recommended not eligible for inclusion in the NRHP under any criteria. The site is the result of generalized ranching and later debris is likely associated with refuse from a gas station or repair shop along U.S. Highway 30. This debris dates to throughout the later part of the twentieth century. The site is not associated with any significant event or person on a local, regional, or national level (not eligible under Criterion A or B). No architectural features were noted, and the site is not an unusual site type (not eligible under Criterion C). Artifact scatters and depositional environment indicate minimal deposition of cultural materials. In addition, artifacts have limited functional information. Considering this, the site's potential to contribute to pertinent current research agendas is limited, and the current recordation sufficiently captures the research potential of the site (not eligible under Criterion D).

ACH-004

This is a homestead on a flat near Federal Way. It is on an alluvial plane and sediments are a silty loam. Vegetation is sagebrush with some rabbit brush and invasive grasses. The water table is approximately 2 ft. below the surface. The site has been impacted by the construction of the staging area to the east, a pushed pile to the north, and grading in the center of the site. There's also a potential looters pit and associated back dirt pile and within the southeast portion of Conc. 01.

Artifacts are concentrated (Conc. 01) in the southern portion of the site. A portion of a foundation (F-01) and well (F-02) are in the northern portion of the site. There is also a standing cottonwood tree north of F-02.

Feature 01 is a portion of a foundation and depression in the eastern portion of the site. The foundation is constructed from 1×4 ft. blocks of granite with older cinder blocks on the interior. The intact portion of the foundation is around 12 ft. long. There are also five poured concrete chunks to west of the foundation. It is not clear if they are associated. There is a slight depression to the east of the foundation which is around 12 ft. in diameter.

Feature 02 is a concrete and cinder block well (4x4 ft.) in the eastern portion of the site. The well is lined with rounded boulders and the water table is 4 ft. below the surface. The concrete and cinder block cap is square with a wood frame. It is about 3 feet above ground.

Concentration 01 is an artifact scatter to the south of F-01 and F-02. There is an associated possible looters pit in the northeastern portion of the concentration. Artifacts are highly fragmented and include bottle glass, metal, can fragments, a frying pan, and lumber fragments.

Diagnostic artifacts include a small clear glass jar approximately 3 inches tall and 1.5 inches in diameter (A-01). There is a maker's mark on the base with "A-S / 12 [Owen Illinois mark] 2 / 17." A brown glass jar base with the maker's mark "1601-CB" (A-02). A brown glass jar base with the maker's mark "D 11 / 56-46" (A-03). A brown glass jar base (A-04) with "CLOROX" embossed on it. Artifact 5, a metal frying pan with "MADE IN USA / NATIONAL" embossed on the handle. It is partially crushed. Artifact 6 is a clear glass bottle base with "D 23 / 101-42" embossed on it.

The site is in proximity to a house noted on the 1910 GLO plat map for T2S, R3E. The Metsker map indicates that Catherine Robbins owned the property in 1938. No further information is available on the individual. Historic aerials dating to 1957 depicts a house and several structures in the site's location. Diagnostic makers' marks range from the 1920s to 1940s or 50s.

NRHP

This homestead is recommended not eligible for inclusion in the NRHP under any criteria. While the site is a homestead, it cannot be associated with any significant event or person on a local, regional, or national level (Not eligible under Criterion A or B). No architectural features were noted, and the site is not an unusual site type (Not eligible under Criterion C). Artifact scatters and depositional environment indicate minimal deposition of cultural materials. The water table is approximately 2 ft. below ground surface limiting the potential to encounter buried intact features. In addition, artifacts have limited functional information. Considering this, the site's potential to contribute to pertinent current research agendas is limited, and the current recordation sufficiently captures the research potential of the site (Not eligible under Criterion D).

Isolates and Noted Not Recorded Resources

Eleven isolates and ten noted-but-not-recorded-resources were noted within the project area (Appendix A: Map 9). Isolates include a large barrel Hoop (ISO-ACH-001), a scatter of four cans (ISO-ACH-002), three pieces of sheet metal (ISO-ACH-003), a bottle base (ISO-ACH-004), two cans and a metal fragment (ISO-ACH-005), a well (ISO-ACH-006), an Amethyst bottle fragment (ISO-ACH-007), metal strapping (ISO-ACH-009), a multiple serving sanitary can (ISO-ACH-010), a debris scatter with a milk tin, coffee can, single serve can, hole-in-top can and 2 metal fragments (ISO-ACH-011) and an enameled steel coffee pot with an internal friction can that has been nail-punched to make a sieve (ISO-ACH-012).

Twelve shovel test probes (STP) were excavated around ISO-ACH-006 in order to determine if the well is part of a larger homestead. Shovel test probes were excavated at varying distances from the well in a circular pattern. All test probes were dug to approximately 60 centimeters below surface. No artifacts were noted other than a cement trough exposed in STP-12. This probe was directly adjacent to the well. Other probes were excavated in sediments that were relatively homogeneous (Table 5). The trough suggests the well was used for irrigation.

Table 5. Shovel Test Probes Results

STP	Level	Depth Below Surface	Sediment Consistency	Sediment Color	Sediment Texture	Cultural Constituents	Comment	Photograph (Appendix B)
STP-01:	Level 1	0-20cm	Homogenous	Grayish Brown	Silty Loam	Sterile	Southwest of well, depression is likely rodent burrow.	Figure 12
	Level 2	20-40cm	Homogenous	Grayish Brown	Silty loam	Sterile		
	Level 3	40-60cm	Homogenous	Grayish Brown	Silty Loam	Sterile	Terminated due to lack of artifacts.	
STP-02:	Level 1	0-20cm	Homogenous	Brown	Silt Loam	Sterile		Figure 13
	Level 2	20-40cm	Homogenous	Brown	Silt Loam	Sterile		
	Level 3	40-60cm	Homogenous	Brown	Silt Loam	Sterile		
STP-03:	Level 1	0-20cm	Homogenous	Brown	Silt Loam	Sterile		Figure 14
	Level 2	20-40cm	Homogenous	Brown	Clay Loam	Sterile		
	Level 3	40-60cm	Homogenous	Brown	Clay Loam	Sterile		
STP-04:	Level 1	0-20cm	Homogenous	Brown	Silt loam	Sterile		Figure 15
	Level 2	20-40cm	Homogenous	Brown	Silt Loam	Sterile		
	Level 3	40-60cm	Homogenous	Brown	Silt Loam	Sterile		
STP-05:	Level 1	0-20cm	Homogenous	Dark Brown	Silt loam	Sterile		Figure 16
STP-05	Level 2	20-40cm	Homogenous	Dark Brown	Silt loam	none		
	Level 3	40-60cm	Homogenous	Dark brown	Silty loam	none		
STP-06:	Level 1	0-20cm	Homogenous	Grayish Brown	Silty Loam	sterile		Figure 17
	Level 2	20-40cm	Homogenous	Grayish Brown	Silty loam	Sterile		
	Level 3	40-60cm	Homogenous	Grayish Brown	Silty loam	none		
STP-07:	Level 1	0-20cm	Homogenous	Dark Brown	Loamy clay	Sterile		Figure 18
	Level 2	20-40cm	Homogenous	Dark Brown	Loamy clay	Sterile		
	Level 3	40-60cm	Homogenous	Dark Brown	Loamy clay	Sterile		
STP-08:	Level 1	0-20cm	Homogenous	Dark Brown	Silt loam	Sterile		Figure 19
	Level 2	20-40cm	Homogenous	Dark Brown	Silt Loam	Sterile		
	Level 3	40-60cm	Homogenous	Dark Brown	Silt loam	Sterile		
STP-09:	Level 1	0-20cm	Homogenous	Light brown	Clay loam	Sterile		Figure 20

Table 5. Shovel Test Probes Results

STP	Level	Depth Below Surface	Sediment Consistency	Sediment Color	Sediment Texture	Cultural Constituents	Comment	Photograph (Appendix B)
	Level 2	20-40cm	Homogenous	Light Brown	Clay loam	Sterile		
	Level 3	40-60cm	Homogenous	Brown	Clay loam	Sterile	Comments: Rock at 43 cm	
STP-10:	Level 1	0-20cm	Homogenous	Dark Brown	Clay loam	Sterile		Figure 21
	Level 2	20-40cm	Homogenous	Dark Brown	Clay loam	Sterile		
	Level 3	40-60cm	Homogenous	Dark Brown	Clay loam	Sterile		
STP-11	Level 1	0-20cm	Homogenous	Gray Brown	Clay loam	Sterile		Figure 22
	Level 2	20-40cm	Homogenous	dark Brown	Clay loam	Sterile		
	Level 3	40-60cm	Homogenous	Dark Brown	Clay loam	Sterile		
STP-12	Level 1	0-20cm	Homogenous	Light Gray brown	silty loam. Gravel intrusions	Trough feature from well	Terminated at ~5cm due to concrete trough.	Figure 23

The isolates are recommended not eligible to the NRHP under any criteria. They cannot be related to an important event or person on a local, regional, or national scale (not eligible under Criteria A or B). The isolated resources do not have any engineered attributes; nor are they unique or of outstanding workmanship (not eligible under Criterion C). In addition, these resources are single items. As such, the current recordings have sufficiently captured the data potential on the resources, and they are recommended not eligible under Criterion D.

NRNB resources are recent historic-aged resources (Table 6).

Table 6. NBNR's Noted During the Inventory.

NBNR Number	Description
NBNR-ACH-001	other: Heavy Equipment fuel Tank
NBNR-ACH-002	other: Sheet metal
NBNR-ACH-003	other can: Fuel tin
NBNR-ACH-004	other: auto fender
NBNR-ACH-005	other: stamped sheet metal
NBNR-ACH-006	other can: coffee can
NBNR-ACH-007	other: concrete post bases
NBNR-ACH-008	single serv. sanitary can: 5 fragments
NBNR-ACH-009	dump area: Cement and lumber push pile with 1978 bottle.
NBNR-ACH-010	other: Sheet metal sign with lithography "Sale..."

Project Effects

As ARH understands it, Micron will be constructing new fabrication facilities over the next seven years. Construction will impact 541 ac. This includes cut and fill excavations and the building of structures. Structures will likely be similar size as existing facilities except for the fabrication facility and gas plant towers. The gas plant may have two to three towers 185 ft. in height. The fabrication facility, when built, will be one of the largest buildings in Idaho, and 160 ft. in height. Potential impacts to cultural resources will include ground disturbance, changes in the landscape, and associated increased urbanization of the City of Boise's urban/rural interface. Construction began in 2022 and at the time of inventory 307 ac. were disturbed precluding the ability to assess effects.

Within the inventory area not impacted by existing construction, three existing sites and four newly recorded sites were recorded. Two existing sites (01-23348 and 01-23617) are not eligible to the NRHP. One site, 01-22065, is eligible to the NRHP under Criterion A. The updated segment of the 01-22065 consists of two modified portions of the Fivemile Creek. These sections are improved and have water collection features. The Fivemile Creek Drain is significant in that it was a project completed by the BOR to remove excess water from irrigated land in the Nampa and Caldwell Canal District (eligible under Criterion A). Considering that the features are aligned with water retention, the updated segment is a non-contributing element of the resource.

One significant resource, the Oregon Trail (10AA121/01-2627), is within the visual APE. Visual impacts were analyzed using ArcGIS 10, Google Earth, and through visual assessment. Four KOP were identified within the intersecting viewshed of the trail and the largest proposed structures: the fabrication facility and gas plant tower. Based on the existing urban landscape and modeled viewshed, the impact of the new facilities will likely be considered a Class 4 impact. That is, they will be plainly visible, but do not draw

attention. This is due to the size of the Fabrication plant and considering that the current facilities are visible from the KOPs. Following Pay et al. (2020:22):

[Class 4 is t] he true “middle of the road” is Argonne’s Visibility Level 4, in which additions are ‘plainly visible and could not be missed by a casual observer, but they do not strongly attract visual attention or dominate a view because of apparent size’. BLM Nevada’s position is that distances associated with Visibility Level 4 would generally not cause effects of an acute nature to be considered adverse, but that possibility may exist in some cases.

As Figures 24-27 show, the addition of the fabrication facility and gas tower minimally impacts the viewshed of the Emigrant trail. As one travels down the Tenmile bench, it is hard not to ignore the City of Boise’s urban interface.

Considering that recorded cultural resources are considered not eligible to the NRHP, or non-contributing elements of NRHP eligible sites, it is recommended that a



a



b

Figure 24. Viewshed Model (a) and Corresponding Photograph from KOP 1.

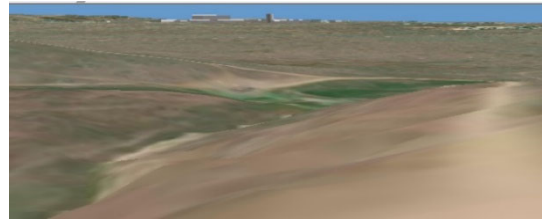
finding of No Adverse Effect is appropriate for the physical effects of the project.

Visual impacts to nearby NRHP eligible resources will be moderate. The final buildings will be noticeable but will not draw attention. This impact can be further mitigated by painting the proposed buildings in neutral to daub color. It is recommended that paint schemes for the new facilities maximize blending in of the buildings with the landscape. Guidance on application of concealment paint schemes (i.e., camouflage) is provided by the Bureau of Land Management's *The Use of Color for Camouflage Concealment of Facilities. Tech Note 446* (BLM 2015). If paint schemes are utilized to help conceal the new facilities, a finding of No Adverse Effect is appropriate in considering visual impacts and an overall finding of **No Adverse Effect** is appropriate for the project as a whole. Considering that construction is ongoing, it is recommended that the following sites: 01-22065, ACH-01 through -04 and ISO-ACH-006 be avoided until concurrence with IDAHO SHPO is received. As such, it is recommended that these resources be buffered by 15 m to ensure they are not impacted (Map 10).

Conclusion

In March 2023, ARH completed a 682.76-acre inventory for WSP as part of Micron's Boise fabrication plant south of Boise, Idaho. The inventory was completed to fulfill potential obligations under Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended due to potential federal funding under the United States Chips and Science Act of 2022. An inventory area of 990.26 acres (ac.) was identified prior to the inventory. At the time of the inventory, ground disturbance activities had already commenced, and 307.5 acres (ac.) had been subject to vegetation removal, blasting, and cut and fill excavation in preparation of the building site and staging areas. Of the 990 ac., 682.76 ac. were intensively inventoried.

The inventory resulted in the recordation of 7 sites, 11 isolates, and 10 NBNRs. Six of the sites are recommended and not eligible to the NRHP. One site, the Fivemile Creek Drain (01-22065) is eligible to the NRHP under Criterion A, but the recorded segment is a non-contributing element of the site. All isolated resources are not eligible to the NRHP. The NBNRs are not evaluated for inclusion in the

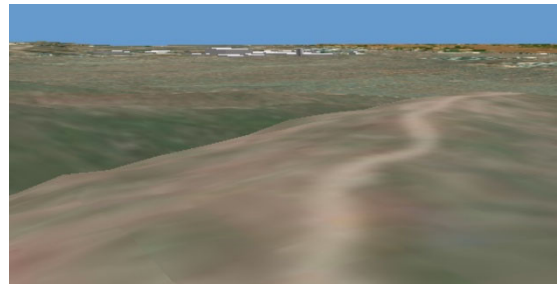


a



b

Figure 25. Viewshed Model (a) and Corresponding Photograph from KOP 2.



a



b

Figure 26. Viewshed Model (a) and Corresponding Photograph from KOP 3.

NRHP. An assessment of potential visual impacts to the Oregon Trail (10AA121/01-2627) suggest a potential impact to the character and feeling of the trail; however, this impact can be mitigated through using neutral paints to help conceal the buildings in the landscape. In addition, the updated portion of the Fivemile Creek Drain (01-22065) will not be impacted. As such, it is recommended that sites ACH-01 through ACH-004 and ISO-ACH-006 be avoided until concurrence with Idaho SHPO is received. If paint schemes are utilized to minimize visual impacts a finding of **No Adverse Effect** is appropriate for this undertaking. If any additional cultural resources are encountered during the course of the project, all ground-disturbing activities should cease until a qualified cultural resource specialist is consulted.

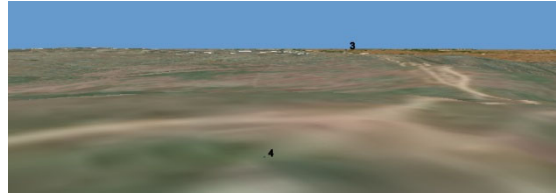
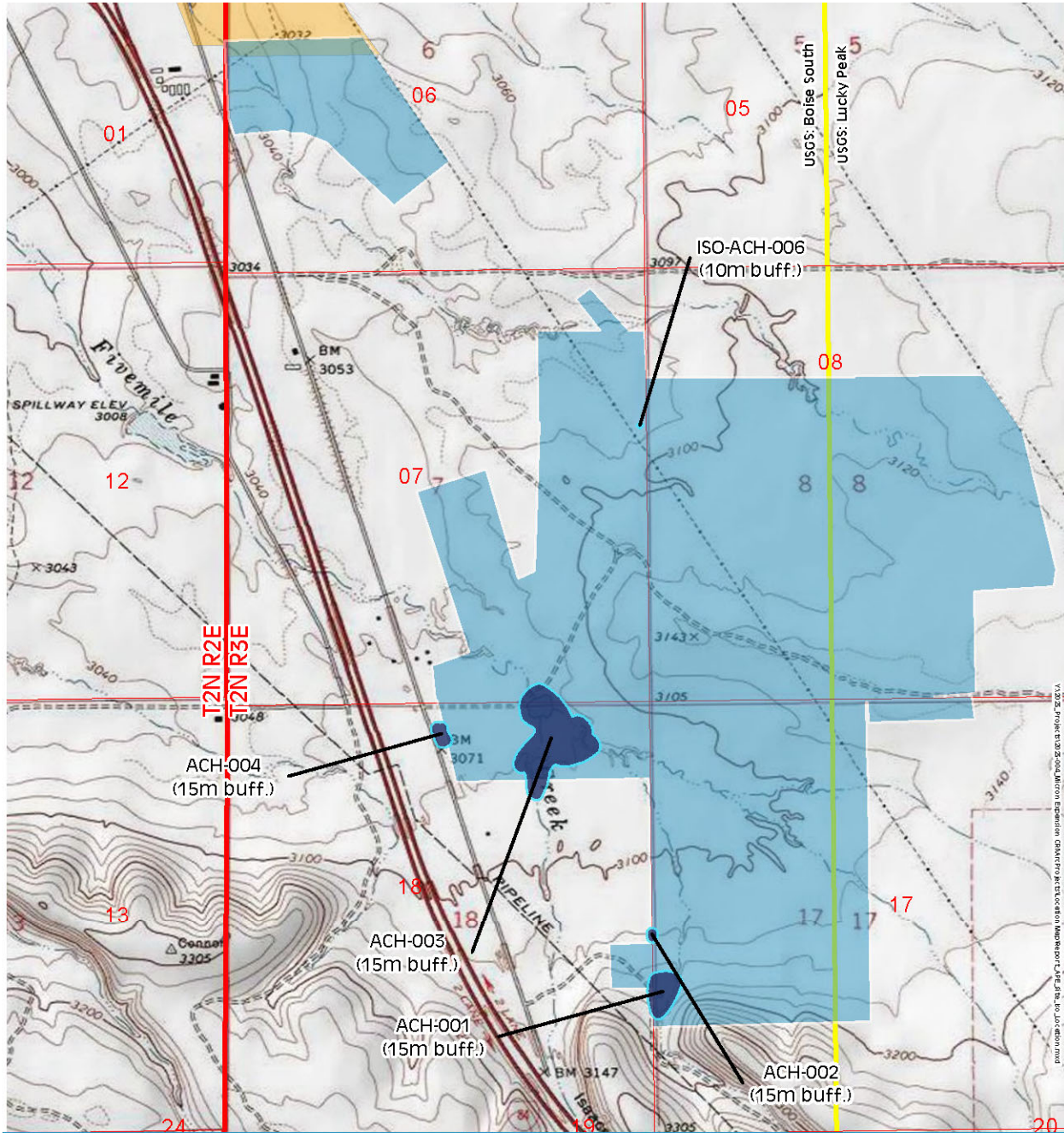


Figure 27. Viewshed Model (a) and Corresponding Photograph from KOP 4.



■ APE/Inventory Area

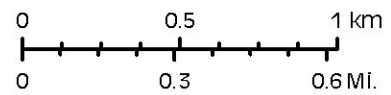
■ Resource Buffers

Land Use

■ ST

□ PVT/ UND

Base Map Source: Copyright: © 2013 National Geographic Society, I-cubed



1:24k USGS: Boise South & Lucky Peak
Scale: 1:24,000 NAD 1983 UTM Zone 11N
Produced By: ACH T.2N; R.3E 6/16/2023

Map 10. Buffered Resources.

References

Advisory Council on Historic Preservation

2004 Protection of Historic Properties. *36 CFR Part 800*.

Ames, Kenneth A., Kristen A. Fuld, and Sara Davis

2010 Dart and Arrow Points on the Columbia Plateau of Western North America. *American Antiquity* 75:287–325.

Andrus, Patrick, and Rebecca H. Shrimpton

2002 *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin. U.S. Department of the Interior, National Park Service, Washington D. C.

Anon

2018 Boise State University Encyclopedia: St. Margaret's School for Girls. *Archives*.

<https://archives.boisestate.edu/encyclopedia-st-margarets-school-for-girls/>, accessed September 12, 2019.

Beck, Charlotte, George T. Jones, and David Rhode

2012 The Clovis-Last Hypothesis: Investigating Early Lithic Technology in the Intermountain West. In *Meeting at the Margins: Prehistoric Cultural Interactions in the Intermountain West*, pp. 23–46. University of Utah Press, Salt Lake City, Utah.

Bettinger, Robert L.

1999 What Happened in the Medithermal. In *Models for the Millennium: Great Basin Anthropology Today*, edited by Charlotte Beck, pp. 62–74. University of Utah, Salt Lake City.

Binford, Lewis R.

1980 Willow Smoke and Dogs' Tails: Hunter-gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45(1):4–20.

Bird, Annie Laurie

1934 *Boise, The Peace Valley*. Caxton Printers, LTD, Caldwell, Idaho.

Black, Marielle Loryn Pedro

2014 Using X-Ray Fluorescence Spectrometry to Assess Variance in Obsidian Source Distribution in Southern Idaho. Unpublished Thesis, Boise State University, Boise, Idaho.

Broughton, Jack M., David A. Byers, Reid A. Bryson, William Eckerle, and David B. Madsen

2008 Did Climatic Seasonality Control Late Quaternary Artiodactyl Densities in Western North America? *Quaternary Science Review* 27(19–20):1916–1937.

Butler, B. Robert

1978 *A Guide to Understanding Idaho Archaeology (Third Edition): the Upper Snake and Salmon River Country*. Idaho State Historic Preservation Office, Boise.

1986 Prehistory of the Snake and Salmon River Area. In *Great Basin*, edited by Warren L. D' Azevedo, 11:pp. 127–134. Handbook of North American Indians. Smithsonian Institution, Washington D. C.

City of Boise, Boise City Department of Arts and History, and Idaho Satesman
2013 *History Of Boise*. Boise, Idaho.

Couture, M. D., M. F. Ricks, and L. Housley

1986 Foraging Behavior of a Contemporary Northern Great Basin Population. *Journal of California and Great Basin Anthropology* 8(2):150–160.

Davis, Loren G., Samuel C. Willis, and Shane J. Macfarlan

2012 Lithic Technology, Cultural Transmission, and the Nature of the Paleoarchaic/Paleoindian Co-Tradition. In *Meeting at the Margins: Prehistoric Cultural Interactions in the Intermountain West*, edited by David Rhode, pp. 47–64. University of Utah Press, Salt Lake City, Utah.

Founder, By Don Day BoiseDev Editor &

2022 Micron files plan for Boise expansion. *Idaho Press*.

https://www.idahopress.com/community/money/micron-files-plan-for-boise-expansion/article_6fd723e2-5159-11ed-94aa-0704db8fe84c.html, accessed May 24, 2023.

Fowler, Cathrine S., and Sven Liljeblad

1986 Northern Paiute. In *Great Basin*, edited by Warren L. D' Azevedo, 11:pp. 435–465. Handbook of North American Indians. Smithsonian Institution, Washington D. C.

Franzen, John G.

1981 *Southeastern Idaho Cultural Resources Overview: Burley and Idaho Falls Districts*. Commonwealth Associates, Inc., Michigan.

Fulkerson, Tiffany J.

2012 Climate Change at the Pleistocene-Holocene Boundary in the Pacific Northwest: A Comparison of Proxy Datasets and the Archaeological Record. Unpublished Thesis, Eastern Washington University, Cheney, Washington.

Gehr, Elliott, Lee G. Johnson, J. Merritt, and Nelson, S.

1982 *Southwestern Idaho Class I Cultural Resources Overview for the Bureau of Land management, Boise and Shoshone District, Idaho*. Professional Analysists, Eugene, Oregon.

Goebel, Ted, Bryan Hockett, Kenneth D. Adams, David Rhode, and Kelly E. Graf

2011 Climate, environment, and humans in North America's Great Basin during the Younger Dryas, 12,900-11,600 calendar years ago. *Quaternary International* 242:479–501.

Gould, Russell T., Mark G. Plew, and Mark G. Plew

1996 Prehistoric Salmon Fishing in the Northern Great Basin: Ecological Dynamics, Trade-Offs, and Foraging Strategies. In *Prehistoric Hunter-Gatherer Fishing Strategies*, pp. 64–83. Boise State University, Boise, Idaho.

Grayson, Donald K.

2011 *The Desert's Past: A Natural Prehistory of the Great Basin*. University of California Press, Berkeley and Los Angeles, California.

Green, Thomas J.

1993 Aboriginal Residential Structures in Southern Idaho. *Journal of California and Great Basin Anthropology* 15:58–72.

Henrikson, L. Suzann

2002 Ponds, Rivers and Bison Freezers: Evaluating a Behavioral Ecological Model of Hunter-Gatherer Mobility on Idaho's Snake River Plain. Unpublished Dissertation, University of Oregon, Eugene, Oregon.

Henrikson, Suzann L.

2008 Going with the Flow: The Impact of Holocene Fissure Eruptions on Obsidian Source Use in Southeastern Idaho. *Journal of California and Great Basin Anthropology* 28(2):153–165.

Hester, Thomas R.

1973 *Chronological Ordering of Great Basin Prehistory*. University of California Archaeological Research Facility Contributions No. 17. University of California, Berkeley, Berkeley, California.

Holmer, Richard N.

2009 *Field Guide: Projectile Points of Eastern Idaho*. 7th ed. Idaho Museum of Natural History, Pocatello.

Hutchison, J. D., and L. R. Jones

1993 *Emigrant Trails of Southern Idaho, Adventures in the Past*. Idaho Cultural Resource Series No. 1. BLM State Office and Idaho State Historical Society, Boise, Idaho.

Idaho State Historical Society

1971 Irrigation in Idaho. In . Idaho State Historical Society Reference Series 260. Idaho State Historical Society, Boise, Idaho.

Jenkins, Dennis L., Thomas J. Connolly, and C. Melvin Aikens

2004 Early and Middle Holocene Archaeology in the Northern Great Basin: Dynamic Natural and Cultural Ecologies. In *Early and Middle Holocene Archaeology of the Northern Great Basin*, edited by Dennis L. Jenkins, Thomas J. Connolly, and C. Melvin Aikens, pp. 77–93. University of Oregon Anthropological Papers 62. Museum of Natural History and Department of Anthropology, University of Oregon, Eugene, Oregon.

Jenkins, Dennis L., Loren G. Davis, Thomas W. Stafford, Paula F. Campos, Bryan Hockett, George T. Jones, Linda S. Cummings, Chad Yost, Thomas J. Connolly, and Robert M. Yohe II
2010 Clovis Age Western Stemmed Projectile Points and Human Coprolites at the Paisley Caves. *Science* 13(6091):223–228.

Jones, Terry L., Gary M. Brown, Mark L. Raab, Janet L. Mcvickar, W. Geoffrey STPaulding, Douglas J. Kennett, Andrew York, and Phillip L. Walker
1999 Environmental Imperatives Reconsidered: Demographic Crises in Western North America During the Medieval Climatic Anomaly. *Current Anthropology* 40(2):137–169.

Justice, Noel D.
2002 *Stone Age STPear and Arrow Points of California and The Great Basin*. Indiana University Press, Bloomington.

Keene, Joshua L.
2016 Geoarchaeology and Geomorphology of the Pioneer Archaeological Site, Upper Snake river Plain, Idaho, USA. *Geoarchaeology* 31:283–302.

Meatte, Daniel S.
1990 *Prehistory of the Western Snake River Basin*. Occasional Papers of the Idaho Museum of Natural History 35. Northwest Printing, Pocatello.

Natural Resources Conservation Service
2023 *Custom Soil Resource Report for Ada County, Idaho: City of Boise Recycled Water CRI*. U. S. Department of Agriculture, Natural Resources Conservation Service.

Othberg, Kurt L.
1994 *Geology and Geomorphology of the Boise Valley and Adjoining Areas, Western Snake River Plain, Idaho*. Idaho Geological Survey. University of Idaho, Moscow, Idaho.

Othberg, Kurt L., and Loudon R. Stanford
1992 *Geologic Map of the Boise Valley and Adjoining Area, Western Snake River Plain, Idaho*. Idaho Geological Society, Moscow, Idaho.

Pavesic, Max G.
1985 Cache Blades and Turkey Tails: Piecing Together the Western Idaho Archaic Burial Complex. In *Stone Tool Analysis: Essays in Honor of Don E. Crabtree*, edited by Mark G. Plew, Max G. Pavesic, and James C. Woods, pp. 55–89. University of New Mexico Press, Albuquerque, New Mexico.

Pay, Nicholas Blurton, Bryan Hockett, and Tanner Whetsone
2020 DEFINING A VISUAL AREA OF POTENTIAL EFFECTS TO HISTORIC PROPERTIES ON BLM LANDS IN NEVADA. Nevada BLM.

- Plew, Mark G.
2008 *The archaeology of the Snake River Plain*. 2nd ed. Boise State University, Boise, Idaho.
- Robertson, Donald B.
1991 *Encyclopedia of Western Railroad History*. Vol. II. IV vols. The Mountain States: Colorado, Idaho, Montana, Wyoming. Taylor Publishing Company, Dallas, Texas.
- Roll, Tom E., and Steven Hackenberger
1998 Prehistory of the Eastern Plateau. In *Handbook of North American Indians*, edited by Deward E Walker, 12:pp. 120–137. Smithsonian Institution, Washington D.C.
- Scheiber, Laura L., and Judson Byrd Finley
2011 Obsidian Source Use in the Greater Yellowstone Area, Wyoming Basin, and Central Rocky Mountains. *American Antiquity* 76:372–394.
- Shuman, Bryan N., and Jeremiah Marsicek
2016 The Structure of Holocene Climate Change in Mid-Latitude North America. *Quaternary Science Reviews* 141:38–51.
- Simonds, William Joe
1997 *The Boise Project*. Research of historic Reclamation projects 66 p. Bureau of Reclamation History Program, Denver, Colo.
- Simonis, Donald
1997 *Simonis Can Guide*. Bureau of Land Management, Kingman Field Office, Kingman, Arizona.
- Stacy, Susan M.
1993 *When the River Rises*. Boise State University, Boise, Idaho.
- Stevens, Jennifer A
2015 *Water in the Boise Valley: A History of the Nampa and Meridian Irrigation District*. SHRA, Boise, Idaho.
- Steward, Julian
1938 *Basin-Plateau Aboriginal Soci-Political Groups*. Smithsonian Institution, Washington, D.C.
- Steward, Julian, and Erminie Wheeler-Voegelin
1974 *The Northern Paiute*. Garland Publishing, Inc., New York, New York.
- Thomas, David Hurst
1981 How to Classify the Projectile Points from Monitor Valley, Nevada. *Journal of California and Great Basin Anthropology* 3(1):7–43.

U.S. Department of the Interior, Bureau of Reclamation
1982 *Boise project: Idaho, Elmore, Ada, Boise, Canyon, Gem, and Payette Counties: Oregon, Malheur County*. 18 p. U.S. Department of the Interior, Bureau of Reclamation, Washington, D.C.

Wells, Merle W., and Aurthor Hart
2000 *Boise: An Illustrated History*. American Historical Press, Sun Valley, California.

Western Regional Climate Center
2017 *Idaho Climate Summaries. Idaho Climate Summaries*.
<https://wrcc.dri.edu/summary/climsmid.html>.

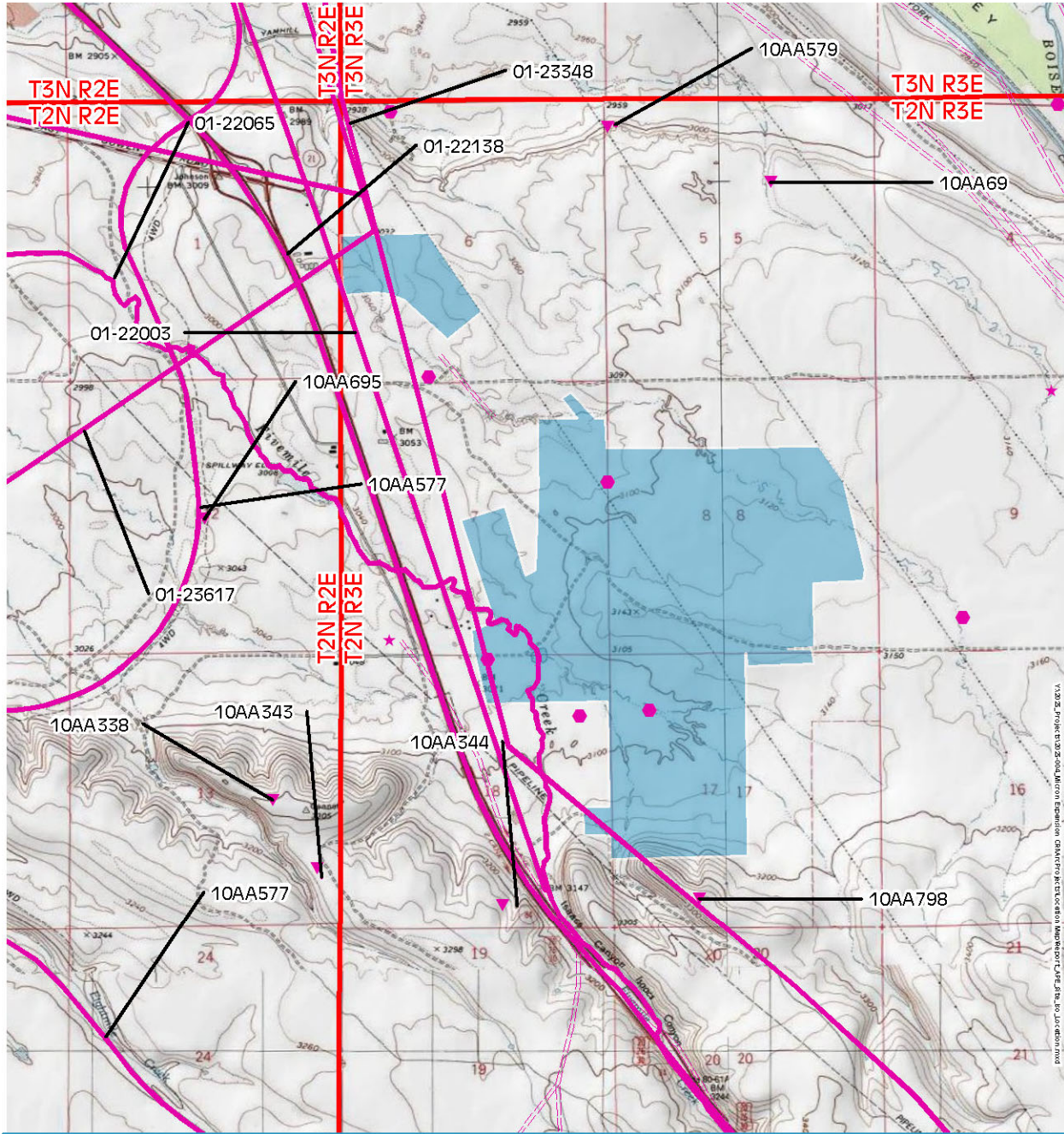
Williams, Royce
2009 *Capitol Move or Theft? - Essays - Capitol of Light (Idaho Public Television). Capitol of Light; the People's House*. <http://idahoptv.org/productions/STPecials/capitoloflight/article-05.cfm>, accessed September 12, 2019.

Willig, Judith A., and C. Melvin Aikens
1988 *The Clovis-Archaic Interface in Far Western North America*. In *Early Human Occupation in the Far Western North America: The Clovis-Archaic Interface*, edited by Judith A. Willig, John L. Fagan, and C. Melvin Aikens, 21:pp. 1–40. Nevada State Museum Anthropological Papers. Nevada State Museum, Carson City, Nevada.

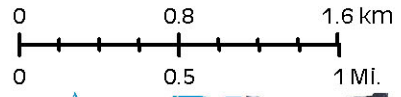
Willson, Christopher
2007 *A Re-Evaluation of X-Ray Fluorescence Data From Idaho and Southeastern Oregon*. *Idaho Archaeologist*:17–26.

Appendices

Appendix A: Confidential Project Maps



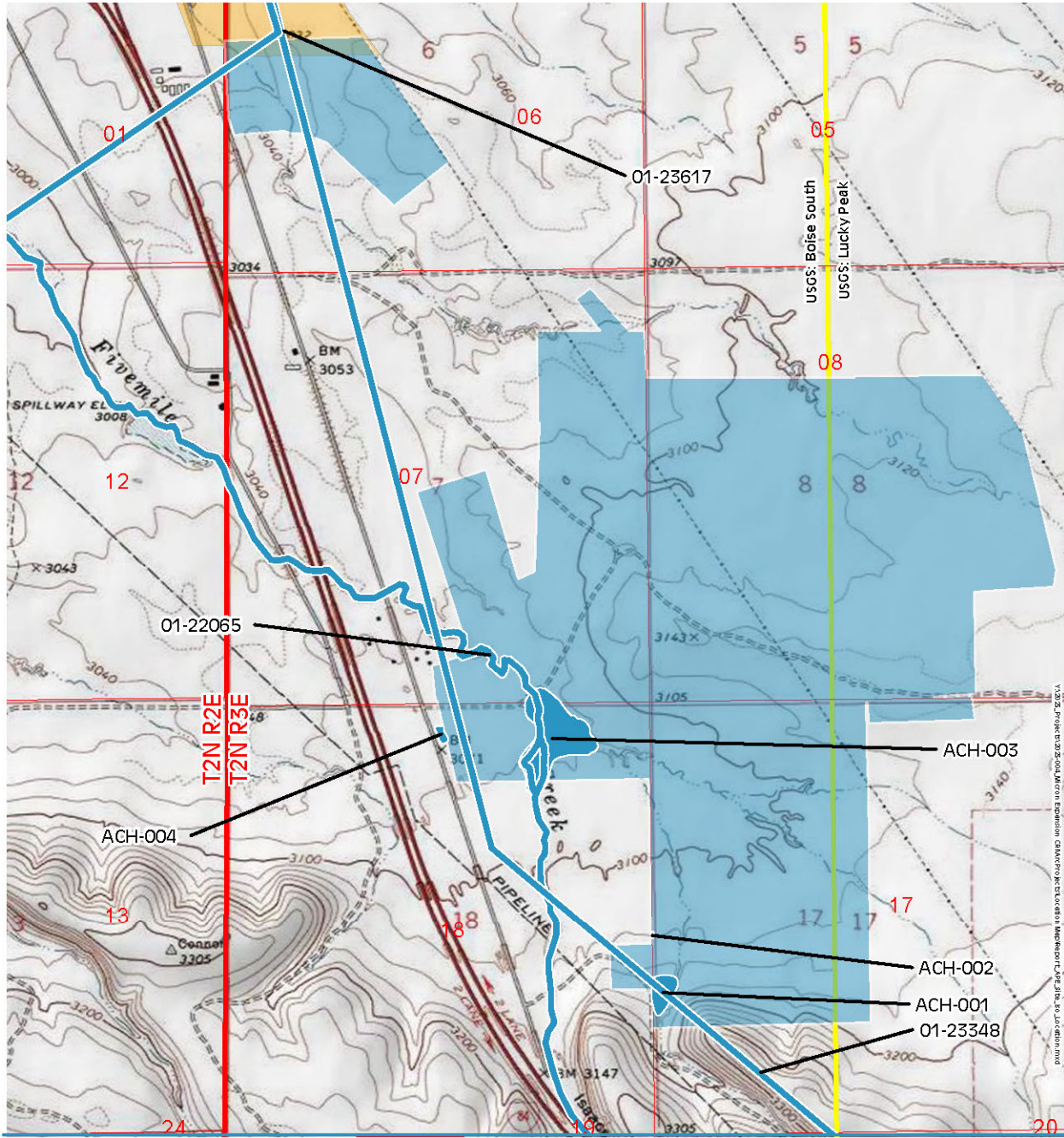
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- Cabin/House
- Structure
- Rd/Trl
- Previously Recorded Site Boundaries
- Previously Recorded Site Boundaries



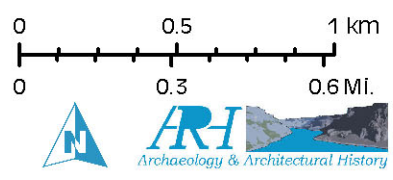
1:24k USGS: Boise South & Lucky Peak
Scale: 1:38,000 NAD 1983 UTM Zone 11N
Produced By: ACH T.2N; R.3E 6/16/2023

Base Map Source: copyright: © 2013 National Geographic Society, i-cubed

Appendix A: Map 6. Records Search Map



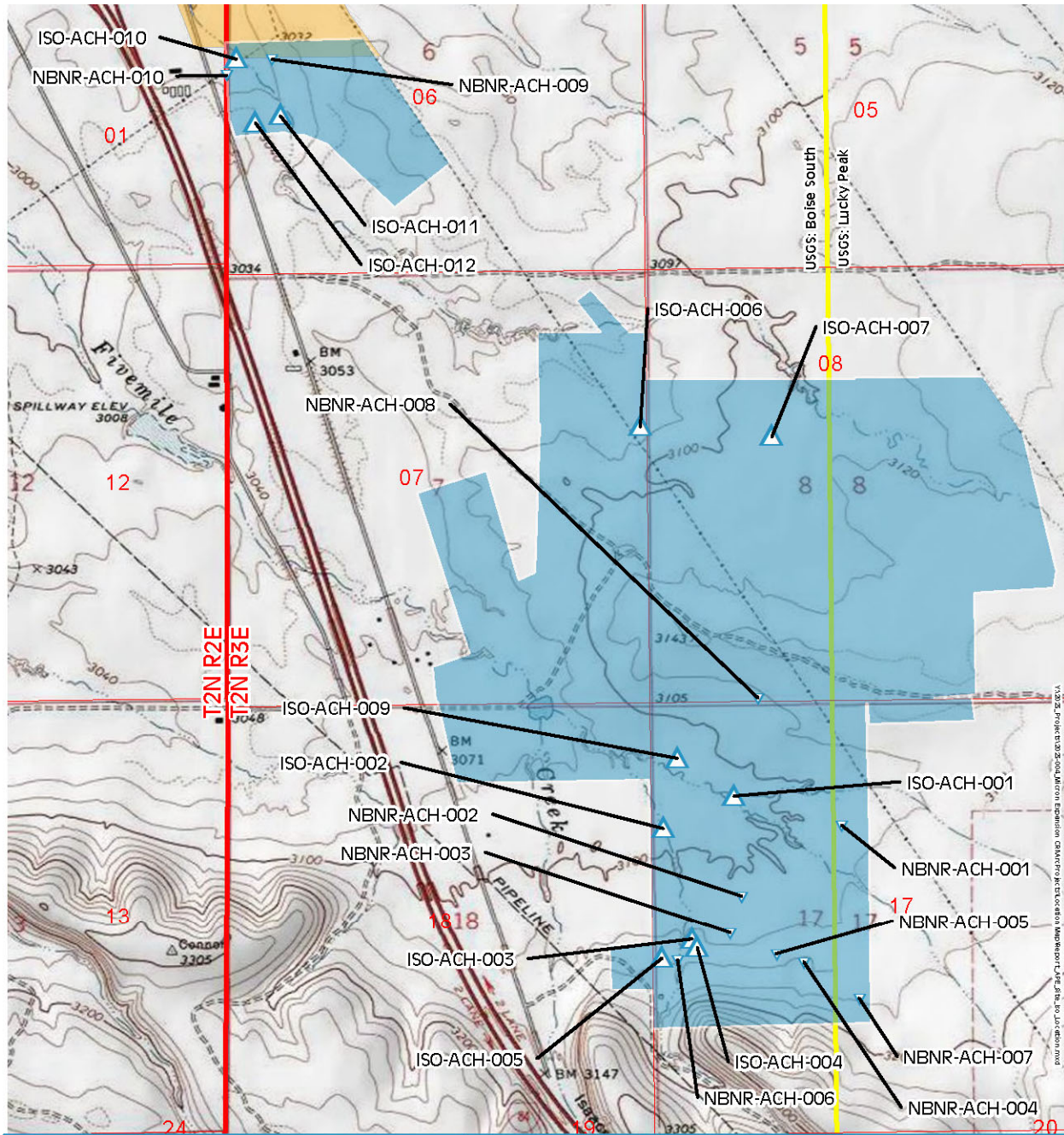
- Site Boundry
- APE/Inventory Area
- Land Use**
- ST
- PVT/ UND



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Scale: 1:24,000 NAD 1983 UTM Zone 11N
Produced By: ACH T.2N; R.3E 6/16/2023

Base Map Source: Copyright: © 2013 National Geographic Society, I-cubed

Appendix A: Map 8. Site Location Map.



■ APE/Inventory Area

▼ NBNR

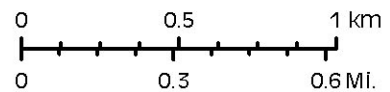
▲ Isolate_Point

Land Use

■ ST

□ PVT/ UND

Base Map Source: Copyright: © 2013 National Geographic Society, I-cubed



1:24k USGS: Boise South & Lucky Peak
Scale: 1:24,000 NAD 1983 UTM Zone 11N
Produced By: ACH T.2N; R.3E 6/16/2023

Appendix A: Map 9. Isolate and NBNR Map.

Appendix B: Shovel Probe Figures



Appendix B: Figure 12. ISO-ACH-006, Overview- STP-01 Closing (View: W).



Appendix B: Figure 13. ISO-ACH-006, Overview- STP-02 Closing (View: W).



Appendix B: Figure 14. ISO-ACH-006, Overview- STP-03 Closing (View: W).



Appendix B: Figure 15. ISO-ACH-006, Overview- STP-04 Closing (View: W).



Appendix B: Figure 16. ISO-ACH-006, Overview- STP-04 Closing (View: N).



Appendix B: Figure 17. ISO-ACH-006, Overview- STP-05 Closing (View: W).



Appendix B: Figure 18. ISO-ACH-006, Overview- STP-06 Closing (View: E).



Appendix B: Figure 19. ISO-ACH-006, Overview- STP-07 Closing (View: E).



Appendix B: Figure 20. ISO-ACH-006, Overview- STP-08 Closing (View: W).



Appendix B: Figure 21. ISO-ACH-006, Overview- STP-09 Opening (View: S).



Appendix B: Figure 22. ISO-ACH-006, Overview- STP-11 Closing (View: W).



Appendix B: Figure 23. ISO-ACH-006, Overview- STP-1- Concrete trough adjacent to well.

**PART 2 ADDENDUM TO AN INTENSIVE CULTURAL RESOURCES
INVENTORY FOR THE MICRON BOISE EXPANSION PROJECT, ADA
COUNTY, IDAHO**

Addendum to An Intensive Cultural Resources Inventory for the Micron Boise Expansion Project, Ada County, Idaho



Project Number(s)

WSP 310000524
2023-648, 2024-800

June 7, 2024

Prepared For:

National Institute of Standards and Technology (NIST), U.S.
Department of Commerce, WSP USA,
and Micron Technology, Inc.

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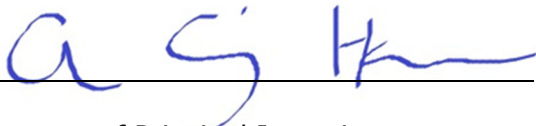
Abstract

In May of 2024, ARH Archaeology and Architectural History (ARH) was contracted by WSP USA (WSP) to complete additional intensive cultural resources inventory at Micron Technology, Inc. (Micron) Boise headquarters campus south of Boise, Idaho. The initial inventory was completed in anticipation of Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) required by potential federal funding under the United States Chips and Science Act (CHIPS Act). Since the completion of the initial inventory, Micron was awarded a grant under the CHIPS Act and initial facility designs have been modified requiring an additional inventory of 27.71 acres (ac.) to accommodate changes in the initial design of new facilities. Portions of the inventory area were developed during the 1990s were only cursorily examined for cultural resources. The remaining 16.48 ac. were intensively inventoried.

No cultural resources were noted in the additional inventory area and the original recommendation of **No Adverse Effect** for the project as a whole remains valid.

Certification of Results

I certify that this investigation was conducted and documented according to the Secretary of Interior's Standards and guidelines and that the report is complete and accurate to the best of my knowledge.

A handwritten signature in blue ink, appearing to read 'A S H', is written over a horizontal line.

Signature of Principal Investigator

6/7/2024

Date

Key Information

PROJECT NAME

Micron Boise Expansion Project Cultural Resources Inventory, Ada County, Idaho

PROJECT NUMBER(S)

2023-648, 2024-800

LOCATION

Ada County

USGS QUADS

Boise South, Idaho

LEGAL LOCATION OF SURVEY

T2N, R3E Sec. 7

PROJECT AREA

27.71 acres

AREA SURVEYED

16.48 Acres Intensive Survey
11.23 Acres Reconnaissance Survey

PROJECT DATA

0 Previously recorded cultural resources
0 New cultural resources located and/or recorded
0 Isolated resources Located and recorded

AUTHORS

A. Craig Hauer

FEDERAL AGENCY

National Institute of Standards and Technology (NIST), U.S. Department of Commerce

REPORT PREPARED FOR

WPS USA and Micron Technologies

REPOSITORY

ARH Archaeology and Architectural History, LLC, Boise, Idaho

PRINCIPAL INVESTIGATOR

A. Craig Hauer, M. A., RPA

DATE

6/7/2024

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In the Spring of 2023, ARH Archaeology and Architectural History (ARH) was contracted by WSP USA (WSP) to complete an intensive cultural resources inventory of 990 acres (ac.) at Micron Technology, Inc. (Micron) Boise headquarters campus south of Boise, Idaho (Appendix A, Map 1). The initial inventory was completed in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended), as required by potential federal funding under the United States Chips and Science Act (CHIPS Act). Since the completion of the initial inventory, Micron was awarded a grant under the CHIPS Act and initial facility designs have been modified requiring an additional inventory. The additional inventory area adjoins the main initial inventory area and consists of a mixture of developed and undeveloped land (Figures 1 and 2, Appendix A, Map 2). Considering the proximity of the additional inventory area, and that it is part of the original project, the following report is treated as an addendum to the initial inventory report (Idaho SHPO no. 2023-648), (Hauer 2023) submitted to the Idaho State Historic Preservation Office (Idaho SHPO) in 2023. The reader is referred to the original report for all environmental and cultural background.

Project Description

Micron is currently expanding their Boise campus and constructing a new, leading edge, semiconductor fabrication facility, an administration building, probe building, central utility building, electrical substation yard, hazardous production material buildings, projects office building, and construction warehouse, a water and wastewater treatment facility, an additional wastewater treatment facility, gas plant, water tanks, industrial wastewater retention basin, stormwater retention basin, and surface parking and parking garage are planned. Overall ground disturbances will include vegetation removal, cut, and fill excavation with heavy equipment, and bedrock blasting. It is ARH's understanding that the new inventory area will be used to construct additional retaining ponds.



Figure 1. Northern Portion of Inventory Area, Facing West.



Figure 2. Western Portion of Inventory Area, Facing West.

Project Area of Potential Effect

Construction activities will be within a 27.71 ac. area adjacent to existing facilities on Boise headquarters campus. Abutting built resources date between 1994 and 2010 and the construction of the semiconductor facility will shield project components proposed for the inventory area from the

Oregon Trail. Considering this, a direct Area of Potential Effect (APE) is confined to the area of ground disturbance (Appendix A, Map 2).

Pre-Field Research

Archival research and a review of archaeological reports indicates a consistent use of the area for ranching in a rural setting.

Archival Research

A General Land Office plat map that depicts the project area was reviewed (T2N R3E 1910) along with the 1938 Metsker Map. The GLO maps show cabin sites in the west central portion of Section 8, NW ¼ of Section 17, and the northeast ¼ of north-central portions of Section 18. The Goodale Cut Off of the Oregon Trail is mapped 2 miles to the east of the project area.

The 1938 Metsker map indicates Dannel L. Williams and Josh R. Ebersole as the owners of the land in the eastern half of Section 7. Chase E. Nicholson owned land in the middle portion of the section, and Fred E. Williams and J. M. E. Magnusser owned land in the eastern portion of the section. Historic aerial photographs also indicate sporadic occupation to the south of the project area, but no discernable structures in the inventory area. Development of the area started in 1981 and by 1992, the area was developed as part of the Micron Boise campus, and a water retention pond occupied a majority of the inventory area.

Previous Cultural Resources Studies

Due to the proximity of this inventory to a previous project conducted by ARH, the same records search from the previous project was used. A records search of a one-mile buffer around the Area of Potential Effect (APE) was requested from the Idaho State Historical Society on April 24, 2023 (Records Search No. 23261). A total of 50 cultural resources inventories have been completed within the one-mile buffer (Table 1).

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
1993/249	Emigrant Trails of Southern Idaho Adventures in the Past – Idaho Cultural Resource Series, Number 1. Bureau of Land Management and Idaho State Historical Society	Hutchinson, Daniel J., and Larry R. Jones (editors)	1993	BLM / ISHS	
1994/331	Foothill’s Land Exchange: Phase 1. BLM, Boise District.	Palmgren, Lois	1993	BLM	ID-1-93-37
1998/21	Micron/ Simplot Waterline. BLM, Boise District.	Hutchinson, Dan	1997	BLM	ID-1-98-B-05
2002/297	Columbia Village Owners Association Footpath. BLM, Boise District	Shaw, D.	2002	BLM	02-FRFO-14
2002/298	IdaCom Buried Fiber Optic Cable I-34008. BLM, Boise District	Shaw, D.	2002	BLM	02-FRFO-15
2003/773	IPC Transmission Line 902 Between Boise Bench Substation & Midpoint Substation FERC No. 1971.	Gross, L., C. Wildt	1997	BLM, Burley	

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
	Prepared by SAIC, Boise, for Idaho Power, Boise				
2004/219	The Boise Foothills Land Exchange. Frontier Historical Consultants for BLM, Boise District	Frontier Historical Consultants	2003	BLM	04-FRFO-01
2015/207	Surprise Valley Fuelbreak	Kumiega, Karen	2014	BLM, Four Rivers	15-FRFO-03
2016/593	Greenbelt Pathway Design and CE&I Part II: Penitentiary Canal to Diversion Dam	Nickoloff, Nicki	2016	BLM, Four Rivers	16-FRFO-17
2017/278	Highway 21 Parcel Land Sale	Calkins, Adam T.	2016	BLM, Four Rivers	16-FRFO-23
1995/893	Spruce Goose Salvage Sale Addendum. Payette N.F.	Winfrey, James	1995	Payette NF	PY-95-1038
2000/634	Level 3 Proposed Fiber Optic Line, Idaho Segment. AINW	Ozbun, T. Et al.	2000	Wenatchee NF	
1989/2535	Idaho Bridge Inventory: Volume I History. Idaho Transportation Department	Herbst, Rebecca	1983	ITD	
1992/488	SH21-I-84 to Diversion Dam, Stage I. Idaho Transportation Dept.	Gaston, Jenna	1992	ITD	F-3291 (022)
1993/288	I-84 Diversion Dam Stage I. Borrow Source. Idaho Transportation Dept.	Gaston, Jenna	1993	ITD	STP-F-3291 (22)
1995/ 129	I-84 – Diversion Dam, SH 21. Idaho Transportation Department	Gaston, Jenna	1993	ITD	F-3291 (22)
1996/139	Isaacs Canyon Interstate 84 Interchange. Idaho Transportation Dept.	Gross, Lorraine	1995	ITD	NH-84-2 (047)59
1999/567	Oregon Trail Reserve Park Pathway and Trail Complex Cultural Resource Report, Ada County, Idaho. Dames & Moore	Dames & Moore	1999	ITD	PLH-0100 (157)
2003/296	U.P. Railroad Bridge to Gowen Road Overpass. ITD	Petersen, N.	2002	ITD	IM-84-2 (056)57
2005/811	Blacks Creek Rest Area I-84. Bionomics, Boise, ID	Pepalis, J.	2005	ITD	IM-IR-84-2(032)62
2006/213	I-84 Orchard IC to Gowen IC Study. Bionomics Environmental, Boise, ID.	Pepalis, J., Humphreys, M.	2005	ITD	NH-STP-84-2 (051)
2009/550	State, FY09 Highway Advisory Installation. ITD, Boise, ID.	Everhart, D.	2009	ITD	A010(631)
2020/190	Cultural Resources Review: FY21 Capital Maintenance, Phase 1, ACHD.	Kriegl, Matthew	2020	ITD	18710
2020/616	Historic Survey of Roads in Idaho's State Highway System Volume 1: Historic Context and Volume 2: Application of the National Register of Historic Places Criteria for Evaluation.	Mead & Hunt	2019	ITD	
1989/2469	Final Report on the Cultural Resources Inventory for the Proposed Arrowrock	Harrison, Richard	1986	Boise-Kuna Irrigation	

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
	Hydropower Corridor from Arrowrock Dam to the Boise Bench Substation.				
1989/4937	Southwestern Idaho Transmission Line Heritage Resources Survey. University of Idaho Anthropological Research Manuscript Series No. 58	Moe, Jeanne M., William P. Eckerle, and Ruthann Knudson	1980	University of Idaho	
1989/5175	Boise River Drainage Archaeological Survey, Progress Reports 1-10. Idaho State Historical Society.	Ostrogorsky, Michael	1976	Idaho State Historical Society	
1989/641	Work Plan for Cultural Resource Mitigation of the AT&T Communications, Inc. Fiber optic Cable Project. Dames and Moore. Phoenix, Arizona	Bassett, Everett, and Brenda Rings	1989	Dames and Moore	
1992/463	Cultural Resource Inventory of the US West, Boise to Mountain Home Fiber Optic Cable Project, Ada and Elmore Counties, Idaho. US West Communications	Petersen, Nick	1992	US West Communications	
1994/517	Surprise Valley Archaeological and Historic Survey, Ada County, Idaho. SAIC.	Science Applications Internal Corporation	1993	SAIC	
1994/700	Proposed United States Postal Service Mail Processing Facility Sites, Boise, Ada County, Idaho.	Statham, William P.	1994	William P. Statham	
1995/610	Van Buren Blvd. Upgrade on the Idaho National Engineering Laboratory. Lockheed Idaho Technologies Company	Ringe, Brenda L.	1995	Idaho national Laboratory	LITCO-95-29
1995/612	Cultural Resources Inventory for the Boise Bench-Midpoint #1 230 kV Transmission Line Loop for New Micron Substation Idaho Power Company.	Druss, Mark	1995	Idaho Power Company	95-6
1995/759	Cultural Resources Survey of the Oregon Trail Along a Portion of the Boise Bench. SAIC.	Gross, Lorraine, and Teresa Rudolph	1994	SAIC	
1996/896	Petroglyphs Along the Oregon Trail Between the First and Second Benches South of the Boise River. Science Applications Internal Corporation	Gross, Lorraine	1995	SAIC	
2002/225	Micron Telecommunication Tower, Boise, Ada County. Prepared for ATC Associates, Salt Lake City, UT.	Mauser, L.	2002	Other	
2006/237	Idaho Power Company Transmission Lines 906 and 912 – Boise Bench to Midpoint Substation. Applied Paleoscience, Richland, WA.	Chatters, J., Ferguson, D.	1997	FERC	FERC No. 1971

Table 1. Cultural Investigations within One-Mile of the APE

Number	Title	Author	Year	Agency	Project #
2008/760	Winco Distribution Center Sewer Pipeline Extension, Ada County.	Mitchell, Kelly	2008	EPA	
2011/132	T- Mobile Candidate SL02082-A, Boise Outlet Mall. Jerrems, Boise, ID.	Jerrems, W.	2010	Other	
2016/521	Farewell Bend Subdivision	Gray, Dale	2016	EPA-Stormwater Permits	
2017/386	Historic Linear Resource Evaluation: Penitentiary Canal, Arrowrock Diversion Boise Project	Huang, Jennifer K.	2017	BOR	
2017/78	Archaeological Sensitivity Assessment SL90XCB57B/9IDX000045, 7458 South Federal Way, Boise, Ada County, Idaho 83716. EBI Counseling	Fink, Andrea	2016	FCC	TCNS 143754
2018/818	Proposed Disposal of Boise Diversion Dam Housing Complex Involving Four Historic Buildings – Boise Project, Idaho	Beardsley, Christopher J.	2013	BOR	
2019/494	A Study of Irrigation and the Development of Ada County. Prepared for Ada County Historic Preservation Commission.	Davis, Belinda	1990	Ada County CLG	
2020/518	Boise Airport Cultural Resources Report. Wright Consulting Services LLC & Preservation Solutions LLC.	Wright, Jeanne & Kerry Davis	2020	FAA	
2020/96	A Class III Cultural Resources Survey of the Proposed ID4312 Micron Telecommunications Facility, 2805 East Columbia Road, Boise, Ada County, Idaho. Terracon.	Sulkosky, Rita A. & John D. Hall	2019	FCC	CP197368
2021/74	Class III Cultural Resource Inventory for the Boise Gateway Industrial Park, ADA County, Idaho. Cannon Heritage Consultants, Inc.	Sanarone, Paul & Kenneth P. Cannon	2020	EPA	ID-20-013
2022/113	Cultural Resource Inventory for the Boise Gateway Industrial Park (2021), Ada County, Idaho. Cannon Heritage Consultants, INC.	Santarone, Paul & Kenneth P. Cannon	2021	EPA	ID-21-016
2023-648	An Intensive Cultural Resources Inventory for the Micron Boise Expansion Project, Ada County, Idaho	Hauer, A. Craig	2023	Idaho Department of Commerce (IDC)	2023-004
	An Intensive Cultural Resources Inventory for the Realignment of Fivemile Creek at the Micron Boise Campus, Ada County, Idaho	McGirr, B. and A.C. Hauer	2023	U. S. Army Corps of Engineers (USACE)	2023-018

A total of 20 sites have been recorded within one mile of the APE as a result of the cultural resource inventories (Table 2, Appendix A: Map 3). Thirteen of these sites are not considered eligible, three are eligible, two are undetermined, and one is exempt from consideration to the NRHP. None of the sites are within the APE.

Table 2. Sites Located within One-Mile of the APE

Site Number	Attributes	Name	Ownership	Eligibility
10AA69	Flakes/Point		Private	Undetermined
10AA338	2 Cans		Private	Ineligible
10AA343	Can scatter		Private	Ineligible
10AA344	2 Rock mounds, 2 flakes		Private	Ineligible
10AA579	Hunting blind in talus		BLM	Ineligible
19AA695	Historic Scatter; Glass, ceramic, metal, wire		Private	Ineligible
10AA798	Airway Beacon; Arrow-shaped foundation	Salt Lake City to Pasco Airway Site 28	Private	Undetermined
10AA577/01-19893	Oregon Short Line RR	Oregon Short Line RR		Eligible
01-21814	Two-Track			Ineligible
01-22065	Irrigation Feature	Fivemile Creek Drain		Eligible
01-22003	Transportation-Road	U.S. Highway 30		Ineligible
01-22138	Transportation-Road	U.S. Highway 20		Eligible
01-23348	Transmission Line			Ineligible
01-23617	Transmission Line			Ineligible
ACH-001	Historic Homestead; Concrete foundation, glass, metal		Private	Ineligible
ACH-002	Historic Debris scatter; cans, metal		Private	Ineligible
ACH-003	Historic Ranching site; corrals, shed, bottles, cans		Private	Ineligible
ACH-004	Historic Homestead; Concrete, well, bottles, cans		Private	Ineligible
ACH-001	Post 1945 concrete culvert	Fivemile Creek Culvert	Private	Exempt

Expected Cultural Resources

Pre-contact site types are expected to consist of primarily non-diagnostic lithic scatters and isolated artifacts. Historic-aged resources are likely to be encountered in the project area. These will likely consist of homestead sites and debris scatters or isolated artifacts related to homesteading. The 1910 GLO plat map indicates a number of cabins and house sites around the project area.

Consultation Summary

Native American Consultation is being initiated by the National Institute of Standards and Technology (NIST) and U.S. Department of Commerce.

Field Methodology

ARH conducted a pedestrian survey of the project area on May 23, 2024, following the Idaho State Historic Preservation Office's guidelines for conducting archaeological inventories (*Consulting with the Idaho SHPO*). Mr. A. Craig Hauer, MA, RPA completed the inventory.

The inventory was completed using systematic transects spaced 30 m apart. Archaeological sites were defined as areas with 10 or more artifacts and/or features of diverse types within a discrete area. Isolates are defined as fewer than 10 artifacts of similar type with minimal potential for buried artifacts or which have been displaced or single non-diagnostic feature. Cultural debris less than 50 years of age and non-diagnostic items were noted, but not recorded (NBNR).

Archaeological sites were defined through close interval survey. Site boundaries, loci, concentrations, features, and diagnostic artifacts were mapped using sub-meter accurate Global Positioning Units. In addition, archaeological sites were recorded on Archaeological Site Inventory forms, and diagnostic artifacts photographed.

NRHP Evaluation and Integrity

National Register of Historic Places (NRHP) eligibility recommendations are developed for archaeological sites using the appropriate aspects of the cultural background developed above. Site eligibility is based on property type, resource(s) present, and association with Time, Place, and Themes important to local, state, or national history.

The Keeper of the Register (National Park Service [NPS]) noted, "The significance of a historic property can be judged and explained only when it is evaluated within its historic context. Historic contexts are those patterns or trends in history by which a specific occurrence, property, or site is understood and its meaning (and ultimately its significance) within history or prehistory is made clear"(Andrus and Shrimpton 2002:Part V, No. 1). A historic property is:

any prehistoric or historic district, site, building, structure, or object included in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and the national register criteria (Advisory Council on Historic Preservation 2004:36CRF800.16 (i) 1).

As defined in 36 CFR Part 60.4 and stipulated in the NPS guidelines for a site to be eligible for the NRHP, a property must be at least 50 years old and meet at least one of four criteria (Andrus and Shrimpton 2002:Part II). Specifically, they state:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

- B. That are associated with the lives of significant persons in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That has yielded or may be likely to yield, information important in history or prehistory.

Integrity of a property – the ability of a resource to convey its importance – is also considered to determine eligibility. There are seven aspects of integrity (Andrus and Shrimpton 2002: Part VIII):

Location is the place where the historic property was constructed or the place where the historic event occurred. The relationship between the property and its location is often important to understanding why the property was created or why something happened.

Design is the combination of elements that create the form, plan, space, structure, and style of a property. It results from conscious decisions made during the original conception and planning of a property (or its significant alteration) and applies to activities as diverse as community planning, engineering, architecture, and landscape architecture. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials.

Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the character of the place in which the property played its historical role.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. A property must retain the key exterior materials dating from its historic period.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. Workmanship can apply to the property as a whole or to its individual components.

Feeling is a property's expression of the aesthetic or historic sense of a particular period. It results from the presence of physical features that, taken together, convey the property's historic character.

Association is the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character.

Because Feeling and Association depend on individual perceptions, their retention alone is never sufficient to support eligibility of a property for the NRHP. If an archaeological resource meets the above criteria, it is termed a "historic property".

Results

The parcel is divided into three parts by existing roads (Maps 4 and 5). All three portions of the inventory area are moderately disturbed by previous development. Of the three parcels the northern portion was the least disturbed. The remnants of a paved road (ca. 1990s) was noted to the west

of the northern portion. The northern half of the western portion is occupied by a maintenance facility and is bordered on the south by a sports complex. The southeastern portion appears to have had an older retaining pond in the western half and an extant retaining pond in the west.

Areas recently disturbed were cursorily surveyed (11.23 ac.), while less disturbed areas were intensively inventoried (16.48 ac., Map 5). No cultural resources were noted during the inventory.

Management Recommendations, Determination of Effects, and Conclusion

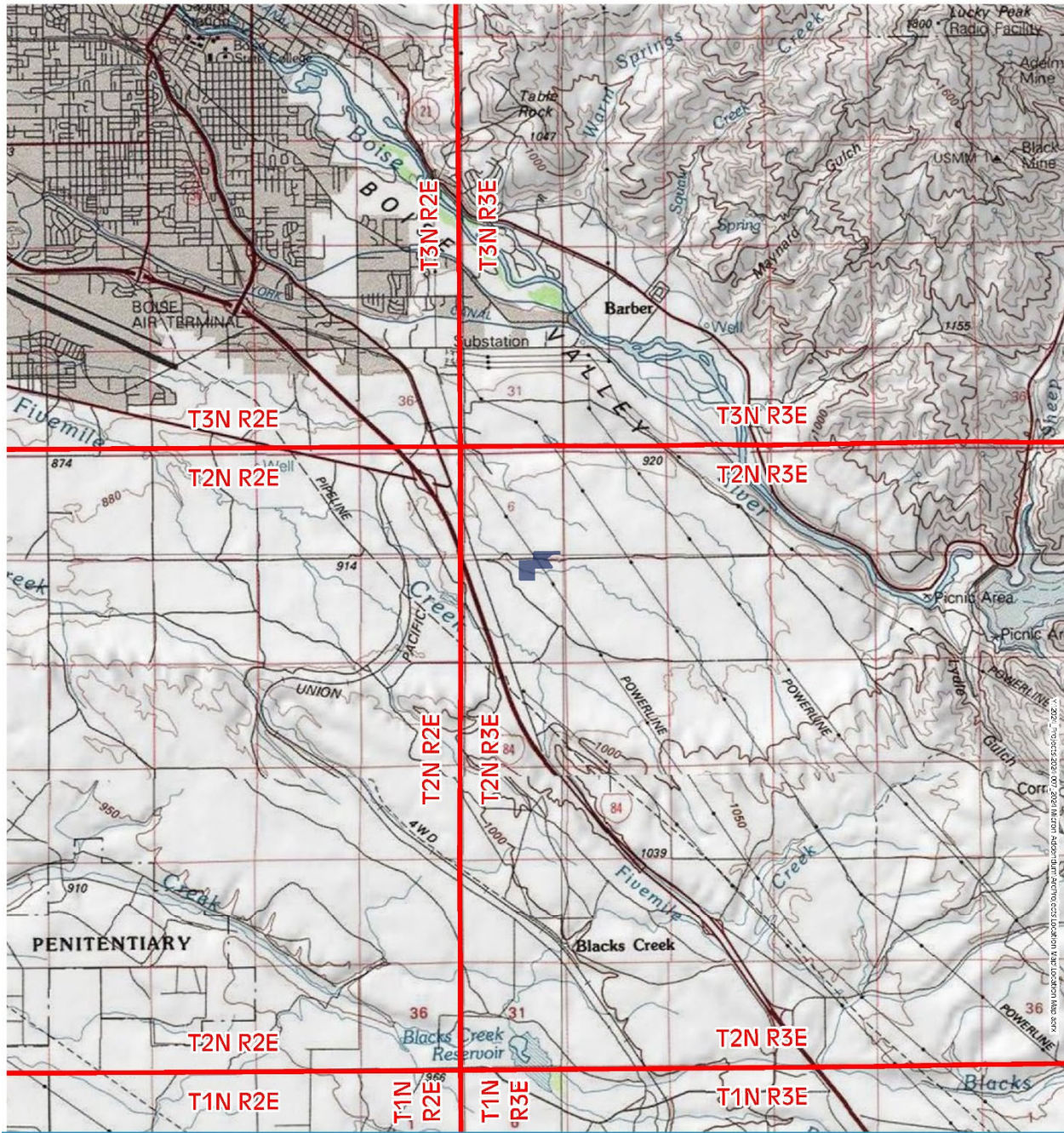
In the Spring of 2024, ARH completed a cultural resources inventory of 27.71 ac. as part of ongoing work at the Micron Boise headquarters campus south of Boise, Idaho. The additional inventory area adjoins a larger area inventoried in 2023 and consists of a mixture of developed and undeveloped land. The current inventory area will be used to construct additional retaining ponds needed for the current semiconductor facility expansion. No cultural resources were noted during the 2024 inventory and the original recommendation of No Adverse Effect for the project as a whole remains valid.

References

- Advisory Council on Historic Preservation
2004 Protection of Historic Properties. *36 CFR Part 800*.
- Andrus, Patrick, and Rebecca H. Shrimpton
2002 *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin. U.S. Department of the Interior, National Park Service, Washington D. C.
- Hauer, A. Craig
2023 *An Intensive Cultural Resources inventory for the Micron Boise Expansion Project, Ada County, Idaho*. ARH Archaeology and Architectural History, Ada County, Idaho.

Appendices

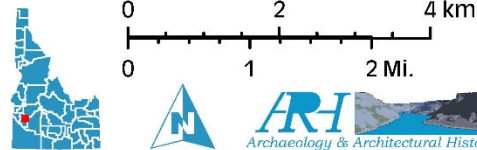
Appendix A: Project Location Maps



APE

■ Inventory Area

Micron Addendum

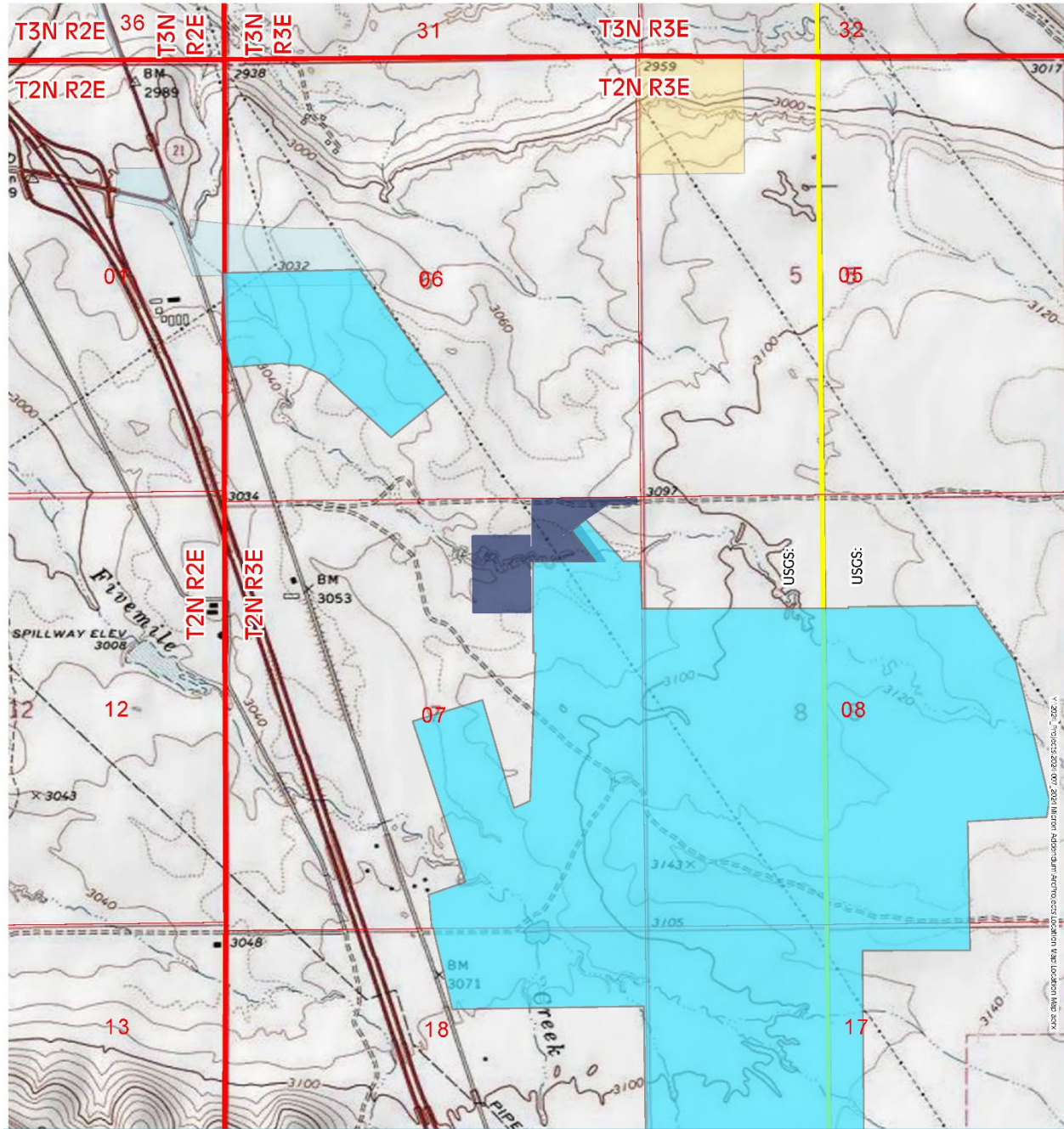


USGS 100K: Boise South
Scale: 1:100,000
Produced By: ACH

T2N, R3E NAD 1983 UTM Zone 11N
6/4/2024

Base Map Source: USA_Topo_Maps. Copyright: © 2013 National Geographic

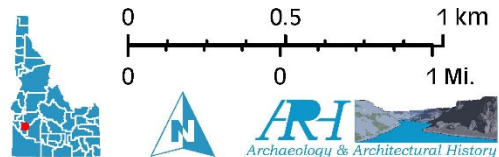
Map 1. Vicinity Map.



APE

Micron Addendum

- Previous Inventory Area
- Inventory Area

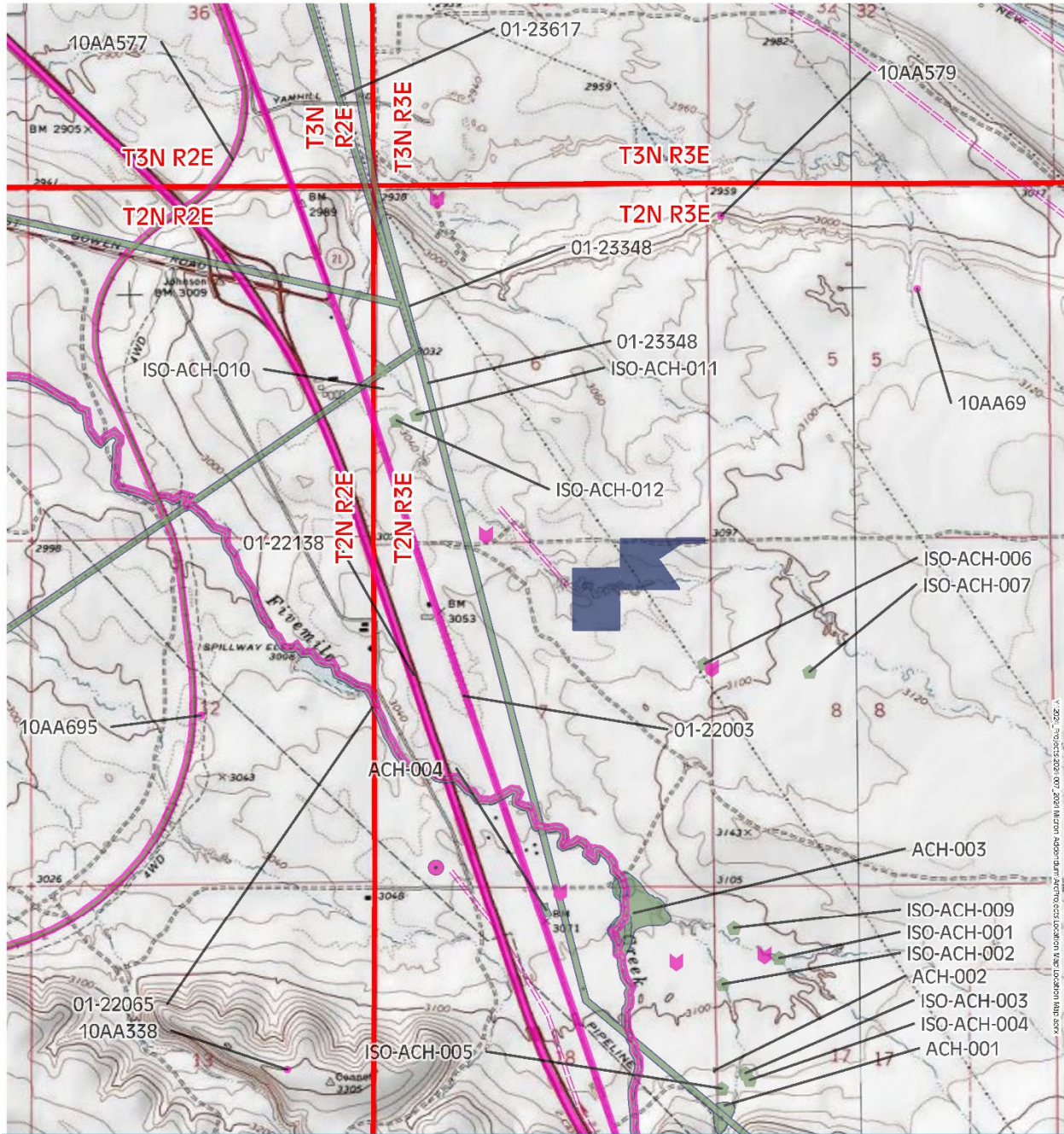


USGS 7.5 Min.: Boise South
Scale: 1:24,000
Produced By: ACH

T2N, R3E NAD 1983 UTM Zone 11N
6/4/2024

Base Map Source: USA Topo Maps. Copyright: © 2013 National Geographic

Map 2. APE Map with Previous Inventory Area.



APE

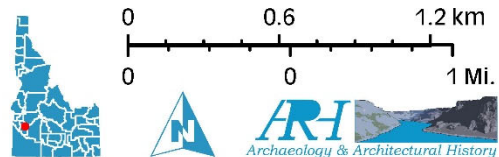
- Inventory Area
- ARH Prev. Inventory Data
- Isolates
- Site Boundary
- SHPO Data**
- Site Boundary

Base Map Source: USA_Topo_Maps. Copyright: © 2013 National Geographic

Historic GLO/Map Data

- Cannal
- Railroad
- Rd/Trl
- Cabin/House
- Structure

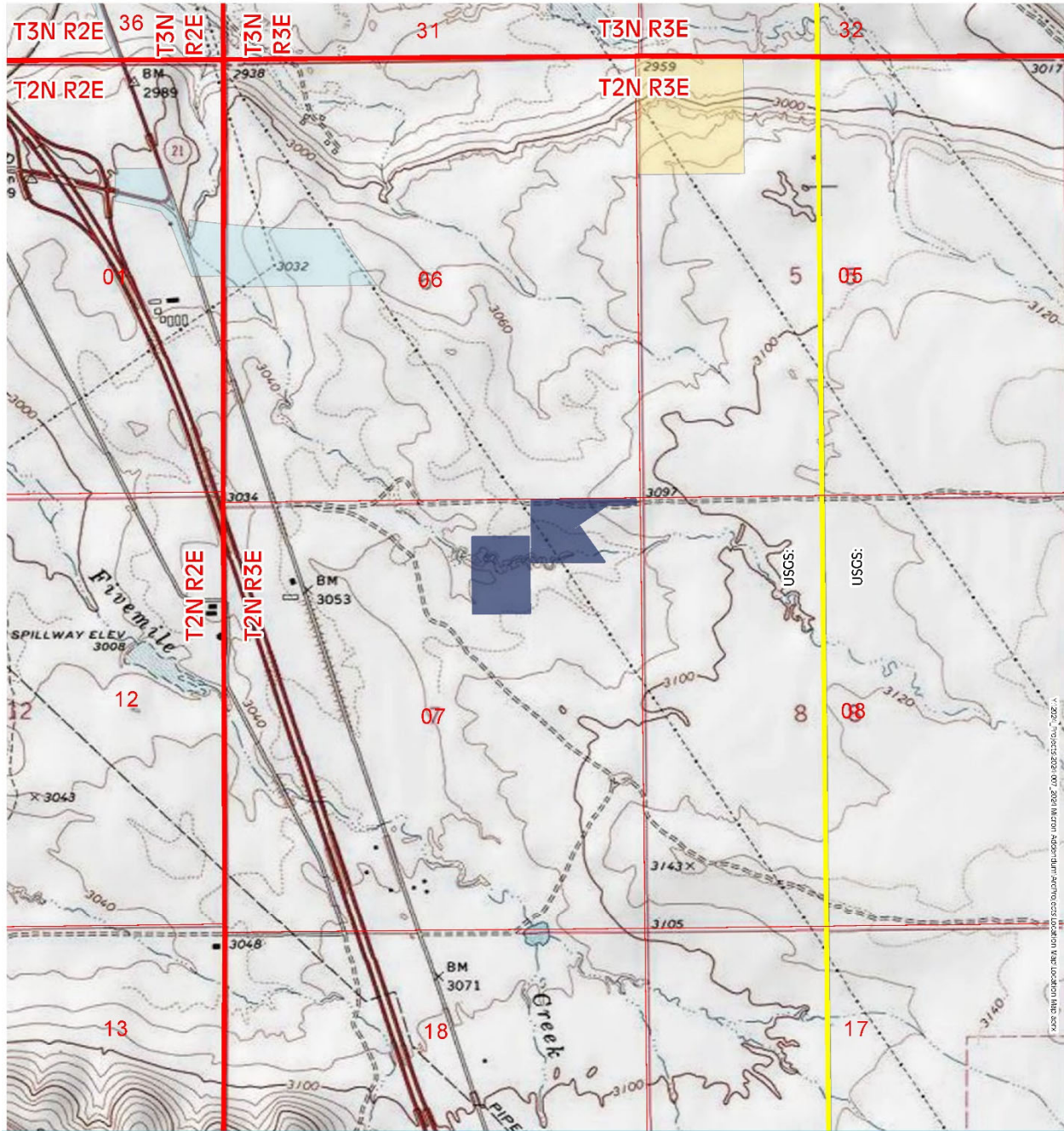
Micron Addendum



USGS 7.5 Min.: Boise South
Scale: 1:30,000
Produced By: ACH

T2N, R3E NAD 1983 UTM Zone 11N
6/4/2024

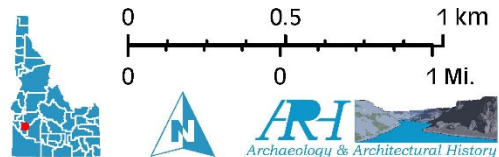
Map 3. Records Search Map.



APE

Micron Addendum

Inventory Area



Base Map Source: USA Topo Maps. Copyright: © 2013 National Geographic

USGS 7.5 Min.: Boise South
Scale: 1:24,000
Produced By: ACH

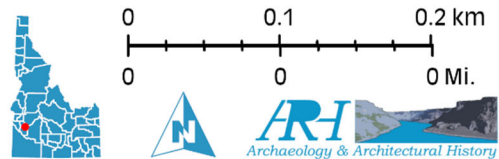
T2N, R3E NAD 1983 UTM Zone 11N
6/4/2024

Map 4. Results Map.



- Class II
- Class III Inventory

Micron Addendum



USGS 7.5 Min.: Boise South
 Scale: 1:4,000 T2N, R3E NAD 1983 UTM Zone 11N
 Produced By: ACH 6/6/2024

Base Map Source: World Imagery: Maxar

Map 5. Intensive and Reconnaissance Level Inventory Area Map.

**PART 3
ASSESSMENT**

OREGON NATIONAL HISTORIC TRAIL – VISUAL IMPACT

MICRON BOISE ID1

Oregon National Historic Trail – Visual Impact
Assessment

INTRODUCTION

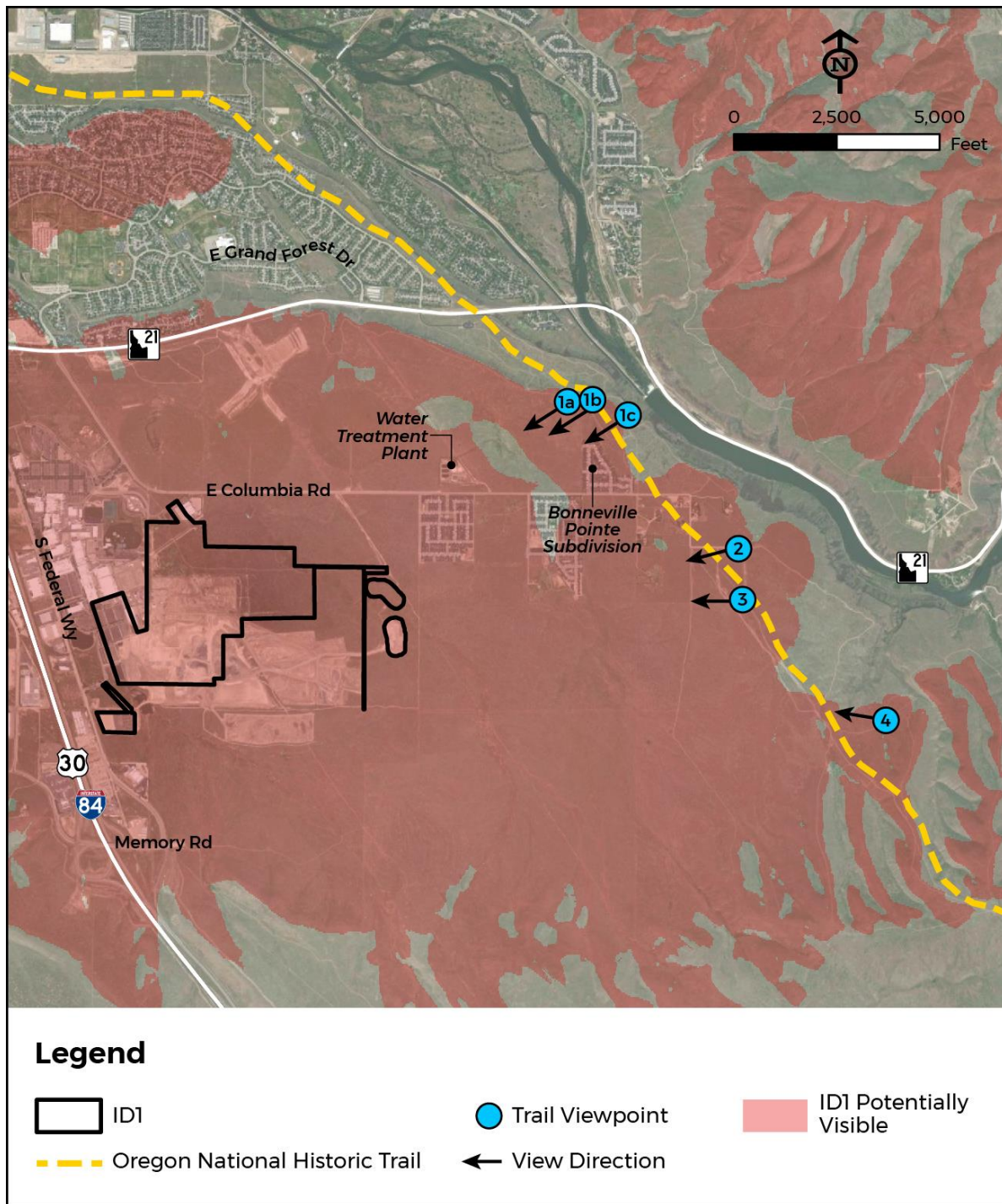
The purpose of this document is to summarize the visual impact assessment of Micron ID1 to the Oregon National Historic Trail (the Trail). The Goodale Cutoff of the Trail lies approximately 2 miles east of the Micron Boise and ID1. Recreational users of the Trail typically have an expectation of natural/historic landscapes.

Visual elements of ID1 that were considered in this visual impact assessment include the Fabrication building (the Fab), 185-foot gas plant towers, Evaporator/Crystallizer towers, and relocated overhead utility lines that may be visible from the trail. Other elements of ID1 such as administration buildings and support buildings would likely not be visible as topography or trees, vegetation, buildings, or other natural or human-made elements such as existing houses would fully or partially block views from the Trail toward the ID1 site. Recreational viewers generally can be sensitive to changes in the visual environment; however, the number of affected viewers would be low and recreational viewers on the Trail are already accustomed to the human-made development, such as residences and above-ground utility poles and wires, that exist in the foreground of views from the trail toward existing Micron Boise and the ID1 site.

Visual impacts were analyzed using ArcGIS Pro, Google Earth, and through field observation. A viewshed analysis was conducted to establish the Area of Visual Effect (AVE) where there could be views of ID1 (Figure 1).

Six (6) viewpoints from the Trail were identified to assess potential visual impacts of ID1 to the Trail.

Figure 1. Oregon National Historic Trail and Viewpoints



Viewpoint 1a: This viewpoint is from the Trail looking southwest toward the ID1 site. Viewpoint 1a is located approximately 1.5 miles from ID1 site. The water treatment plant along East Columbia Road and residential homes in the Bonneville Pointe subdivision are partially visible. The large overhead utility lines north and east of the existing Micron Boise site are visible and utility lines on the existing Micron Boise site are partially visible).



Viewpoint 1b: This viewpoint is slightly uphill from Viewpoint 1a and looking southwest toward ID1. It is not on the Trail, but this viewpoint is slightly higher in elevation and has a better view of the ID1 site. Viewpoint 1b is located approximately 1.5 miles from the ID1 site. The water treatment plant along East Columbia Road and residential homes in the Bonneville Pointe subdivision are partially visible. The large overhead utility lines north and east of the existing Micron Boise and ID1 site are visible and utility lines on the existing Micron Boise site are partially visible).



Viewpoint 1C: This viewpoint is slightly east from Viewpoint 1a and is located approximately 2 miles east of the ID1 site. It is not on the Trail, but this viewpoint is slightly lower from the Trail's elevation and looking southwest toward the ID1 site. Based on topography and vegetation, views of ID1, including the tallest gas plant tower elements, would not likely be visible from this location. Residential homes in the Bonneville Pointe subdivision are partially visible.



Viewpoint 2: This viewpoint is close to where East Plexi Court crosses the Trail and looking west toward the ID1 Site. It is lower in elevation from previous viewpoints, and it is located approximately 2.5 miles east of existing Micro Boise and the ID1 site. Large utility lines are partially visible. Based on topography and vegetation, views of ID1, including the tallest gas plant tower elements, would not likely be visible from this location.



Viewpoint 3: This viewpoint is close to the intersection of South Eyele Avenue and the Trail and looking west toward the ID1 site. It is lower in elevation from previous viewpoints, and it is located approximately 2.5 miles east of the existing Micron Boise and ID1 site. Based on topography and vegetation, views of ID1, including the tallest gas plant tower elements, would not likely be visible from this location.



Viewpoint 4: This viewpoint is located on hills southeast of the ID1 site. The viewpoint is located on the Trail and looking west toward the existing Micron Boise and ID1 site. Since this viewpoint is approximately 3.5 miles from the ID1 site, visual elements would blend into the surrounding development and the elements of ID1 would not be discernable.



Summary

A visual impact assessment of ID1 to the Trail was conducted following the Pay et al. 2020 analysis and adopted six (6) levels of impact (Table 1).

Table 1. Visual Assessment Level of Impacts

Level	Definition
1	Visible only after extended, close viewing; otherwise, invisible.
2	Visible when scanning in general direction of study object; otherwise, likely to be missed by casual observer.
3	Visible after brief glance in general direction of study object and unlikely to be missed by casual observer.
4	Plainly visible, could not be missed by casual observer, but does not strongly attract visual attention, or dominate view because of apparent size, for views in general direction of study subject.
5	Strongly attracts visual attention of views in general direction if study object, but not the most prominent or dominant feature in the view.
6	Dominates view because of structure or facility size (for views in its general direction) and strong contrasts in form, line, color, texture, or luminance.

Source: Pay et al., 2020.

The impact of ID1 on the Trail would likely be considered a Level 4 impact. Some elements of ID1 including the 185-foot gas plant towers, Evaporator/Crystallizer towers, and relocated overhead utility lines would be visible, but would not draw attention. This is primarily due to the scale of ID1. Following Pay et al.:

- Level 4 is the true “middle of the road” in Argonne’s Visibility Level 4, in which additions are ‘plainly visible and could not be missed by a casual observer, but they do not strongly attract visual attention or dominate a view because of apparent size’.

Moreover, the distances between the viewpoints and the ID1 site range from 1.5 miles to 3.5 miles. At these distances, the details of ID1 elements would not be easily discernable and would not be the predominant component of someone’s view. Moreover, as described in the respective viewpoint discussions above, the combination of distance, existing man-made development and visual screening leads to a determination that there would be no significant, adverse impacts Trail viewers’ aesthetic experience or expectations from ID1.

REFERENCES:

A. Craig Hauer. 2023. *An Intensive Cultural Resources Inventory for the Micron Boise Expansion Project, Ada County, Idaho.*

Pay, Nicholas Blurton, Bryan Hockett, and Tanner Whetsone. 2020. *Defining a Visual Area of Potential Effects to Historic Properties on BLM Lands in Nevada. Nevada BLM.*

PART 4

CONSULTATION LETTERS



June 14, 2024
Ms. Tricia Canaday
SHPO Administrator/ Deputy SHPO
Idaho State Preservation Office
210 Main Street
Boise, Idaho 83702
Tricia.canaday@ishs.idaho.gov
(208) 488-7462

Re: CHIPS Program Office Initiation of Section 106 Process for Undertaking at Micron Boise Expansion CRI IDAHO

Dear Ms. Canaday:

The CHIPS Incentives Program (Program) was authorized by Title XCIX—Creating Helpful Incentives to Produce Semiconductors for America of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Pub. L. 116-283), as amended by the CHIPS Act of 2022 (Division A of Pub. L. 117-167) (the “CHIPS Act” or “Act”). The CHIPS Incentives Program is administered by the CHIPS Program Office (CPO) within the National Institute of Standards and Technology (NIST), an agency of the Department of Commerce.

Micron Boise Expansion has applied for federal financial assistance under the Program for the purchase and installation of state-of-the-art semiconductor manufacturing equipment and construction of cleanroom space dedicated to high-volume manufacturing (HVM) of advanced DRAM memory. The project will be built on Micron’s existing campus, co-located with Micron’s Memory Technology Development Center (MTDC) R&D facility, which is the only leading-edge memory technology and design center in the U.S. Development of Micron’s Idaho fab began in early 2023 without federal funding. CPO has recently made award of federal financial assistance under the Program for the Proposed Project (the undertaking).

The purpose of this letter is to initiate consultation with the State Historic Preservation Office and other interested parties under Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 C.F.R. Pt. 800, to present the CPO undertaking, to present the archaeological and architectural area of potential effect (APE), and to present CPO’s proposed finding of no adverse effect for this project for your review and concurrence. CPO is coordinating this Section 106 consultation with its review of the Project pursuant to the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., and the NEPA implementing regulations (40 C.F.R. Pts. 1500-1508).

Scope of CPO Undertaking

The scope of the CPO undertaking is limited to CPO's provision of federal financial assistance to Micron Idaho for the purchase and installation of semiconductor manufacturing equipment as well as for new construction associated with the existing semiconductor fabrication facilities (fabs). In April 2023 and in anticipation of potential federal (CHIPs) funding Micron commissioned an intensive cultural resources inventory for the Micron Technology, Inc. (Micron) Boise

headquarters campus south of Boise, Idaho. That report, *An Intensive Cultural Resources Inventory for Micron Boise Expansion Project, Ada County, Idaho*, dated June 2023 (**Attachment A**) was previously provided to your office as acknowledged in your letter of 21 July 2024 (**Attachment B**). The report intensively inventoried approximately 683 undisturbed acres of the nearly 991-acre site. In conclusion, and as is noted in the report, "*Based on field results and avoidance of newly recorded sites and resources previously determined eligible to the NRHP, a recommendation of **No Historic Properties Effect** is appropriate for the project in area.*"

As the result of modifications to the original design for the new fabs and in consequence of the CHIPs funding award to Micron Boise, an additional abutting parcel of 27.7 acre was intensively inventoried to determine NRHP eligibility earlier this year and detailed in *Addendum to An Intensive Cultural Resources Inventory for the Micron Boise Expansion Project, Ada County, Idaho*, dated June 2024 (**Attachment C**). Research by SOI Qualified and Idaho register archeologists revealed that portions of the inventoried acreage were developed during the 1990s and thus cursorily examined while the remaining 16.5 acres were intensively inventoried. No cultural resources were noted in the additional surveyed parcel and thus NIST has determined a finding of **No Adverse Effect** for the whole undertaking.

Project Area of Potential Effect (APE)

Construction activities which will be for developing retaining ponds for the new facilities, will be within a 27.71 ac. area adjacent to existing facilities on Boise headquarters campus. Abutting built resources date between 1994 and 2010 and the construction of the semiconductor facility will shield project components proposed for the inventory area from the Oregon Trail. Considering this, a direct Area of Potential Effect (APE) is confined to the area of ground disturbance (see the June 2024 *Addendum* report - Appendix A, Map 2). Finally, as is reported in the *Addendum* report, inventories and surveys of properties within a one mile viewshed of the APE were examined with only 3 of the 20 such properties being determined eligible. Two are transportation routes (rail and auto) and one is an irrigation feature which will not be affected by this project.

The boundaries of the APE (figure attached to this letter) were further substantiated by completion of a viewshed study entitled: *Oregon National Historic Trail - Summary of Visual Impact Assessment for Micron Boise Campus Expansion* dated June 2024. The Viewshed Study, taken along different points along the Trail that lies 2 miles east of the Micron Boise campus confirms that while the proposed project site would be visible, its elements would not attract strong visual attention or dominate the view because of

apparent size. Furthermore, as noted in the study, " *Moreover, the distances between the viewpoints and the Proposed Project site range from 1.5 miles to 3.5 miles. At these distances, the details of the Proposed Project elements would not be easily discernable and would not be the predominant component of someone's view.* " (see **Appendix D**).


Section 106 Next Steps

In accordance with Section 106, CPO seeks to identify potential consulting parties in addition to the SHPO, Native American Indian Tribes that have an interest in the project area, local governments, historical societies, preservation organizations, and the National Park Service (Oregon Trail) and, possibly, the Advisory Council on Historic Preservation (ACHP). We would welcome your input on other potential consulting parties that may have an interest in participating in the Section 106 process.

Based on previous site surveys, non-eligibility determinations of previously surveyed artifacts, and the scope and intensity of ongoing land disturbance at the site, CPO is proposing a finding that the proposed action would have no adverse effect on cultural resources. We respectfully request any additional information or studies your office may have concerning the project site that may affect this determination.

We look forward to consulting with your office throughout the Section 106 process. If you have any questions or would like to discuss this project further, please contact me by email at Phillip.Neuberg@nist.gov.

Sincerely,

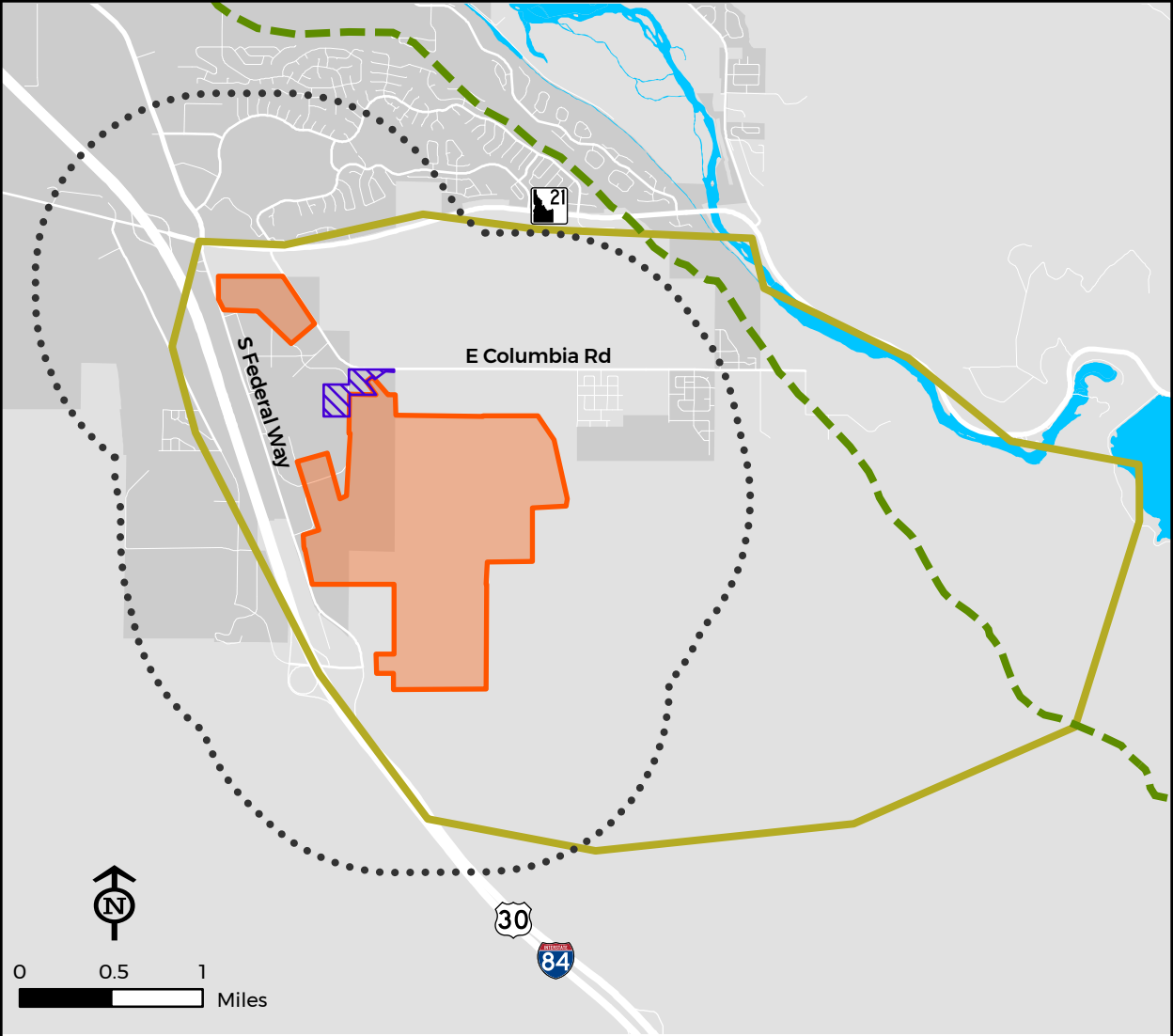


Phillip Neuberg, FAIA
NIST Federal Preservation Officer






cc: CPO Environmental Division

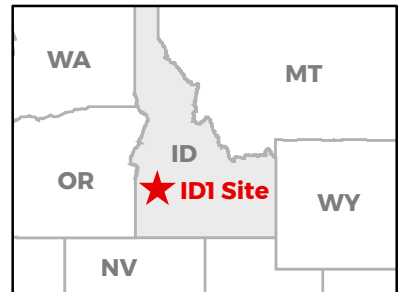
ATTACHMENTS:

- A. *An Intensive Cultural Resources Inventory for Micron Boise Expansion Project, Ada County, Idaho*
Dated June 2023, by ARH Archeology and Architectural History
- B. Letter from Deputy SHPO Tricia Canaday, dated July 21, 2023
- C. *Addendum to An Intensive Cultural Resources Inventory for Micron Boise Expansion Project, Ada County, Idaho* Dated June 2024, by ARH Archeology and Architectural History
- D. *Oregon National Historic Trail - Summary of Visual Impact Assessment for Micron Boise Campus Expansion* dated June 2024



Legend

-  Original APE/ Inventory Area
-  Proposed Action APE/ Inventory Area
-  One-mile Buffer
-  Oregon National Historic Trail
-  Visual APE



APPENDIX D IPAC AND USFWS COORDINATION



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
Phone: (208) 378-5243 Fax: (208) 378-5262

In Reply Refer To:
Project Code: 2023-0134301
Project Name: Micron Technology, Boise

September 27, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
(208) 378-5243

PROJECT SUMMARY

Project Code: 2023-0134301

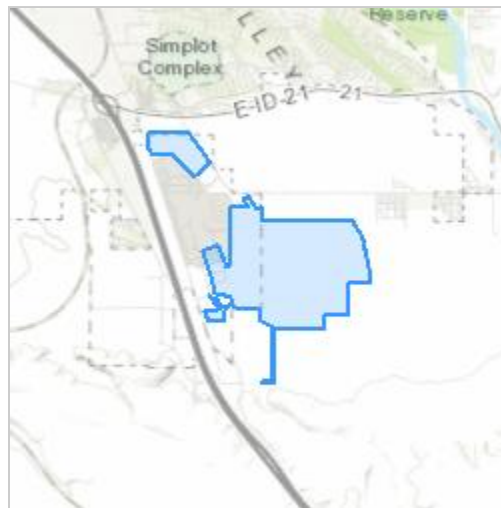
Project Name: Micron Technology, Boise

Project Type: Commercial Development

Project Description: Construction areas associated with Micron Technology Expansion, Boise Idaho. iPAC generated on 27 September 2023

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.51915245,-116.13085560882752,14z>



Counties: Ada County, Idaho

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Slickspot Peppergrass <i>Lepidium papilliferum</i> Population: There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4027	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

-
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
 2. The [Migratory Birds Treaty Act](#) of 1918.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American White Pelican <i>pelecanus erythrorhynchos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6886	Breeds Apr 1 to Aug 31
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Rosy-finch <i>Leucosticte atrata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9460	Breeds Jun 15 to Aug 31
Black Tern <i>Chlidonias niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
California Gull <i>Larus californicus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31

NAME	BREEDING SEASON
<p>Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462</p>	Breeds May 15 to Jul 15
<p>Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jun 1 to Aug 31
<p>Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 15 to Aug 10
<p>Franklin's Gull <i>Leucophaeus pipixcan</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Jul 31
<p>Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680</p>	Breeds Jan 1 to Aug 31
<p>Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679</p>	Breeds elsewhere
<p>Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408</p>	Breeds Apr 20 to Sep 30
<p>Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631</p>	Breeds Mar 1 to Jul 15
<p>Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481</p>	Breeds elsewhere
<p>Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914</p>	Breeds May 20 to Aug 31

NAME	BREEDING SEASON
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Sage Thrasher <i>Oreoscoptes montanus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

BCC Rangewide
(CON)

Marbled Godwit
BCC Rangewide
(CON)



Olive-sided
Flycatcher
BCC Rangewide
(CON)



Rufous
Hummingbird
BCC Rangewide
(CON)



Sage Thrasher
BCC - BCR



Virginia's Warbler
BCC Rangewide
(CON)



Western Grebe
BCC Rangewide
(CON)



Willet
BCC Rangewide
(CON)



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R4SBC](#)

FRESHWATER POND

- [PUBHh](#)
-

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Anthonie Holthuijzen
Address: 1444 S Entertainment Ave, Suite 300
City: Boise
State: ID
Zip: 83709
Email: anthonie.holthuijzen@wsp.com
Phone: 2089491338

From: Reign, Chris <chris_reign@fws.gov>
Sent: Wednesday, May 31, 2023 12:38 PM
To: Brittany Sanders <brittanysand@micron.com>
Cc: Kolts, Jaan R <jaan_kolts@fws.gov>
Subject: Re: [EXTERNAL] RE: [EXT] Micron slickspot peppergrass surveys

Good afternoon Brittany,

Thank you for sharing this year's survey.

I reviewed this year's survey and we now have three negative surveys meeting protocol criteria. We can call the project area "unoccupied" by slickspot peppergrass.

For purposes the Micron Expansion Project, a "no effect" call for slickspot peppergrass is probably appropriate.

Please note that not all Micron property outside of the expansion project area is "unoccupied" by slickspot peppergrass. The area outside the expansion project boundary has not been sufficiently surveyed to show slickspot peppergrass is absent. This may have application to future projects Micron may take on.

If you or anyone else has questions, please don't hesitate to get in touch.

Regards,

Chris Reign
Fish and Wildlife Biologist
US Fish and Wildlife Service
Idaho Fish and Wildlife Office, Boise, ID

208-378-5264
chris_reign@fws.gov

From: Brittany Sanders <brittanysand@micron.com>
Sent: Wednesday, May 31, 2023 7:40 AM
To: Reign, Chris <chris_reign@fws.gov>
Cc: Kolts, Jaan R <jaan_kolts@fws.gov>
Subject: [EXTERNAL] RE: [EXT] Micron slickspot peppergrass surveys

Hi Chris,

Thank you so much for the update. Please see the attached addendum that includes the survey that was completed last week by HDR. Again, no slickspot peppergrass plants were observed.

Please let me know if you have questions and if anything additional is needed to classify the area as unoccupied.

Brittany

From: Reign, Chris <chris_reighn@fws.gov>
Sent: Tuesday, May 30, 2023 3:22 PM
To: Brittany Sanders <brittanysand@micron.com>
Cc: Kolts, Jaan R <jaan_kolts@fws.gov>
Subject: [EXT] Micron slickspot peppergrass surveys

Hi Brittany,

Thank you again for the figure of the project area footprint! I've looked at all the surveys and we have two that sufficiently meet established criteria. Please let me know if you want more information about this.

This year, it would be great if HDR could survey the entire footprint (at least those areas of the footprint not already disturbed and cleared). This would be the third survey and it would count as we already know spring precipitation has been sufficient (greater than 60% of average annual spring precip). If this survey finds no slickspot peppergrass, we will be able to justifiably call the project footprint unoccupied. If this is the case, our future consultation (required due to the use of federal funds via CHIPS Act - assumption) is likely to be quite simple.

Also, if there is a chance I can tour the project area, it would be greatly appreciated. Please let me know.

Regards,

Chris Reign
Fish and Wildlife Biologist
US Fish and Wildlife Service
Idaho Fish and Wildlife Office, Boise, ID

208-378-5264
chris_reighn@fws.gov

APPENDIX E NOISE EXISTING CONDITIONS ASSESSMENT



MICRON CAMPUS EXPANSION

Noise Existing Conditions Assessment

October 4, 2023

MICRON CAMPUS EXPANSION

Noise Baseline Assessment

Prepared for:



Prepared by:



October 4, 2023

TABLE OF CONTENTS

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2	APPLICABLE NOISE REGULATIONS	2
3	EXISTING NOISE CONDITIONS	3

ACRONYMS AND ABBREVIATIONS

Acronym	Definition
USEPA	United States Environmental Protection Agency
dB	Decibel
dBA	A-weighted decibel scale
LA ₅₀	A-weighted 50 th percentile value
LMax	Maximum sound pressure level
LMin	Minimum sound pressure level
LAeq	Energy equivalent sound pressure level
NIST	National Institute of Standards and Technology
SLM	Sound Pressure Level Meter


1 INTRODUCTION

Micron is proposing a new fab expansion to their Boise Facility. The existing facility sits on an approximately 250-acre site within Ada County, Idaho. This report assesses the baseline noise effects from current operations at the facility.

The proposed project will contribute sound to the existing environment through equipment operations during the construction phase and operations of the proposed project. This assessment includes the baseline noise levels including current operations at the facility to help evaluate the potential effects of the new fab expansion.

The noise impact study is quantified using the A-weighted decibel scale (dBA). The A-weighted scale is used for judging loudness that corresponds to the hearing thresholds of the human ear. **Figure 1-1** provides examples of typical sound levels in dBA and the corresponding sources of noise. A 3dB change in a continuous broadband sound is generally considered “just barely perceptible” to the average listener, a 6dB change is generally considered “clearly noticeable” and a 10 dB change is generally considered a doubling (or halving) of the apparent loudness.

Figure 1-1. Noise Level Chart

Average Decibels (dB)	
Sounds above 85 dB are harmful 	140 Gun shot, siren at 100 feet
	130 Stock car races
	120 – 129 Sports crowd, rock concert, loud symphony
	106 – 115 Chainsaw, leaf blower, snowmobile
	101 – 105 School dance
	96 – 100 Boom box, ATV, motorcycle
	90 – 95 Subway, shouted conversation
	80 – 89 Heavy traffic, window air conditioner, noisy restaurant, power lawn mower
	75 Vacuum cleaner, average radio
	70 Office noise, inside car at 60 mph
	60 Normal conversation, background music
40 Average home noise	
30 Leaves rustling, soft music, whisper	

2 APPLICABLE NOISE REGULATIONS

Under Chapter 13 of the Ada County Code of Ordinances, there are no numeric noise thresholds specific to industrial operations, but there are generic guidelines limiting loud or unusual noise. Ada County Code of Ordinances, Section 5-13-3 states that “Between the hours of ten o'clock (10:00) P.M. one day and seven o'clock (7:00) A.M. the next day, it shall be unlawful for any person or business to make, cause, or allow loud or unusual noise by means of voice, musical instrument, horn, radio, loudspeaker, automobile, machinery, other sound amplifying equipment, domesticated animals, or any other means which disturbs the peace, quiet, and comfort of any reasonable person of normal sensitiveness residing in the area. Loud or unusual noise is that which is plainly audible within any residence or business, other than the source of the sound, or upon a public right-of-way or street at a distance of one hundred feet (100') or more from the source of said sound.” This general statement prohibits disturbing surrounding communities, but does not reference specific noise thresholds. ¹ Additionally, the Boise Municipal Code does not provide numeric noise threshold limits in Section 6-20 Noise. ²

Idaho Code 19-406 prohibits disturbing the peace, specifically stating “every person who maliciously and willfully disturbs the peace or quiet of any neighborhood, family or person, by loud or unusual noise, or by tumultuous or offensive conduct, or by threatening, traducing, quarreling, challenging to fight or fighting, or fires any gun or pistol, or uses any vulgar, profane or indecent language within the presence or hearing of children, in a loud and boisterous manner, is guilty of a misdemeanor.” ³ These is a general statement regarding disturbance of the peace and does not reference numeric noise thresholds.

The U.S. Environmental Protection Agency (USEPA) provides non-enforceable numeric sound level guidelines (**Table 2-1**) that may serve as a reference to evaluate potential noise impacts from industrial operations:

Table 2-1. USEPA Noise Guideline⁴

Zoning District Classifications	Limits (dBA)		
	The Day-Night Sound Level (Ldn)	Daytime (7:00 a.m. – 10:00 p.m.)	Nighttime (10:00 p.m. – 7:00 a.m.)
Outdoors in sensitive areas	55 ¹	55	45

1. This would be a 24-hour average sound level with a 10 dB penalty applied to the nighttime sound levels (i.e., 10:00 p.m. – 7:00 a.m.). Hence, the daytime limit evaluating to 55 dBA during the daytime and 45 dBA during the nighttime.

In the guidelines USEPA details that “These levels are not to be considered as standards as they do not take into account cost or feasibility. Nor should they be thought of as discrete numbers, since they are described in terms of energy equivalents. As specified in this document, it is

EPA’s judgement that the maintenance of levels of environmental noise at or below those specified above are requisite to protect the public from adverse health and welfare effects.”

3 EXISTING NOISE CONDITIONS

Trinity completed a noise monitoring program to measure baseline levels of the current operations of the Micron Boise facility. Noise measurements were taken at five (5) locations along the facility boundary to measure current noise levels associated with facility operations and ambient noise. **Figure 3-1** depicts the location of the facility and the measurement locations for assessing existing noise conditions.

At each monitoring location, sound pressure level measurements were obtained utilizing a Larson Davis 831C sound pressure level meter (SLM). Best monitoring practices were utilized at each of the ambient monitoring locations. At each location, a National Institute of Standards and Technology (NIST) traceable Larson Davis 831C Type 1 1/3 octave band SLM was mounted on a tripod and left undisturbed. For each monitoring location, sound pressure levels were monitored for approximately 15-minute periods. The sound pressures were logged on a one-minute basis in A-weighted decibels at a slow response rate and using a 3-decibel exchange rate. For each site, sound pressure levels were logged for maximum sound pressure (Lmax), average energy equivalent sound pressure (LAeq) and minimum sound pressure (Lmin). Additionally, 1/3 octave band pressure levels were logged to determine pure tone impacts. The meter was calibrated prior to and after each session to ensure accuracy. The ambient conditions, noise sources and sound pressure level results of each monitoring event were recorded in order to filter sound pressure levels to ensure only the facility noise impacts were assessed. Daytime and nighttime LAeq values for each location were recorded and are displayed in **Table 3-1**. Due to LAeq representing the energy averaging of sound pressure over the entire monitoring period, LAeq incorporates irregular noise occurrences from sound sources other than the facility. Due to the regular occurrence of vehicle traffic in the area, the LA₅₀ value was used to determine the most realistic existing ambient noise levels at the facility’s boundary. The LA₅₀ represents the value of the 50th percentile of the recorded monitoring data points, representing a median value of the dataset. These values are shown in **Table 3-2**.

The existing acoustical environment east of the Micron Boise facility is typically rural or residential. S Federal Way runs along the western boundary of the site, and S Water Way runs north-south along the eastern boundary of the existing Micron facility and wraps around its southern border. The primary sources of noise include environmental and vehicle sounds. The primary sources of natural noise include insects and birds. Areas surrounding the existing Micron Boise facility property experience noise associated with its ongoing operation and areas adjacent to roadways experience intermittent vehicle noise. In general, noise from the existing facility ranges from inaudible to barely noticeable at residences in the surrounding area.

Table 3-1 displays the measured LAeq sound levels during the monitoring program.

Table 3-1. Monitored LAeq Sound Level

Locations	LAeq Measurement Levels (dBA)	
	Daytime (7:00 a.m. – 10:00 p.m.)	Nighttime (10:00 p.m. – 7:00 a.m.)
1	57	42
2	61	52
3	62	56
4	69	57
5	61	58

Table 3-2 displays the measured LA₅₀ sound levels during the monitoring program.

Table 3-2. Monitored LA 50.00 Sound Level

Locations	LA 50.00 Measurement Levels (dBA)	
	Daytime (7:00 a.m. – 10:00 p.m.)	Nighttime (10:00 p.m. – 7:00 a.m.)
1	40	37
2	57	50
3	56	55
4	68	56
5	58	57

Figure 3-1. Existing Noise Background Monitoring Locations and Conditions



The following five locations were assessed for existing background noise impacts:

- Location 1: Micron Facility 1-Mile East of Property – S Amber Ridge Avenue
- Location 2: Micron Facility Northeast of Existing Property Boundary – E Columbia Road
- Location 3: Micron Facility North of Existing Property Boundary – S Silicon Lane
- Location 4: Micron Facility West of Existing Property Boundary – S Federal Way
- Location 5: Micron Facility South of Existing Property Boundary – S Gigabit Ln

The following photos display the monitoring location surrounding the existing Micron Boise facility. The same monitoring location and set up was utilized during the daytime and the nighttime monitoring periods.



Photo Location #1: Micron Facility 1-Mile East of Property – S Amber Ridge Avenue



Photo Location #2: Micron Facility Northeast of Existing Property Boundary – E Columbia Road



Photo Location #3: Micron Facility North of Existing Property Boundary – S Silicon Lane



Photo Location #4: Micron Facility West of Existing Property Boundary – S Federal Way



Photo Location #5: Micron Facility South of Existing Property Boundary – S Gigabit Ln

¹ Ada County Code of Ordinances, Chapter 13, Code Library, 1997,
https://codelibrary.amlegal.com/codes/adacountyid/latest/adacounty_id/0-0-0-2108

² Boise Municipal Code Chapter 6-20, Nonoise.org, 1997,
<https://nonoise.org/regulation/ordinance/Boise,%20Idaho.pdf#:~:text=The%20purpose%20of%20this%20Ordinance%20is%20the%20protection,shall%20be%20liberally%20construed%20to%20effectuate%20that%20purpose.>

³ Idaho Statute 18-6409, Idaho Legislature, 1972,
<https://legislature.idaho.gov/statutesrules/idstat/Title18/T18CH64/SECT18-6409/>

⁴ United States Environmental Protection Agency, Information on Levels of Environmental Noise Requisite To Protect Public Health and Welfare With An Adequate Margin of Safety, 1974,
<https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF>



APPENDIX A MONITORING DATA

APPENDIX A: MONITORING DATA

A.1 Monitoring Data Spreadsheets

Location 1 – Daytime

Summary	
File Name on Meter	831_Data.044.s
File Name on PC	831C_10781-20230113 170808-831_Data_044.lbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1C
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-13 17:08:08
Stop	2023-01-13 17:23:23
Duration	00:15:14.9
Run Time	00:15:14.9
Pause	00:00:00.0
Pre-Calibration	2023-01-13 17:05:16
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.9		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.7
Noise Floor	16.4	17.0	24.6
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	62.5	°F	68.1	°F	62.6	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results								
LAeq	56.7							
LAE	86.4							
EA	47.998	μPa ² h						
LZpeak (max)	2023-01-13 17:17:43	94.2	dB					
LASmax	2023-01-13 17:17:42	74.4	dB					
LASmin	2023-01-13 17:21:35	30.3	dB					
SEA	-99.9	dB						
LAFTM5	59.7	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	2	39.3	s					
LAS > 85.0 dB	0	0.0	s					
LZpeak > 135.0 dB	0	0.0	s					
LZpeak > 137.0 dB	0	0.0	s					
LZpeak > 140.0 dB	0	0.0	s					

Community Noise	Ldn	LDay 07:00- 22:00	LNight 22:00- 07:00	Lden	LDay 07:00- 19:00	LEvening 19:00- 22:00	LNight 22:00- 07:00	
	56.7	56.7	-99.9	56.7	56.7	-99.9	-99.9	dB
LCeq	64.5	dB						
LAeq	56.7	dB						
LCeq - LAeq	7.8	dB						
LAlaq	58.5	dB						
LAeq	56.7	dB						
LAlaq - LAeq	1.8	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	56.7		64.5		67.8			
LS(max)	74.4	2023/01 /13 17:17:42	81.3	2023/01 /13 17:17:42	81.5	2023/01 /13 17:17:42		
LF(max)	76.1	2023/01 /13 17:17:39	83.0	2023/01 /13 17:17:42	83.2	2023/01 /13 17:17:42		
LI(max)	77.3	2023/01 /13 17:17:39	84.5	2023/01 /13 17:17:42	84.7	2023/01 /13 17:17:42		
LS(min)	30.3	2023/01 /13 17:21:35	49.0	2023/01 /13 17:21:35	55.6	2023/01 /13 17:21:27		
LF(min)	29.7	2023/01 /13 17:21:34	46.3	2023/01 /13 17:21:34	52.3	2023/01 /13 17:21:26		
LI(min)	30.4	2023/01 /13 17:21:36	50.1	2023/01 /13 17:21:30	57.2	2023/01 /13 17:21:27		

LPeak(max)	87.3	2023/01/13 17:17:39	93.8	2023/01/13 17:17:43	94.2	2023/01/13 17:17:43		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics			
LA 5.00		62.9	dB
LA 10.00		51.9	dB
LA 33.30		41.9	dB
LA 50.00		40.0	dB
LA 66.60		38.3	dB
LA 90.00		32.2	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41

PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09
PRM831	2022-12-29 17:27:29	-26.95		57.90	57.06	65.94
PRM831	2022-12-29 17:27:13	-26.95		51.57	49.82	62.61

Location 2 – Daytime

Summary	
File Name on Meter	831_Data.045.s
File Name on PC	831C_10781-20230113 173109-831_Data_045.lbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1C
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-13 17:31:09
Stop	2023-01-13 17:46:11
Duration	00:15:01.7
Run Time	00:15:01.7
Pause	00:00:00.0

Pre-Calibration	2023-01-13 17:05:16
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.9		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.7
Noise Floor	16.4	17.0	24.6
	First	Second	Third
Instrument Identification			

System Metrics

	Minimum		Maximum		Last	
Internal Temperature	63.3	°F	66.6	°F	63.3	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results								
LAeq	60.6							
LAE	90.2							
EA	116.043	μPa ² h						
LZ_{peak} (max)	2023-01-13 17:35:30	92.1						
LAS_{max}	2023-01-13 17:35:30	71.4						
LAS_{min}	2023-01-13 17:40:39	47.4						
SEA	-99.9	dB						
LAFTM5	64.6	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	30	130.6 s						
LAS > 85.0 dB	0	0.0 s						
LZ_{peak} > 135.0 dB	0	0.0 s						

LZ_{peak} > 137.0 dB	0	0.0	s					
LZ_{peak} > 140.0 dB	0	0.0	s					
Community Noise	L_{dn}	L_{Day} 07:00-22:00	L_{Night} 22:00-07:00	L_{den}	L_{Day} 07:00-19:00	L_{Evening} 19:00-22:00	L_{Night} 22:00-07:00	
	60.6	60.6	-99.9	60.6	60.6	-99.9	-99.9	dB
LC_{eq}	67.6	dB						
LA_{eq}	60.6	dB						
LC_{eq} - LA_{eq}	6.9	dB						
LA_{1eq}	61.9	dB						
LA_{2eq}	60.6	dB						
LA_{1eq} - LA_{2eq}	1.3	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	60.6		67.6		69.0			
LS(max)	71.4	2023/01/13 17:35:30	80.2	2023/01/13 17:45:51	80.6	2023/01/13 17:35:30		
LF(max)	73.0	2023/01/13 17:32:22	81.5	2023/01/13 17:45:51	82.2	2023/01/13 17:35:30		
LI(max)	73.8	2023/01/13 17:32:22	82.4	2023/01/13 17:35:28	83.8	2023/01/13 17:35:29		
LS(min)	47.4	2023/01/13 17:40:39	59.1	2023/01/13 17:40:27	62.2	2023/01/13 17:40:27		

LF(min)	46.6	2023/01 /13 17:40:36	57.2	2023/01 /13 17:40:39	60.0	2023/01 /13 17:33:18		
LI(min)	47.2	2023/01 /13 17:40:36	59.8	2023/01 /13 17:40:17	63.5	2023/01 /13 17:39:26		
LPeak(max)	89.5	2023/01 /13 17:35:21	91.4	2023/01 /13 17:35:30	92.1	2023/01 /13 17:35:30		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics			
LA 5.00		66.3	dB
LA 10.00		65.1	dB
LA 33.30		59.9	dB
LA 50.00		57.2	dB
LA 66.60		54.8	dB
LA 90.00		50.7	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0

PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09
PRM831	2022-12-29 17:27:29	-26.95		57.90	57.06	65.94
PRM831	2022-12-29 17:27:13	-26.95		51.57	49.82	62.61

Location 3 – Daytime

Summary	
File Name on Meter	831_Data.046.s
File Name on PC	831C_10781-20230113 180543-831_Data_046.lbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1C
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-13 18:05:43

Stop	2023-01-13 18:20:46
Duration	00:15:03.2
Run Time	00:15:03.2
Pause	00:00:00.0
Pre-Calibration	2023-01-13 18:03:24
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	17.0	24.5

	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	56.4	°F	66.3	°F	56.5	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results								
LAeq	62.4							
LAE	92.0							
EA	175.246	μPa ² h						
LZ_{peak} (max)	2023-01-13 18:16:10	99.7	dB					
LAS_{max}	2023-01-13 18:16:11	77.3	dB					
LAS_{min}	2023-01-13 18:07:16	50.2	dB					
SEA	-99.9	dB						
LAFTM5	67.2	dB						
	Exceedance Counts	Duration						

LAS > 65.0 dB	15	110.9	s					
LAS > 85.0 dB	0	0.0	s					
LZ_{peak} > 135.0 dB	0	0.0	s					
LZ_{peak} > 137.0 dB	0	0.0	s					
LZ_{peak} > 140.0 dB	0	0.0	s					
Community Noise	L_{dn}	L_{Day} 07:00-22:00	L_{Night} 22:00-07:00	L_{den}	L_{Day} 07:00-19:00	L_{Evening} 19:00-22:00	L_{Night} 22:00-07:00	
	62.4	62.4	-99.9	62.4	62.4	-99.9	-99.9	
LC_{eq}	69.9	dB						
LA_{eq}	62.4	dB						
LC_{eq} - LA_{eq}	7.5	dB						
LA_{Ieq}	65.0	dB						
LA_{eq}	62.4	dB						
LA_{Ieq} - LA_{eq}	2.6	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	62.4		69.9		73.7			
LS(max)	77.3	2023/01/13 18:16:11	86.1	2023/01/13 18:16:11	86.5	2023/01/13 18:16:11		

LF(max)	79.6	2023/01 /13 18:16:10	89.8	2023/01 /13 18:16:10	90.7	2023/01 /13 18:11:36		
LI(max)	81.0	2023/01 /13 18:17:29	90.9	2023/01 /13 18:16:10	93.7	2023/01 /13 18:11:36		
LS(min)	50.2	2023/01 /13 18:07:16	60.5	2023/01 /13 18:08:06	64.1	2023/01 /13 18:06:32		
LF(min)	49.4	2023/01 /13 18:08:05	59.2	2023/01 /13 18:08:10	62.8	2023/01 /13 18:06:30		
LI(min)	50.0	2023/01 /13 18:08:04	61.2	2023/01 /13 18:08:04	65.5	2023/01 /13 18:06:31		
LPeak(max)	96.6	2023/01 /13 18:12:00	98.8	2023/01 /13 18:17:29	99.7	2023/01 /13 18:16:10		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics			
LA 5.00		69.7	dB
LA 10.00		65.5	dB
LA 33.30		57.1	dB
LA 50.00		55.7	dB

LA 66.60	54.6	dB
LA 90.00	52.3	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09
PRM831	2022-12-29 17:27:29	-26.95		57.90	57.06	65.94

Location 4 – Daytime

Summary	
File Name on Meter	831_Data.047.s
File Name on PC	831C_10781-20230113 182931-831_Data_047.ldbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1C
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-13 18:29:31
Stop	2023-01-13 18:44:33
Duration	00:15:02.4
Run Time	00:15:02.4
Pause	00:00:00.0
Pre-Calibration	2023-01-13 18:03:24
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		

Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	57.8	°F	60.2	°F	57.8	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results							
LAeq	69.3						
LAE	98.9						
EA	861.671	μPa ² h					
LZ_{peak} (max)	2023-01-13 18:33:16	109.6	dB				
LAS_{max}	2023-01-13 18:33:16	85.1	dB				

LAS _{min}	2023-01-13 18:39:04	61.6	dB					
SEA	-99.9	dB						
LAFTM5	72.3	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	4	863.3	s					
LAS > 85.0 dB	1	1.3	s					
LZ _{peak} > 135.0 dB	0	0.0	s					
LZ _{peak} > 137.0 dB	0	0.0	s					
LZ _{peak} > 140.0 dB	0	0.0	s					
Community Noise	Ldn	LDay 07:00- 22:00	LNight 22:00- 07:00	Lden	LDay 07:00- 19:00	LEvening 19:00- 22:00	LNight 22:00- 07:00	
	69.3	69.3	-99.9	69.3	69.3	-99.9	-99.9	db
LC _{eq}	76.5	dB						
LA _{eq}	69.3	dB						
LC _{eq} - LA _{eq}	7.1	dB						
LA _{1eq}	70.5	dB						
LA _{eq}	69.3	dB						
LA _{1eq} - LA _{eq}	1.2	dB						

	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	69.3		76.5		77.2			
LS(max)	85.1	2023/01/13 18:33:16	90.6	2023/01/13 18:31:36	90.9	2023/01/13 18:31:36		
LF(max)	87.6	2023/01/13 18:33:16	91.8	2023/01/13 18:31:36	92.2	2023/01/13 18:31:36		
LI(max)	90.0	2023/01/13 18:33:16	92.6	2023/01/13 18:33:16	92.7	2023/01/13 18:33:16		
LS(min)	61.6	2023/01/13 18:39:04	68.7	2023/01/13 18:40:27	69.9	2023/01/13 18:40:26		
LF(min)	60.9	2023/01/13 18:39:00	67.5	2023/01/13 18:41:06	68.7	2023/01/13 18:40:26		
LI(min)	61.4	2023/01/13 18:39:00	69.3	2023/01/13 18:40:24	70.5	2023/01/13 18:40:26		
LPeak(max)	108.2	2023/01/13 18:33:16	109.4	2023/01/13 18:33:16	109.6	2023/01/13 18:33:16		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics		
LA 5.00	72.2	dB
LA 10.00	71.3	dB
LA 33.30	68.9	dB
LA 50.00	67.8	dB
LA 66.60	66.6	dB
LA 90.00	64.4	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09
PRM831	2022-12-29 17:27:29	-26.95		57.90	57.06	65.94

Location 5 – Daytime

Summary	
File Name on Meter	831_Data.048.s
File Name on PC	831C_10781-20230113 185218- 831_Data_048.lbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C

Firmware Version	04.7.1R0
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-13 18:52:18
Stop	2023-01-13 19:07:20
Duration	00:15:02.1
Run Time	00:15:02.1
Pause	00:00:00.0
Pre-Calibration	2023-01-13 18:03:24
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		

OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	56.5	°F	59.6	°F	56.5	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results							
LAeq	60.8						
LAE	90.3						
EA	119.238	μPa ² h					

LZpeak (max)	2023-01-13 18:57:55	93.5	dB					
LASmax	2023-01-13 18:57:55	70.9	dB					
LASmin	2023-01-13 18:54:51	52.7	dB					
SEA	-99.9	dB						
LAFTM5	63.9	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	16	112.1	s					
LAS > 85.0 dB	0	0.0	s					
LZpeak > 135.0 dB	0	0.0	s					
LZpeak > 137.0 dB	0	0.0	s					
LZpeak > 140.0 dB	0	0.0	s					
Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00	LEvening 19:00-22:00	LNight 22:00-07:00	
	60.8	60.8	-99.9	62.3	60.4	61.1	-99.9	dB
LCeq	67.7	dB						
LAeq	60.8	dB						

LCeq - LAeq	6.9	dB						
LAeq	61.8	dB						
LAeq	60.8	dB						
LAeq - LAeq	1.1	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	60.8		67.7		69.6			
LS(max)	70.9	2023/01/13 18:57:55	81.6	2023/01/13 18:57:55	82.0	2023/01/13 18:57:55		
LF(max)	72.4	2023/01/13 18:57:55	84.6	2023/01/13 18:57:55	85.0	2023/01/13 18:57:55		
LI(max)	73.5	2023/01/13 18:55:24	85.8	2023/01/13 18:57:55	86.1	2023/01/13 18:57:55		
LS(min)	52.7	2023/01/13 18:54:51	61.6	2023/01/13 18:54:40	64.8	2023/01/13 18:54:45		
LF(min)	52.1	2023/01/13 18:55:01	59.9	2023/01/13 18:54:40	63.1	2023/01/13 18:54:33		
LI(min)	52.6	2023/01/13 18:55:03	62.2	2023/01/13 18:54:40	65.6	2023/01/13 18:52:38		
LPeak(max)	88.5	2023/01/13 18:55:24	92.4	2023/01/13 18:57:55	93.5	2023/01/13 18:57:55		
Overload Count	0							

Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics			
LA 5.00		66.5	dB
LA 10.00		64.6	dB
LA 33.30		59.4	dB
LA 50.00		58.1	dB
LA 66.60		56.7	dB
LA 90.00		54.6	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09
PRM831	2022-12-29 17:27:29	-26.95		57.90	57.06	65.94

Location 1 – Nighttime

Summary	
File Name on Meter	831_Data.049.s
File Name on PC	831C_10781-20230116 215957-831_Data_049.ldbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1R0
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-16 21:59:57
Stop	2023-01-16 22:14:59
Duration	00:15:02.0
Run Time	00:15:02.0
Pause	00:00:00.0
Pre-Calibration	2023-01-16 21:56:40
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	53.2	°F	65.0	°F	53.2	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results								
LAeq	42.2							
LAE	71.8							
EA	1.667	μPa ² h						
LZpeak (max)	2023-01-16 22:00:13	93.6	dB					
LASmax	2023-01-16 22:02:30	59.6	dB					
LASmin	2023-01-16 22:02:22	32.6	dB					
SEA	-99.9	dB						
LAFTM5	50.0	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	0	0.0	s					
LAS > 85.0 dB	0	0.0	s					
LZpeak > 135.0 dB	0	0.0	s					
LZpeak > 137.0 dB	0	0.0	s					
LZpeak > 140.0 dB	0	0.0	s					

Community Noise	Ldn	LDay 07:00- 22:00	LNight 22:00- 07:00	Lden	LDay 07:00- 19:00	LEvening 19:00- 22:00	LNight 22:00- 07:00	
	48.4	40.5	42.2	-99.9	-99.9	40.5	42.2	dB
LCeq	55.8	dB						
LAeq	42.2	dB						
LCeq - LAeq	13.6	dB						
LAlaq	49.0	dB						
LAeq	42.2	dB						
LAlaq - LAeq	6.8	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	42.2		55.8		61.3			
LS(max)	59.6	2023/01 /16 22:02:30	68.1	2023/01 /16 22:13:39	81.3	2023/01 /16 22:00:13		
LF(max)	67.9	2023/01 /16 22:02:30	70.5	2023/01 /16 22:02:30	88.3	2023/01 /16 22:00:13		
LI(max)	72.6	2023/01 /16 22:02:30	75.2	2023/01 /16 22:02:30	91.6	2023/01 /16 22:00:13		
LS(min)	32.6	2023/01 /16 22:02:22	52.2	2023/01 /16 22:02:24	56.7	2023/01 /16 22:02:02		
LF(min)	31.6	2023/01 /16 22:04:39	48.8	2023/01 /16 22:05:55	52.5	2023/01 /16 22:05:55		
LI(min)	32.4	2023/01 /16 22:02:22	53.2	2023/01 /16 22:01:44	57.6	2023/01 /16 22:02:09		

LPeak(max)	88.1	2023/01/16 22:02:30	92.4	2023/01/16 22:02:30	93.6	2023/01/16 22:00:13		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics			
LA 5.00		47.5	dB
LA 10.00		44.8	dB
LA 33.30		39.4	dB
LA 50.00		37.2	dB
LA 66.60		35.3	dB
LA 90.00		33.7	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-16 21:56:40	-26.89		60.68	57.90	57.14
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33

PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09

Location 2 – Nighttime

Summary	
File Name on Meter	831_Data.050.s
File Name on PC	831C_10781-20230116 222011-831_Data_050.ldbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1R0
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-16 22:20:11
Stop	2023-01-16 22:35:12
Duration	00:15:01.8
Run Time	00:15:01.8
Pause	00:00:00.0

Pre-Calibration	2023-01-16 21:56:40
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	46.3	°F	55.0	°F	46.3	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results							
L _{Aeq}	52.1						
L _{AE}	81.6						
E _A	16.189	μPa ² h					
L _{Zpeak} (max)	2023-01-16 22:32:35	87.8	dB				
L _{ASmax}	2023-01-16 22:32:55	67.9	dB				
L _{ASmin}	2023-01-16 22:27:10	45.6	dB				
SEA	-99.9	dB					
L _{AFTM5}	55.1	dB					
	Exceedance Counts	Duration					
L _{AS} > 65.0 dB	1	4.2	s				
L _{AS} > 85.0 dB	0	0.0	s				

LZ_{peak} > 135.0 dB	0	0.0	s					
LZ_{peak} > 137.0 dB	0	0.0	s					
LZ_{peak} > 140.0 dB	0	0.0	s					
Community Noise	L_{dn}	L_{Day} 07:00-22:00	L_{Night} 22:00-07:00	L_{den}	L_{Day} 07:00-19:00	L_{Evening} 19:00-22:00	L_{Night} 22:00-07:00	
	62.1	-99.9	52.1	62.1	-99.9	-99.9	52.1	dB
LC_{eq}	61.5	dB						
LA_{eq}	52.1	dB						
LC_{eq} - LA_{eq}	9.4	dB						
LA_{1eq}	53.3	dB						
LA_{2eq}	52.1	dB						
LA_{1eq} - LA_{2eq}	1.2	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	52.1		61.5		67.1			
LS(max)	67.9	2023/01/16 22:32:55	70.8	2023/01/16 22:32:56	78.1	2023/01/16 22:32:35		
LF(max)	69.9	2023/01/16 22:32:55	73.1	2023/01/16 22:32:41	83.5	2023/01/16 22:32:35		
LI(max)	70.8	2023/01/16 22:32:55	76.1	2023/01/16 22:34:42	85.4	2023/01/16 22:32:35		

LS(min)	45.6	2023/01 /16 22:27:10	58.4	2023/01 /16 22:26:54	62.1	2023/01 /16 22:27:11		
LF(min)	44.8	2023/01 /16 22:27:02	56.5	2023/01 /16 22:27:20	60.0	2023/01 /16 22:35:10		
LI(min)	45.4	2023/01 /16 22:27:02	58.8	2023/01 /16 22:26:54	63.5	2023/01 /16 22:27:11		
LPeak(max)	81.4	2023/01 /16 22:32:55	85.2	2023/01 /16 22:22:59	87.8	2023/01 /16 22:32:35		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics			
LA 5.00		55.2	dB
LA 10.00		54.0	dB
LA 33.30		51.3	dB
LA 50.00		50.1	dB
LA 66.60		49.1	dB
LA 90.00		47.5	dB

Calibration History

Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-16 21:56:40	-26.89		60.68	57.90	57.14
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09

Location 3 – Nighttime

Summary	
File Name on Meter	831_Data.051.s
File Name on PC	831C_10781-20230116 224032- 831_Data_051.ldbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1R0
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized

Elevation	GPS Not Synchronized
Start	2023-01-16 22:40:32
Stop	2023-01-16 22:55:24
Duration	00:14:51.9
Run Time	00:14:51.9
Pause	00:00:00.0
Pre-Calibration	2023-01-16 21:56:40
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6

Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	45.7	°F	50.4	°F	45.7	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results								
LAeq	56.2							
LAE	85.7							
EA	41.413	μPa ² h						
LZ_{peak} (max)	2023-01-16 22:42:18	96.1	dB					
LAS_{max}	2023-01-16 22:42:18	72.1	dB					
LAS_{min}	2023-01-16 22:54:44	47.6	dB					
SEA	-99.9	dB						
LAFTM5	59.9	dB						

	Exceedance Counts	Duration						
LAS > 65.0 dB	1	5.0	s					
LAS > 85.0 dB	0	0.0	s					
LZ_{peak} > 135.0 dB	0	0.0	s					
LZ_{peak} > 137.0 dB	0	0.0	s					
LZ_{peak} > 140.0 dB	0	0.0	s					
Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00	LEvening 19:00-22:00	LNight 22:00-07:00	
	66.2	-99.9	56.2	66.2	-99.9	-99.9	56.2	dB
LC_{eq}	65.2	dB						
LA_{eq}	56.2	dB						
LC_{eq} - LA_{eq}	9.0	dB						
LA_{Ieq}	57.8	dB						
LA_{eq}	56.2	dB						
LA_{Ieq} - LA_{eq}	1.6	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	56.2		65.2		66.4			

LS(max)	72.1	2023/01 /16 22:42:18	84.1	2023/01 /16 22:42:18	84.7	2023/01 /16 22:42:18		
LF(max)	74.6	2023/01 /16 22:42:18	86.1	2023/01 /16 22:42:18	86.7	2023/01 /16 22:42:18		
LI(max)	76.0	2023/01 /16 22:42:18	87.1	2023/01 /16 22:42:18	87.6	2023/01 /16 22:42:18		
LS(min)	47.6	2023/01 /16 22:54:44	59.0	2023/01 /16 22:40:38	61.6	2023/01 /16 22:44:06		
LF(min)	46.6	2023/01 /16 22:40:38	57.5	2023/01 /16 22:40:37	59.7	2023/01 /16 22:40:37		
LI(min)	47.2	2023/01 /16 22:54:43	59.2	2023/01 /16 22:40:37	62.1	2023/01 /16 22:44:01		
LPeak(max)	86.8	2023/01 /16 22:42:18	95.0	2023/01 /16 22:42:18	96.1	2023/01 /16 22:42:18		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics	
LA 5.00	58.9 dB

LA 10.00	58.1	dB
LA 33.30	56.2	dB
LA 50.00	55.2	dB
LA 66.60	54.1	dB
LA 90.00	52.1	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-16 21:56:40	-26.89		60.68	57.90	57.14
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09

Location 4 – Nighttime

Summary	
File Name on Meter	831_Data.052.s
File Name on PC	831C_10781-20230116 230106-831_Data_052.ldbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1R0
User	
Location	

Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-16 23:01:06
Stop	2023-01-16 23:15:09
Duration	00:14:03.2
Run Time	00:14:03.2
Pause	00:00:00.0
Pre-Calibration	2023-01-16 21:56:40
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		

OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	45.5	°F	50.3	°F	45.5	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results							
LAeq	57.4						
LAE	86.7						
EA	51.977	μPa ² h					
LZpeak (max)	2023-01-16 23:04:56	92.9	dB				

LAS _{max}	2023-01-16 23:15:06	69.8	dB					
LAS _{min}	2023-01-16 23:13:12	49.5	dB					
SEA	-99.9	dB						
LAFTM5	59.4	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	2	9.7	s					
LAS > 85.0 dB	0	0.0	s					
LZ _{peak} > 135.0 dB	0	0.0	s					
LZ _{peak} > 137.0 dB	0	0.0	s					
LZ _{peak} > 140.0 dB	0	0.0	s					
Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00	LEvening 19:00-22:00	LNight 22:00-07:00	
	67.4	-99.9	57.4	67.4	-99.9	-99.9	57.4	
LC _{eq}	69.2	dB						
LA _{eq}	57.4	dB						
LC _{eq} - LA _{eq}	11.7	dB						
LA _{leq}	58.3	dB						

LAeq	57.4	dB						
LAeq - LAeq	0.9	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	57.4		69.2		71.0			
LS(max)	69.8	2023/01/16 23:15:06	83.6	2023/01/16 23:04:58	84.3	2023/01/16 23:04:58		
LF(max)	71.4	2023/01/16 23:15:04	86.4	2023/01/16 23:04:57	87.1	2023/01/16 23:04:57		
LI(max)	72.6	2023/01/16 23:15:04	87.6	2023/01/16 23:04:57	88.3	2023/01/16 23:04:57		
LS(min)	49.5	2023/01/16 23:13:12	62.3	2023/01/16 23:13:08	64.8	2023/01/16 23:13:08		
LF(min)	48.8	2023/01/16 23:13:11	61.1	2023/01/16 23:13:08	63.3	2023/01/16 23:13:05		
LI(min)	49.1	2023/01/16 23:13:11	63.3	2023/01/16 23:14:33	65.4	2023/01/16 23:13:07		
LPeak(max)	82.7	2023/01/16 23:15:04	92.3	2023/01/16 23:04:56	92.9	2023/01/16 23:04:56		
Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							

OBA Overload Duration	0.0	s						
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Statistics		
LA 5.00	60.8	dB
LA 10.00	59.7	dB
LA 33.30	57.4	dB
LA 50.00	56.4	dB
LA 66.60	55.3	dB
LA 90.00	52.7	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-16 21:56:40	-26.89		60.68	57.90	57.14
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41
PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09

Location 5 – Nighttime

Summary	
File Name on Meter	831_Data.053.s

File Name on PC	831C_10781-20230116 231924-831_Data_053.ldbin
Serial Number	0010781
Model	SoundAdvisor™ Model 831C
Firmware Version	04.7.1R0
User	
Location	
Job Description	
Note	

Measurement	
Description	
Latitude	GPS Not Synchronized
Longitude	GPS Not Synchronized
Elevation	GPS Not Synchronized
Start	2023-01-16 23:19:24
Stop	2023-01-16 23:34:28
Duration	00:15:03.1
Run Time	00:15:03.1
Pause	00:00:00.0
Pre-Calibration	2023-01-16 21:56:40
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		

Preamplifier	PRM831		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/3 Octave		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Gain	0.0		
Overload	144.8		
	A	C	Z
Under Range Peak	65.9	66.9	68.9
Under Range Limit	25.6	26.1	33.6
Noise Floor	16.4	16.9	24.5
	First	Second	Third
Instrument Identification			

System Metrics						
	Minimum		Maximum		Last	
Internal Temperature	42.4	°F	47.9	°F	42.4	°F
External Voltage	-99.9	V	-99.9	V	-99.9	V

Results

LAeq	58.0							
LAE	87.5							
EA	62.871	μPa ² h						
LZpeak (max)	2023-01-16 23:34:01	89.6	dB					
LASmax	2023-01-16 23:26:05	64.1	dB					
LASmin	2023-01-16 23:20:01	49.6	dB					
SEA	-99.9	dB						
LAFTM5	60.5	dB						
	Exceedance Counts	Duration						
LAS > 65.0 dB	0	0.0	s					
LAS > 85.0 dB	0	0.0	s					
LZpeak > 135.0 dB	0	0.0	s					
LZpeak > 137.0 dB	0	0.0	s					
LZpeak > 140.0 dB	0	0.0	s					
Community Noise	Ldn	LDay 07:00- 22:00	LNight 22:00- 07:00	Lden	LDay 07:00- 19:00	LEvening 19:00- 22:00	LNight 22:00- 07:00	
	68.0	-99.9	58.0	68.0	-99.9	-99.9	58.0	dB

LCeq	65.7	dB						
LAeq	58.0	dB						
LCeq - LAeq	7.8	dB						
LAlaq	59.1	dB						
LAeq	58.0	dB						
LAlaq - LAeq	1.1	dB						
	A		C		Z			
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp		
Leq	58.0		65.7		67.8			
LS(max)	64.1	2023/01/16 23:26:05	73.9	2023/01/16 23:32:31	75.0	2023/01/16 23:32:31		
LF(max)	66.6	2023/01/16 23:32:17	75.3	2023/01/16 23:32:30	78.1	2023/01/16 23:34:01		
LI(max)	67.6	2023/01/16 23:32:17	77.8	2023/01/16 23:32:30	80.5	2023/01/16 23:34:01		
LS(min)	49.6	2023/01/16 23:20:01	60.8	2023/01/16 23:29:40	63.3	2023/01/16 23:29:40		
LF(min)	48.9	2023/01/16 23:24:34	59.3	2023/01/16 23:29:39	62.0	2023/01/16 23:20:11		
LI(min)	49.5	2023/01/16 23:24:35	61.6	2023/01/16 23:29:39	64.0	2023/01/16 23:29:36		
LPeak(max)	77.9	2023/01/16 23:33:58	87.0	2023/01/16 23:19:30	89.6	2023/01/16 23:34:01		

Overload Count	0							
Overload Duration	0.0	s						
OBA Overload Count	0							
OBA Overload Duration	0.0	s						

Statistics		
LA 5.00	61.7	dB
LA 10.00	61.0	dB
LA 33.30	58.3	dB
LA 50.00	57.2	dB
LA 66.60	55.8	dB
LA 90.00	53.0	dB

Calibration History						
Preamp	Date	dB re. 1V/Pa		6.3	8.0	10.0
PRM831	2023-01-16 21:56:40	-26.89		60.68	57.90	57.14
PRM831	2023-01-13 18:03:24	-26.89		57.28	47.87	56.51
PRM831	2023-01-13 17:05:16	-26.95		47.18	44.97	45.33
PRM831	2023-01-05 15:17:56	-26.89		64.43	78.39	78.68
PRM831	2023-01-04 22:04:00	-26.92		43.33	50.22	52.41

PRM831	2023-01-04 15:22:41	-26.97		63.59	62.70	54.09
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**APPENDIX F TRAFFIC IMPACT STUDIES AND ITD AND ACHD
COORDINATION**

TRAFFIC IMPACT STUDY FOR

FAB1 MANUFACTURING FACILITY

DATE:

October 17, 2022

LOCATION:

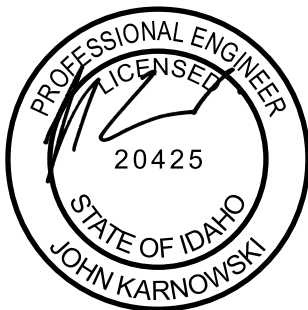
Boise, ID

PREPARED FOR:

Micron

PREPARED BY:

NV5
690 S. Industry Way, Suite 10
Meridian, ID 83642



EXECUTIVE SUMMARY

A new advanced memory fabrication facility, called FAB1, will be located on the Micron R&D campus along S. Federal Way in Boise, ID. FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot “clean” room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots.

The following study scenarios were included:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Project Build with Existing Roadway Conditions

FAB1 will include 2,750 employees of Micron and onsite vendors and, for the purposes of estimating number of trips, is considered a manufacturing land use. The new development will produce 6,174 trips per day with 11% occurring between 7:00 and 8:00 am and 10% occurring between 4:00 and 5:00 pm.

The traffic impact study was conducted in accordance with the approved scoping memorandum and the ACHD Policy Manual. The study network included 12 intersections and four (4) road segments. New traffic counts were collected to set a baseline for the analysis. Traffic growth was estimated using COMPASS’s model output. The expected distribution of auto traffic is approximately 25% to the south via I-84, 10% to the east on SH 21, 10% to the west on Gowen Road and the remaining 55% to the north and west via either Federal Way or I-84. FAB1’s parking lots will be close to the existing Gate C (aka Gigabit Lane). The intersection of Gigabit Lane and S Federal Way will be the primary employee access for the site. Secondary access and parking for utility areas is located on the north side of the campus. Construction traffic will access the site via an extension of Memory Lane Rd and the Eisenman exit from I-84. All roads internal to the Micron campus are private roads.

For the **existing traffic conditions**, five intersections were found to have capacity deficiencies.

- Gowen Rd at Technology Way/Grand Forest Drive
The side streets movements have excessive delays and have a level of service of E. The recommended mitigation includes:
 - Signal timing and phasing changes
- Gowen Rd at S Federal Way
The southbound, northbound, and westbound left turn lanes have high delays in the PM peak hour. The following mitigation is recommended:
 - Add southbound left turn lane by restriping the existing gore area and adding a

protected-only signal phase

- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
- There appears to be sufficient right-of-way to accomplish the improvements
- Gowen Rd at I-84 EB Ramp

The ramp traffic will frequently queue to near the I-84 mainline lanes. To avoid impacts to the I-84 traffic, the following improvements are recommended:

 - Add third left turn lane on the exit ramp
 - Re-time the traffic signal to account for the added road capacity
 - There appears to be sufficient right-of-way to accomplish the improvements
- Federal Way at Amity Road

The typical commute pattern includes a heavy westbound right turn in the morning and a heavy southbound left turn in the evening. The high volume of traffic results in a level of service F in both the AM and PM for the westbound right and a level of service E in the PM for the southbound left. The recommended improvements include:

 - Convert the westbound dual right turns lanes into a single free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
 - Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the left turn traffic signal for protected-only operation
 - Re-time the traffic signal to account for the added road capacity
 - There not appear to be sufficient right-of-way to accomplish the improvements
- Federal Way at Bergeson Avenue

Similar commute patterns as Amity Road exist along Bergeson Avenue. The westbound right turn volume is high. There is a short acceleration lane but it does not allow for a free-flow movement and therefore long delays for right turning vehicles heading toward Boise. That movement experiences a level of service F in the both the morning and evening peak hours. While there is a delay for the southbound left turn (LOS E), the recommended improvements, combined with the necessary signal re-timing, will bring the intersection to acceptable levels of service.

 - Channelize the westbound right turn lane into a free-flow right turn lane
 - Add 1000 feet receiving lane north of the intersection
 - Re-time the traffic signal to account for the added road capacity
 - There does not appear to be sufficient right-of-way to accomplish the improvements

When general growth in traffic volume is added to the existing conditions (i.e., **background growth**), the aforementioned conditions will worsen but no additional intersections will be negatively impacted. One intersection will become congested enough that additional mitigation at this intersection may be necessary.

- Gowen Rd at Technology Way/Grand Forest Drive

The intersection delay will be high enough that signal timing will no longer be sufficient. The following is recommended.

- Construct a multi-lane roundabout to provide enough capacity to accommodate the background traffic as well as the new site traffic.
- There is not sufficient right-of-way to accomplish the improvements.
- The right of way and the construction would be the responsibility of ITD.

For the **build-out** of the site, the new traffic will negatively impact the unsignalized Gate B at S Federal Way intersection. While a traffic signal is not likely to be warranted with the new traffic, the delays for the left turning traffic leaving the Micron campus will be high. The following is recommended:

- Install traffic signal
- < OR >
- Eliminate left turns leaving Micron's Campus

Memory Lane will be extended to the east through a temporary easement to provide construction access to the site. A detailed analysis of construction traffic is not a part of this study. However, since the road does not currently exist, the intersection with S Federal Way will need to be modified. The following is the recommended configuration to accommodate the construction traffic:

- Re-configure the southbound approach to the intersection to include a left turn lane
 - Restripe the existing flush median
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane

The recommendations for mitigation to the impacts identified above are summarized in the table that follows. In general, the impacts from the site are manageable by the roadway network. S Federal Way is primarily utilized by Micron's current operations with a few additional businesses nearby. The four-lane road has capacity to spare and can accommodate the additional load from FAB1. Similarly, the interchange of Eisenman Road and I-84 is underutilized and, based on the proximity of FAB1, should be the primary access point of choice for employees, delivery vehicles, and contractors.

Intersection Mitigation Summary

Int	Intersection	Control	Recommended Improvements		
			2022 Existing Traffic	2025 Traffic (No-Build)	2025 Traffic with Project
3	Memory Ln & Federal Way/I-84 WB Off-Ramp	Side Street Stop	None	None	- Re-configure the southbound approach to the intersection to include a left turn lane - Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
5	Federal Way at Gate B	Side Street Stop	None	None	Install traffic signal < OR > Eliminate left movement out of Micron's campus
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Signal timing and phasing changes	Construct a multi-lane roundabout with EB and SB by-pass lanes	No additional improvements
8	Gowen Rd at Federal Way	Signal	- Add southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase - Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping - Re-time the traffic signal to account for the added road capacity	No additional improvements	No additional improvements
10	Gowen Rd at I-84 EB Ramp	Signal	- Add third left turn lane on the exit ramp - Re-time the traffic signal to account for the added road capacity	No additional improvements	No additional improvements
15	Federal Way at Amity Rd	Signal	- Convert the westbound dual right turns lanes into a single free-flow right turn lane - Add 1000 foot receiving lane north of the intersection - Construct dual southbound left turn lanes - Add 1000 foot receiving lane east of the intersection - Reconfigure the left turn traffic signal for protected-only operation	No additional improvements	No additional improvements
16	Federal Way at Bergeson Ave	Signal	- Channelize the westbound right turn lane into a free-flow right turn lane - Add 1000 foot receiving lane north of the intersection - Re-time the traffic signal to account for the added road capacity	No additional improvements	No additional improvements

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Proposed Development

The Micron R&D facility located along S. Federal Way in Boise, ID will be the site of a new Fab (a an advanced memory fabrication facility). The facility, called FAB1, will utilize both undeveloped and developed area within Micron's larger campus. In conjunction with FAB1, a new childcare facility will be constructed along S. Federal Way, opposite Gate A. The childcare facility is not part of this study but is considered in the future build traffic volume and analysis. A separate, limited traffic study was conducted for the childcare facility.

FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot "clean" room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots. FAB1 will support approximately 2000 new Micron employees plus 750 new onsite vendor/contractor employees. For the purposes of this study, the entire FAB1 development will be considered a manufacturing facility with 2,750 employees.

FAB1 is expected to commence limited operation in the end of the second quarter of 2024, and be fully operational with the full complement of employees by 2025.

The following intersections and road segments (as illustrated in Figure 1) are included in this study:

- Intersections
 1. Eisenman Rd & I-84 EB Ramp
 2. Eisenman Rd & I-84 WB On-Ramp
 3. Memory Ln & S Federal Way/I-84 WB Off-Ramp
 4. S Federal Way & Gate C / Gigabit Ln (signal)
 5. S Federal Way & Gate B
 6. S Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & S Federal Way (signal)
 9. Gowen Road & I-84 WB Ramp (signal)
 10. Gowen Road & I-85 EB Ramp (signal)
 11. Technology Ln & Circuit Way
 12. ~~Memory Ln & Construction Access Road~~ (not studied)
 13. S Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)

- Segments
 - A. S Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn S Federal Way and Technology Way
 - C. Memory Lane, Btwn I-84 WB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way

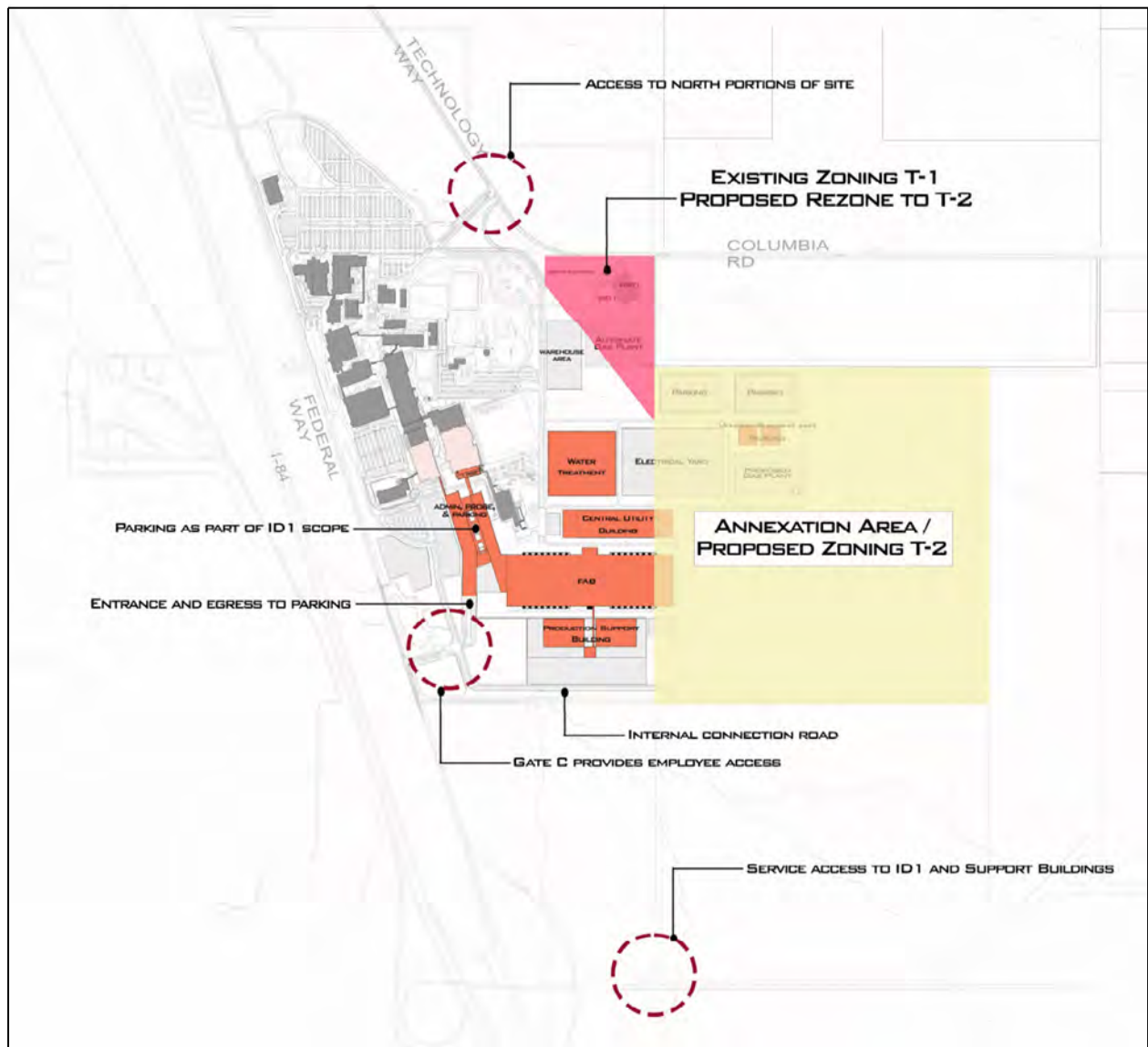
Figure 1 shows the general location of the Fab on Micron's campus. The site plan is shown in Figure 2.

Figure 1. Vicinity Map



Traffic Impact Study for
FAB1 - Micron
NV5-3122133.00

Figure 2. Site Plan



***See Appendix A for a more detailed site plan

Existing Conditions

A.1. Transportation Facilities

A.1.1. Roadways

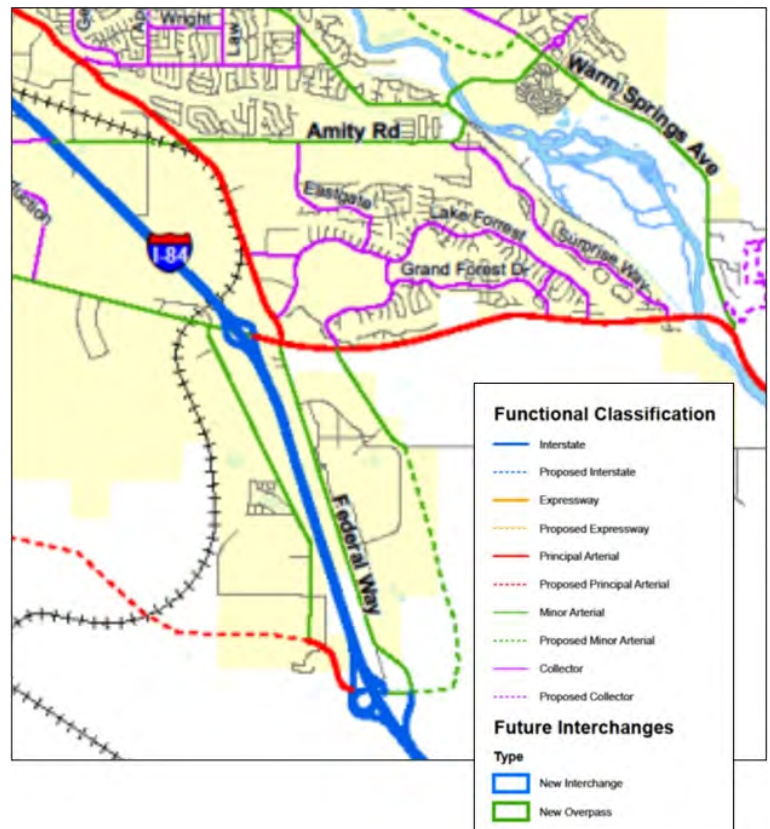
S. FEDERAL WAY is a four-lane arterial with a posted speed limit that varies between 35 and 45 MPH within the vicinity of the study area. The section of S. Federal Way that is south of Gate B is a two-lane divided roadway, and the section between Gate B and Technology Lane has a center two-way left-turn lane. S. Federal Way originates as the north leg of its intersection with Memory Lane and the I-84 westbound exit ramp, and heads in a primarily northerly direction, before ending at US 20/26.

The speed limit of S. Federal Way changes to 40 MPH north of its intersection with E. Gowen Road. S. Federal Way is classified as a Minor Arterial roadway south of its intersection with E. Gowen Road. To the north, it is classified as a Principal Arterial roadway. Land uses within the study area are primarily industrial, with residential and commercial uses north of E. Gowen Road.

E. GOWEN ROAD (SH 21) is a four-lane undivided principal arterial with a posted speed limit of 35 MPH near the Micron Campus. The roadway narrows to a two-lane roadway east of its intersection with Technology Way / Grand Forest Drive and the speed limit eventually increases to 55 MPH. Land uses in the study area are industrial, commercial, residential, and undeveloped.

MEMORY LANE / EISENMAN ROAD is a four-lane undivided Minor Arterial and has a posted speed limit of 35 MPH. Memory Lane originates as the west leg of the intersection with S. Federal Way and the I-84 westbound exit ramp and runs west to its intersection with the I-84 westbound ramp where it becomes S. Eisenman Road. There are no developed uses along Memory Lane but there is a new convenience store at the corner in the northwest corner of Eisenman Road and the I-84 EB off ramp.

AMITY ROAD is a two-lane undivided Minor Arterial with a posted speed limit of 45 MPH. The road runs east from its intersection with S. Federal Way towards Warm Springs Avenue. Land uses along its length are residential and industrial.



E. WARM SPRINGS AVENUE is a two-lane undivided Minor Arterial roadway with a posted speed limit of 45 MPH. The road runs north from its intersection with SR 21 to the Riverland East and Barber Valley neighborhoods.

E. GRAND FOREST DRIVE AND E. BERGESON STREET are collector roads that lead to several residential developments. They both have a posted speed limit of 30 MPH.

S. GIGABIT LANE (AKA GATE C), TECHNOLOGY LANE (AKA GATE A), SILICON LANE, AND CIRCUIT LANE are private roadways accessing the Micron Facilities.

Table 1: Roadway Classification

Roadway	Segment	Functional Classification
Gowen Rd (SH 21)	I-84 to Warm Springs Rd	Principal Arterial
S. Federal Way	Bergeson Rd to Gowen Rd	Principal Arterial
S. Federal Way	Gowen Rd to Memory Ln	Minor Arterial
Technology Way	Gowen Rd to Circuit Ln	Minor Arterial
Amity Rd	S. Federal Way to Surprise Way	Minor Arterial
Bergeson Rd	S. Federal Way to Apple St	Collector
Grand Forest Dr	Gowen Rd to Gowen Rd	Collector
Warm Springs Rd	Gowen Rd to Eckert Rd	Minor Arterial
Eisenman Rd / Memory Ln	I-84 to S. Federal Way	Minor Arterial
Columbia Rd	Circuit Ln to End	Unclassified / Local Road

A.1.2. Transit Service

There are no fixed-route transit services in the study area that would serve the Micron campus.

A.1.3. Bicycle and Pedestrian Facilities

There are sidewalks/multi-use paths on the south side of Gowen Road (SH 21), west of S. Federal Way; on the north side of Gowen Road between S. Federal Way and Technology Way; on both sides of Federal Way, north of Gowen Road; and, on the east side of S. Federal Way, south of Gowen Road for 1.25 miles.

Gowen Road has bike lanes west of S. Federal Way. S. Federal Way has bike lanes north of Gowen Road and for a few hundred feet south of Gowen Road. Technology Way features a southbound bike lane between Gowen Road and Circuit Lane.

A.1.1. Geometrics

The specific roadway lanes, traffic control, and turn bay lengths are shown in Figure 3. The future

extension of Memory Lane and the Fab construction access road are shown on the plan for context. Similarly, the access to the new childcare center opposite Gate A is shown.

A.2. Traffic Volume

Daily (24-hour) counts, and intersection turning movement counts were recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Counts were taken on September 22, 2022 for all locations except at intersection 13. Those counts were taken April 26, 2022 as part of the aforementioned childcare center traffic study. A single common peak hour was determined for all intersections; the AM Peak Hour is 7:00 to 8:00 am and the PM Peak Hour is between 4:00 and 5:00p. There are small deviations in the peak hour times from the chosen peak hour along S Federal Way in the vicinity of the Micron campus but the differences are not significant.

There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low. For the purposes of this study, and to be conservative in the results, the site traffic for the new Fab is assumed to be concentrated in the typical AM and PM peak hours.

Existing traffic volumes are shown in Figure 4. The peak hour volumes are shown in Table 2 and the segment volumes are shown in Table 3.

Table 2: Existing Peak Hour Turning Movement Volume

DIR	Intersection Number															
	1		2		3		4		5		6		7		8	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	27	5	0	0	0	1	50	6	596	93	0	0	4	6	110	251
SBT	0	0	0	0	0	0	21	36	108	34	778	153	38	13	284	62
SBR	50	71	0	0	16	128	0	0	4	0	3	1	126	117	306	385
NBL	0	0	0	0	11	25	0	0	0	0	0	0	142	167	43	515
NBT	0	0	0	0	16	15	18	26	20	144	60	742	33	30	51	326
NBR	0	0	0	0	0	0	32	4	2	3	0	0	11	30	10	60
EBL	0	0	32	30	39	12	0	0	0	2	2	1	51	212	270	521
EBT	39	32	41	13	1	0	0	0	0	0	0	0	187	484	284	593
EBR	34	43	0	0	0	0	0	0	0	0	1	0	166	174	483	111
WBL	7	50	0	0	0	0	4	67	1	6	3	1	29	13	60	9
WBT	17	35	23	83	1	1	0	0	0	0	0	0	384	286	413	423
WBR	0	0	4	72	0	0	7	101	31	538	20	145	9	8	113	85

DIR	Intersection Number													
	9		10		11		13		14		15		16	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	0	0	765	923	0	0	103	11	10	44	240	461	208	468
SBT	0	0	0	0	93	174	445	69	0	1	430	628	486	857
SBR	0	0	295	211	141	29	0	0	111	112	0	0	46	8
NBL	26	36	0	0	12	1	0	0	0	0	0	1	27	43
NBT	0	0	0	0	169	147	35	649	1	1	406	577	581	707
NBR	25	61	0	0	0	0	3	0	0	1	40	150	223	258
EBL	165	349	0	0	21	73	0	0	74	131	0	1	41	26
EBT	1005	1156	375	604	0	0	0	0	95	246	0	0	11	57
EBR	0	0	28	49	3	11	0	0	2	4	0	1	17	32
WBL	0	0	35	67	0	0	2	9	0	1	114	90	230	229
WBT	198	335	200	300	0	0	0	0	153	142	0	0	27	40
WBR	555	1009	0	0	0	0	3	38	22	18	380	368	346	338

Table 3: Segment ADTs

Road Segment	ADT*	%HV
Federal Way, South of Silicon Way	8,000	4.2%
Gowen Road, Btwn Federal Way and Technology Way	6,800	7.6%
Memory Ln, Btwn I-84 NB On-Ramp and Federal Way	1,000	unk
Technology Way, Btwn Gowen Road and Circuit Way	2,900	4.8%
Columbia Road, east of Circuit Way	3,350	0.4%

*Values rounded to nearest significant digit

Figure 3. Roadway Geometrics

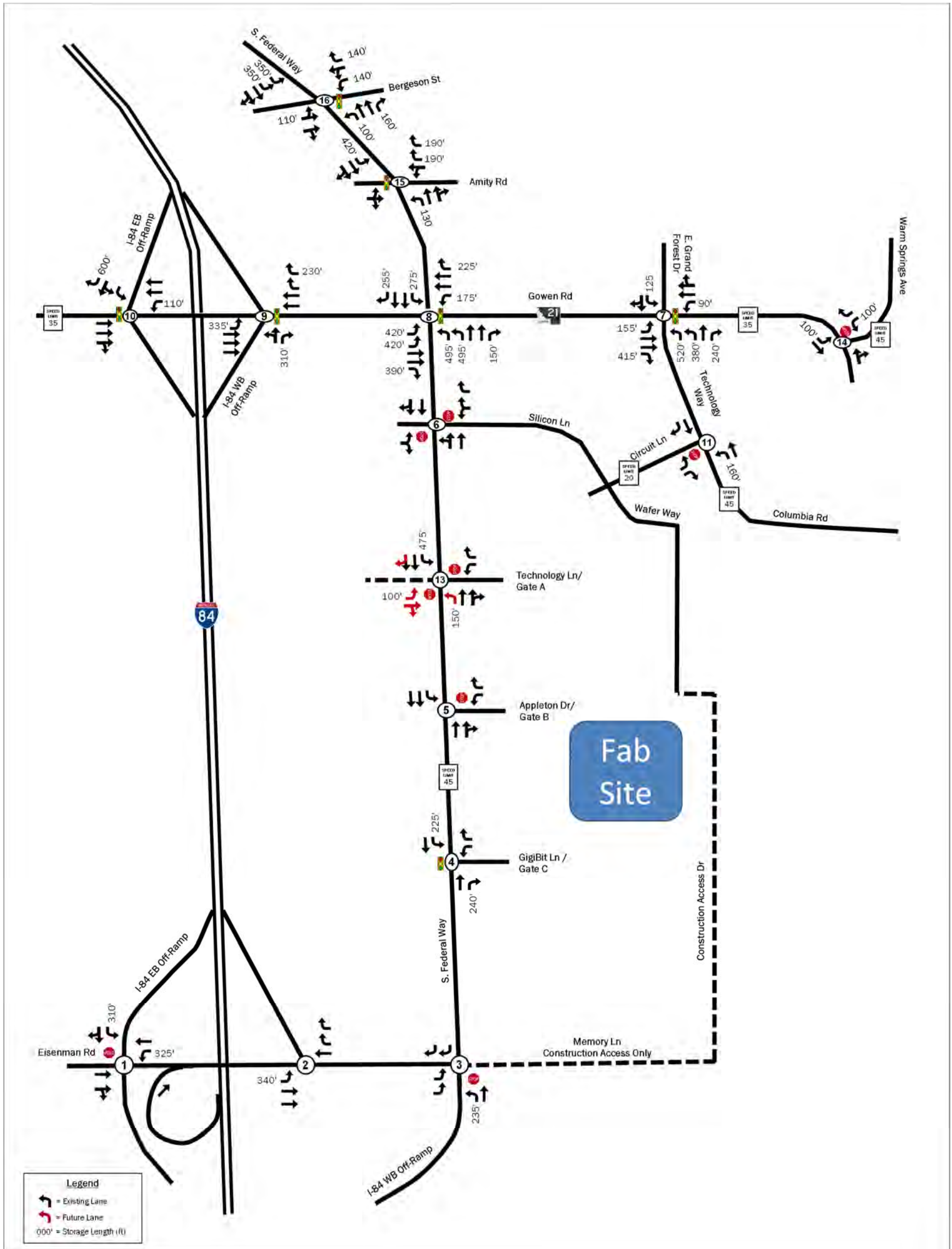
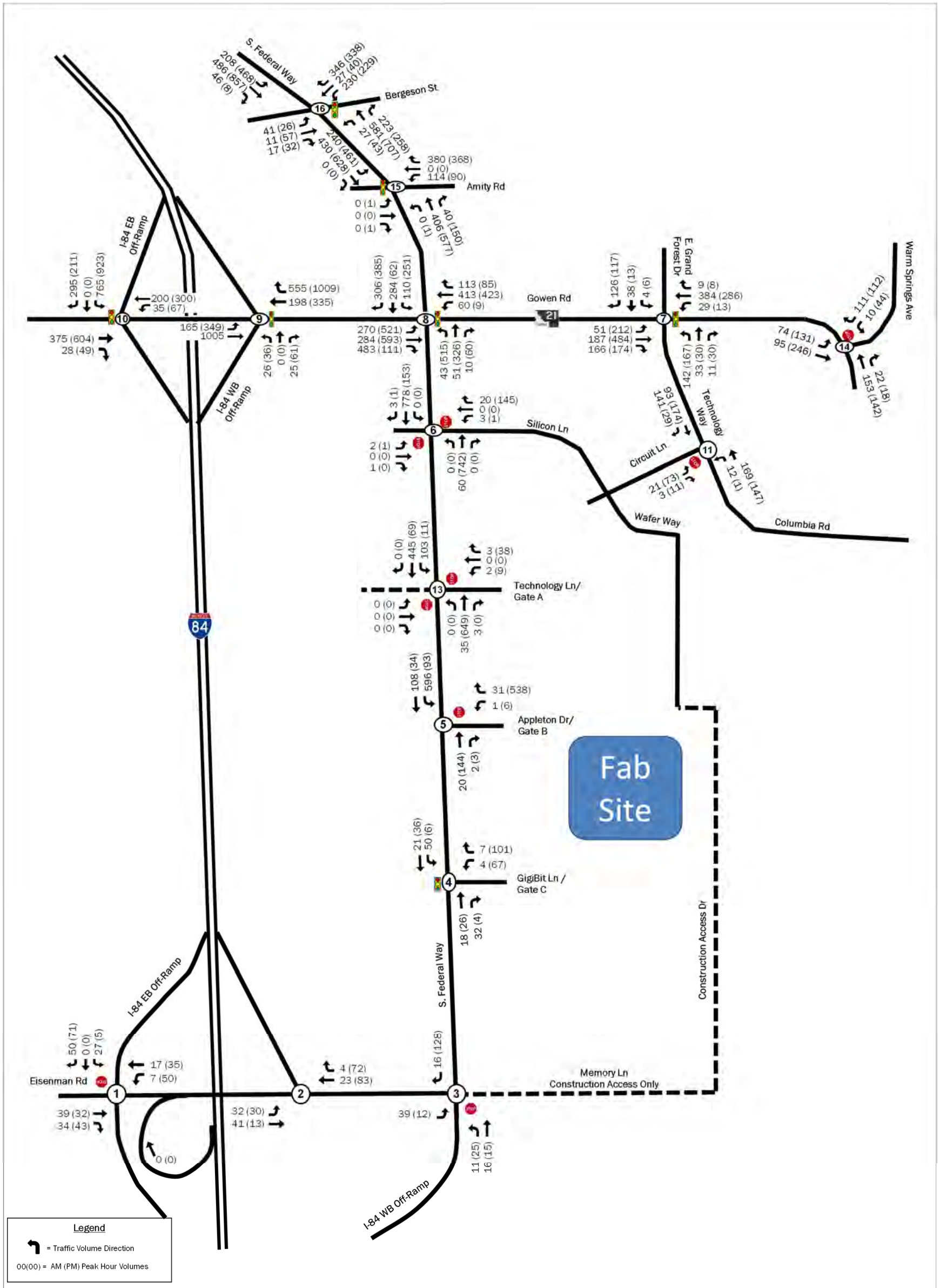


Figure 4. Existing Traffic Volumes (2022)



A.3. Existing Levels of Service

The LOS is based on the Highway Capacity Manual (6th Ed.), as calculated in the software Synchro® 11. Table 4 shows the criteria used to determine level of service for signalized, unsignalized, and roundabout intersections. Table 5 shows the level of service criteria for segments as outlined in ACHD standard 7106.4. The values shown are one-way, peak hour volumes.

Table 4: Level of Service Criteria

Level of Service	Average Control Delay		
	Signal	Stop Control	Roundabout
A	0 - 10	0 - 10	0 - 10
B	>10 - 20	>10 - 15	>10 - 15
C	>20 - 35	>15 - 25	>15 - 25
D	>35 - 55	>25 - 35	>25 - 35
E	>55 - 80	>35 - 50	>35 - 50
F	>80	>50	>50

Table 5: ACHD Segment Capacity Guidelines

Functional Classification		Lanes	Volume Thresholds	
			D	E
Princ. Arterials	No Left-turn Lane	1	600	690
	Continuous TWTL	1	770	880
		2	1,680	1,780
		3	2,560	2,720
	Median Control, Channelized Left-turn Lanes	1	850	920
		2	1,860	1,960
3		2,800	3,000	
Minor Arterials	No Left-turn Lane	1	540	575
	Continuous TWTL	1	675	720
		2	1,395	1,540
		3	2,155	2,370
	Median Control, Channelized Left-turn Lanes	1	710	770
		2	1,465	1,670
3		2,270	2,530	
Coltrs.	No Left-turn Lane	1	425	525
	Continuous TWTL	1	530	660
		2	1,080	1,250

Many of the analysis parameters are established by ACHD. These are shown in Appendix D. The results of the existing conditions analysis are shown in Table 6. Movements that appear highlighted in red are LOS F and those in orange are LOS E. Table 7 shows the segment analysis for the roadways that are proximate to the development.

Table 6: Intersection Level of Service Results – Existing Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.06	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	B	10.2	0
			SBR	-	0.07	A	9.1	4	0.11	A	9.4	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	N/A	-	No HCM Results				No HCM Results			
3	Memory Ln at Federal Way/I-84 WB Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	-	A	5.3	-	-	A	7.8	-
			WBL	-	0.16	A	9.3	5	0.35	A	7.3	16
			WBR	-	0.32	B	11.8	4	0.59	A	8.8	1
			NBT	-	0.04	A	4.1	7	0.08	A	6.1	11
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.09	A	4.4	13	0.01	A	6.2	4
			SBT	-	0.07	A	4.2	7	0.16	A	6.4	12
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	25.3	0
			WBL	-	0.02	F	57.4	2	0.01	B	11.9	0
			WBT	-	0.04	A	8.5	2	0.69	C	16.6	116
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.03	C	22.9	2	0.01	C	21.6	0
			EBR	-	0.01	B	14.9	0	-	A	0.0	-
			WBL	-	0.01	B	12.2	0	0.01	C	21.1	0
			WBR	-	0.02	A	8.7	2	0.27	B	13.8	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	-	C	22.3	-	-	B	17.4	-
			EBL	155	0.11	A	5.1	38	0.40	A	5.9	120
			EBT	-	0.11	A	6.2	73	0.28	A	7.1	163
			EBR	415	-	A	0.0	23	-	A	0.0	21
			WBL	90	0.04	A	5.0	24	0.03	A	7.2	12
			WBTR	-	0.21	A	7.1	152	0.17	A	9.1	123
			NBL	520	0.78	E	73.1	111	0.80	E	69.2	119
			NBT	-	0.22	E	60.4	59	0.20	E	56.3	54
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
			SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49
8	Gowen Rd at Federal Way	Signal	Overall	-	-	C	29.1	-	-	D	50.2	-
			EBL	420	0.26	C	28.3	150	0.90	E	71.2	343
			EBT	-	0.21	C	23.1	71	0.45	C	27.9	337

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			EBR	390	-	A	0.0	55	-	A	0.0	41
			WBL	175	0.48	D	41.8	77	0.24	E	74.5	30
			WBT	-	0.74	D	41.6	160	0.53	D	47.6	319
			WBR	225	-	A	0.0	14	-	A	0.0	0
			NBL	495	0.32	D	42.3	28	0.88	E	63.5	313
			NBT	-	0.17	D	35.6	27	0.50	D	47.4	182
			NBR	150	0.06	D	35.1	0	0.18	D	43.1	0
			SBL	275	0.32	C	30.4	75	0.63	D	44.3	212
			SBT	-	0.56	D	35.8	109	0.11	D	51.5	51
			SBR	255	0.44	A	4.3	37	0.76	D	46.0	354
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	-	A	5.4	-	-	A	6.7	-
			EBL	335	0.23	A	3.0	34	0.49	A	3.3	92
			EBT	-	0.32	A	2.5	65	0.35	A	2.4	99
			WBT	-	0.10	B	12.7	21	0.17	A	5.9	95
			WBR	230	-	A	0.0	0	-	A	0.0	25
			NBLT	-	0.26	D	39.1	39	0.39	E	58.7	72
			NBR	310	0.29	D	39.1	0	0.78	E	70.5	48
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	-	D	54.8	-	-	D	48.2	-
			EBTR	-	0.18	B	17.5	157	0.32	C	22.9	219
			WBL	110	0.07	B	13.7	45	0.19	B	17.4	61
			WBT	-	0.11	B	13.0	100	0.17	B	15.8	116
			SBL	-	0.92	F	80.9	598	0.96	E	79.9	761
			SBTR	600	0.82	E	77.5	75	0.50	D	51.9	66
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	11.3	2	0.17	B	12.6	12
			EBR	-	-	A	0.0	0	-	A	0.0	-
			NBL	160	0.01	A	7.4	0	0.00	A	7.6	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	C	16.4	0	0.08	D	26.0	4
			WBR	-	0.01	A	8.5	0	0.11	B	12.5	8
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.10	A	7.5	6	0.02	B	10.0	2
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.07	A	7.9	4	0.12	A	8.0	8
			SBL	100	0.02	B	12.6	2	0.17	C	19.5	12
			SBR	-	0.15	B	10.1	10	0.15	B	10.0	10
15	Federal Way at Amity Rd	Signal	Overall	-	-	D	45.6	-	-	D	54.7	-
			EBLTR	-	0.00	A	0.0	-	0.12	E	67.4	-
			WBLT	-	0.54	D	45.5	142	0.50	D	54.7	135
			WBR	190	1.17	F	147.3	24	1.34	F	228.6	24
			NBL	130	0.00	A	0.0	0	0.00	A	9.1	3
			NBTR	-	0.26	A	8.8	194	0.48	B	17.7	474
			SBL	420	0.39	A	5.1	140	0.92	B	17.8	510
SBTR	-	0.18	A	3.6	116	0.29	A	8.2	184			
16	Federal Way at	Signal	Overall	-	-	D	35.5	-	-	D	47.7	-
			EBLTR	-	0.56	E	57.1	45	0.64	E	65.2	68

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
	Bergeson Ave		WBL	140	0.29	C	31.1	265	0.32	D	38.2	332
			WBT	-	0.00	A	0.0	283	0.00	A	0.0	354
			WBR	140	0.93	E	65.2	71	0.95	E	78.3	77
			NBL	100	0.14	C	26.2	16	0.20	C	24.7	13
			NBT	-	0.58	C	31.0	128	0.69	D	36.3	172
			NBR	160	0.52	C	31.6	8	0.58	D	35.0	9
			SBL	350	0.47	D	42.3	119	0.99	F	89.8	339
			SBTR	-	0.41	C	20.3	214	0.64	C	28.1	466

Table 7: Segment Level of Service Results – Existing Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Threshold		Pk Dir Vol*	LOS
					LOS D	LOS E		
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	1,395	1,540	778	>D
B	Gowen Road, Btwn S Federal Way and Technology Way	Principal Arterial	2	Continuous LT Lane	1,680	1,780	870	>D
C	Memory Ln, Btwn Federal Way and I-84	Minor Arterial	2	Continuous LT Lane	1,395	1,540	155	>D
D	Technology Way, Btwn Gowen Road and Circuit Way	Minor Arterial	1	No LT Lane	540	575	234	>D

*Highest peak hour volume in one direction

A.4. Existing Conditions Mitigation

Gowen Road & Technology Way (signal)

The signal timing at the intersection favors Gowen Road. As such, the traffic on Technology Way and Grand Forest Drive tends to suffer with LOS E. The volume to capacity ratio (V/C) is still less than 0.90 so some capacity still exists. The more problematic movement is the northbound left turn in the PM peak hour. The Grand Forest Drive side of the intersection, while experiencing somewhat high delays, has manageable queues and adequate V/C ratios.

There are already dual northbound left turn lanes on Technology Way. It is impractical to add another turn lane since the efficiency of a third turn lane is only 60% of a single left turn lane and there is no receiving lane on SH 21. Changes in signal timing could improve the substandard movements to LOS E but will not bring all the movements to LOS D. The signal phasing could be changed to a split-phased operation and reserve all unused green time allocated to Grand Forest Drive for the Technology Way approach. In this way, more time can be allocated to the northbound left turn movement when traffic on Grand Forest Drive traffic is minimal. Moreover, since there is a limited number of thru movements and left turns coming from Grand Forest Drive, there will be fewer actuations on the north side of the road. This can be modeled in Synchro by eliminating the Grand Forest Drive left and thru movements since they would only sporadically occur during the peak hour;

however, the results are only a an approximately of the expected conditions (See Appendix E – Mitigation Section)

Recommendation(s):

- Implement traffic signal timing and phasing changes
- No ROW is required to implement this change

Gowen Road & Federal Way (signal)

The existing problems at the intersections are primarily the left turn movements and are seen during the PM peak hour. The higher volume left turns are the northbound lefts and the eastbound lefts. In the no-build condition (2025 volume without the site), the delay increases for the southbound right as well as the overall signal operations.

The intersection was somewhat recently upgraded to provide safer movements for pedestrians and bicyclists. There are dual left turn lanes in the northbound and the eastbound directions. It is possible to add a southbound left turn lane with minimal construction effort; however, adding a second turn lane would require that the phasing of the signal be changed from protected-permitted to protect-only. The difference in delay is minimal but the queue length would be halved. A second westbound left turn lane is unnecessary.

Because there are three receiving lanes on the west side of the intersection, it is possible to add a westbound through lane. This change, with some small signal timing split adjustments, would allow for LOS D operation on all movements but there would impacts to the bicycle lanes.

Recommendation(s):

- Add a southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase
- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
 - The bike lane on the west side of the intersection may have to be eliminated
- Re-time the traffic signal to account for the added capacity
- There appears to be sufficient right-of-way to accomplish the improvements.

Gowen Road & I-84 WB Ramp (signal)

The only poor operations at this intersection are the northbound left and right turn movements coming off of the ramp. The volumes are low but the PM peak hour has somewhat long delays. The longer than acceptable average delays cause a small number of vehicles have to wait a long time between green cycles. Adjusting the signal timing does little to reduce the average delay because the low arrival rate means that each vehicle will have to wait nearly a full cycle before proceeding. The queues are not long and there is plenty of capacity to handle more traffic. No improvements are recommended.

Gowen Road & I-85 EB Ramp (signal)

The left turning traffic volume on the exit ramp is high, Traffic can often back up 600 feet on the ramp. This is concerning because the ramp is only about 750 feet long and I-84 is an 80 MPH freeway, which requires more space for deceleration. More distance is needed to accommodate the queue and avoid impacting I-84.

The signal timing cycle length is 190 seconds in the AM and 220 seconds in the PM. This time is likely intended to clear the ramp so that it does not impede the I-84 mainline. However, a cycle length of this magnitude results in a long time between service intervals and contributes to a poor level of service. By contrast, a more reasonable 110 or 120 second cycle length would result in LOS D or better.

It is possible to add a third left turn lane but that would not improve the LOS without changes in timing. It would allow for more storage space and a more reasonable cycle length. However, as mentioned previously for the Gowen Road & Technology Way intersection, there is a loss of efficiency for each turn lane added – limiting the benefits of an additional lane. Building the additional space on the ramp will require both ITD and FHWA approval.

Recommendation(s):

- Retime the traffic signal to a more reasonable lower cycle-length
- Add a lane on the exit ramp to provide more storage and triple left turns
 - The additional left turn could be a re-purposing of the right turn lane plus additional pavement to add back the right turn lane
- There appears to be sufficient right-of-way to accomplish the improvement.

Federal Way & Amity Road (signal)

Amity Road is uniquely situated in an area that funnels traffic from the east towards Federal Way. There is a large volume of traffic in the AM Peak hour that turns right onto Federal Way towards Boise and the surrounding communities and performs the reverse pattern in the PM Peak hour.

One possible geometric improvement is to create a free-flow right turn lane in the westbound direction. This would mean adding a receiving lane on Federal Way, north of the intersection for at least 1000 feet. The improvement would require significant work since there is a sidewalk along the east side of Federal Way and a business with limited offset space from the sidewalk. The road would need to be widened on the west side, which would extend the construction limits. However, adding the free-flow right turn would allow for acceptable levels of service in the AM Peak Hour. (See Appendix E – Mitigation Section)

For the PM Peak hour, adding a southbound left turn lane in the existing gore area is feasible. However, while there are two receiving lanes on Amity Road, one lane is short. This will have the

effect of creating an uneven distribution of traffic in the dual left turn lanes. There should be a minimum of 1000 feet of two lanes heading east on Amity Road to make the dual left turns effective.

Recommendation(s):

- Convert the westbound dual right turns lanes to a single free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
- Construct dual southbound left turn lanes
 - Restripe the existing gore to allow for two left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the southbound left turn signal for protected-only operation
- There does not appear to be sufficient right-of-way to accomplish the improvement.
 - Additional right-of-way is needed on the east and west sides of Federal Way
 - Additional right-of-way is needed along Amity Road.

Federal Way and Bergeson Street (signal)

Similar to Amity Road, Bergeson Street serves a residential area of south Boise with commuter traffic heading towards Federal Way and then north. Unlike the Amity Road intersection, the Bergeson Street intersection already features dual southbound left turn lanes. There is no more room to add additional lanes. In the westbound direction, the right turn lane has a short receiving lane / merge area on Federal Way but the effect on LOS is minimal.

One improvement is to extend the westbound left to northbound Federal Way acceleration lane and provide a free-flow right turn lane. This would provide acceptable levels of service for all movements except the eastbound left turn. (See Appendix E – Mitigation Section). The eastbound left turn is a minor volume movement and no mitigation is recommended for that deficiency.

Recommendation(s):

- Channelize the westbound right turn lane into a free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
- There does not appear to be sufficient right-of-way to accomplish the improvement.
 - Additional right-of-way on the east side of Federal Way may be needed.

Table 8: Intersection Level of Service Results – Mitigation for Existing Conditions

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	C	22.3	-	-	B	17.4	-
			EBL	155	0.10	A	3.0	14	0.37	A	3.5	85
			EBT	-	0.10	A	3.9	38	0.27	A	4.4	125
			EBR	415	-	A	0.0	0	-	A	0.0	16
			WBL	90	0.04	A	3.0	8	0.03	A	4.4	9
			WBTR	-	0.19	A	4.5	91	0.15	A	5.7	99
			NBL	520	0.65	E	58.6	59	0.74	E	57.7	109
			NBT	-	0.28	E	55.2	26	0.24	E	52.3	54
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49			
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Retiming	Overall	-	-	C	28.3	-	-	D	50.2	-
			EBL	420	0.26	C	25.5	155	0.68	C	31.1	257
			EBT	-	0.21	C	22.2	142	0.50	C	20.6	233
			EBR	390	-	A	0.0	312	-	A	0.0	26
			WBL	175	0.48	D	41.8	77	0.21	D	44.8	21
			WBT	-	0.74	D	39.8	104	0.62	D	38.4	126
			WBR	225	-	A	0.0	14	-	A	0.0	15
			NBL	495	0.32	D	42.3	28	0.88	D	46.1	238
			NBT	-	0.17	D	35.0	27	0.48	C	27.9	124
			NBR	150	0.06	D	34.5	0	0.17	C	25.2	0
			SBL	275	0.32	C	30.6	36	0.34	C	27.2	63
			SBT	-	0.56	D	37.7	109	0.13	C	32.9	32
SBR	255	0.44	A	3.3	37	0.69	A	9.1	96			
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	D	48.2	-
			EBTR	-	0.18	B	13.2	73	0.30	B	14.1	185
			WBL	110	0.07	B	13.5	11	0.17	B	10.2	52
			WBT	-	0.11	B	9.9	33	0.16	A	8.8	95
			SBL	-	0.92	D	49.9	270	0.85	E	55.1	346
			SBTR	600	0.82	E	59.1	75	0.65	D	51.9	61
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	21.4	-	-	D	54.7	-
			EBLTR	-	0.00	A	0.0	6	0.01	D	53.0	-
			WBLT	-	0.64	E	59.0	151	0.59	E	60.3	121
			WBR	190	-	A	0.0	0	-	A	0.0	38
			NBL	130	0.00	A	0.0	0	0.46	A	7.7	2
			NBTR	-	0.25	A	8.8	131	0.46	B	15.4	350
			SBL	420	0.76	E	59.7	102	0.84	D	54.3	238
			SBTR	-	0.17	A	3.6	63	0.26	A	5.2	165
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	29.8	-	-	D	47.7	-
			EBLTR	-	0.54	E	56.0	34	0.58	D	53.9	52
			WBL	140	0.75	D	51.8	303	0.75	D	51.2	316

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			WBT	-	0.00	A	0.0	315	0.00	A	0.0	330
			WBR	140	-	A	0.0	90	-	A	0.0	87
			NBL	100	0.13	C	28.4	36	0.29	C	29.0	50
			NBT	-	0.65	D	35.7	265	0.73	D	35.9	319
			NBR	160	0.58	D	37.0	50	0.62	D	35.9	77
			SBL	350	0.21	C	23.8	125	0.55	C	31.4	365
			SBTR	-	0.30	A	9.4	224	0.51	C	13.7	388

A.5. Safety Analysis

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) was reviewed and is summarized at each of the study intersections and road segments. (See Table 9.) Appendix F includes a more detailed account of crash types at each intersection and road segment. None of the study intersections have crash rates higher than 1.0. No mitigation has been identified.

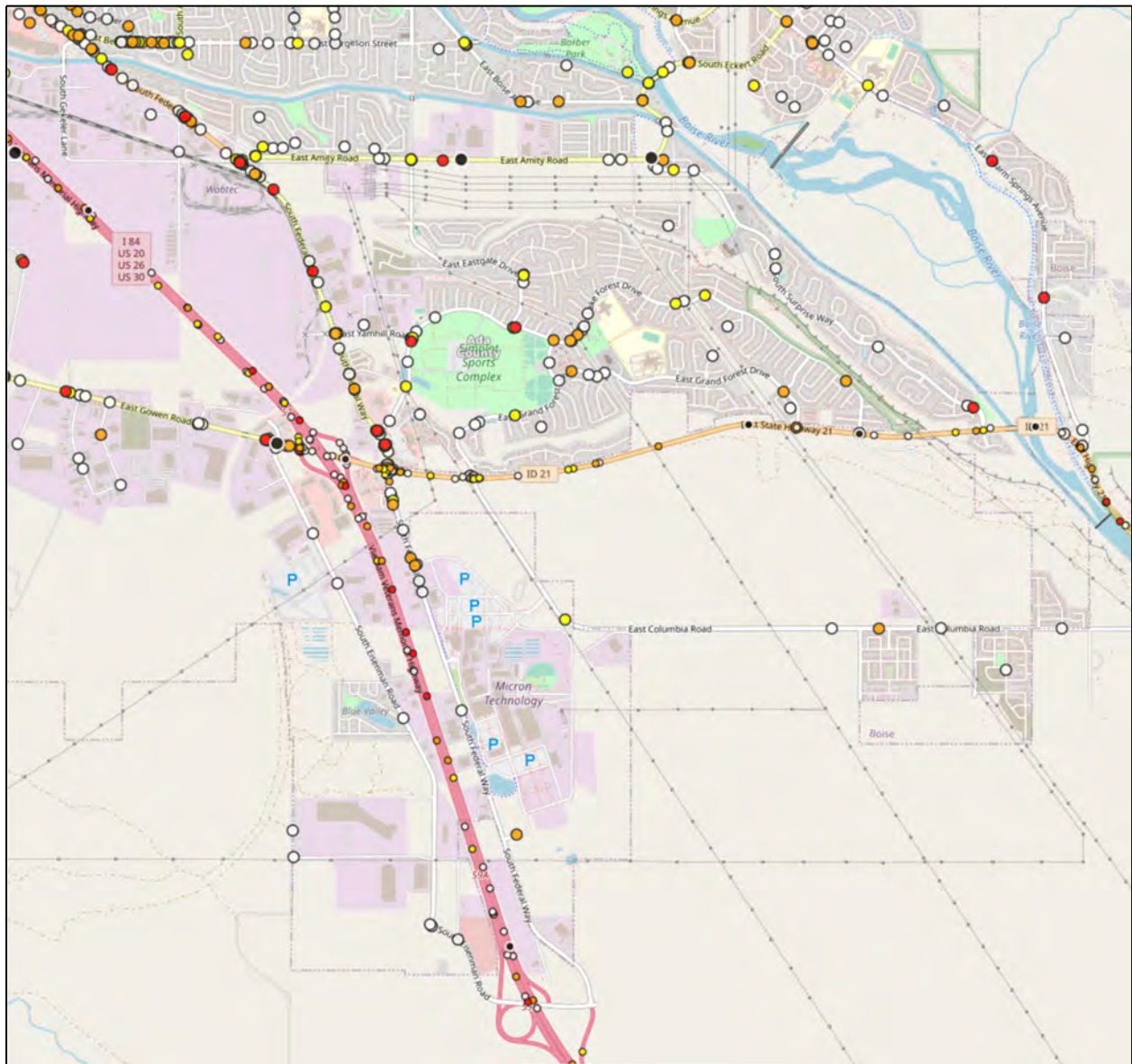
Table 9: Accident Summary

Int No.	Intersection	Total* Crashes	PDO/Inj/Fatal	Crash Rates
1	Eisenman Rd at I-84 EB Ramp	0	0/0/0	0.00
2	Eisenman Rd at I-84 WB On-Ramp	0	0/0/0	0.00
3	Memory Ln at Federal Way/I-84 WB Off-Ramp	1	0/1/0	0.36
4	Federal Way at Gate C	1	0/1/0	0.27
5	Federal Way at Gate B	2	2/0/0	0.16
6	Federal Way at Silicon Ln	3	1/2/0	0.19
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	0.50
8	Gowen Rd at Federal Way	33	22/11/0	0.54
9	Gowen Rd at I-84 WB Ramp	16	5/10/1	0.30
10	Gowen Rd at I-84 EB Ramp	15	12/3/0	0.38
11	Technology Way at Circuit Ln	0	0/0/0	0.00
13	Federal Way at Gate A	0	0/0/0	0.00
14	Gowen Rd at Warm Springs Ave	6	4/2/0	0.88
15	Federal Way at Amity Rd	29	18/11/0	0.70
16	Federal Way at Bergeson Ave	13	9/4/0	0.23

Seg.	Segment	Total* Crashes	PDO/Inj/Fatal	Crash Rates
A	S Federal Way, btwn Gowen Rd and Memory Ln	11	9/2/0	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	44.93
E	Memory Ln, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	13.31

*Total number of crashes between 2017 and 2021

Figure 5. Illustration of Crashes within Study Area



A.6. Data Sources

Traffic counts were collected by Quality Counts, Inc. under contract to NV5. Roadway geometrics were observed by a site visit and field measurements. Level of Service criteria is from in the Highway Capacity Manual, 6th Ed, as shown in Table 4. Segment LOS is from ACHD 7106.4.1 Table 2. Crash data is reported by the Idaho Local Highway Technical Assistance Council. Annual average daily volume used in the calculation of crash rates are provided by ITD AADT on-line reference.

Background Conditions

B.1. Planned Roadway and Approved Development Projects

There is a planned connector road in the Integrated Five-Year Work Plan (IFYWP) for 2022-2026. The road would go between Memory Lane and Columbia Road. The alignment of the road has not been determined and no plans current exist. The road was not considered for this traffic study. There is also in the IFYWP a future widening of Amity Road but the date of such a widening appears to be well into the future.

B.2. Background Data

Future 2025 turning movement conditions were forecast utilizing localized growth rates as provided by COMPASS. Table 10 shows the growth changes from the COMPASS model. Figure 6 shows the recommended annual growth rates for each corridor. These annual rates were applied to existing traffic counts for three years to determine future year background traffic conditions. No other background projects were considered.

Table 10: Growth Rates

Location	2025	2030	Calculated Growth	COMPASS Rate*	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	826	859	0.79%	2.5%	1.08
SH 21 w/o Federal Way	3535	3674	0.77%	1.6%	1.05
SH 21 e/o Federal Way	1747	2332	5.95%	8.0%	1.26
SH 21 e/o Technology Way	1095	1379	4.72%	5.4%	1.17
SH 21 w/o Warm Springs	666	697	0.91%	2.9%	1.09
Federal Way s/o SH 21	1582	1579	-0.04%	1.0%	1.03
Federal Way n/o Yamhill Rd	1011	1403	6.77%	9.6%	1.32
Technology Way, s/o SH 21	824	1314	9.78%	15.1%	1.52
Columbia Rd e/o Circuit Way	593	1023	11.52%	19.7%	1.72
Eisenman Rd/Memory Ln	-	-	-	6.1%	1.19

*This is the rate used in the study

Figure 6. Annual Growth Rates

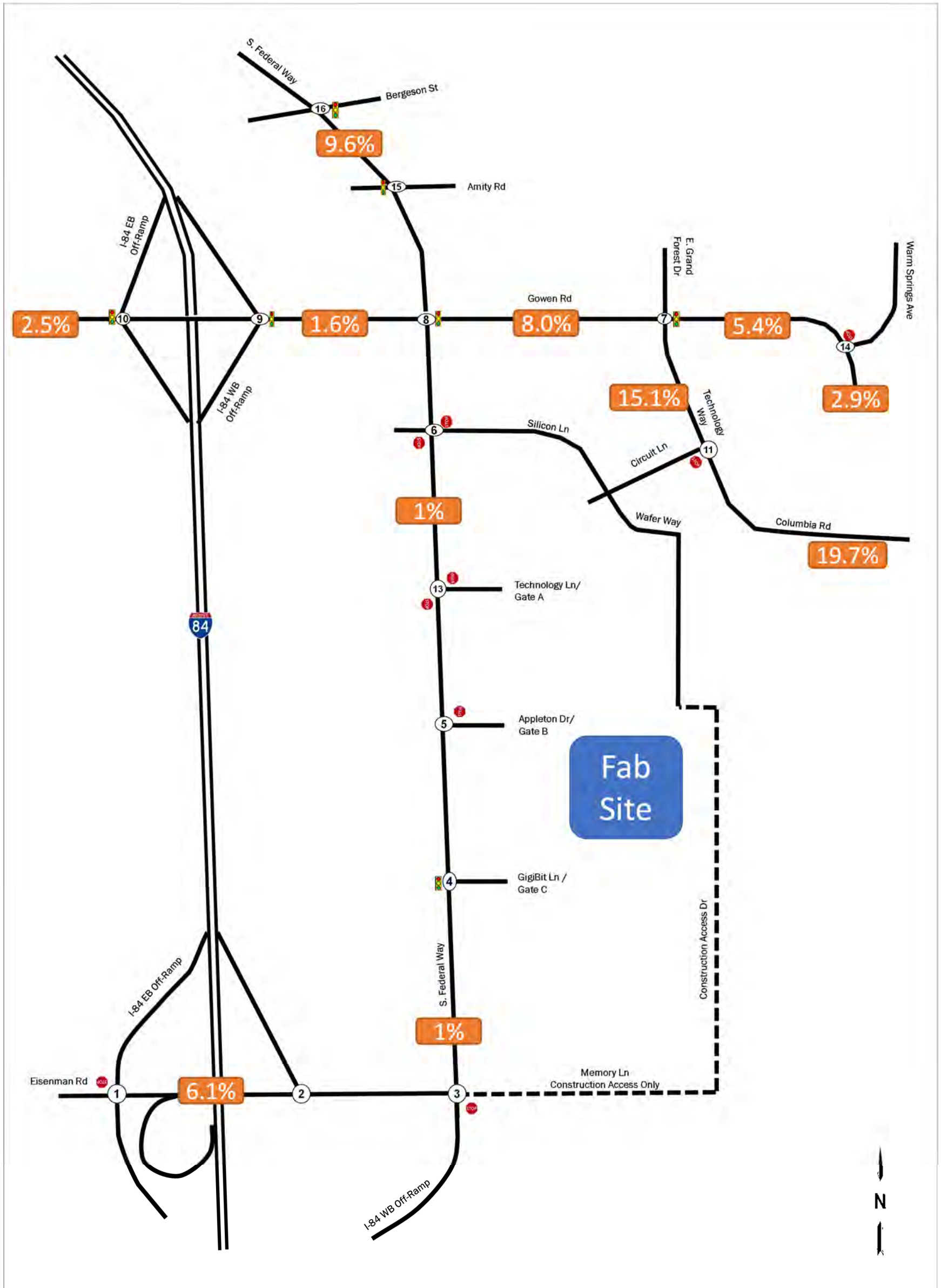
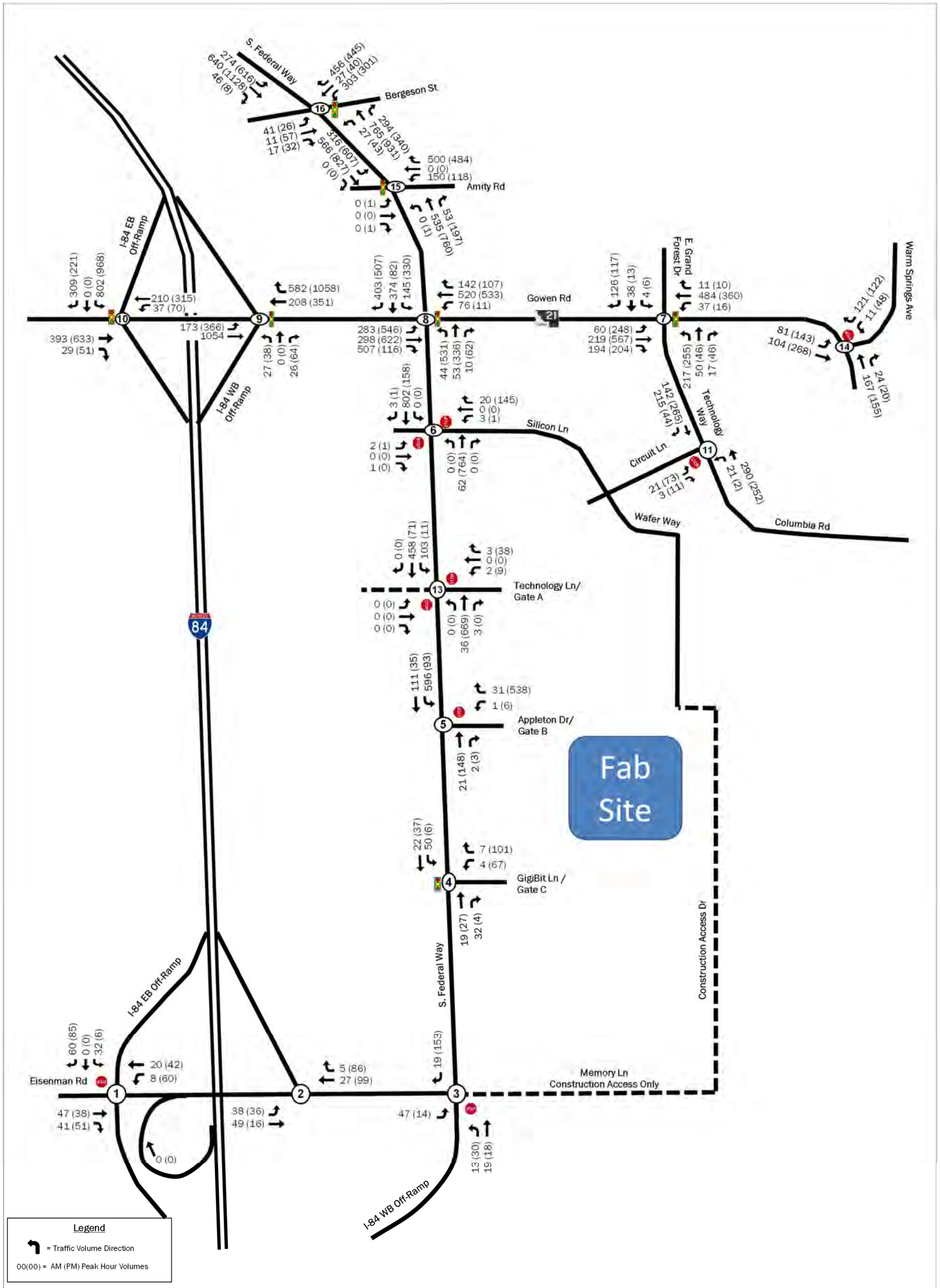


Figure 7. Existing + Background Growth Traffic Volumes (2025)



B.3. Background Levels of Service

The existing plus background growth levels of services for intersections are shown in Table 11. The segment analysis is shown in Table 12.

Table 11: Intersection Level of Service Results – Background Growth Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.05	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	B	10.0	0
			SBR	-	0.07	A	9.1	4	0.10	A	9.4	6
2	Eisenman Rd at I-84 WB On-Ramp	No-control	N/A	-	No HCM Results				No HCM Results			
3	Memory Ln at Federal Way/I-84 WB Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	-	A	5.1	-	-	A	7.3	-
			WBL	-	0.14	B	10.2	6	0.26	A	7.5	18
			WBR	-	0.32	B	15.2	8	0.45	A	8.5	13
			NBT	-	0.04	A	4.0	7	0.07	A	5.4	10
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.07	A	4.2	14	0.01	A	5.5	4
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	-	D	25.6	0
			WBL	-	0.02	F	57.3	0	0.01	B	12.0	0
			WBT	-	0.03	A	8.5	2	0.70	C	16.7	118
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	C	23.5	0	0.01	C	21.8	0
			EBR	-	0.00	C	15.1	0	-	A	0.0	-
			WBL	-	0.01	B	12.3	0	0.01	C	21.4	0
			WBR	-	0.02	A	8.7	2	0.27	B	13.9	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	-	C	26.9	-	-	C	22.7	-
			EBL	155	0.12	A	6.0	43	0.43	A	7.3	147
			EBT	-	0.11	A	7.2	83	0.30	A	8.6	200
			EBR	415	-	A	0.0	39	-	A	0.0	37
			WBL	90	0.05	A	5.7	29	0.30	A	8.9	14
			WBTR	-	0.23	A	8.2	192	0.19	B	11.2	160
			NBL	520	0.84	F	81.1	166	0.86	E	77.5	194
			NBT	-	0.26	E	58.5	84	0.23	D	53.2	77
NBR	240	-	A	0.0	0	-	A	0.0	0			

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	SBL	125	0.04	E	66.8	12	0.06	E	62.3	17
			SBTR	-	0.63	E	78.3	156	0.23	E	65.2	77
			Overall	-	-	C	29.5	-	-	E	56.4	-
			EBL	420	0.32	C	31.3	161	0.91	E	72.3	380
			EBT	-	0.23	C	24.5	82	0.47	C	27.9	358
			EBR	390	-	A	0.0	185	-	A	0.0	45
			WBL	175	0.56	D	42.2	93	0.26	E	73.9	34
			WBT	-	0.79	D	40.3	205	0.65	D	50.7	458
			WBR	225	-	A	0.0	33	-	A	0.0	22
			NBL	495	0.31	D	42.3	30	0.87	E	63.5	334
			NBT	-	0.16	D	35.6	28	0.49	D	48.1	191
			NBR	150	0.06	D	35.1	0	0.18	D	43.9	0
			SBL	275	0.39	C	28.5	96	0.83	E	58.6	285
			SBT	-	0.65	D	35.6	142	0.14	D	51.9	62
SBR	255	0.62	A	6.7	91	0.98	E	79.0	552			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	-	A	5.2	-	-	A	6.1	-
			EBL	335	0.23	A	2.9	35	0.49	A	3.1	92
			EBT	-	0.32	A	2.4	68	0.35	A	2.2	94
			WBT	-	0.11	B	12.6	24	0.18	A	5.6	86
			WBR	230	-	A	0.0	2	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
NBR	310	0.27	D	39.4	0	0.75	E	69.7	48			
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	-	E	55.2	-	-	D	50.8	-
			EBTR	-	0.17	B	18.6	234	0.31	C	23.8	234
			WBL	110	0.07	B	14.8	69	0.20	B	18.1	64
			WBT	-	0.11	B	14.1	150	0.18	B	16.8	122
			SBL	-	0.92	E	79.2	442	0.97	F	83.2	826
SBTR	600	0.82	E	75.6	50	0.51	D	50.9	69			
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	13.1	4	0.18	C	15.0	14
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	B	13.7	0	0.04	C	18.7	2
			WBR	-	0.00	A	8.4	0	0.07	B	11.1	4
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.07	A	7.5	4	0.01	A	9.2	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.07	A	7.8	4	0.11	A	7.9	8
			SBL	100	0.02	B	12.4	2	0.17	C	18.7	12
			SBR	-	0.16	B	10.1	12	0.16	A	9.9	12
15	Federal Way at Amity Rd	Signal	Overall	-	-	E	62.5	-	-	F	93.0	-
			EBLTR	-	0.00	A	0.0	-	0.12	E	67.4	-
			WBLT	-	0.63	D	48.8	198	0.58	E	57.5	176
			WBR	190	1.37	F	229.0	52	1.57	F	326.3	56
			NBL	130	0.00	A	0.0	0	0.00	B	13.1	3

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
16	Federal Way at Bergeson Ave	Signal	NBTR	-	0.33	B	10.9	270	0.66	C	28.2	729
			SBL	420	0.59	A	6.2	183	1.20	F	123.5	595
			SBTR	-	0.25	A	3.8	160	0.38	A	8.9	208
			Overall	-	-	D	51.5	-	-	E	76.3	-
			EBLTR	-	0.56	E	57.2	46	0.63	E	65.3	70
			WBL	140	0.38	C	32.0	347	0.40	D	39.2	422
			WBT	-	0.00	A	0.0	361	0.00	A	0.0	443
			WBR	140	1.21	F	153.4	213	1.23	F	171.8	144
			NBL	100	0.16	C	27.1	13	0.27	C	26.8	12
			NBT	-	0.78	C	34.5	246	0.86	D	39.4	291
			NBR	160	0.65	D	35.2	33	0.73	D	36.9	25
SBL	350	0.60	D	44.3	163	1.23	F	185.2	498			
SBTR	-	0.51	C	22.2	293	0.80	D	36.0	764			

Table 12: Segment Level of Service Results – Background Growth Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Threshold		Pk Dir Vol*	LOS
					LOS D	LOS E		
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	1,395	1,540	806	>D
B	Gowen Road, Btwn S Federal Way and Technology Way	Principal Arterial	2	Continuous LT Lane	1,680	1,780	1019	>D
C	Memory Ln, Btwn Federal Way and I-84	Minor Arterial	2	Continuous LT Lane	1,395	1,540	185	>D
D	Technology Way, Btwn Gowen Road and Circuit Way	Minor Arterial	1	No LT Lane	540	575	325	>D

*Highest peak hour volume in one direction

B.4. Background Growth Conditions Mitigation

Gowen Road & Technology Way (signal)

As background traffic continues to grow on Technology Way, signal timing will not be able to achieve acceptable operations. A multi-lane roundabout would result in acceptable levels of service. The recommended configuration should include two lanes within the roundabout, an eastbound by-pass lane and a southbound by-pass lane. The roundabout will need to be large to accommodate the number of lanes and large trucks on both SH 21 and on Technology Way – an approximately 135 to 150-foot inscribed circle. However, the resulting LOS would be C or better for all movements. (See Appendix E – Mitigation Section)

Recommendation(s):

- Implement traffic signal timing and phasing changes as traffic growth continues.

- Program a multi-lane roundabout to be constructed with EB and SB by-pass lanes once background growth and site traffic volumes reach levels where signal timing changes will no longer be adequate

The right-of-way to construct such a large roundabout would exceed the space available.

Table 13 shows the results of mitigation from both the existing conditions improvements (see Section A.4) and the background growth conditions improvements.

Table 13: Intersection Level of Service Results – Mitigation for Background Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	B	13.4	-	
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	28.3	-	C	33.0	-	
			EBL	420	0.28	C	28.6	161	0.85	D	41.9	275
			EBT	-	0.23	C	24.2	82	0.59	C	24.9	246
			EBR	390	-	A	0.0	185	-	A	0.0	29
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.3	131	0.76	D	42.1	159
			WBR	225	-	A	0.0	33	-	A	0.0	32
			NBL	495	0.31	D	42.3	30	0.87	D	45.0	255
			NBT	-	0.13	D	33.3	28	0.42	C	25.7	135
			NBR	150	0.05	D	32.8	0	15.00	C	23.4	0
			SBL	275	0.21	C	28.7	45	0.38	C	23.3	81
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.8	-	C	34.3	-	
			EBTR	-	0.18	B	14.0	105	0.28	B	14.8	207
			WBL	110	0.07	B	10.6	29	0.29	B	15.2	56
			WBT	-	0.11	A	9.7	61	0.17	A	10.8	105
			SBL	-	0.68	D	48.9	311	0.86	D	54.1	357
			SBTR	600	0.87	E	58.0	80	0.65	D	50.7	61
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	22.7	-	C	26.9	-	
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.67	E	57.9	195	0.62	E	59.4	159
			WBR	190	-	A	0.0	106	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.62	B	11.0	2
			NBTR	-	0.33	B	13.3	263	0.62	C	23.7	635
			SBL	420	0.81	E	57.2	188	0.87	D	53.1	296
16			Overall	-	-	C	29.8	-	D	36.7	-	

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
	Federal Way at Bergeson Ave	Add Free-flow WBR	EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
WBL			140	0.80	D	54.8	384	0.80	D	53.8	392	
WBT			-	0.00	A	0.0	393	0.00	A	0.0	406	
WBR			140	-	A	0.0	115	-	A	0.0	111	
NBL			100	0.15	C	29.0	37	0.37	C	31.9	50	
NBT			-	0.82	D	42.0	371	0.92	D	47.6	497	
NBR			160	0.73	D	43.6	118	0.78	D	43.9	163	
SBL			350	0.28	C	26.0	194	0.74	D	37.6	500	
			SBTR	-	0.39	A	11.3	307	0.67	C	18.6	642

B.5. Data Sources

COMPASS supplied the forecasts for 2025 and 2030 PM peak hour traffic. No other approved developments were provided or incorporated into the projections for 2025 'no-build' analysis.

Projected Traffic

C.1. Project Trip Generation

The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” using an independent variable of number of employees is the appropriate land-use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions. The land-use does not include separate values for pass-by traffic or internal trips and was not accounted for in this study.

Table 14: Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

C.2. Trip Distribution and Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home cities of current employees are shown in Figure 8. Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 10 through 13.

Figure 8. Existing Employee Home Origins

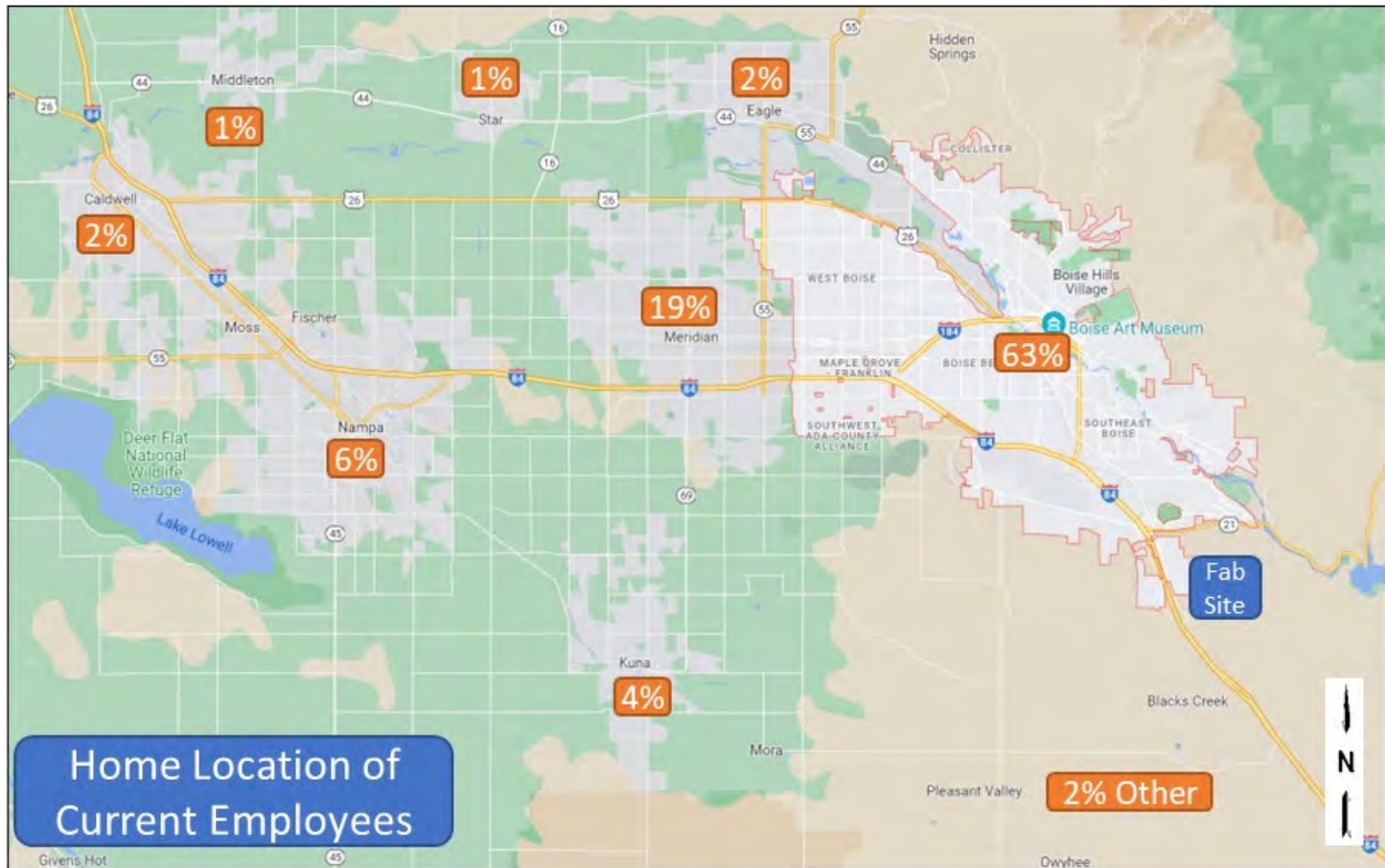


Figure 9. Macro Area Trip Distribution – Autos and Trucks



Figure 10. Auto Trip Distribution

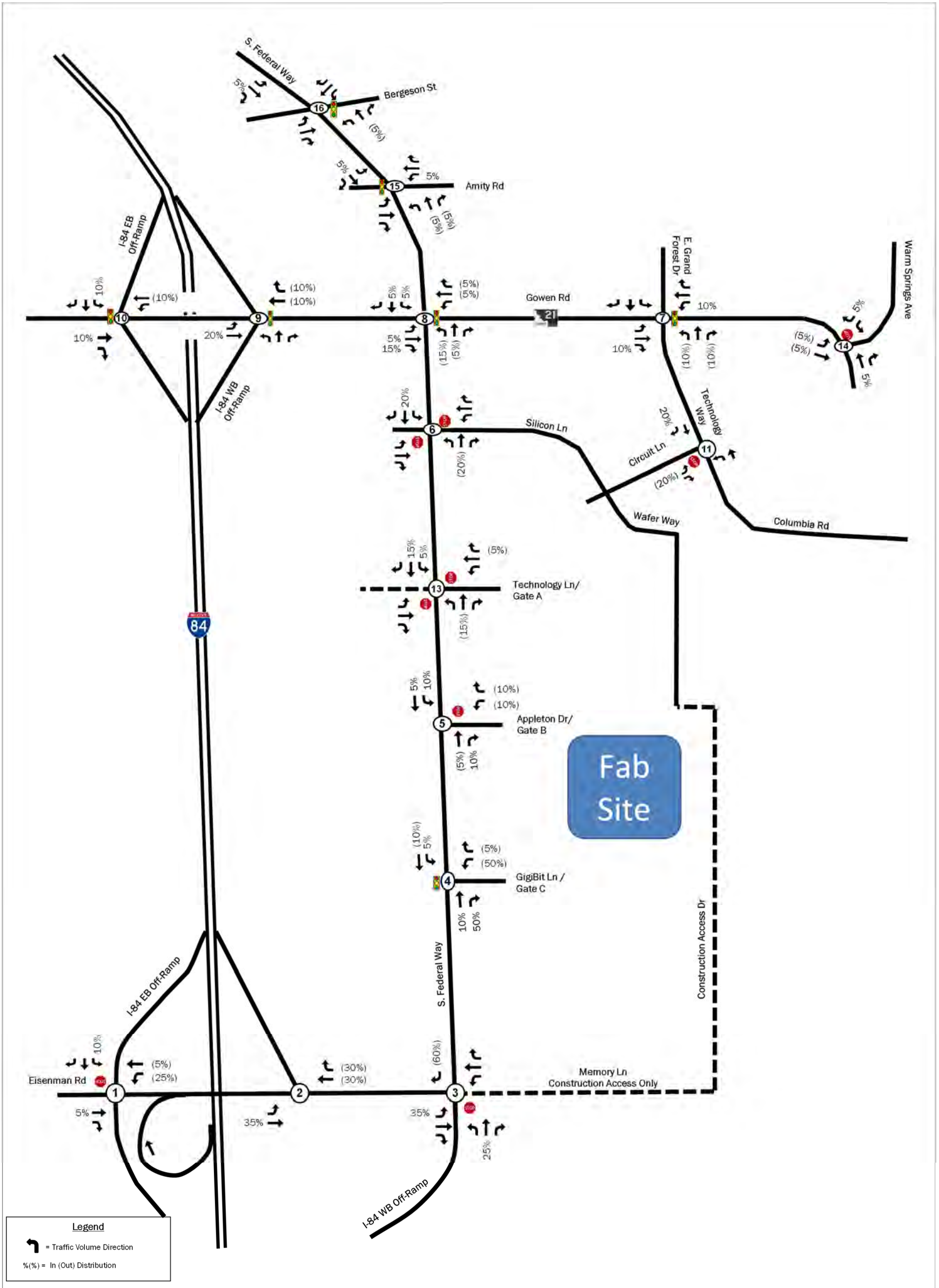


Figure 11. Truck Trip Distribution

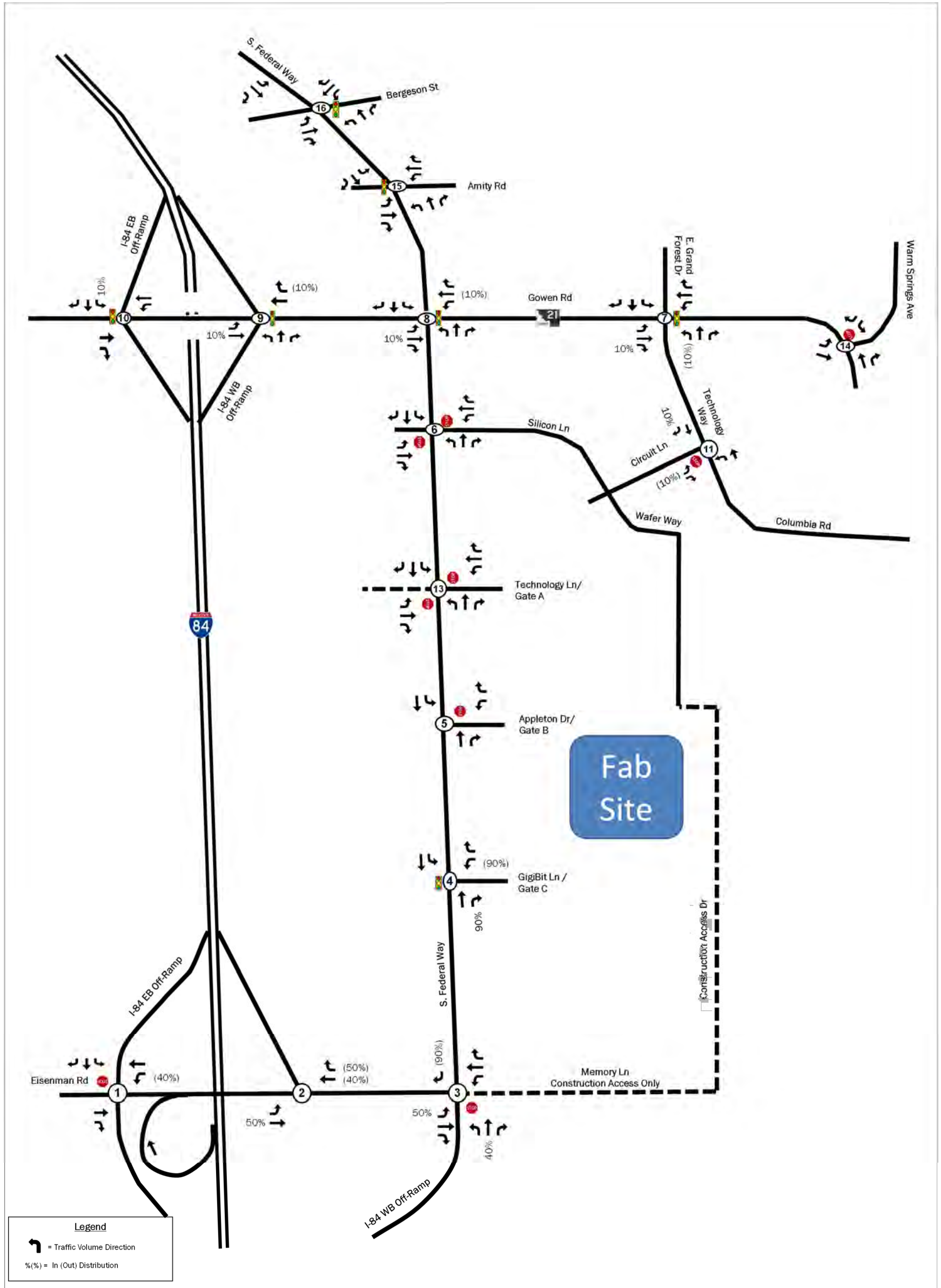


Figure 12. Site Trips

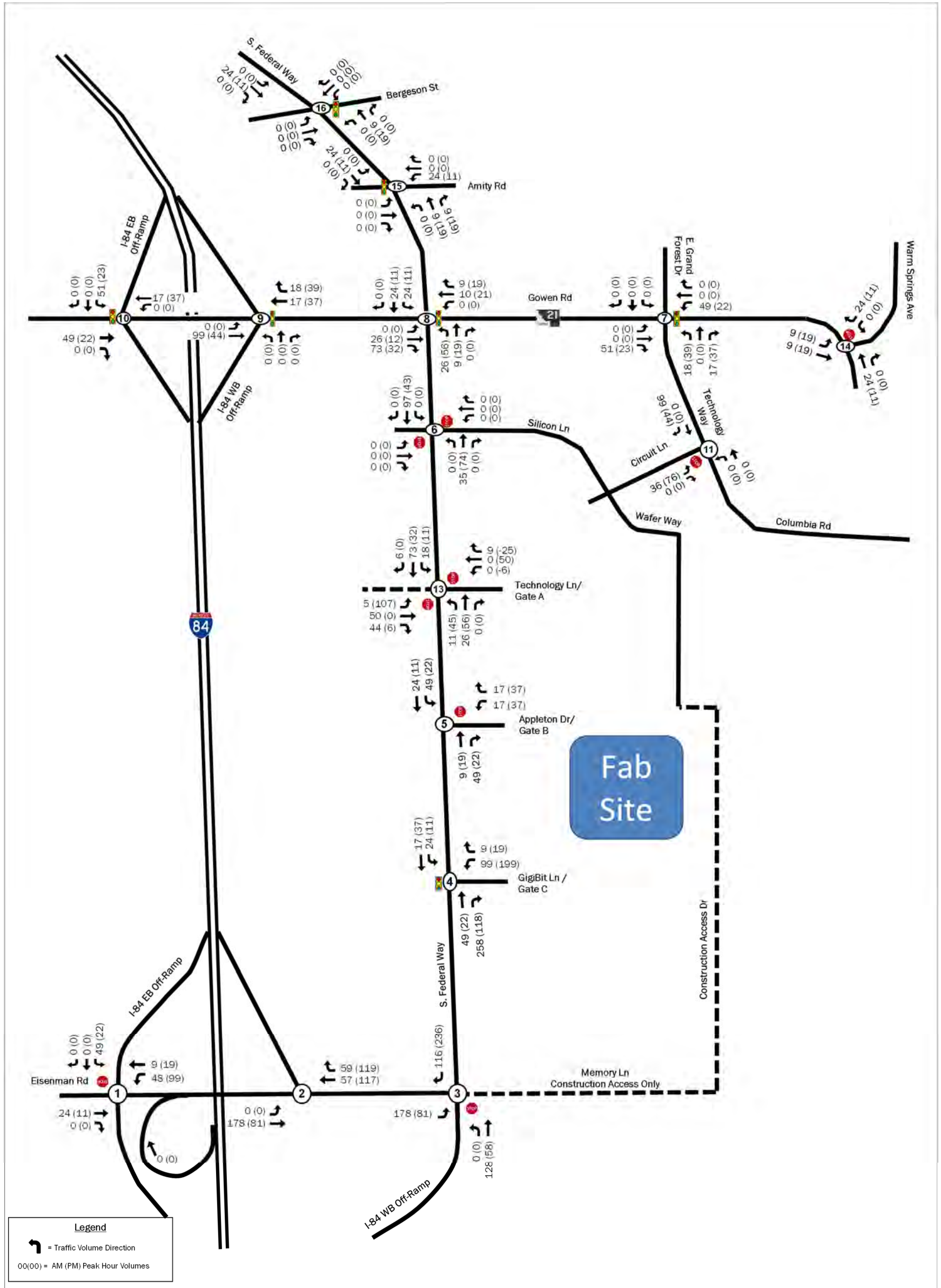
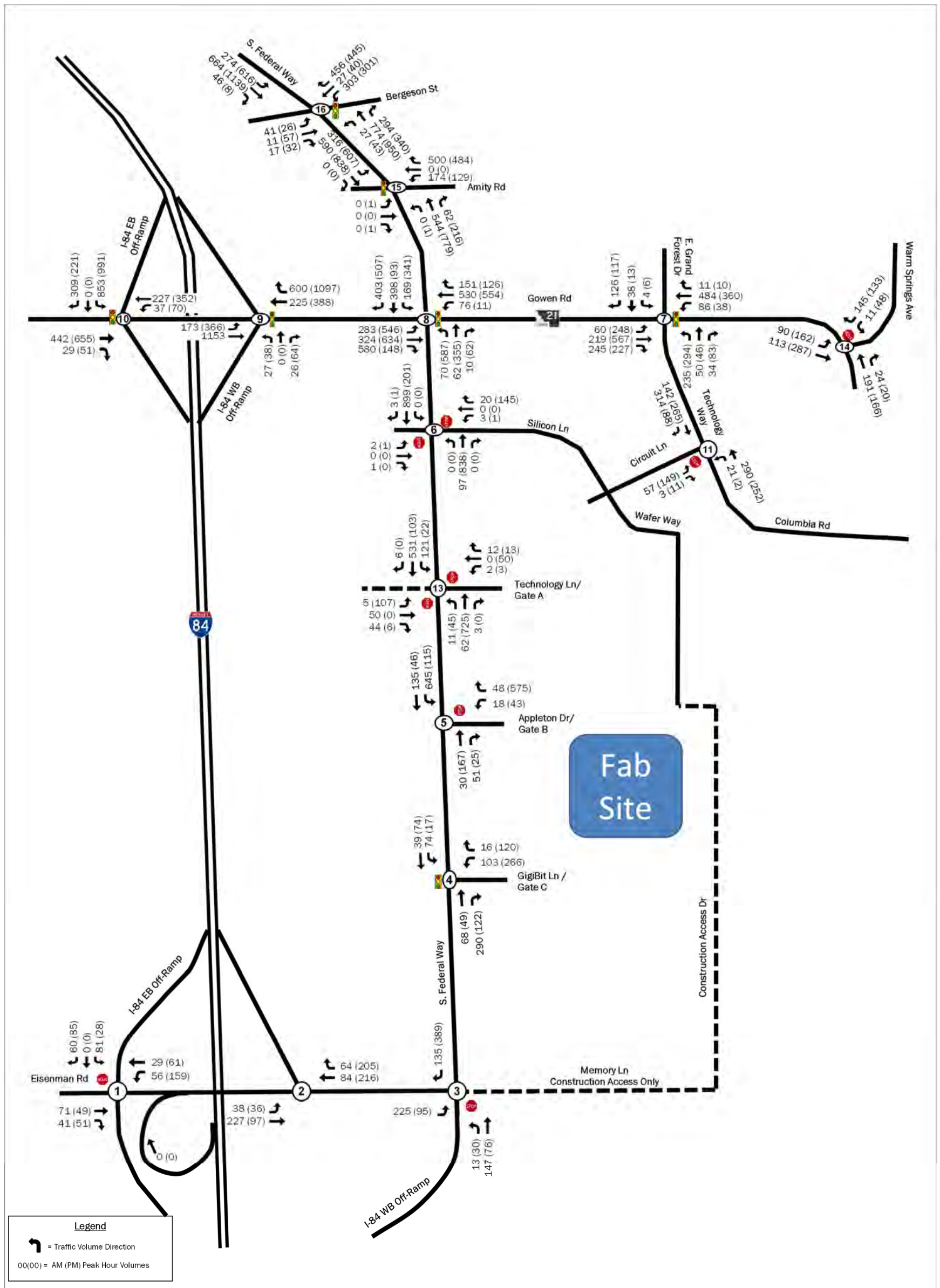


Figure 13. Existing + Background + Site Traffic (2025)



Traffic Analyses

D.1. Build Condition Capacity Analysis

The results of build conditions capacity for intersection (2022 volumes plus background growth plus site traffic) are shown in Table 15 and include the analysis of the volumes shown in Figure 13.

Table 15: Intersection Level of Service Results – Full Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.05	A	8.1	4	0.14	A	8.4	10
			SBL	310	0.12	B	10.6	8	0.07	B	13.2	4
			SBR	-	0.07	A	9.1	4	0.11	A	9.5	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	N/A	-	No HCM Results				No HCM Results			
3	Memory Ln at Federal Way/I-84 WB Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.9	14	0.09	A	9.4	6
4	Federal Way at Gate C	Signal	Overall	-	-	A	6.9	-	-	A	7.7	-
			WBL	-	0.50	A	9.1	33	0.62	A	8.3	77
			WBR	-	0.09	A	7.2	7	0.32	A	6.8	18
			NBT	-	0.18	A	5.4	22	0.15	A	7.1	24
			NBR	240	-	A	0.0	26	-	A	0.0	24
			SBL	225	0.12	A	5.9	24	0.03	A	7.2	12
			SBT	-	0.11	A	5.2	14	0.26	A	7.5	33
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	0.41	F	122.0	30	0.11	B	14.1	8
			WBT	-	0.05	A	8.7	4	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	D	27.3	0	0.00	C	19.1	0
			EBR	-	0.00	C	16.2	0	-	A	0.0	0
			WBL	-	0.01	B	13.0	0	0.00	C	19.3	0
			WBR	-	0.02	A	8.8	2	0.29	B	14.7	24
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	-	C	27.5	-	-	C	26.4	-
			EBL	155	0.12	A	6.3	43	0.44	A	7.7	144
			EBT	-	0.12	A	7.7	86	0.31	A	9.6	201
			EBR	415	-	A	0.0	44	-	A	0.0	37
			WBL	90	0.11	A	6.0	56	0.07	A	9.1	26
			WBTR	-	0.23	A	8.5	192	0.20	B	11.8	157
			NBL	520	0.86	F	83.3	192	0.92	F	88.0	267

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			NBT	-	0.25	E	57.7	84	0.21	D	52.2	83
			NBR	240	-	A	0.0	0	-	A	0.0	15
			SBL	125	0.04	E	66.8	12	0.06	E	62.3	19
			SBTR	-	0.63	E	77.3	156	0.23	E	65.2	82
8	Gowen Rd at Federal Way	Signal	Overall	-	-	C	30.0	-	-	E	57.1	-
			EBL	420	0.33	C	31.9	161	0.91	E	72.1	380
			EBT	-	0.25	C	25.3	90	0.49	C	30.2	366
			EBR	390	-	A	0.0	328	-	A	0.0	51
			WBL	175	0.56	D	42.2	93	0.26	E	73.7	34
			WBT	-	0.79	D	40.1	210	0.73	E	55.0	485
			WBR	225	-	A	0.0	39	-	A	0.0	44
			NBL	495	0.42	D	42.4	42	0.89	E	63.6	361
			NBT	-	0.18	D	35.4	32	0.48	D	45.9	202
			NBR	150	0.06	C	34.7	0	0.17	D	41.6	0
			SBL	275	0.44	C	28.7	110	0.86	E	59.0	364
			SBT	-	0.70	D	36.5	154	0.16	D	52.1	71
SBR	255	0.64	A	7.1	116	0.98	E	79.0	592			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	-	A	5.2	-	-	A	6.1	-
			EBL	335	0.23	A	3.0	35	0.51	A	3.2	92
			EBT	-	0.35	A	2.5	76	0.36	A	2.2	99
			WBT	-	0.12	B	12.8	27	0.19	A	5.6	95
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
NBR	310	0.27	D	39.4	0	0.75	E	69.7	48			
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	-	D	53.8	-	-	D	52.5	-
			EBTR	-	0.20	C	20.6	262	0.32	C	24.2	243
			WBL	110	0.08	B	16.4	69	0.20	C	18.3	64
			WBT	-	0.13	B	15.7	162	0.21	C	17.2	136
			SBL	-	0.93	E	77.5	479	0.99	F	87.9	859
SBTR	600	0.77	E	70.9	50	0.51	D	50.6	69			
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.14	B	13.9	10	0.38	C	17.9	34
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	EBL	100	0.03	C	22.7	2	0.48	D	32.4	48
			EBTR	-	0.31	C	20.2	26	0.01	A	8.6	0
			WBL	-	0.01	C	20.3	0	0.02	C	24.6	2
			WBTR	-	0.01	A	8.5	0	0.29	D	25.8	24
			NBL	150	0.01	A	8.7	0	0.03	A	7.5	2
SBL	475	0.09	A	7.6	6	0.03	A	9.5	2			
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.08	A	7.9	4	0.13	A	8.0	10
			SBL	100	0.03	B	13.0	2	0.19	C	20.8	14
			SBR	-	0.20	B	10.5	14	0.17	B	10.1	12
15		Signal	Overall	-	-	E	61.8	-	-	F	95.0	-

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM				
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)	
16	Federal Way at Amity Rd		EBLTR	-	0.00	A	0.0	0	0.12	E	67.4	0	
			WBLT	-	0.73	D	54.5	245	0.64	E	60.0	162	
			WBR	190	1.37	F	229.0	52	1.57	F	326.3	51	
			NBL	130	0.00	A	0.0	0	0.00	B	13.1	3	
			NBTR	-	0.34	B	11.0	279	0.69	C	29.6	603	
			SBL	420	0.60	A	6.4	188	1.23	F	138.0	625	
			SBTR	-	0.26	A	3.9	168	0.38	A	9.0	293	
		Federal Way at Bergeson Ave	Signal	Overall	-	-	D	51.3	-	-	E	76.3	-
				EBLTR	-	0.56	E	57.2	46	0.63	E	65.3	65
				WBL	140	0.38	C	32.0	347	0.40	D	39.2	356
				WBT	-	0.00	A	0.0	361	0.00	A	0.0	375
				WBR	140	1.21	F	153.4	214	1.23	F	171.8	188
				NBL	100	0.17	C	27.2	13	0.28	C	27.0	13
				NBT	-	0.74	C	34.6	245	0.88	D	39.9	190
	NBR	160	0.65	D	35.1	13	0.73	D	36.9	7			
	SBL	350	0.60	D	44.3	163	1.26	F	185.2	479			
	SBTR	-	0.53	C	22.6	307	0.81	D	36.6	675			

Table 16: Segment Level of Service Results – Full Build Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Threshold		Pk Dir Vol*	LOS
					LOS D	LOS E		
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	1,395	1,540	902	>D
B	Gowen Road, Btwn S Federal Way and Technology Way	Principal Arterial	2	Continuous LT Lane	1,680	1,780	1042	>D
C	Memory Ln, Btwn Federal Way and I-84	Minor Arterial	2	Continuous LT Lane	1,395	1,540	421	>D
D	Technology Way, Btwn Gowen Road and Circuit Way	Minor Arterial	1	No LT Lane	540	575	439	>D

*Highest peak hour volume in one direction

D.2. Build Conditions Mitigation

Eisenman Rd at I-84 WB On-Ramp

The intersection geometry is unique to the traffic conditions. There is currently no east side of the intersection so the eastbound left turning traffic (i.e., traffic heading north on S Federal Way) can move unimpeded. Only the northbound traffic coming from I-84 is stopped and that volume is projected to be manageable. HCM 6th Ed. does not include the ability to analyze the intersection in its current form but can if a dummy link is added to the east side of the intersection.

If Memory Lane is to be used as a construction traffic route for FAB1, the intersection at S Federal Way will need to be reconfigured. At a minimum, the southbound movement on S Federal Way will

need a left turn lane. Memory Lane Ext will need one lane leaving and one lane entering the construction area. The analysis of construction period traffic is not included in this study but will be a separate effort. The intersection may need to be signalized if the construction traffic analysis shows a significant and sustained volume of traffic to/from the construction site.

Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

S Federal Way & Gate B

Gate B is the next closest access point for the parking lots on the southern end of the Micron campus. Currently, during shift change, there is a large volume of traffic leaving Gate B but almost all of it makes a right turn and heads north on S Federal Way. Conversely, in the AM peak hour, there is a large volume of southbound left turning vehicles entering the site. The intersection is stop controlled and already experiences some delays for left-out traffic. The additional load from FAB1 traffic will overburden the intersection. A traffic signal may be needed but does not meet the required MUTCD volume criteria. (See Section D.3. for a signal warrant discussion.)

Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

Table 17 shows the results of mitigation from the existing conditions improvements (see Section A.4) the background growth conditions improvements (see Section B.4) and the build conditions improvements.

Table 17: Intersection Level of Service Results – Mitigation for Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
4	Federal Way at Gate C	No WBL at Gate 5	Overall	-	-	A	6.9	-	-	A	7.8	-
			WBL	-	0.54	A	9.2	38	0.65	A	8.3	91
			WBR	-	0.08	A	7.1	7	0.29	A	6.8	18
			NBT	-	0.18	A	5.5	23	0.16	A	7.1	26
			NBR	240	-	A	0.0	27	-	A	0.0	26
			SBL	225	0.12	A	6.0	25	0.03	A	7.2	13
			SBT	-	0.12	A	5.3	15	0.27	A	7.5	36
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	-	-	-	-	-	-	-	-
			WBR	-	0.52	A	8.7	30	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	-	B	13.4	-
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	29.9	-	-	D	37.6	-
			EBL	420	0.29	C	29.5	161	0.88	C	45.7	275
			EBT	-	0.25	C	25.3	90	0.62	C	25.9	252
			EBR	390	-	A	0.0	328	-	A	0.0	44
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.2	133	0.79	D	43.3	169
			WBR	225	-	A	0.0	39	-	A	0.0	47
			NBL	495	0.42	D	42.4	42	0.93	D	53.9	296
			NBT	-	0.15	C	33.4	32	0.47	C	27.1	145
			NBR	150	0.05	C	32.8	0	0.16	C	24.4	0
			SBL	275	0.63	C	42.1	82	0.77	C	42.0	144
			SBT	-	0.70	D	36.5	154	0.14	C	29.3	44
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	C	33.9	-
			EBTR	-	0.20	B	14.3	123	0.30	B	15.3	218
			WBL	110	0.08	B	10.7	31	0.18	B	11.2	57
			WBT	-	0.12	A	9.9	70	0.19	A	10.1	120
			SBL	-	0.72	D	49.5	324	0.86	D	53.6	363
			SBTR	600	0.87	E	57.5	77	0.64	D	49.8	60
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot	Overall	-	-	C	23.5	-	-	C	28.7	-
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.70	E	57.9	220	0.64	E	58.9	173
			WBR	190	-	A	0.0	103	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.68	B	12.5	2

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
16	Federal Way at Bergeson Ave	signal phase	NBTR	-	0.35	B	13.3	281	0.68	C	27.9	702
			SBL	420	0.81	E	57.2	188	0.88	D	53.1	319
			SBTR	-	0.26	A	3.8	148	0.39	A	7.1	263
		Overall	-	-	C	33.7	-	-	D	37.4	-	
		EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53	
		WBL	140	0.80	D	54.8	384	0.80	D	53.8	392	
		WBT	-	0.00	A	0.0	393	0.00	A	0.0	406	
		WBR	140	-	A	0.0	115	-	A	0.0	111	
		NBL	100	0.16	C	29.1	37	0.37	C	31.9	50	
		NBT	-	0.83	D	42.6	376	0.93	D	50.2	515	
NBR	160	0.73	D	43.6	120	0.78	D	43.9	167			
SBL	350	0.28	C	26.0	194	0.74	D	37.6	500			
SBTR	-	0.40	A	11.5	322	0.68	C	18.8	653			

Conclusions and Recommendations

E.1. Capacity Analysis Conclusions

An analysis of the v/c ratios, LOS, delay, and expected queuing results in a series of conclusions for each intersection. These are described in detail below.

Table 18: LOS Comparison of LOS for Select Intersections

ID	Intersection	Mvmnt	Existing		No-Build		Build	
			AM	PM	AM	PM	AM	PM
5	Federal Way at Gate B	EBLTR	A	D	A	D	A	D
		WBL	F	B	F	B	F	B
		WBT	A	C	A	C	A	C
		NBL	A	A	A	A	A	A
		SBL	A	A	A	A	A	A
7	Gowen Rd at Technology Way/Grand Forest Dr	Overall	C	B	C	C	C	C
		EBL	A	A	A	A	A	A
		EBT	A	A	A	A	A	A
		EBR	A	A	A	A	A	A
		WBL	A	A	A	A	A	A
		WBTR	A	A	A	B	A	B
		NBL	E	E	F	E	F	F
		NBT	E	E	E	D	E	D
		NBR	A	A	A	A	A	A
		SBL	E	E	E	E	E	E
8	Gowen Rd at Federal Way	Overall	C	D	C	E	C	E
		EBL	C	E	C	E	C	E
		EBT	C	C	C	C	C	C
		EBR	A	A	A	A	A	A
		WBL	D	E	D	E	D	E
		WBT	D	D	D	D	D	E
		WBR	A	A	A	A	A	A
		NBL	D	E	D	E	D	E
		NBT	D	D	D	D	D	D
		NBR	D	D	D	D	C	D
		SBL	C	D	C	E	C	E
		SBT	D	D	D	D	D	D
		SBR	A	D	A	E	A	E
9	Gowen Rd at I-84 WB Ramp	Overall	A	A	A	A	A	A
		EBL	A	A	A	A	A	A
		EBT	A	A	A	A	A	A
		WBT	B	A	B	A	B	A
		WBR	A	A	A	A	A	A
		NBLT	D	E	D	E	D	E
		NBR	D	E	D	E	D	E
		Overall	D	D	E	D	D	D
10	Gowen Rd at I-84 EB Ramp	EBTR	B	C	B	C	C	C
		WBL	B	B	B	B	B	C
		WBT	B	B	B	B	B	C
		SBL	F	E	E	F	E	F
		SBTR	E	D	E	D	E	D
		Overall	D	D	E	F	E	F
15	Federal Way at Amity Rd	EBLTR	A	E	A	E	A	E
		WBLT	D	D	D	E	D	E
		WBR	F	F	F	F	F	F
		NBL	A	A	A	B	A	B
		NBTR	A	B	B	C	B	C
		SBL	A	B	A	F	A	F
16	Federal Way at Bergeson Ave	SBTR	A	A	A	A	A	A
		Overall	D	D	D	E	D	E
		EBLTR	E	E	E	E	E	E
		WBL	C	D	C	D	C	D
		WBT	A	A	A	A	A	A
		WBR	E	E	F	F	F	F
		NBL	C	C	C	C	C	C
		NBT	C	D	C	D	C	D
		NBR	C	D	D	D	D	D
		SBL	D	F	D	F	D	F
		SBTR	C	C	C	D	C	D

E.1.1. Eisenman Road & I-84 EB Ramp

The intersection has ample capacity to accommodate the future traffic.

E.1.2. Eisenman Road & I-84 WB On-Ramp

While HCM 6th Ed. lacks the research to make the capacity calculations, an evaluation of the volume of traffic shows that the intersection can accommodate the future traffic. The additional westbound traffic on Eisenman Road should pose no significant delay for eastbound left turning traffic.

E.1.3. Memory Lane & S Federal Way/I-84 WB Off-Ramp

Build Conditions Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

E.1.4. S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

E.1.5. S Federal Way & Gate B

Build Conditions Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

E.1.6. S Federal Way & Silicon Way

The intersection has ample capacity to accommodate the future traffic.

E.1.7. Gowen Road & Technology Way (signal)

Existing Conditions Recommendation(s):

- Implement traffic signal timing and phasing changes as traffic growth continues.

Background Conditions Recommendation(s):

- Program a multi-lane roundabout to be constructed with EB and SB by-pass lanes once background growth and site traffic volumes reach levels where signal timing changes will no longer be adequate

E.1.8. Gowen Road & Federal Way (signal)**Existing Conditions Recommendation(s):**

- Add a southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase
- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
 - The bike lane on the west side of the intersection may have to be eliminated
- Re-time the traffic signal to account for the added capacity

E.1.9. Gowen Road & I-84 WB Ramp (signal)

The only poor operations at this intersection are the northbound left and right turn movements coming off of the ramp. The volumes are low but the PM peak hour has somewhat long delays. The longer than acceptable average delays cause a small number of vehicles have to wait a long time between green cycles. Adjusting the signal timing does little to reduce the average delay because the low arrival rate means that each vehicle will have to wait nearly a full cycle before proceeding. The queues are not long and there is plenty of capacity to handle more traffic. **No improvements are recommended.**

E.1.10. Gowen Road & I-85 EB Ramp (signal)**Existing Conditions Recommendation(s):**

- Retime the traffic signal to a more reasonable lower cycle-length
- Add a lane on the exit ramp to provide more storage and triple left turns
 - The additional left turn could be a re-purposing of the right turn lane plus additional pavement to add back the right turn lane

E.1.11. Technology Lane & Circuit Way

The intersection has ample capacity to accommodate the future traffic.

~~**E.1.12. Memory Lane Ext & Construction Access Road (not studied)**~~

E.1.13. Federal Way & Gate A / Childcare Center

This intersection was studied in detail in a separate report for the childcare center development. While the new Fab traffic will contribute more traffic on S Federal Way, it will not be enough to justify a traffic signal once the new childcare center is operational. There is additional land yet to be developed on the west side of S Federal Way that will share the access point. This intersection should be monitored for the need for a traffic signal as more development occurs. **No improvements are recommended.**

E.1.14. Gowen Road & Warm Springs Avenue

The intersection has ample capacity to accommodate the future traffic.

E.1.15. Federal Way & Amity Road (signal)

Existing Conditions Recommendation(s):

- Convert the westbound dual right turns lanes to a single free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
- Construct dual southbound left turn lanes
 - Restripe the existing gore to allow for two left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the southbound left turn signal for protected-only operation

E.1.16. Federal Way and Bergeson Street (signal)

Existing Conditions Recommendation(s):

- Channelize the westbound right turn lane into a free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection

E.2. Mitigation Capacity Analysis Results

Table 19 shows the results of the capacity analysis (LOS only) for the mitigation measures referenced above.

Table 19: LOS of Mitigation Measures

Int	Mitigation	Mvmt	EX		NoB		Build	
			A	P	A	P	A	P
4. Federal Way at Gate C	No WBL at Gate 5	Overall	N/A				A	A
		WBL					A	A
		WBR					A	A
		NBT					A	A
		NBR					A	A
		SBL					A	A
		SBT					A	A
5. Federal Way at Gate B	Side Street Stop	EBLTR	N/A				A	D
		WBL					-	-
		WBR					A	C
		NBL					A	A
		SBL					A	A
7. Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	C	B	C	B	B	B
		EBL	A	A	A	A	A	A
		EBT	A	A	A	A	A	A
		EBR	A	A	A	A	A	A
		WBL	A	A	A	A	A	A
		WBTR	A	A	A	A	A	A
		NBL	E	E	E	E	E	D
		NBT	E	E	E	D	E	D
		NBR	A	A	A	A	A	A
		SBL	E	E	E	E	E	E
SBTR	E	E	E	E	E	E		
7. Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	N/A		A	B	A	B
		EB			A	B	A	B
		WB			B	B	B	B
		NB			A	C	A	C
		SB			A	A	A	A

Int	Mitigation	Mvmt	EX		NoB		Build	
			A	P	A	P	A	P
8. Gowen Rd at Federal Way	- Add SBL Lane	Overall	C	D	C	C	C	D
		EBL	C	C	C	D	C	C
		EBT	C	C	C	C	C	C
		EBR	A	A	A	A	A	A
		WBL	D	D	D	D	D	D
		WBT	D	D	D	D	D	D
		WBR	A	A	A	A	A	A
	- Add a WBT Lane	NBL	D	D	D	D	D	D
		NBT	D	C	D	C	C	C
		NBR	D	C	D	C	C	C
	- Re-time	SBL	C	C	C	C	C	C
		SBT	D	C	D	C	D	C
		SBR	A	A	A	C	A	C
		Overall	D	D	D	C	D	C
10. Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	EBTR	B	B	B	B	B	B
		WBL	B	B	B	B	B	B
		WBT	B	A	A	A	A	A
		SBL	D	E	D	D	D	D
		SBTR	E	D	E	D	E	D
		Overall	C	D	C	C	C	C
		EBLTR	A	D	A	A	A	A
15. Federal Way at Amity Rd	- Add Free-flow WBR	WBLT	E	E	E	E	E	E
		WBR	A	A	A	A	A	A
		NBL	A	A	A	B	A	B
		NBTR	A	B	B	C	B	C
		SBL	E	D	E	D	E	D
16. Federal Way at Bergeson Ave	Add Free-flow WBR	SBTR	A	A	A	A	A	A
		Overall	C	D	C	D	C	D
		EBLTR	E	D	E	D	E	D
		WBL	D	D	D	D	D	D
		WBT	A	A	A	A	A	A
		WBR	A	A	A	A	A	A
		NBL	C	C	C	C	C	C
		NBT	D	D	D	D	D	D
		NBR	D	D	D	D	D	D
SBL	C	C	C	D	C	D		
SBTR	A	C	A	C	A	C		

E.3. Driveway Analysis

All the site access points are existing. No additional analysis is required.

E.4. Parking Requirements

In order to construct the new Fab and associated office, utility, warehouses, and other ancillary building, the existing parking lot on the south side of the campus will be removed. New parking structures and surface parking lots are planned to be built and have been identified on the site plan. Approximately 3,800 parking spaces will be removed and approximately 7,100 parking spaces will be added with the project (a net change of about 3,300), which will sufficiently serve the new 2,750 employees.

E.5. Signal Warrant Analysis

The intersection of S Federal Way and Gate B may benefit from a traffic signal. It would reduce the delay for traffic turning left out of the site. Eight hours of traffic volume on the minor street side were not available; however, an analysis of the major street traffic shows that there is not enough traffic to meet the minimum criteria in the 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD, 2009). Even if the site traffic met the minimum threshold for eight hours of the day, the combination of the main street and minor street traffic would not trigger a need.

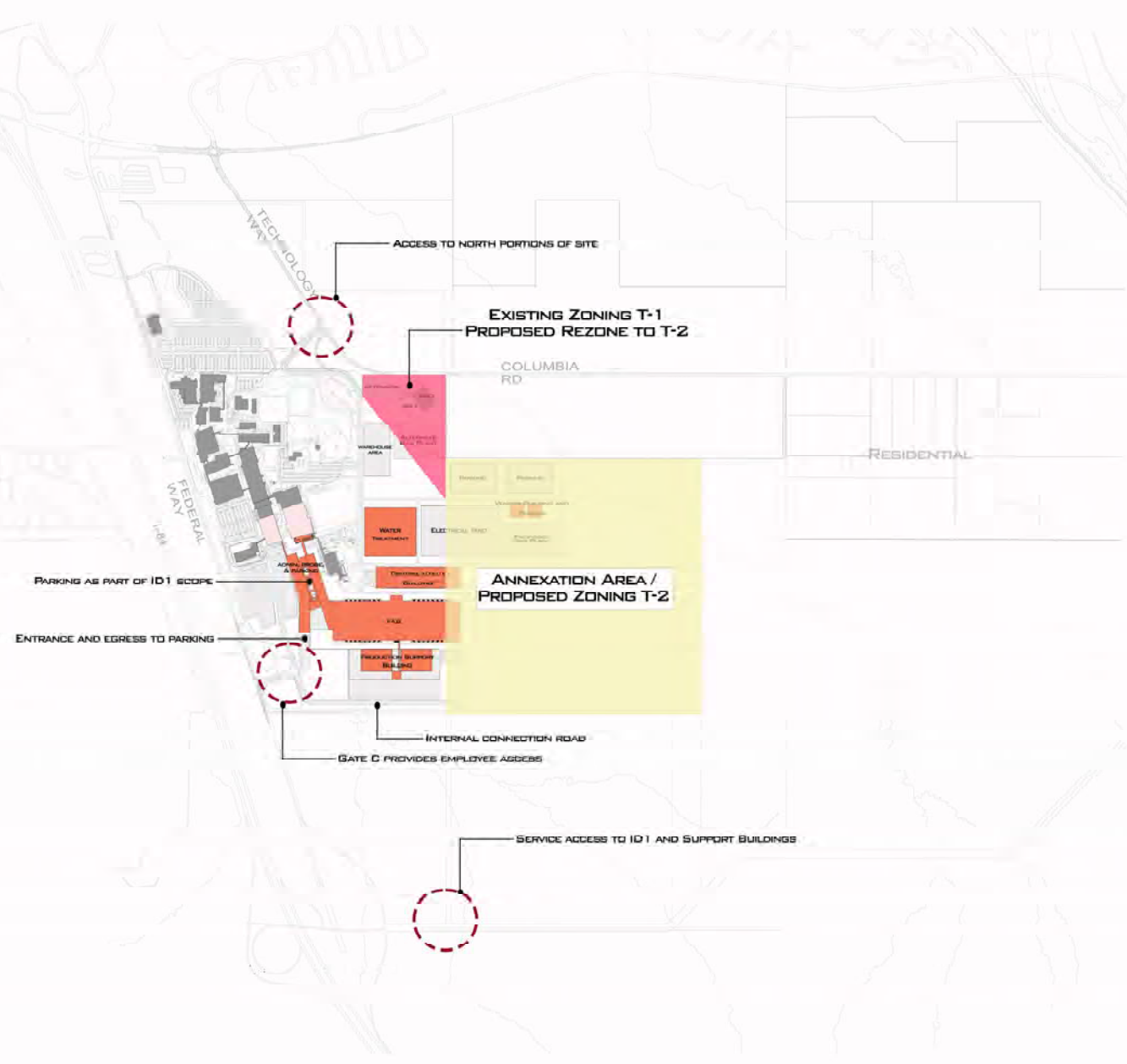
Table 20: Signal Warrant Analysis Summary

Hour Beginning	S Federal Way	Gate B	WARRANT 1 Major Street Condition Met? (Major>600)	WARRANT 1 Minor Street Condition Met? (Minor>150)
	Combined Volume	Approach Volume w/ Right Turns		
5:00 AM	682		YES	
6:00 AM	494		NO	
7:00 AM	909	84	YES	NO
8:00 AM	852		YES	
9:00 AM	473		NO	
10:00 AM	252		NO	
11:00 AM	337		NO	
12:00 PM	375		NO	
1:00 PM	291		NO	
2:00 PM	301		NO	
3:00 PM	419		NO	
4:00 PM	374	655	NO	YES
5:00 PM	696		YES	
6:00 PM	440		NO	
7:00 PM	173		NO	
Number of Hours Needed			8	8
Number of Hours Met			4	1
Warrant Satisfied?			NO	

Data Source: S Federal Way base volume from signal warrant study conducted for Gate A and the proposed childcare center; the base volume was multiplied by the growth factor for S Federal Way as shown in Table 7. The peak hour volumes are from Figure 13.

APPENDIX

APPENDIX A: Site Plan



ACCESS TO NORTH PORTIONS OF SITE

EXISTING ZONING T-1
PROPOSED REZONE TO T-2

COLUMBIA RD

RESIDENTIAL

ANNEXATION AREA /
PROPOSED ZONING T-2

PARKING AS PART OF ID1 SCOPE

ENTRANCE AND EGRESS TO PARKING

INTERNAL CONNECTION ROAD

GATE C PROVIDES EMPLOYEE ACCESS

SERVICE ACCESS TO ID1 AND SUPPORT BUILDINGS

FEDERAL WAY

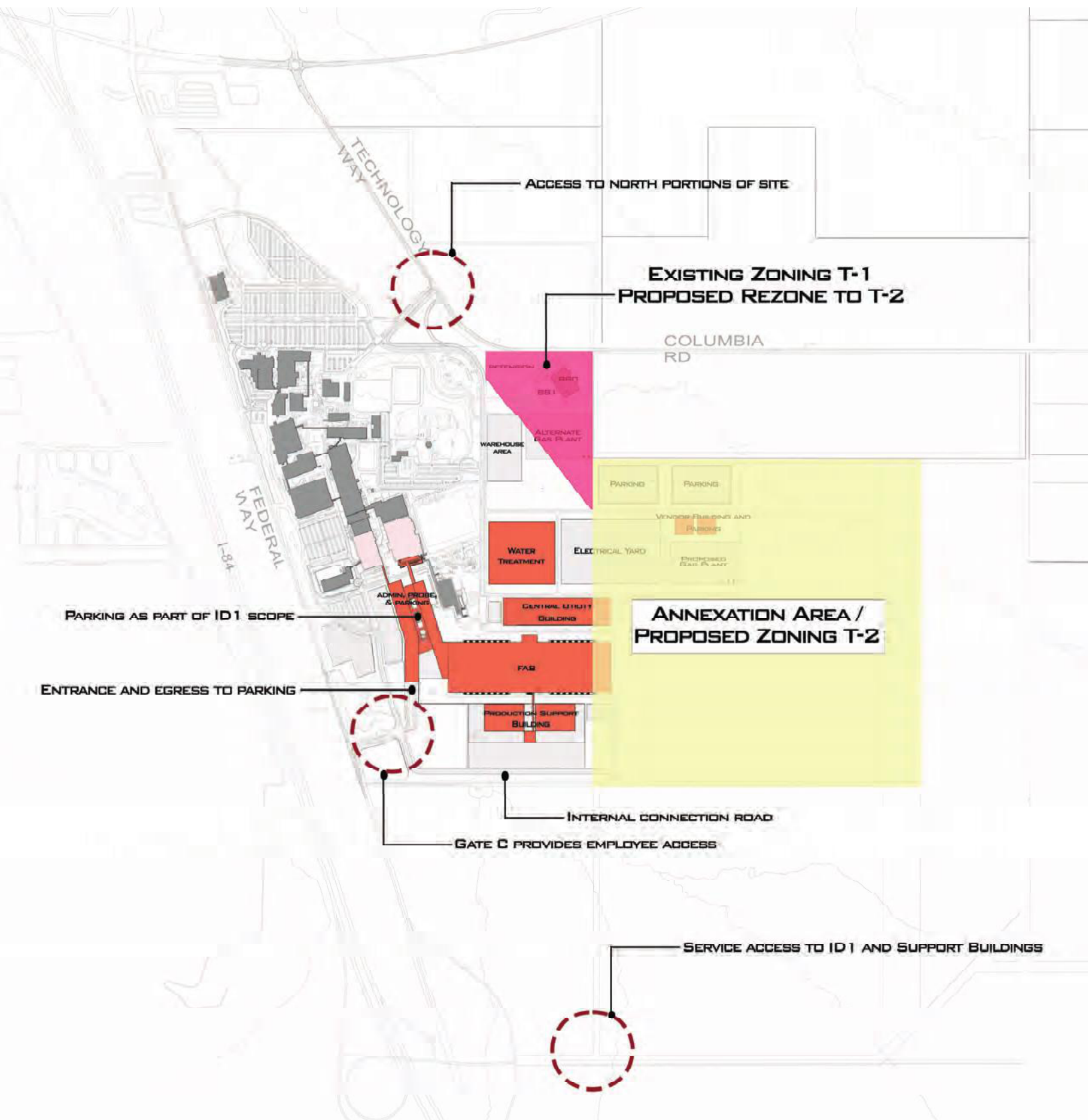
TECHNOLOGY WAY

WAREHOUSE AREA

WATER TREATMENT

ELECTRICAL TEST

PRODUCTION SUPPORT BUILDING



ACCESS TO NORTH PORTIONS OF SITE

EXISTING ZONING T-1
PROPOSED REZONE TO T-2

COLUMBIA
RD

WAREHOUSE
AREA

WATER
TREATMENT

ELECTRICAL YARD

PARKING

PARKING

VENDOR BUILDINGS AND
PARKING

PROPOSED
GAS PLANT

ANNEXATION AREA /
PROPOSED ZONING T-2

PARKING AS PART OF ID1 SCOPE

ADMIN. PROBE
& PARKING

CENTRAL UTILITY
BUILDING

FAB

PRODUCTION SUPPORT
BUILDING

ENTRANCE AND EGRESS TO PARKING

INTERNAL CONNECTION ROAD

GATE C PROVIDES EMPLOYEE ACCESS

SERVICE ACCESS TO ID 1 AND SUPPORT BUILDINGS

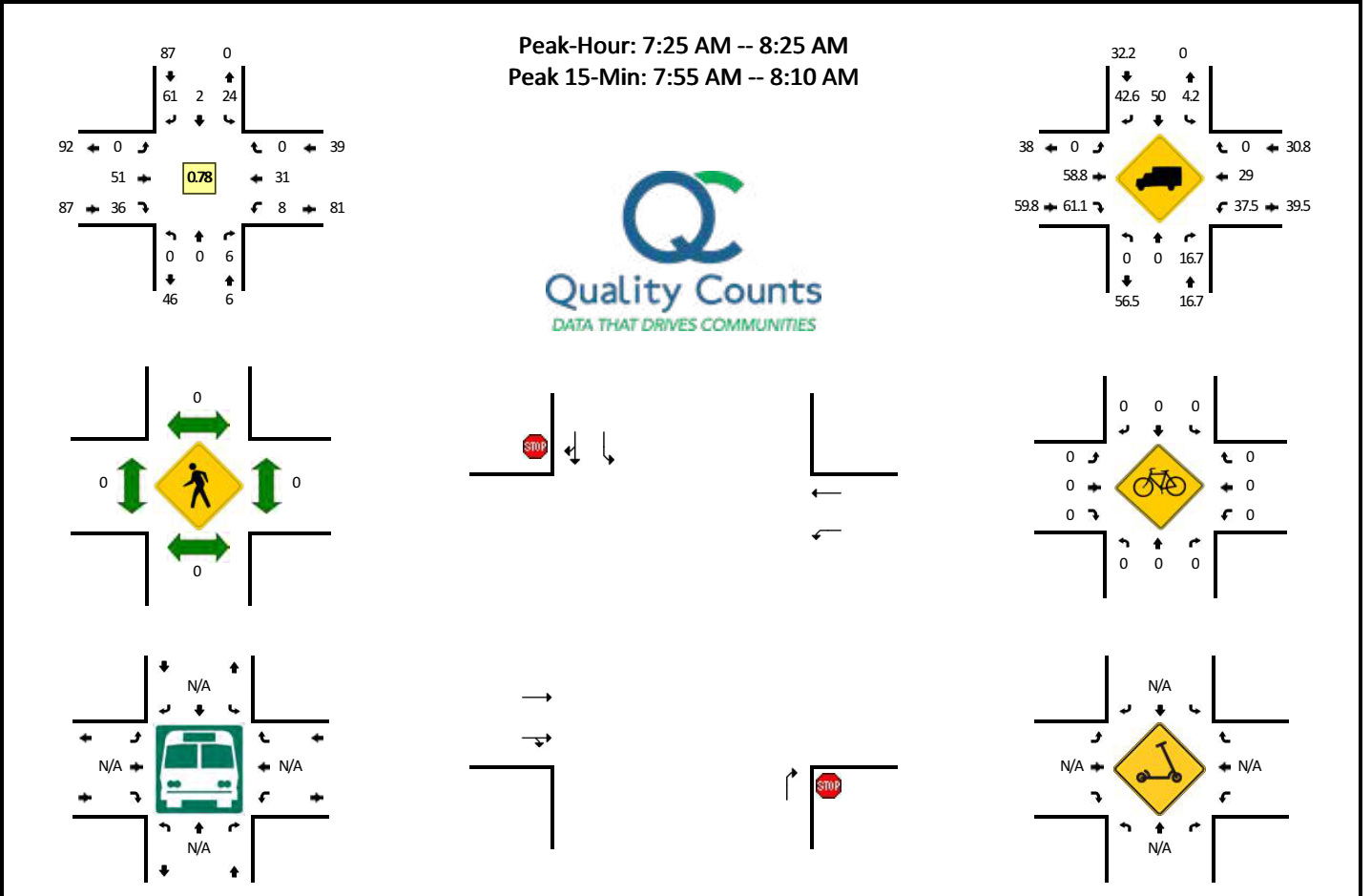
APPENDIX B: Traffic Counts

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952601
DATE: Thu, Sep 22 2022

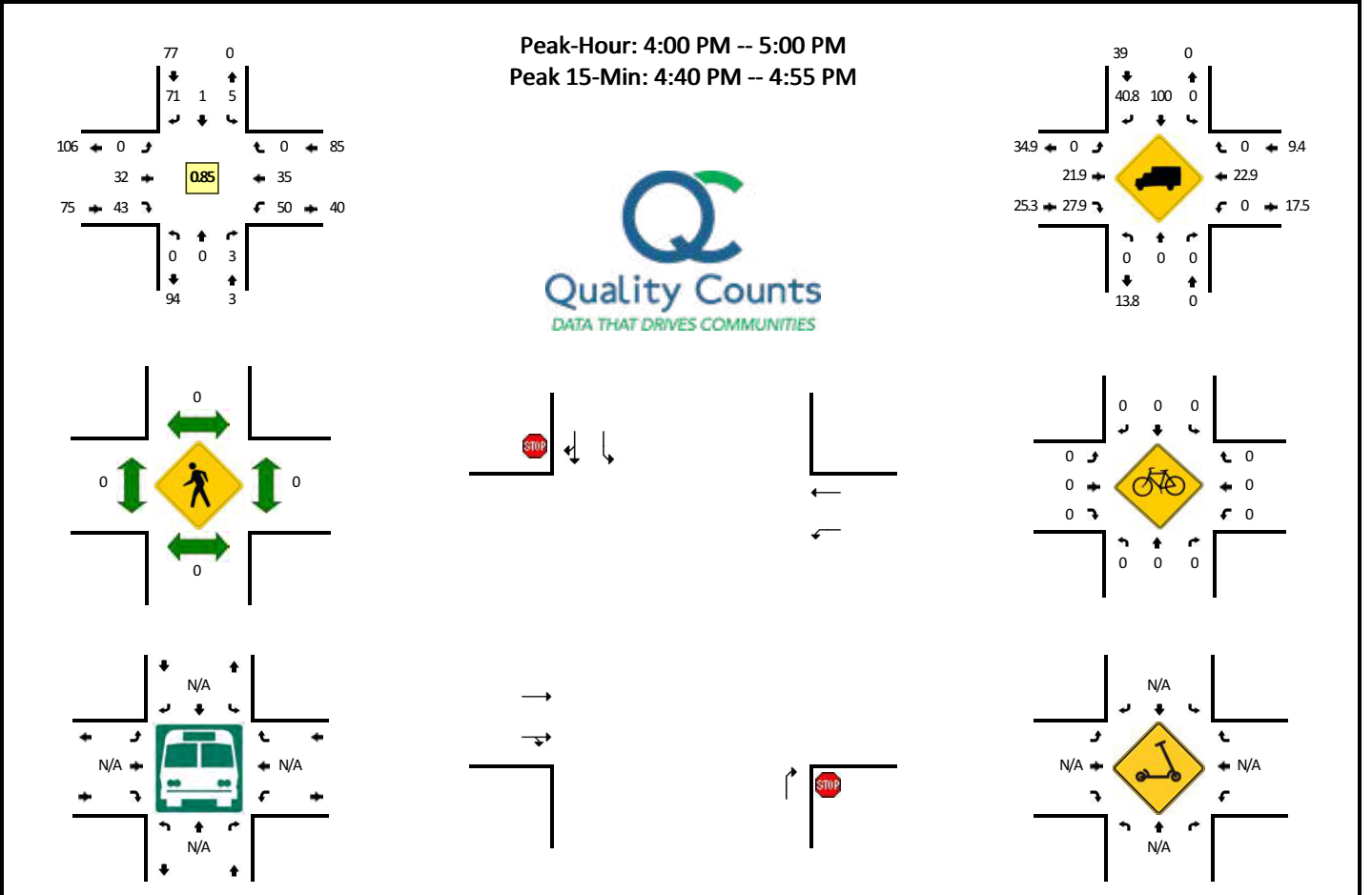


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	1	0	0	4	4	0	1	2	0	0	16	
7:05 AM	0	0	0	0	0	0	4	0	0	2	3	0	1	0	0	0	10	
7:10 AM	0	0	0	0	2	0	2	0	0	5	1	0	0	0	0	0	10	
7:15 AM	0	0	1	0	4	0	6	0	0	1	3	0	1	0	0	0	16	
7:20 AM	0	0	1	0	4	0	1	0	0	1	3	0	1	1	0	0	12	
7:25 AM	0	0	0	0	1	0	5	0	0	3	2	0	0	1	0	0	12	
7:30 AM	0	0	0	0	2	0	3	0	0	4	1	0	0	7	0	0	17	
7:35 AM	0	0	0	0	3	0	11	0	0	6	1	0	0	0	0	0	21	
7:40 AM	0	0	2	0	3	2	3	0	0	1	5	0	1	1	0	0	18	
7:45 AM	0	0	0	0	2	0	4	0	0	5	3	0	1	1	0	0	16	
7:50 AM	0	0	1	0	0	0	2	0	0	2	1	0	0	3	0	0	9	
7:55 AM	0	0	1	0	2	0	8	0	0	5	7	0	1	1	0	0	25	182
8:00 AM	0	0	0	0	3	0	12	0	0	2	1	0	1	2	0	0	21	187
8:05 AM	0	0	0	0	2	0	4	0	0	5	4	0	3	6	0	0	24	201
8:10 AM	0	0	2	0	3	0	0	0	0	6	5	0	0	3	0	0	19	210
8:15 AM	0	0	0	0	2	0	1	0	0	5	3	0	0	3	0	0	14	208
8:20 AM	0	0	0	0	1	0	8	0	0	7	3	0	1	3	0	0	23	219
8:25 AM	0	0	0	0	0	0	4	0	0	2	3	0	0	1	0	0	10	217
8:30 AM	0	0	0	0	1	0	5	0	0	0	5	0	1	1	0	0	13	213
8:35 AM	0	0	0	0	1	1	2	0	0	3	2	0	0	3	0	0	12	204
8:40 AM	0	0	0	0	2	0	2	0	0	4	6	0	0	4	0	0	18	204
8:45 AM	0	0	1	0	1	0	3	0	0	1	5	0	1	1	0	0	13	201
8:50 AM	0	0	0	0	1	0	8	0	0	5	3	0	1	3	0	0	21	213
8:55 AM	0	0	0	0	0	0	2	0	0	3	5	0	0	4	0	0	14	202
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	28	0	96	0	0	48	48	0	20	36	0	0	280	
Heavy Trucks	0	0	0	0	0	0	52	0	0	24	32	0	4	12	0	0	124	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952602
DATE: Thu, Sep 22 2022

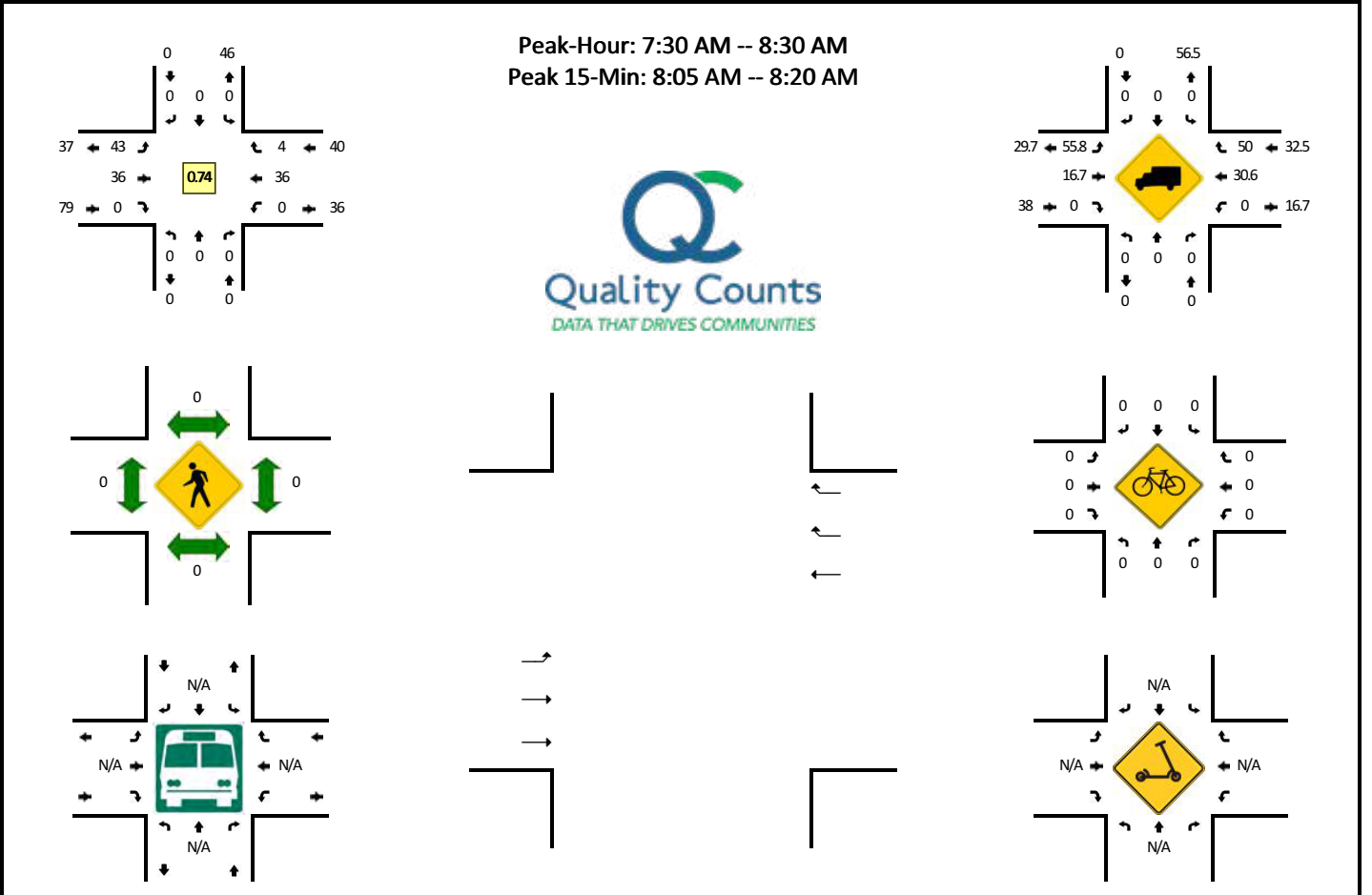


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	8	0	0	1	5	0	4	5	0	0	23	
4:05 PM	0	0	0	0	0	0	4	0	0	3	3	0	6	2	0	0	18	
4:10 PM	0	0	0	0	1	0	6	0	0	4	1	0	5	6	0	0	23	
4:15 PM	0	0	0	0	1	0	5	0	0	3	2	0	5	1	0	0	17	
4:20 PM	0	0	0	0	1	0	3	0	0	1	10	0	8	1	0	0	24	
4:25 PM	0	0	0	0	1	0	2	0	0	3	2	0	3	2	0	0	13	
4:30 PM	0	0	0	0	0	0	4	0	0	2	3	0	4	1	0	0	14	
4:35 PM	0	0	0	0	1	1	2	0	0	4	3	0	2	5	0	0	18	
4:40 PM	0	0	0	0	0	0	10	0	0	1	4	0	3	3	0	0	21	
4:45 PM	0	0	1	0	0	0	8	0	0	3	2	0	6	3	0	0	23	
4:50 PM	0	0	1	0	0	0	10	0	0	4	5	0	2	5	0	0	27	
4:55 PM	0	0	1	0	0	0	9	0	0	3	3	0	2	1	0	0	19	240
5:00 PM	0	0	0	0	3	0	1	0	0	4	9	0	1	2	0	0	20	237
5:05 PM	0	0	0	0	1	0	7	0	0	1	4	0	2	3	0	0	18	237
5:10 PM	0	0	0	0	0	1	8	0	0	5	2	0	0	3	0	0	19	233
5:15 PM	0	0	0	0	0	0	3	0	0	7	1	0	1	1	0	0	13	229
5:20 PM	0	0	0	0	0	0	3	0	0	5	5	0	2	4	0	0	19	224
5:25 PM	0	0	0	0	0	1	7	0	0	3	2	0	2	1	0	0	16	227
5:30 PM	0	0	0	0	1	0	8	0	0	2	4	0	1	4	0	0	20	233
5:35 PM	0	0	0	0	0	0	3	0	0	2	1	0	0	2	0	0	8	223
5:40 PM	0	0	0	0	0	0	2	0	0	4	7	0	0	2	0	0	15	217
5:45 PM	0	0	0	0	0	0	6	0	0	2	2	0	1	2	0	0	13	207
5:50 PM	0	0	0	0	0	0	4	0	0	2	4	0	1	4	0	0	15	195
5:55 PM	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	5	181
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	8	0	0	0	112	0	0	32	44	0	44	44	0	0	284	
Heavy Trucks	0	0	0	0	0	0	48	0	0	0	8	0	0	4	0	0	60	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952603
DATE: Thu, Sep 22 2022

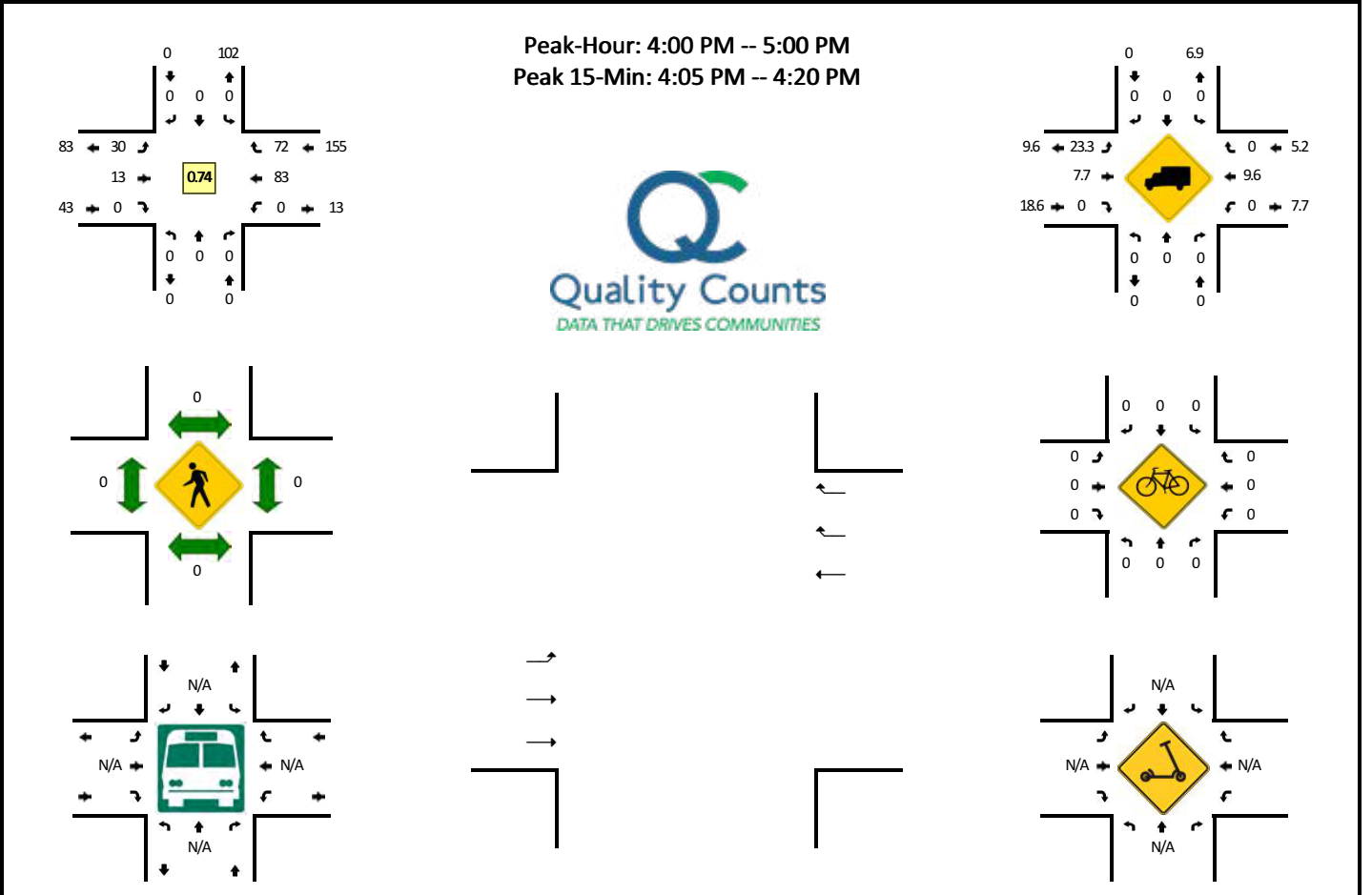


5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	0	0	0	0	0	0	2	5	0	0	0	3	1	0	0	11	
7:05 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4	
7:10 AM	0	0	0	0	0	0	0	0	1	5	0	0	0	0	1	2	0	9	
7:15 AM	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	6	
7:20 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	0	2	1	0	10	
7:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	0	5	
7:30 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	7	0	0	12	
7:35 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	8	
7:40 AM	0	0	0	0	0	0	0	0	2	6	0	0	0	0	2	0	0	10	
7:45 AM	0	0	0	0	0	0	0	0	4	2	0	0	0	0	1	0	0	7	
7:50 AM	0	0	0	0	0	0	0	0	4	1	0	0	0	0	4	0	0	9	
7:55 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	1	0	0	9	
8:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	1	0	6	100
8:05 AM	0	0	0	0	0	0	0	0	3	4	0	0	0	0	9	0	0	16	95
8:10 AM	0	0	0	0	0	0	0	0	6	5	0	0	0	0	3	1	0	15	
8:15 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	3	0	0	9	
8:20 AM	0	0	0	0	0	0	0	0	4	3	0	1	0	0	3	1	0	12	107
8:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	1	0	6	113
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	4	116
8:35 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	0	0	7	
8:40 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4	0	0	8	
8:45 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	3	1	0	9	
8:50 AM	0	0	0	0	0	0	0	0	1	1	0	1	0	0	2	1	0	6	
8:55 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	4	1	0	11	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	0	0	0	0	0	0	56	40	0	0	0	60	4	0	0	160	
Heavy Trucks	0	0	0	0	0	0	0	0	40	8	0	0	0	20	0	0	0	68	
Buses																			
Pedestrians		0				0				0					0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0			0	
Scoters																			

Comments:

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952604
DATE: Thu, Sep 22 2022

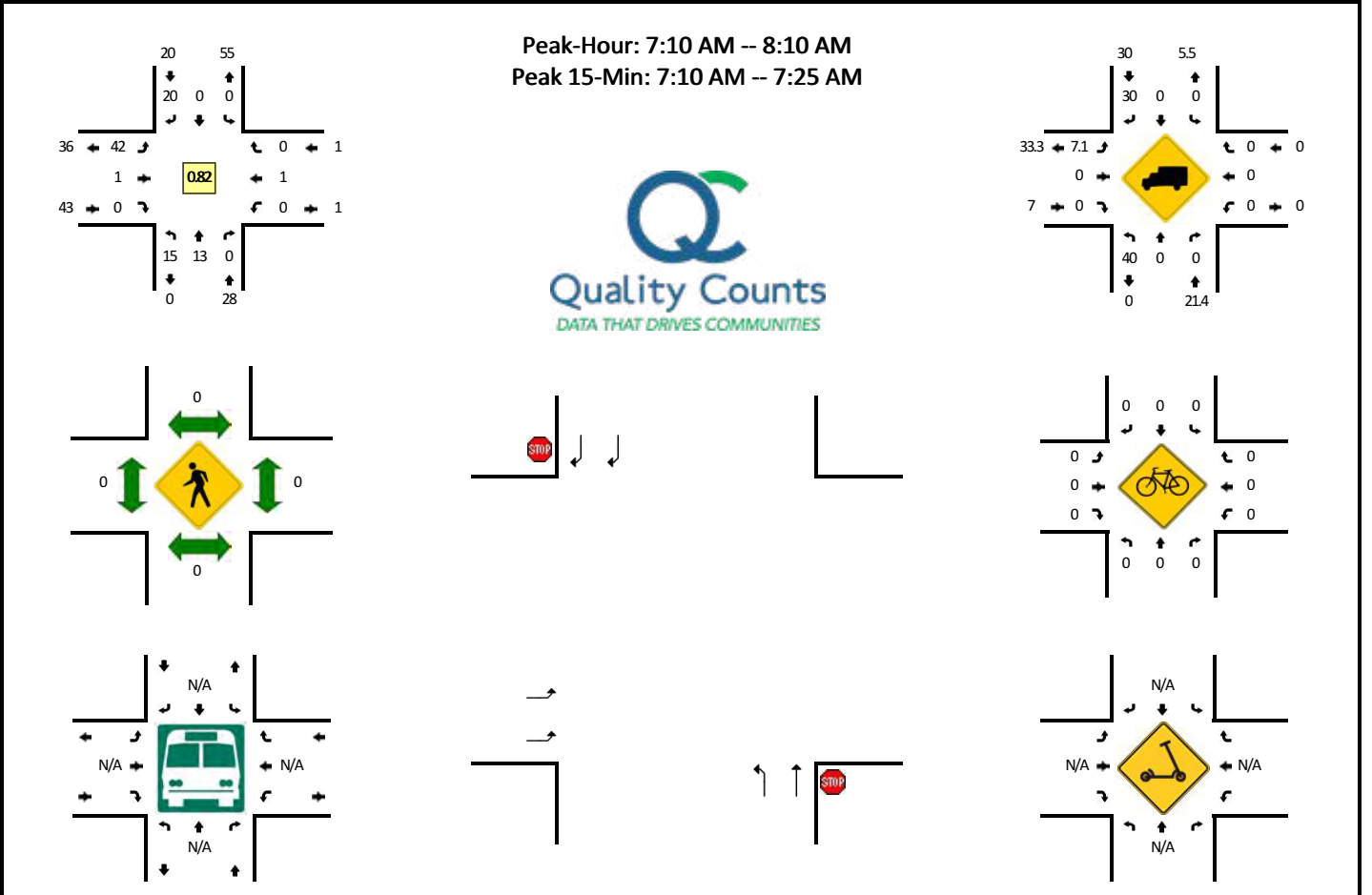


5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	10	4	0	17	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	9	0	17	
4:10 PM	0	0	0	0	0	0	0	0	6	2	0	0	0	10	14	0	32	
4:15 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	6	8	0	18	
4:20 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	9	5	0	16	
4:25 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	3	5	0	12	
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	7	2	0	10	
4:35 PM	0	0	0	0	0	0	0	0	5	1	0	0	0	5	4	0	15	
4:40 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	7	5	0	14	
4:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	8	9	0	20	
4:50 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	7	2	0	15	
4:55 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	3	5	0	12	198
5:00 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	3	2	0	12	193
5:05 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	6	4	0	12	188
5:10 PM	0	0	0	0	0	0	0	0	4	1	0	0	0	2	3	0	10	166
5:15 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	1	3	0	10	158
5:20 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	7	1	0	13	155
5:25 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	147
5:30 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	5	2	0	11	148
5:35 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	3	0	7	140
5:40 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	2	2	0	8	134
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	3	0	7	121
5:50 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	5	0	0	8	114
5:55 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3	105
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	0	0	32	16	0	0	0	96	124	0	268	
Heavy Trucks	0	0	0	0	0	0	0	0	8	4	0	0	0	12	0	0	24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952605
DATE: Thu, Sep 22 2022

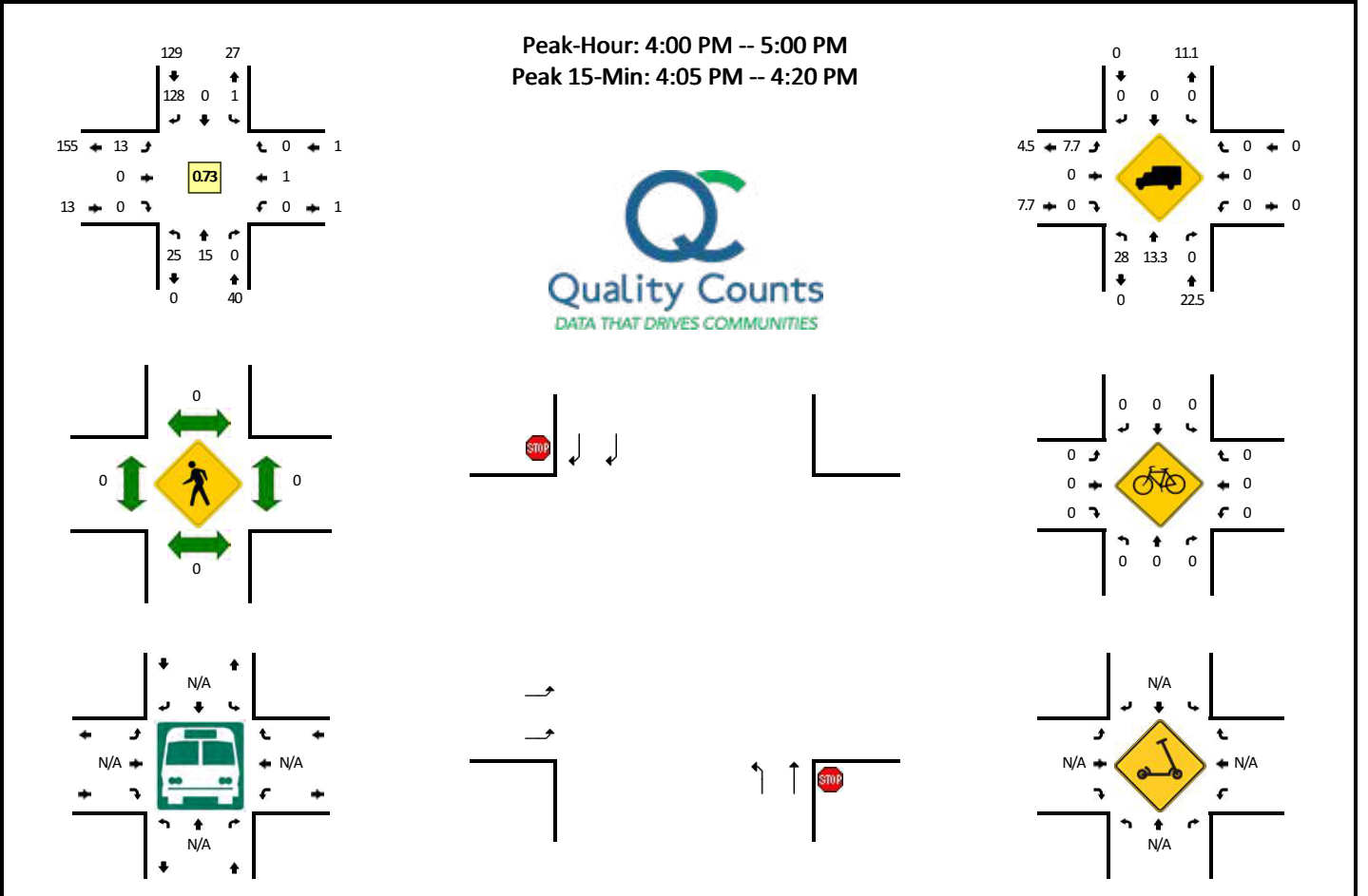


5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	2	0	0	0	0	3	0	5	0	0	0	0	0	0	0	11	
7:05 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	
7:10 AM	0	0	0	0	0	0	2	0	3	1	0	0	0	0	1	0	7	
7:15 AM	0	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	10	
7:20 AM	1	2	0	0	0	0	2	0	6	0	0	0	0	0	0	0	11	
7:25 AM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	
7:30 AM	3	2	0	0	0	0	4	0	1	0	0	0	0	0	0	0	10	
7:35 AM	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	
7:40 AM	1	1	0	0	0	0	1	0	6	0	0	0	0	0	0	0	9	
7:45 AM	1	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	5	
7:50 AM	2	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	8	
7:55 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	84
8:00 AM	1	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	7	80
8:05 AM	4	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	14	92
8:10 AM	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	6	91
8:15 AM	2	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	8	89
8:20 AM	2	1	0	0	0	0	2	0	3	0	0	0	0	0	0	0	8	86
8:25 AM	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	86
8:30 AM	1	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
8:35 AM	2	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	81
8:40 AM	2	1	0	0	0	0	2	0	2	0	0	0	0	0	0	0	7	79
8:45 AM	2	2	0	0	0	0	2	0	3	0	0	0	0	0	0	0	9	83
8:50 AM	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4	79
8:55 AM	1	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	6	82
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	28	0	0	0	0	16	0	56	4	0	0	0	4	0	0	112	
Heavy Trucks	4	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952606
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	1	0	0	1	0	8	0	1	0	0	0	0	0	0	0	16	
4:05 PM	2	4	0	0	0	0	15	0	0	0	0	0	0	0	0	0	21	
4:10 PM	3	0	0	0	0	0	20	0	1	0	0	0	0	1	0	0	25	
4:15 PM	1	0	0	0	0	0	13	0	3	0	0	0	0	0	0	0	17	
4:20 PM	2	0	0	0	0	0	12	0	1	0	0	0	0	0	0	0	15	
4:25 PM	0	1	0	0	0	0	8	0	1	0	0	0	0	0	0	0	10	
4:30 PM	0	2	0	0	0	0	9	0	0	0	0	0	0	0	0	0	11	
4:35 PM	4	3	0	0	0	0	5	0	1	0	0	0	0	0	0	0	13	
4:40 PM	2	1	0	0	0	0	10	0	1	0	0	0	0	0	0	0	14	
4:45 PM	2	1	0	0	0	0	15	0	0	0	0	0	0	0	0	0	18	
4:50 PM	2	1	0	0	0	0	7	0	1	0	0	1	0	0	0	0	12	
4:55 PM	2	1	0	0	0	0	6	0	2	0	0	0	0	0	0	0	11	183
5:00 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	172
5:05 PM	2	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0	11	162
5:10 PM	2	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	7	144
5:15 PM	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	132
5:20 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	124
5:25 PM	1	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	119
5:30 PM	3	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	8	116
5:35 PM	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	108
5:40 PM	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	99
5:45 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	88
5:50 PM	2	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
5:55 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	72
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	16	0	0	0	0	192	0	16	0	0	0	0	4	0	0	252	
Heavy Trucks	12	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	16	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

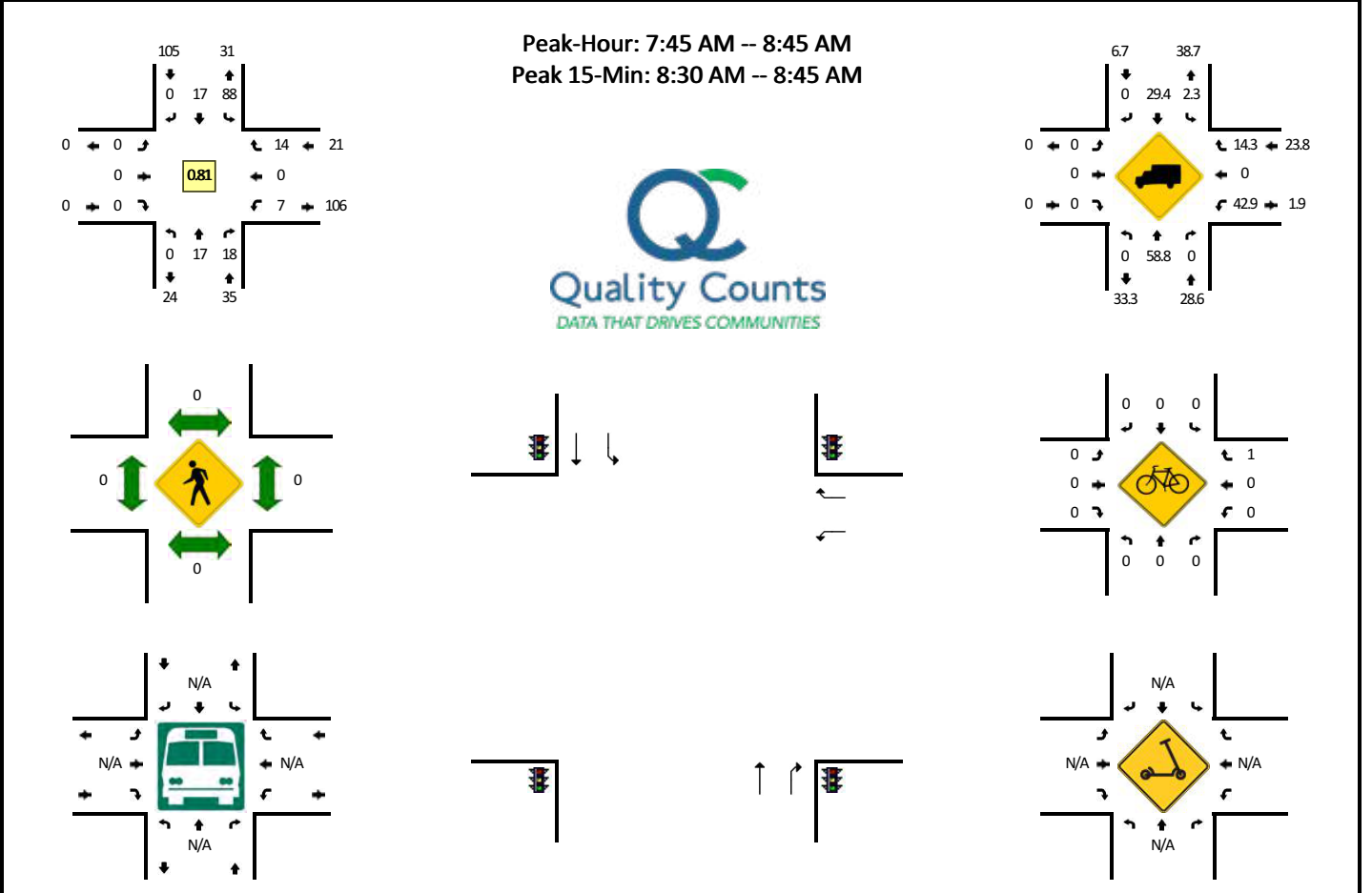
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952607
DATE: Thu, Sep 22 2022

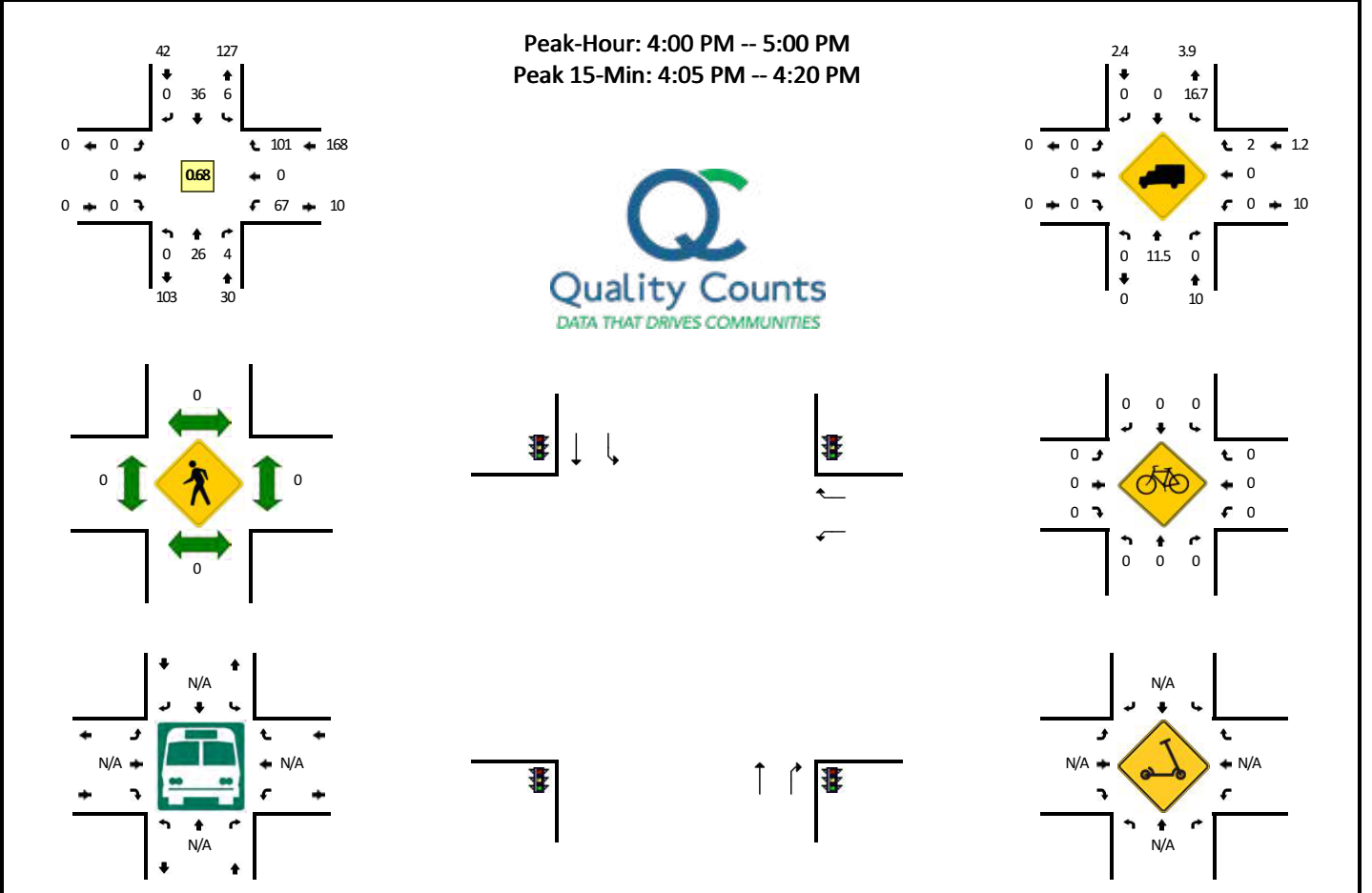


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	7	0	6	1	0	0	0	0	0	0	2	0	1	0	18	
7:05 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	4	
7:10 AM	0	1	2	0	2	1	0	0	0	0	0	0	0	0	2	0	8	
7:15 AM	0	4	2	0	4	1	0	0	0	0	0	0	0	0	0	0	11	
7:20 AM	0	3	4	0	5	2	0	0	0	0	0	0	0	0	0	0	14	
7:25 AM	0	1	0	0	4	2	0	0	0	0	0	0	0	0	0	0	7	
7:30 AM	0	3	1	0	4	5	0	0	0	0	0	0	1	0	0	0	14	
7:35 AM	0	1	2	0	3	1	0	0	0	0	0	0	0	0	0	0	7	
7:40 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
7:45 AM	0	2	4	0	6	2	0	0	0	0	0	0	0	0	2	0	16	
7:50 AM	0	1	1	0	5	2	0	0	0	0	0	0	0	0	1	0	10	
7:55 AM	0	1	4	0	11	0	0	0	0	0	0	0	1	0	1	0	18	133
8:00 AM	0	2	0	0	5	1	0	0	0	0	0	0	0	0	0	0	8	123
8:05 AM	0	1	4	0	8	3	0	0	0	0	0	0	0	0	4	0	20	139
8:10 AM	0	0	2	0	10	2	0	0	0	0	0	0	0	0	0	0	14	145
8:15 AM	0	1	1	0	4	1	0	0	0	0	0	0	1	0	0	0	8	142
8:20 AM	0	3	1	0	6	1	0	0	0	0	0	0	0	0	0	0	11	139
8:25 AM	0	1	0	0	4	0	0	0	0	0	0	0	0	0	1	0	6	138
8:30 AM	0	2	0	0	8	1	0	0	0	0	0	0	1	0	1	0	13	137
8:35 AM	0	1	1	0	9	3	0	0	0	0	0	0	1	0	4	0	19	149
8:40 AM	0	2	0	0	12	1	0	0	0	0	0	0	3	0	0	0	18	161
8:45 AM	0	4	3	0	5	1	0	0	0	0	0	0	1	0	0	0	14	159
8:50 AM	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	3	152
8:55 AM	0	0	1	0	3	1	0	0	0	0	0	0	1	0	2	0	8	142
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	20	4	0	116	20	0	0	0	0	0	0	20	0	20	0	200	
Heavy Trucks	0	12	0	0	0	12	0	0	0	0	0	0	8	0	0	0	32	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952608
DATE: Thu, Sep 22 2022

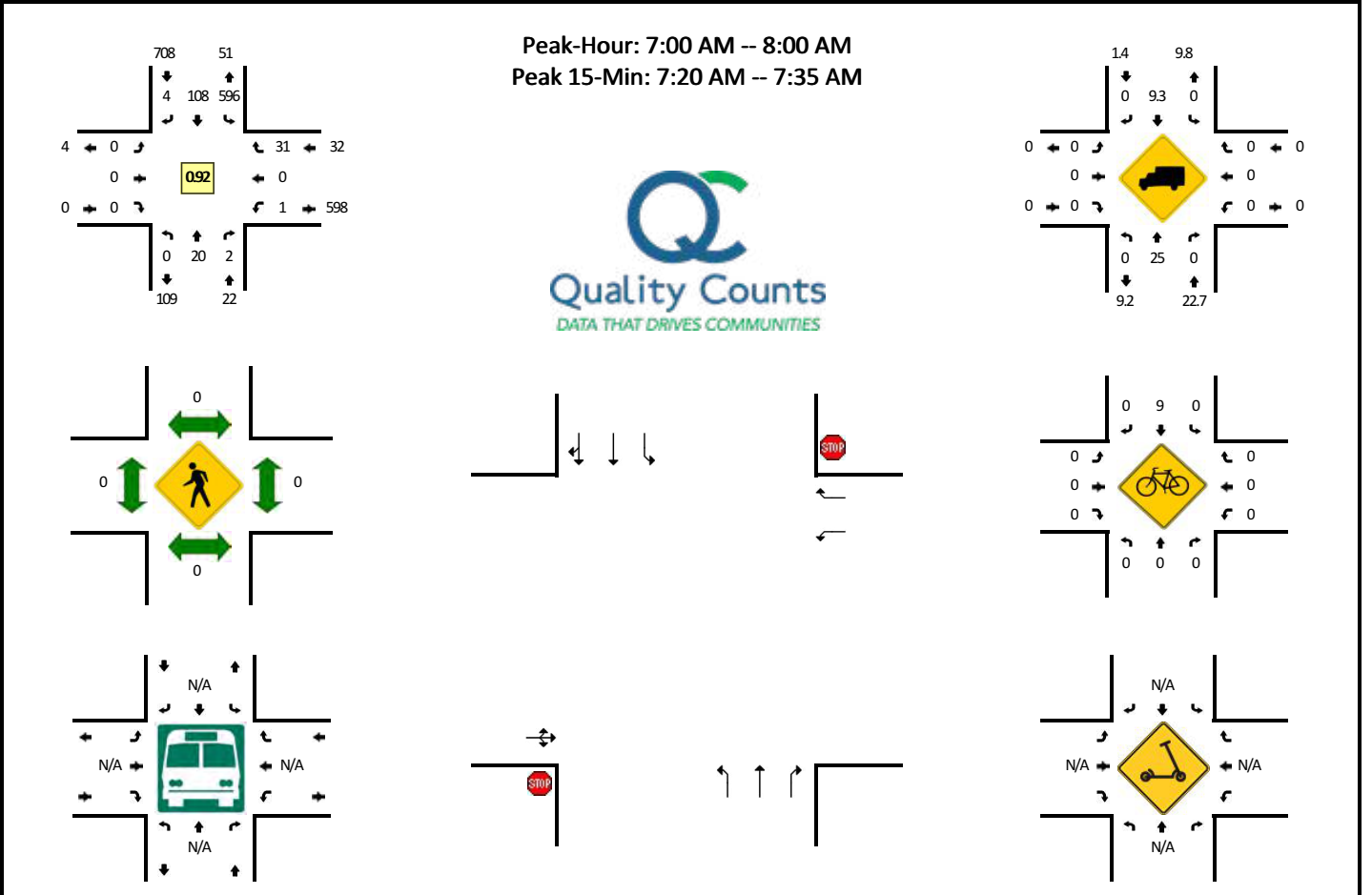


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	1	0	0	4	0	0	0	0	0	0	6	0	9	0	21	
4:05 PM	0	5	0	0	0	8	0	0	0	0	0	0	7	0	13	0	33	
4:10 PM	0	3	0	0	1	5	0	0	0	0	0	0	7	0	12	0	28	
4:15 PM	0	3	0	0	1	3	0	0	0	0	0	0	11	0	9	0	27	
4:20 PM	0	0	0	0	0	2	0	0	0	0	0	0	7	0	8	0	17	
4:25 PM	0	1	0	0	0	2	0	0	0	0	0	0	5	0	11	0	19	
4:30 PM	0	3	1	0	1	3	0	0	0	0	0	0	5	0	2	0	15	
4:35 PM	0	2	2	0	1	0	0	0	0	0	0	0	3	0	7	0	15	
4:40 PM	0	1	0	0	0	5	0	0	0	0	0	0	4	0	10	0	20	
4:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	7	0	7	0	17	
4:50 PM	0	0	0	0	0	2	0	0	0	0	0	0	3	0	9	0	14	
4:55 PM	0	6	0	0	2	0	0	0	0	0	0	0	2	0	4	0	14	240
5:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	4	0	4	0	11	230
5:05 PM	0	1	1	0	1	2	0	0	0	0	0	0	1	0	7	0	13	210
5:10 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	7	189
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	4	0	9	171
5:20 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	6	0	9	163
5:25 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	9	0	14	158
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	6	0	9	152
5:35 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	5	0	10	147
5:40 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	0	1	0	5	132
5:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	2	0	6	121
5:50 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	0	5	112
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	100
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	44	0	0	8	64	0	0	0	0	0	0	100	0	136	0	352	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																	0	

Comments:

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952609
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	2	0	0	61	11	0	0	0	0	0	0	0	0	3	0	77	
7:05 AM	0	3	0	0	58	6	1	0	0	0	0	0	0	0	1	0	69	
7:10 AM	0	1	0	0	50	8	0	0	0	0	0	0	0	0	1	0	60	
7:15 AM	0	2	1	0	42	6	0	0	0	0	0	0	0	0	2	0	53	
7:20 AM	0	2	0	0	62	9	0	0	0	0	0	0	0	0	5	0	78	
7:25 AM	0	0	0	0	57	13	0	0	0	0	0	0	0	0	3	0	73	
7:30 AM	0	1	0	0	42	11	0	0	0	0	0	0	0	0	2	0	56	
7:35 AM	0	3	0	0	42	9	0	0	0	0	0	0	0	0	4	0	58	
7:40 AM	0	1	0	0	50	4	1	0	0	0	0	0	0	0	1	0	57	
7:45 AM	0	3	0	0	49	9	1	0	0	0	0	0	1	0	3	0	66	
7:50 AM	0	1	1	0	41	9	0	0	0	0	0	0	0	0	3	0	55	
7:55 AM	0	1	0	0	42	13	1	0	0	0	0	0	0	0	3	0	60	762
8:00 AM	0	5	0	0	42	9	0	0	0	0	0	0	0	0	6	0	62	747
8:05 AM	0	2	0	0	36	14	0	0	0	0	0	0	0	0	4	0	56	734
8:10 AM	0	3	0	0	33	5	0	0	0	0	0	0	1	0	1	0	43	717
8:15 AM	0	2	0	0	25	7	0	0	1	0	0	0	0	0	3	0	38	702
8:20 AM	0	2	0	0	29	7	0	0	0	0	0	0	0	0	0	0	38	662
8:25 AM	0	2	0	0	18	1	0	0	0	0	0	0	0	0	4	0	25	614
8:30 AM	0	2	0	0	29	10	0	0	0	0	0	0	0	0	4	0	45	603
8:35 AM	0	7	0	0	20	6	0	0	0	0	0	0	0	0	3	0	36	581
8:40 AM	0	3	0	0	21	11	0	0	0	0	0	0	0	0	2	0	37	561
8:45 AM	0	6	0	0	9	3	0	0	0	0	0	0	0	0	3	0	21	516
8:50 AM	0	0	0	0	6	3	0	0	0	0	0	1	0	0	0	0	10	471
8:55 AM	0	1	0	0	18	6	0	0	0	0	0	0	0	0	3	0	28	439
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	12	0	0	644	132	0	0	0	0	0	0	0	0	40	0	828	
Heavy Trucks	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

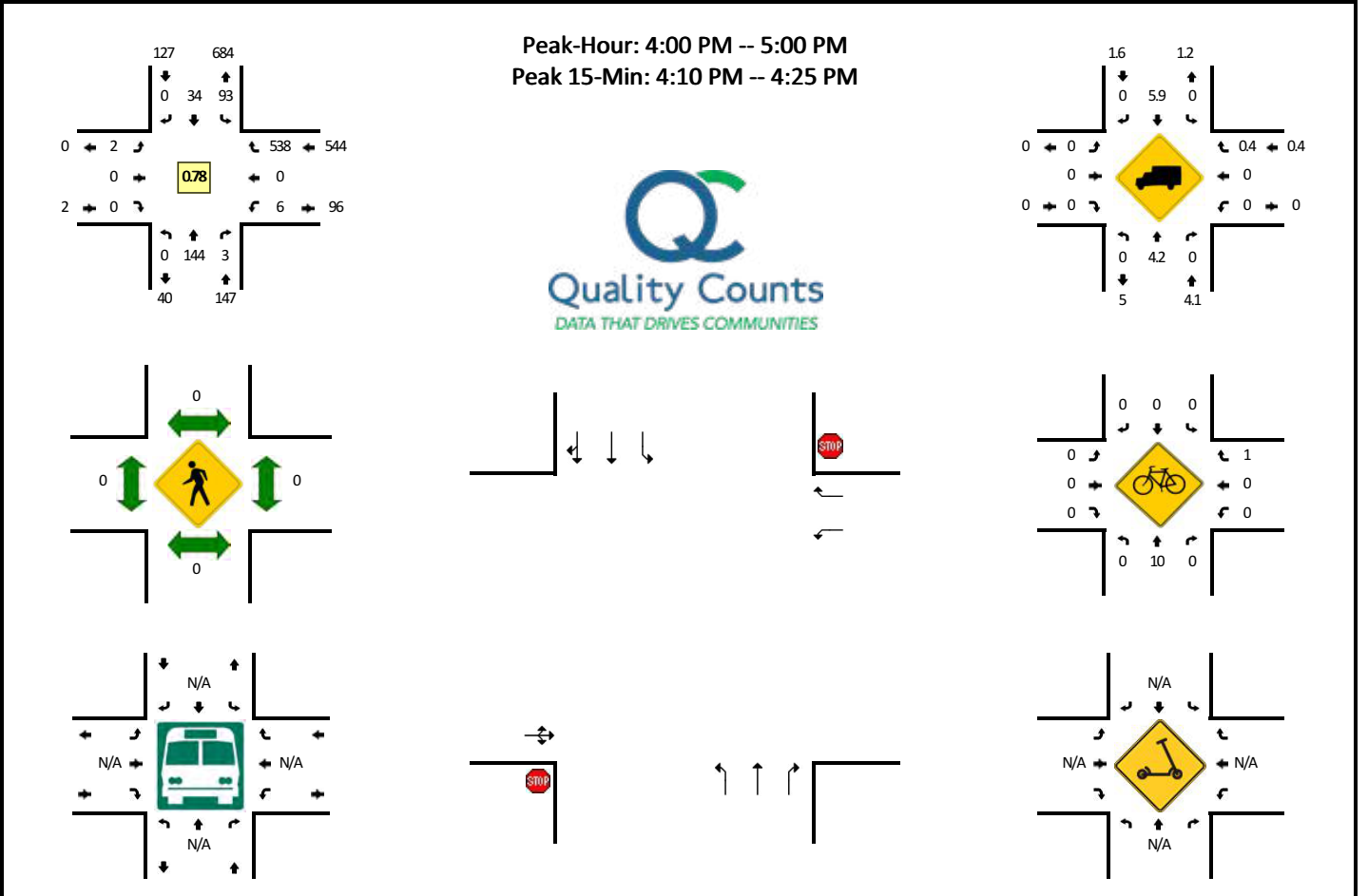
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952610
DATE: Thu, Sep 22 2022

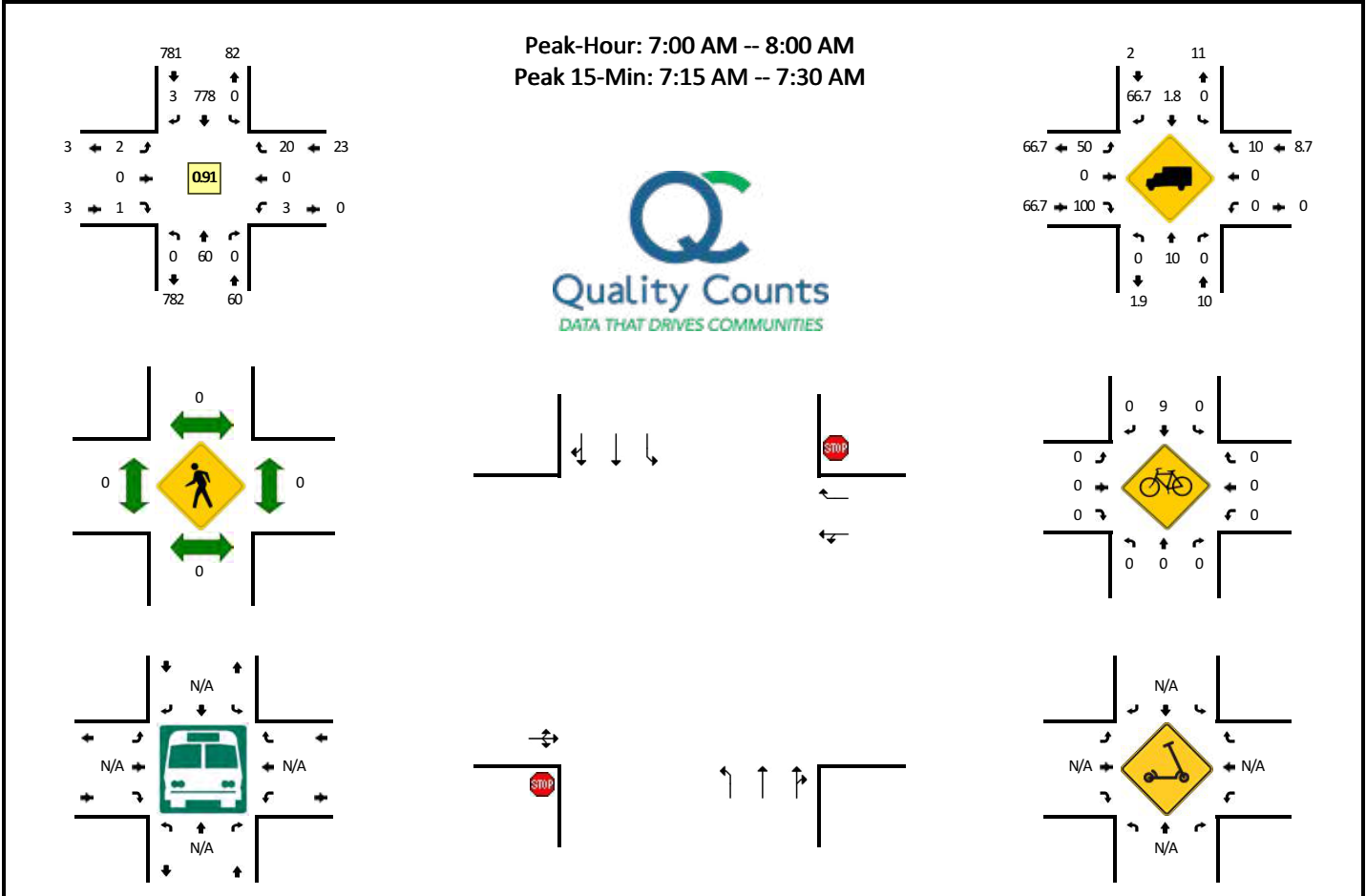


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	11	0	0	10	3	0	0	1	0	0	0	1	0	39	0	65	
4:05 PM	0	15	0	0	4	5	0	0	0	0	0	0	1	0	51	0	76	
4:10 PM	0	22	0	0	5	4	0	0	1	0	0	0	2	0	60	0	94	
4:15 PM	0	16	0	0	6	4	0	0	0	0	0	0	1	0	62	0	89	
4:20 PM	0	12	0	0	3	2	0	0	0	0	0	0	0	0	64	0	81	
4:25 PM	0	14	0	0	8	3	0	0	0	0	0	0	0	0	39	0	64	
4:30 PM	0	7	0	0	9	3	0	0	0	0	0	0	0	0	42	0	61	
4:35 PM	0	6	1	0	9	1	0	0	0	0	0	0	0	0	42	0	59	
4:40 PM	0	9	1	0	7	4	0	0	0	0	0	0	1	0	31	0	53	
4:45 PM	0	9	0	0	15	1	0	0	0	0	0	0	0	0	32	0	57	
4:50 PM	0	8	0	0	9	2	0	0	0	0	0	0	0	0	34	0	53	
4:55 PM	0	15	1	0	8	2	0	0	0	0	0	0	0	0	42	0	68	820
5:00 PM	0	3	0	0	6	3	0	0	0	0	0	0	0	0	33	0	45	800
5:05 PM	0	13	0	0	7	2	0	0	0	0	0	0	0	0	35	0	57	781
5:10 PM	0	12	0	0	7	0	0	0	0	0	0	0	0	0	36	0	55	742
5:15 PM	0	4	0	0	6	1	0	0	0	0	0	0	0	0	24	0	35	688
5:20 PM	0	9	0	0	5	3	0	0	0	0	0	0	0	0	25	0	42	649
5:25 PM	0	10	0	0	3	0	0	0	0	0	0	0	1	0	26	0	40	625
5:30 PM	0	10	0	0	0	1	0	0	0	0	0	0	0	0	23	0	34	598
5:35 PM	0	8	0	0	3	1	0	0	0	0	0	0	0	0	21	0	33	572
5:40 PM	0	4	0	0	2	1	0	0	0	0	0	0	0	0	23	0	30	549
5:45 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	0	20	0	27	519
5:50 PM	0	2	0	0	4	1	0	0	0	0	0	0	0	0	23	0	30	496
5:55 PM	0	4	0	0	5	0	0	0	0	0	0	0	0	0	23	0	32	460
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	200	0	0	56	40	0	0	4	0	0	0	12	0	744	0	1056	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	4	0	12	
Buses																		
Pedestrians	0				0				0				0				0	
Bicycles	0	8	0		0	0	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952611
DATE: Thu, Sep 22 2022

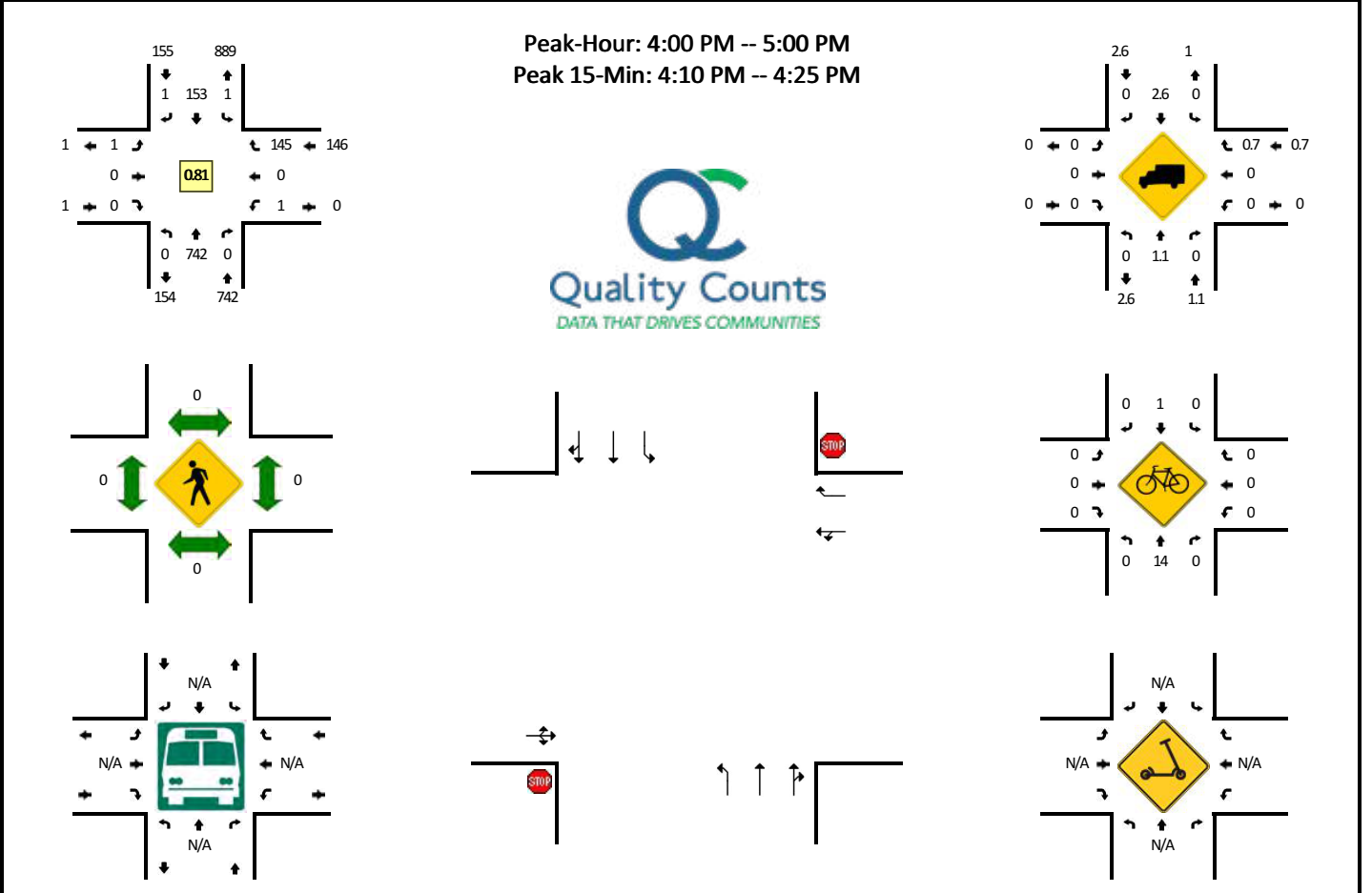


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	0	0	0	79	0	0	0	0	0	0	0	0	2	0	86	
7:05 AM	0	6	0	0	0	61	0	0	0	0	0	0	0	1	0	0	68	
7:10 AM	0	3	0	0	0	58	0	0	0	0	0	0	0	2	0	1	64	
7:15 AM	0	5	0	0	0	64	0	0	0	0	0	0	0	0	0	1	70	
7:20 AM	0	4	0	0	0	74	1	0	0	0	0	0	0	0	0	2	81	
7:25 AM	0	6	0	0	0	77	0	0	0	1	0	1	0	0	0	2	87	
7:30 AM	0	2	0	0	0	62	1	0	0	0	0	0	0	0	0	2	67	
7:35 AM	0	12	0	0	0	56	1	0	0	0	0	0	0	0	0	3	72	
7:40 AM	0	3	0	0	0	75	0	0	0	1	0	0	0	0	0	1	80	
7:45 AM	0	4	0	0	0	51	0	0	0	0	0	0	0	0	0	2	57	
7:50 AM	0	7	0	0	0	56	0	0	0	0	0	0	0	0	0	4	67	
7:55 AM	0	3	0	0	0	65	0	0	0	0	0	0	0	0	0	0	68	867
8:00 AM	0	9	0	0	0	48	0	0	0	0	0	0	0	1	0	1	59	840
8:05 AM	0	11	0	0	0	40	0	0	0	0	0	0	0	1	0	1	53	825
8:10 AM	0	6	0	0	0	45	0	0	0	0	0	0	0	0	0	1	52	813
8:15 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	782
8:20 AM	0	5	0	0	0	43	0	0	0	0	0	0	0	0	0	0	48	749
8:25 AM	0	7	0	0	0	20	1	0	0	1	0	0	0	0	0	3	32	694
8:30 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	666
8:35 AM	0	11	0	0	0	41	0	0	0	0	0	0	0	1	0	2	55	649
8:40 AM	0	5	0	0	0	23	0	0	0	2	0	0	0	0	0	1	31	600
8:45 AM	0	10	0	0	0	17	2	0	0	0	0	0	0	0	0	2	31	574
8:50 AM	0	4	0	0	0	23	0	0	0	0	0	0	0	0	0	3	30	537
8:55 AM	0	2	0	0	0	16	0	0	0	0	0	0	0	0	0	1	19	488
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	60	0	0	0	860	4	0	4	4	0	4	0	0	20	0	952	
Heavy Trucks	0	0	0	0	0	16	4	0	4	0	4	0	0	0	4	0	32	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952612
DATE: Thu, Sep 22 2022

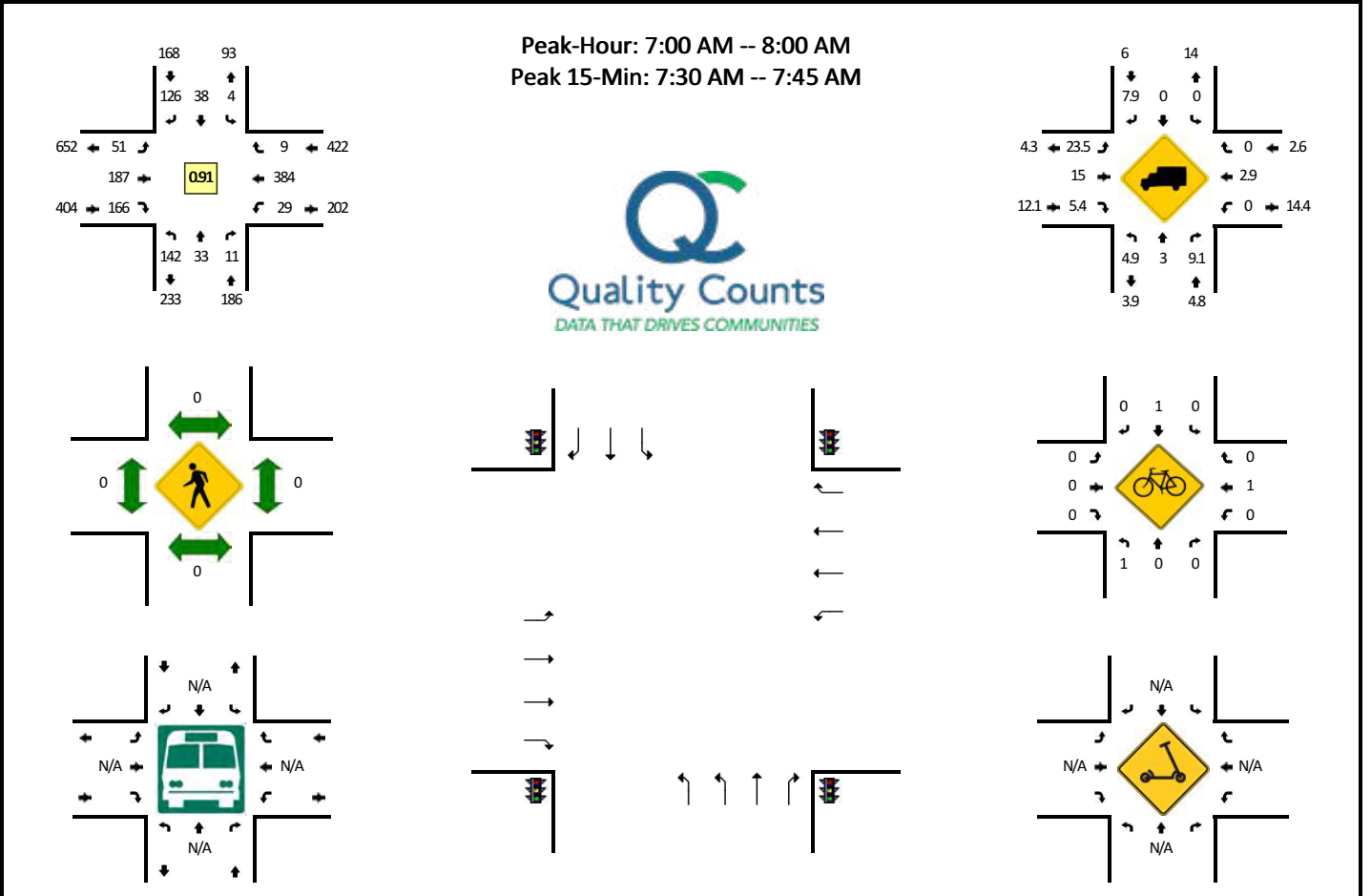


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	50	0	0	0	17	0	0	0	0	0	0	0	0	19	0	86	
4:05 PM	0	69	0	0	0	5	0	0	0	0	0	0	1	0	18	0	93	
4:10 PM	0	85	0	0	0	11	0	0	0	0	0	0	0	0	17	0	113	
4:15 PM	0	84	0	0	0	12	0	0	0	0	0	0	0	0	11	0	107	
4:20 PM	0	77	0	0	0	13	0	0	0	0	0	0	0	0	14	0	104	
4:25 PM	0	58	0	0	0	10	0	0	0	0	0	0	0	0	10	0	78	
4:30 PM	0	60	0	0	0	13	0	1	0	0	0	0	0	0	25	0	99	
4:35 PM	0	75	0	0	0	18	1	0	1	0	0	0	0	0	8	0	103	
4:40 PM	0	41	0	0	0	10	0	0	0	0	0	0	0	0	9	0	60	
4:45 PM	0	38	0	0	0	18	0	0	0	0	0	0	0	0	7	0	63	
4:50 PM	0	45	0	0	0	13	0	0	0	0	0	0	0	0	3	0	61	
4:55 PM	0	60	0	0	0	13	0	0	0	0	0	0	0	0	4	0	77	1044
5:00 PM	0	41	0	0	0	6	0	0	0	0	0	0	0	0	7	0	54	1012
5:05 PM	0	47	0	0	0	11	0	0	0	0	0	0	0	0	5	0	63	982
5:10 PM	0	51	0	0	0	8	0	0	0	0	0	0	0	0	11	0	70	939
5:15 PM	0	31	0	0	0	5	0	0	0	0	0	0	0	0	12	0	48	880
5:20 PM	0	33	0	0	0	9	0	0	1	0	0	0	0	0	5	0	48	824
5:25 PM	0	43	0	0	0	3	0	0	0	0	0	0	0	0	5	0	51	797
5:30 PM	0	30	0	0	0	4	0	0	0	0	0	0	0	0	5	0	39	737
5:35 PM	0	29	0	0	0	4	0	0	0	0	0	0	0	0	8	0	41	675
5:40 PM	0	33	0	0	0	4	0	0	0	0	0	0	0	0	5	0	42	657
5:45 PM	0	19	0	0	0	3	0	0	0	0	0	0	0	0	4	0	26	620
5:50 PM	0	25	0	0	0	6	0	0	0	0	0	0	0	0	4	0	35	594
5:55 PM	0	26	0	0	0	6	0	0	0	0	0	0	0	0	1	0	33	550
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	984	0	0	0	144	0	0	0	0	0	0	0	0	168	0	1296	
Heavy Trucks	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	24	0		0	0	0		0	0	0		0	0	0		24	
Scooters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952613
DATE: Thu, Sep 22 2022

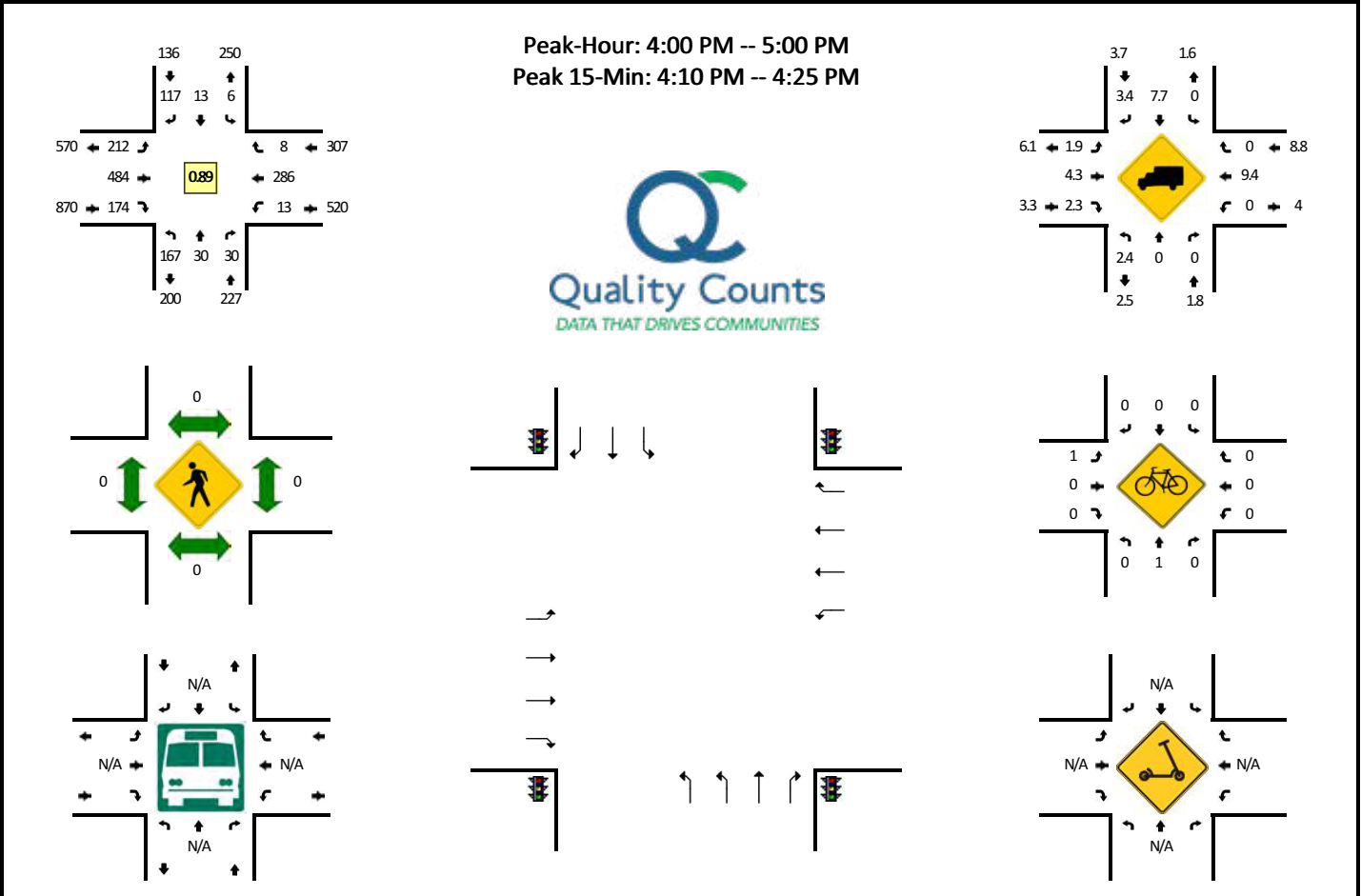


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	1	0	0	0	2	5	0	4	20	22	0	2	21	0	0	87	
7:05 AM	17	1	2	0	0	3	9	0	2	17	16	0	3	33	1	0	104	
7:10 AM	12	1	1	0	0	1	10	0	9	23	15	0	6	50	1	0	129	
7:15 AM	12	0	1	0	1	1	9	0	1	18	10	0	2	30	0	0	85	
7:20 AM	17	3	1	0	0	2	7	0	6	16	10	0	2	28	0	0	92	
7:25 AM	11	7	3	0	1	4	12	0	3	10	12	0	4	20	1	0	88	
7:30 AM	9	8	0	0	0	2	8	0	5	11	10	0	2	48	1	0	104	
7:35 AM	15	8	0	0	0	4	18	0	3	17	15	0	3	43	2	0	128	
7:40 AM	5	3	1	0	1	10	12	0	2	11	11	0	1	35	1	0	93	
7:45 AM	13	0	0	0	1	5	9	0	3	13	19	0	1	27	1	0	92	
7:50 AM	8	0	0	0	0	1	13	0	8	17	16	0	2	26	0	0	91	
7:55 AM	13	1	2	0	0	3	14	0	5	14	10	0	1	23	1	0	87	1180
8:00 AM	12	0	0	0	0	1	4	0	3	22	14	0	0	28	0	0	84	1177
8:05 AM	8	0	1	0	0	2	10	0	10	21	21	0	2	24	2	0	101	1174
8:10 AM	7	0	0	0	0	1	11	0	2	18	15	0	4	20	0	0	78	1123
8:15 AM	2	1	1	0	1	1	7	0	5	11	19	0	4	30	0	0	82	1120
8:20 AM	3	0	0	0	0	2	9	0	6	18	19	0	3	27	0	0	87	1115
8:25 AM	13	1	1	0	0	1	7	0	9	26	7	0	1	17	0	0	83	1110
8:30 AM	3	0	2	0	0	0	6	0	1	11	11	0	1	24	0	0	59	1065
8:35 AM	10	0	1	0	0	2	9	0	5	13	19	0	1	20	0	0	80	1017
8:40 AM	6	2	0	0	0	0	8	0	6	21	7	0	0	22	0	0	72	996
8:45 AM	4	0	0	0	0	1	7	0	4	11	7	0	1	34	0	0	69	973
8:50 AM	6	0	1	0	0	1	12	0	5	10	12	0	2	23	0	0	72	954
8:55 AM	5	0	1	0	0	2	7	0	6	12	13	0	1	14	0	0	61	928
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	116	76	4	0	4	64	152	0	40	156	144	0	24	504	16	0	1300	
Heavy Trucks	8	0	0		0	0	16		8	28	8		0	4	0		72	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952614
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	4	3	0	0	1	12	0	8	38	8	0	0	20	0	0	115	
4:05 PM	15	1	3	0	1	0	12	0	25	36	11	0	2	29	0	0	135	
4:10 PM	14	3	2	0	0	1	13	0	27	38	21	0	0	22	3	0	144	
4:15 PM	13	3	5	0	0	3	6	0	17	46	11	0	0	32	0	0	136	
4:20 PM	15	1	4	0	0	2	11	0	18	55	8	0	4	31	2	0	151	
4:25 PM	16	1	1	0	1	1	11	0	18	37	20	0	0	34	0	0	140	
4:30 PM	12	2	2	0	0	0	9	0	22	42	20	0	1	20	0	0	130	
4:35 PM	18	2	2	0	0	2	13	0	17	29	10	0	2	20	0	0	115	
4:40 PM	13	1	3	0	3	0	8	0	15	37	21	0	1	16	0	0	118	
4:45 PM	12	4	3	0	1	0	9	0	20	32	23	0	0	18	1	0	123	
4:50 PM	10	5	1	0	0	1	8	0	7	37	14	0	1	30	2	0	116	
4:55 PM	8	3	1	0	0	2	5	0	18	57	7	0	2	14	0	0	117	1540
5:00 PM	10	3	3	0	2	0	11	0	19	23	11	0	2	18	1	0	103	1528
5:05 PM	13	1	5	0	2	1	10	0	14	28	19	0	1	35	0	0	129	1522
5:10 PM	6	2	3	0	1	2	16	0	6	44	10	0	1	17	0	0	108	1486
5:15 PM	11	2	1	0	0	1	5	0	5	41	13	0	2	26	1	0	108	1458
5:20 PM	8	3	2	0	0	3	7	0	15	36	11	0	1	11	0	0	97	1404
5:25 PM	7	2	1	0	0	2	9	0	9	27	8	0	0	14	0	0	79	1343
5:30 PM	2	4	3	0	4	3	13	0	10	31	12	0	2	18	0	0	102	1315
5:35 PM	5	0	1	0	0	5	8	0	12	41	12	0	2	20	1	0	107	1307
5:40 PM	5	1	3	0	0	1	4	0	8	36	7	0	1	7	0	0	73	1262
5:45 PM	3	2	1	0	0	2	13	0	9	35	9	0	1	15	1	0	91	1230
5:50 PM	8	0	0	0	0	0	12	0	17	37	6	0	1	24	1	0	106	1220
5:55 PM	6	1	1	0	1	0	9	0	12	25	5	0	1	22	1	0	84	1187
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	168	28	44	0	0	24	120	0	248	556	160	0	16	340	20	0	1724	
Heavy Trucks	4	0	0		0	4	0		4	28	4		0	36	0		80	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

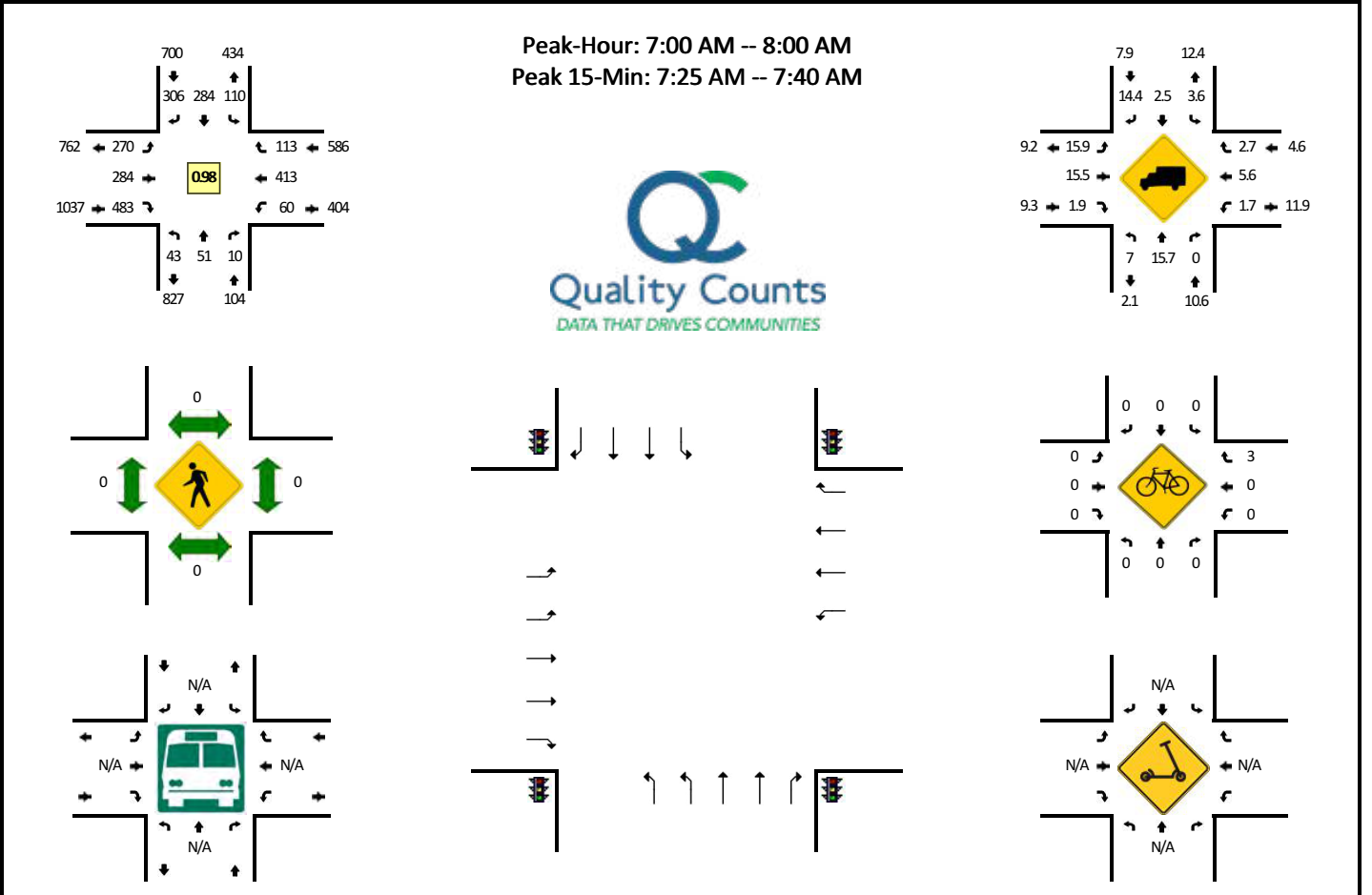
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952615
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	1	1	0	12	26	29	0	21	27	49	0	1	31	5	0	208	
7:05 AM	2	2	1	0	6	17	18	0	24	34	36	0	4	42	9	0	195	
7:10 AM	4	4	1	0	10	22	30	0	16	29	40	0	9	40	8	0	213	
7:15 AM	0	5	3	0	9	19	17	0	25	18	41	0	6	27	15	0	185	
7:20 AM	1	5	1	0	6	29	27	0	24	25	42	0	4	30	14	0	208	
7:25 AM	6	2	0	0	9	47	21	0	15	13	43	0	6	26	9	0	197	
7:30 AM	4	6	0	0	11	18	23	0	25	22	34	0	8	32	9	0	192	
7:35 AM	7	5	1	0	10	27	26	0	22	23	40	0	4	49	14	0	228	
7:40 AM	3	4	1	0	6	14	31	0	21	21	42	0	2	41	8	0	194	
7:45 AM	3	6	0	0	12	21	27	0	19	23	30	0	6	40	3	0	190	
7:50 AM	4	9	1	0	9	19	25	0	28	29	52	0	5	28	8	0	217	
7:55 AM	4	2	0	0	10	25	32	0	30	20	34	0	5	27	11	0	200	2427
8:00 AM	2	7	2	0	11	17	24	0	32	30	27	0	3	24	9	0	188	2407
8:05 AM	10	7	2	0	22	28	38	1	16	24	17	0	2	22	6	0	195	2407
8:10 AM	4	5	0	0	9	13	24	0	21	36	32	0	5	25	10	0	184	2378
8:15 AM	5	3	1	0	7	14	24	0	27	21	18	0	6	23	7	0	156	2349
8:20 AM	4	6	2	0	14	12	17	0	19	25	22	0	3	24	8	0	156	2297
8:25 AM	5	6	4	0	10	9	24	0	11	23	23	0	2	20	7	0	144	2244
8:30 AM	9	5	0	0	6	10	23	0	25	26	23	0	1	22	5	0	155	2207
8:35 AM	9	6	4	0	11	12	20	0	15	23	22	0	2	24	3	0	151	2130
8:40 AM	8	4	0	0	8	10	28	0	24	16	18	0	0	24	3	0	143	2079
8:45 AM	4	10	2	0	7	9	26	0	26	18	12	0	1	29	5	0	149	2038
8:50 AM	4	5	1	0	6	10	19	0	21	22	11	0	4	31	6	0	140	1961
8:55 AM	1	7	1	0	8	14	19	0	18	25	6	0	2	19	4	0	124	1885
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	68	52	4	0	120	368	280	0	248	232	468	0	72	428	128	0	2468	
Heavy Trucks	4	4	0		0	16	52		44	36	8		0	20	4		188	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

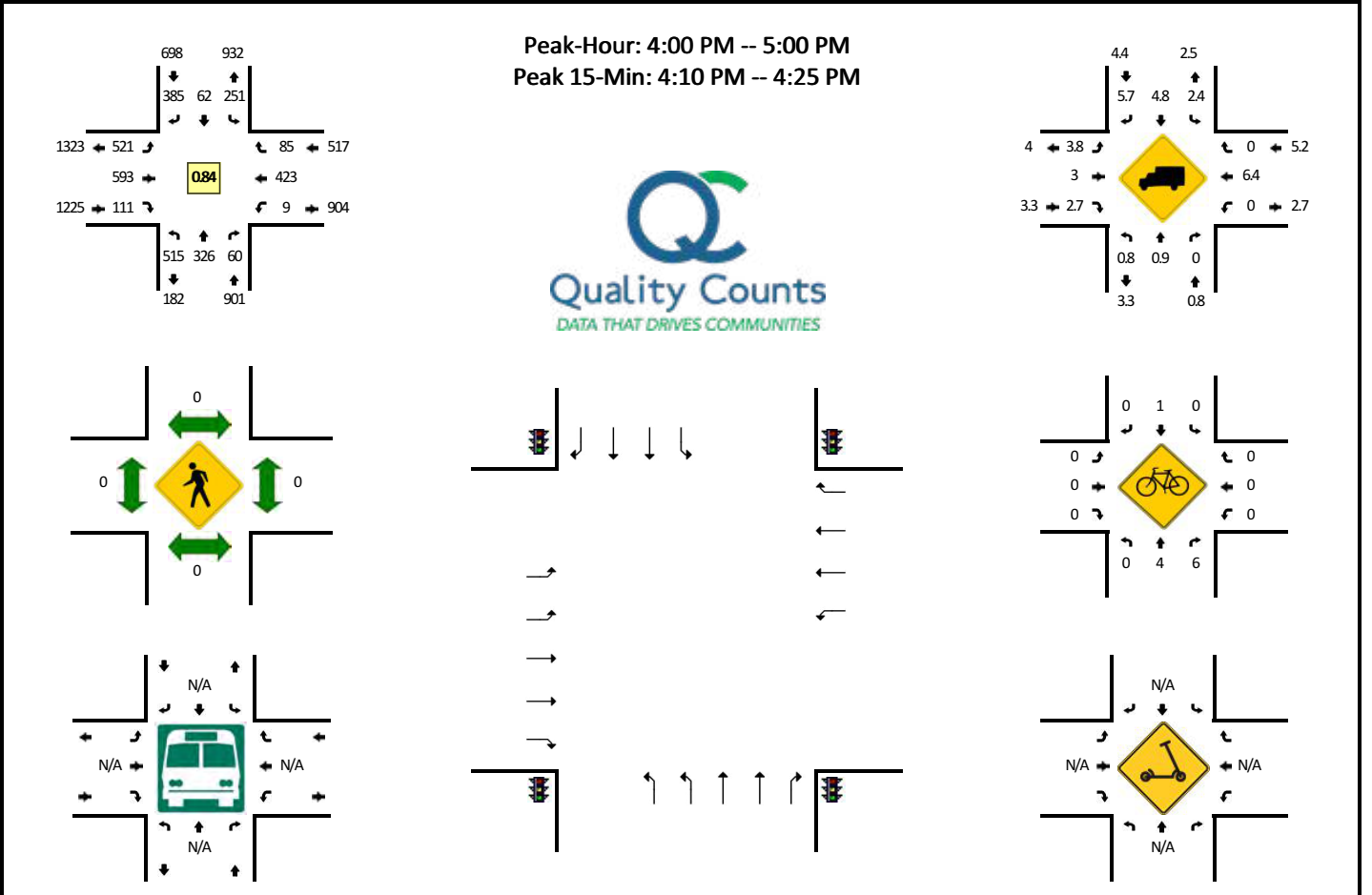
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952616
DATE: Thu, Sep 22 2022

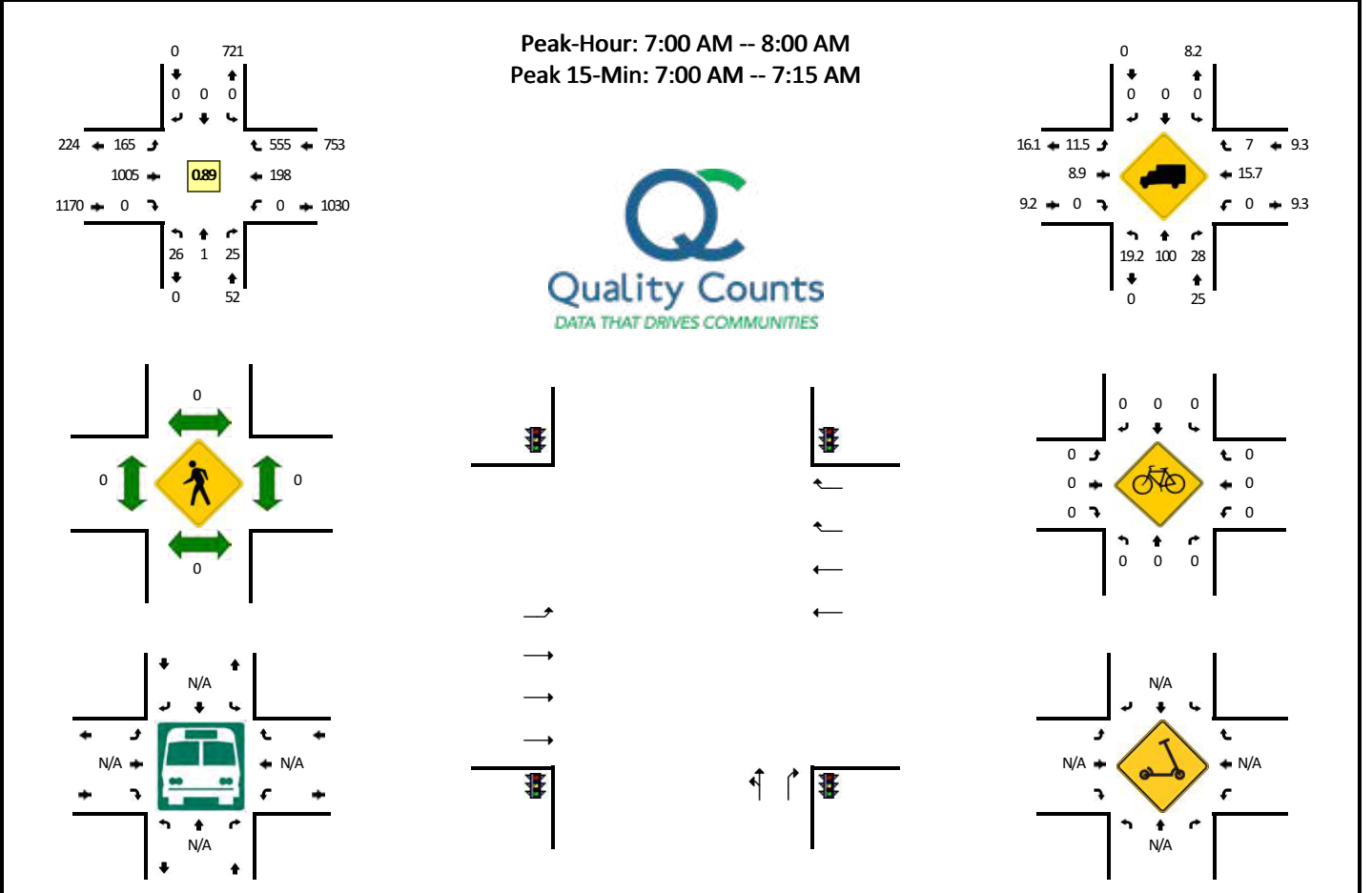


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	27	15	2	0	9	7	24	0	53	50	7	0	1	47	11	0	253	
4:05 PM	71	31	5	0	27	7	38	0	42	32	2	0	1	31	6	0	293	
4:10 PM	54	33	4	0	12	2	35	0	76	81	11	0	0	47	9	0	364	
4:15 PM	72	44	5	0	30	9	43	0	41	38	9	0	1	24	4	0	320	
4:20 PM	37	33	7	0	15	4	28	0	71	66	11	0	1	27	12	0	312	
4:25 PM	29	29	8	0	22	3	39	0	44	47	7	0	1	63	9	0	301	
4:30 PM	57	34	7	0	24	6	45	0	40	57	12	0	0	20	6	0	308	
4:35 PM	41	26	5	0	17	3	27	0	35	56	11	0	0	42	6	0	269	
4:40 PM	34	22	5	0	33	9	36	0	32	34	12	0	2	34	6	0	259	
4:45 PM	36	18	2	0	19	5	20	0	35	44	11	0	0	28	11	0	229	
4:50 PM	15	15	1	0	21	5	25	0	31	57	7	0	2	37	3	0	219	
4:55 PM	42	26	9	0	22	2	25	0	21	31	11	0	0	23	2	0	214	3341
5:00 PM	28	10	3	0	12	3	27	0	33	46	8	0	0	34	6	0	210	3298
5:05 PM	41	18	1	0	27	3	24	0	27	32	10	0	0	41	8	0	232	3237
5:10 PM	43	12	7	0	24	4	26	0	24	26	7	0	2	20	5	0	200	3073
5:15 PM	46	18	4	0	14	4	28	0	24	51	5	0	0	25	9	0	228	2981
5:20 PM	23	10	4	0	14	3	20	0	24	36	6	0	0	22	5	0	167	2836
5:25 PM	26	32	2	0	20	2	19	0	17	21	2	0	0	17	4	0	162	2697
5:30 PM	22	8	2	0	19	2	18	0	28	42	3	0	1	24	6	0	175	2564
5:35 PM	22	16	6	0	16	4	22	0	23	42	4	0	2	23	4	0	184	2479
5:40 PM	29	14	2	0	24	4	10	0	10	24	0	0	0	11	2	0	130	2350
5:45 PM	10	11	1	0	8	2	14	0	12	45	2	0	0	19	8	0	132	2253
5:50 PM	8	11	4	0	16	2	18	0	21	26	6	0	0	30	7	0	149	2183
5:55 PM	25	9	1	0	12	1	24	0	11	27	7	0	0	20	6	0	143	2112
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	652	440	64	0	228	60	424	0	752	740	124	0	8	392	100	0	3984	
Heavy Trucks	4	0	0		12	4	16		24	32	0		0	24	0		116	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	16	12		0	0	0		0	0	0		0	0	0		28	
Scoters																		

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952617
DATE: Thu, Sep 22 2022

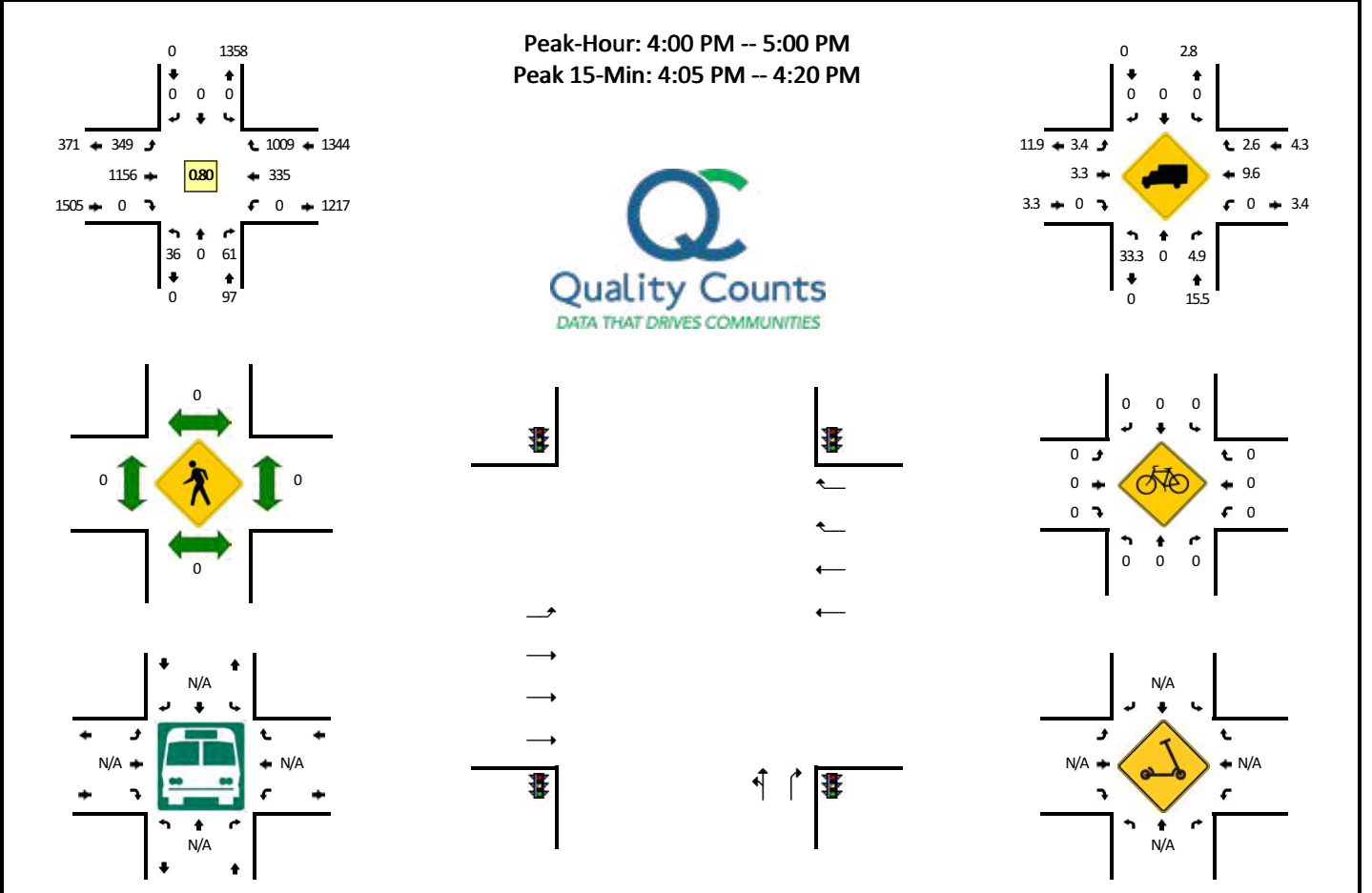


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	2	0	0	0	0	0	12	100	0	0	0	22	47	0	185	
7:05 AM	3	0	1	0	0	0	0	0	26	91	0	0	0	16	45	0	182	
7:10 AM	2	0	0	0	0	0	0	0	16	99	0	0	0	14	56	0	187	
7:15 AM	7	1	2	0	0	0	0	0	20	69	0	0	0	11	44	0	154	
7:20 AM	2	0	2	0	0	0	0	0	8	90	0	0	0	13	36	0	151	
7:25 AM	3	0	0	0	0	0	0	0	11	70	0	0	0	22	37	0	143	
7:30 AM	1	0	5	0	0	0	0	0	17	71	0	0	0	15	45	0	154	
7:35 AM	1	0	3	0	0	0	0	0	9	76	0	0	0	19	58	0	166	
7:40 AM	1	0	2	0	0	0	0	0	15	79	0	0	0	16	51	0	164	
7:45 AM	1	0	1	0	0	0	0	0	9	75	0	0	0	20	52	0	158	
7:50 AM	2	0	3	0	0	0	0	0	10	103	0	0	0	15	46	0	179	
7:55 AM	1	0	4	0	0	0	0	0	12	82	0	0	0	15	38	0	152	1975
8:00 AM	1	0	5	0	0	0	0	0	13	72	0	0	0	18	39	0	148	1938
8:05 AM	1	0	7	0	0	0	0	0	12	60	0	0	0	23	43	0	146	1902
8:10 AM	0	0	5	0	0	0	0	0	11	74	0	0	0	23	32	0	145	1860
8:15 AM	0	0	2	0	0	0	0	0	9	63	0	0	0	19	40	0	133	1839
8:20 AM	1	0	1	0	0	0	0	0	14	63	0	0	0	8	27	0	114	1802
8:25 AM	3	0	2	0	0	0	0	0	12	56	0	0	0	19	40	0	132	1791
8:30 AM	1	0	4	0	0	0	0	0	15	62	0	0	0	19	36	0	137	1774
8:35 AM	3	0	3	0	0	0	0	0	21	65	0	0	0	15	29	0	136	1744
8:40 AM	1	0	4	0	0	0	0	0	19	52	0	0	0	18	43	0	137	1717
8:45 AM	1	0	2	0	0	0	0	0	17	56	0	0	0	28	38	0	142	1701
8:50 AM	3	0	1	0	0	0	0	0	18	47	0	0	0	16	30	0	115	1637
8:55 AM	1	0	2	0	0	0	0	0	15	46	0	0	0	16	31	0	111	1596
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	0	12	0	0	0	0	0	216	1160	0	0	0	208	592	0	2216	
Heavy Trucks	8	0	0	0	0	0	0	0	16	72	0	0	0	32	36	0	164	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952618
DATE: Thu, Sep 22 2022

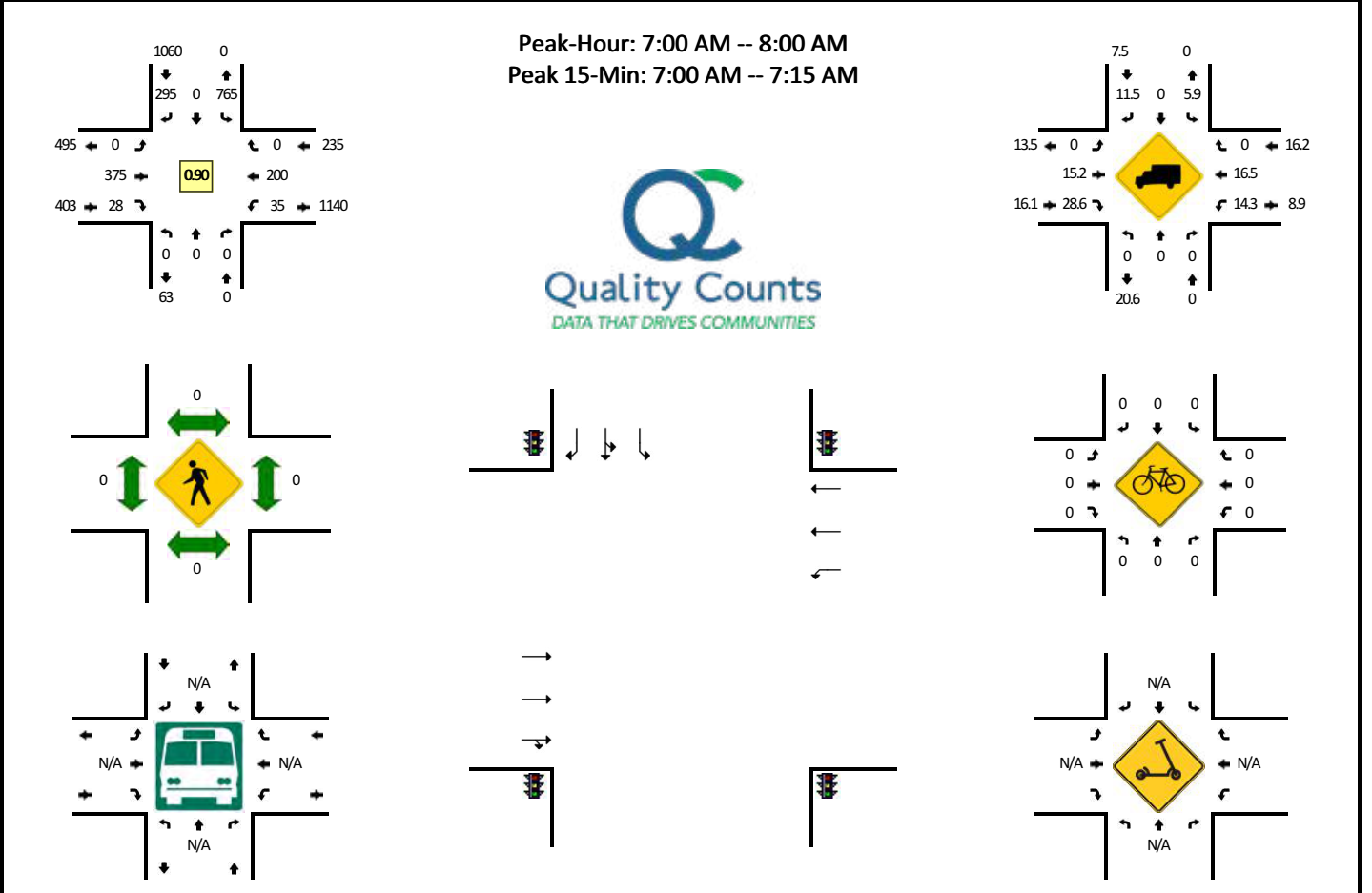


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	7	0	0	0	0	0	29	91	0	0	0	25	64	0	221	
4:05 PM	3	0	11	0	0	0	0	0	27	117	0	0	0	31	126	0	315	
4:10 PM	5	0	5	0	0	0	0	0	41	109	0	0	0	32	98	0	290	
4:15 PM	3	0	5	0	0	0	0	0	53	113	0	0	0	34	104	0	312	
4:20 PM	5	0	10	0	0	0	0	0	27	104	0	0	0	25	89	0	260	
4:25 PM	1	0	2	0	0	0	0	0	26	108	0	0	0	29	74	0	240	
4:30 PM	0	0	5	0	0	0	0	0	24	97	0	0	0	39	109	0	274	
4:35 PM	2	0	6	0	0	0	0	0	21	100	0	0	0	21	85	0	235	
4:40 PM	4	0	2	0	0	0	0	0	39	72	0	0	0	25	81	0	223	
4:45 PM	3	0	2	0	0	0	0	0	24	97	0	0	0	19	49	0	194	
4:50 PM	2	0	2	0	0	0	0	0	16	87	0	0	0	22	56	0	185	
4:55 PM	3	0	4	0	0	0	0	0	22	61	0	0	0	33	74	0	197	2946
5:00 PM	3	0	6	0	0	0	0	0	14	79	0	0	0	18	57	0	177	2902
5:05 PM	1	1	5	0	0	0	0	0	17	69	0	0	0	22	85	0	200	2787
5:10 PM	1	0	2	0	0	0	0	0	16	51	0	0	0	19	83	0	172	2669
5:15 PM	5	0	9	0	0	0	0	0	17	69	0	0	0	13	82	0	195	2552
5:20 PM	1	0	7	0	0	0	0	0	18	60	0	0	0	23	42	0	151	2443
5:25 PM	1	0	2	0	0	0	0	0	21	48	0	0	0	17	57	0	146	2349
5:30 PM	1	0	6	0	0	0	0	0	9	62	0	0	0	10	52	0	140	2215
5:35 PM	1	0	3	0	0	0	0	0	19	63	0	0	0	15	50	0	151	2131
5:40 PM	3	0	1	0	0	0	0	0	14	43	0	0	0	11	38	0	110	2018
5:45 PM	1	0	7	0	0	0	0	0	11	52	0	0	0	7	43	0	121	1945
5:50 PM	2	0	3	0	0	0	0	0	11	46	0	0	0	11	33	0	106	1866
5:55 PM	3	0	3	0	0	0	0	0	12	47	0	0	0	19	50	0	134	1803
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	0	84	0	0	0	0	0	484	1356	0	0	0	388	1312	0	3668	
Heavy Trucks	20	0	8	0	0	0	0	0	16	44	0	0	0	24	28	0	140	
Buses																	0	
Pedestrians																	0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952619
DATE: Thu, Sep 22 2022

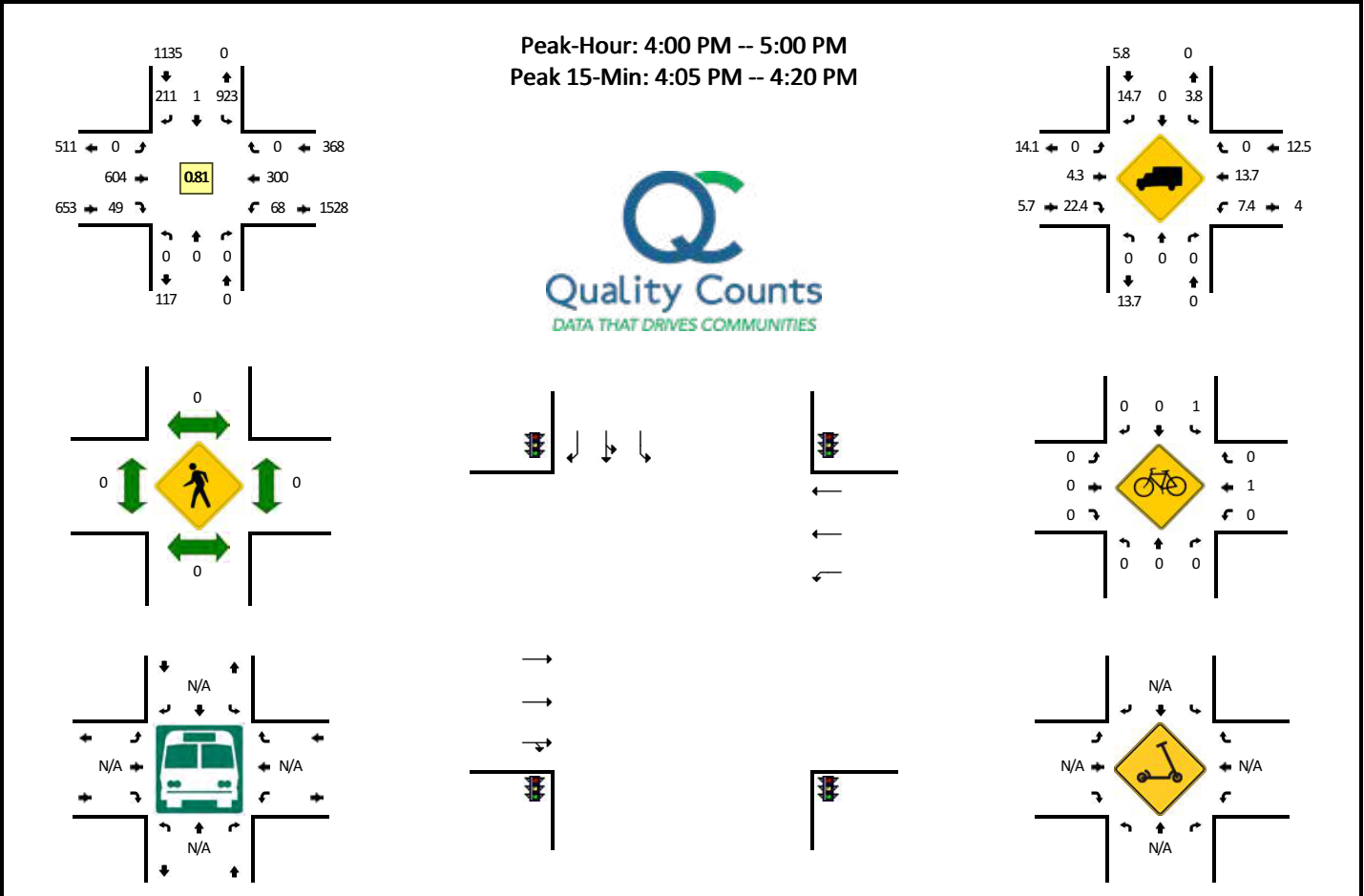


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	58	0	23	0	0	48	3	0	3	27	0	0	162	
7:05 AM	0	0	0	0	71	0	25	0	0	45	2	0	2	17	0	0	162	
7:10 AM	0	0	0	0	80	0	31	0	0	26	0	0	1	12	0	0	150	
7:15 AM	0	0	0	0	47	0	25	0	0	44	2	0	3	19	0	0	140	
7:20 AM	0	0	0	0	65	0	31	0	0	26	2	0	3	9	0	0	136	
7:25 AM	0	0	0	0	68	0	31	0	0	18	3	0	5	23	0	0	148	
7:30 AM	0	0	0	0	57	0	27	0	0	32	4	0	5	11	0	0	136	
7:35 AM	0	0	0	0	51	0	28	0	0	32	3	0	2	17	0	0	133	
7:40 AM	0	0	0	0	63	0	15	0	0	29	4	0	3	15	0	0	129	
7:45 AM	0	0	0	0	72	0	21	0	0	19	2	0	2	20	0	0	136	
7:50 AM	0	0	0	0	80	0	15	0	0	24	2	0	4	15	0	0	140	
7:55 AM	0	0	0	0	53	0	23	0	0	32	1	0	2	15	0	0	126	1698
8:00 AM	0	0	0	0	60	0	36	0	0	28	1	0	2	14	0	0	141	1677
8:05 AM	0	0	0	0	54	0	32	0	0	27	3	0	5	23	0	0	144	1659
8:10 AM	0	0	0	0	56	0	19	0	0	22	6	0	2	19	0	0	124	1633
8:15 AM	0	0	0	0	47	0	23	0	0	22	3	0	9	12	0	0	116	1609
8:20 AM	0	0	0	0	57	0	30	0	0	31	6	0	1	8	0	0	133	1606
8:25 AM	0	0	0	0	38	0	23	0	0	22	3	0	2	19	0	0	107	1565
8:30 AM	0	0	0	0	49	0	21	0	0	31	2	0	2	17	0	0	122	1551
8:35 AM	0	0	0	0	46	0	20	0	0	36	8	0	3	13	0	0	126	1544
8:40 AM	0	0	0	0	45	0	20	0	0	29	8	0	10	9	0	0	121	1536
8:45 AM	0	0	0	0	36	0	14	0	0	29	5	0	10	18	0	0	112	1512
8:50 AM	0	0	0	0	39	0	22	0	0	27	1	0	2	17	0	0	108	1480
8:55 AM	0	0	0	0	32	0	20	0	0	22	4	0	2	14	0	0	94	1448
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	836	0	316	0	0	476	20	0	24	224	0	0	1896	
Heavy Trucks	0	0	0	0	44	0	20	0	0	40	4	0	4	36	0	0	148	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952620
DATE: Thu, Sep 22 2022

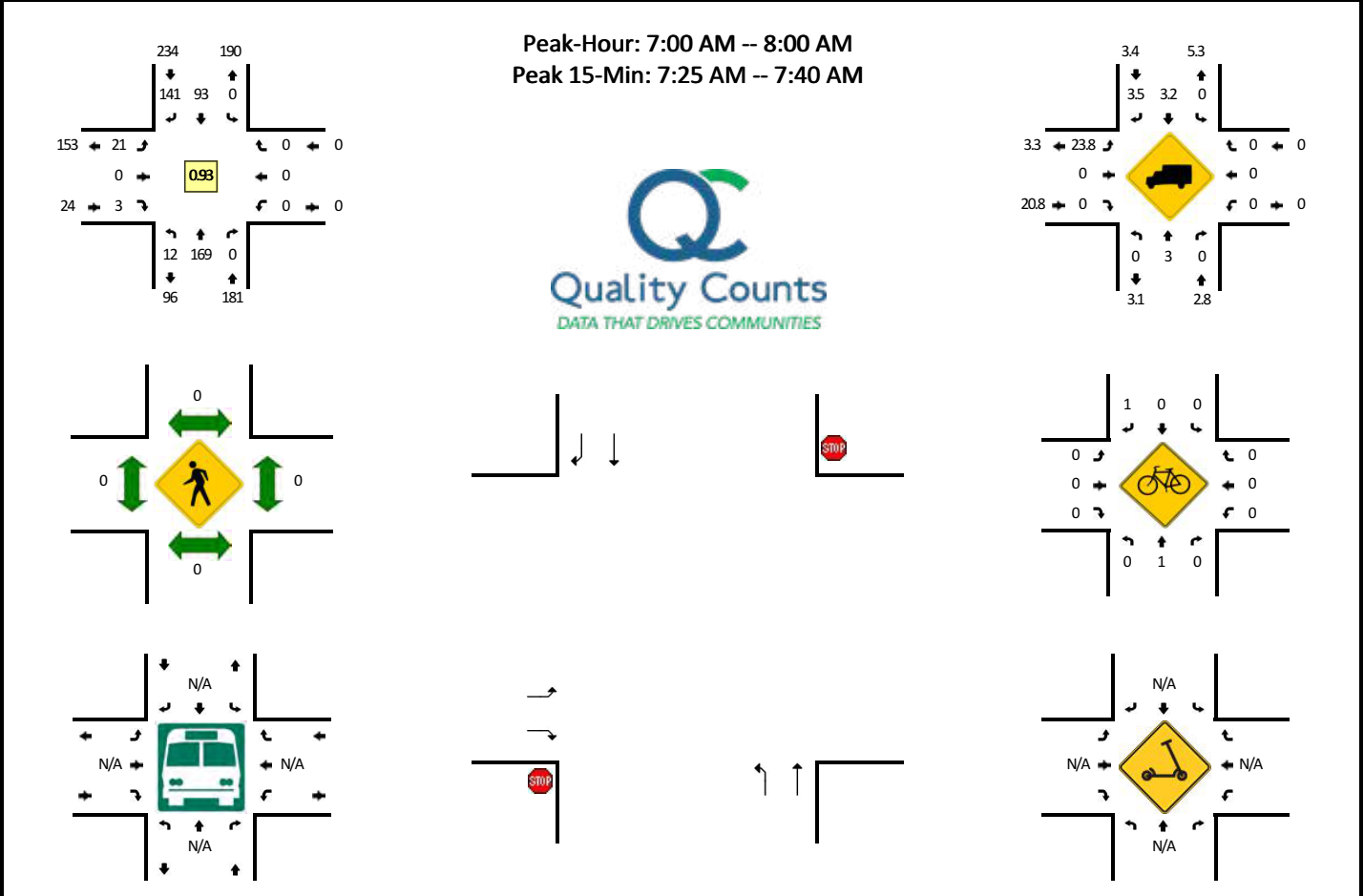


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	78	0	13	0	0	46	6	0	9	22	0	0	174	
4:05 PM	0	0	0	0	76	0	19	0	0	85	4	0	6	28	0	0	218	
4:10 PM	0	0	0	0	92	0	19	0	0	69	4	0	6	30	0	0	220	
4:15 PM	0	0	0	0	99	0	27	0	0	62	6	0	4	28	0	0	226	
4:20 PM	0	0	0	0	71	0	22	0	0	50	5	0	6	31	0	0	185	
4:25 PM	0	0	0	0	71	0	20	0	0	58	4	0	7	21	0	0	181	
4:30 PM	0	0	0	0	88	0	14	0	0	36	3	0	6	35	0	0	182	
4:35 PM	0	0	0	0	82	0	9	0	0	38	7	0	2	19	0	0	157	
4:40 PM	0	0	0	0	73	0	18	0	0	52	3	0	11	18	0	1	176	
4:45 PM	0	0	0	0	61	0	9	0	0	49	3	0	3	22	0	0	147	
4:50 PM	0	0	0	0	74	0	24	0	0	30	2	0	1	18	0	0	149	
4:55 PM	0	0	0	0	58	1	17	0	0	29	2	0	6	28	0	0	141	2156
5:00 PM	0	0	0	0	50	0	15	0	0	32	7	0	4	21	0	0	129	2111
5:05 PM	0	0	0	0	59	1	18	0	0	27	3	0	7	16	0	0	131	2024
5:10 PM	0	0	0	0	41	0	11	0	0	27	5	0	0	21	0	0	105	1909
5:15 PM	0	0	0	0	56	0	12	0	0	34	4	0	4	13	0	0	123	1806
5:20 PM	0	0	0	0	45	0	11	0	0	28	2	0	6	18	0	0	110	1731
5:25 PM	0	0	0	0	43	0	8	0	0	25	5	0	7	10	0	0	98	1648
5:30 PM	0	0	0	0	34	0	13	0	0	36	3	0	3	9	0	0	98	1564
5:35 PM	0	0	0	0	59	1	11	0	0	28	5	0	4	10	0	0	118	1525
5:40 PM	0	0	0	0	27	0	12	0	0	22	6	0	3	12	0	0	82	1431
5:45 PM	0	0	0	0	45	0	14	0	0	21	0	0	2	6	0	0	88	1372
5:50 PM	0	0	0	0	36	0	14	0	0	15	3	0	2	11	0	0	81	1304
5:55 PM	0	0	0	0	37	0	16	0	0	21	3	0	5	14	0	0	96	1259
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	1068	0	260	0	0	864	56	0	64	344	0	0	2656	
Heavy Trucks	0	0	0	0	28	0	44	0	0	44	8	0	0	44	0	0	168	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952621
DATE: Thu, Sep 22 2022

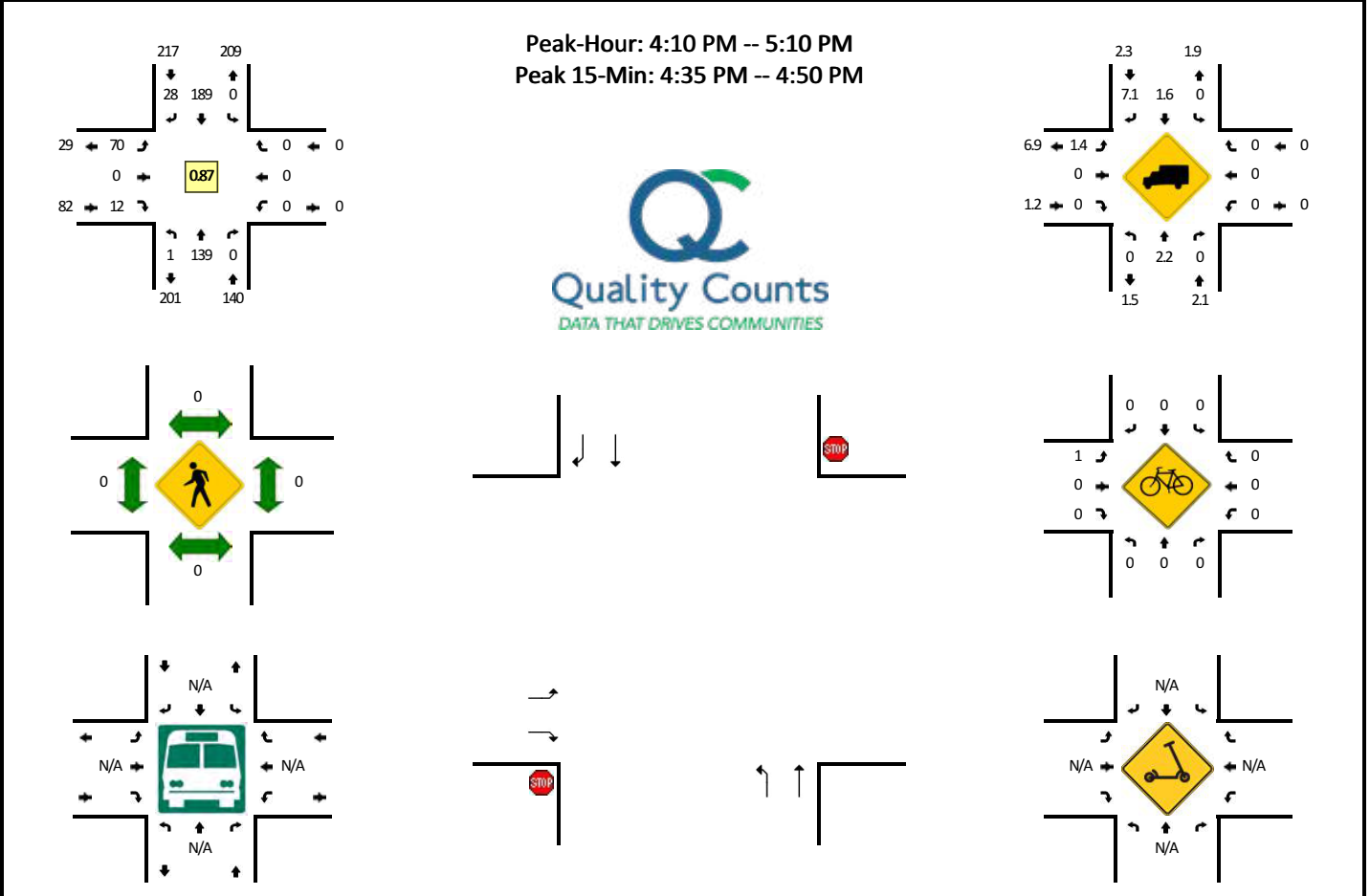


5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	0	0	0	8	16	0	0	0	0	0	0	0	0	0	38	
7:05 AM	2	15	0	0	0	7	12	0	3	0	1	0	0	0	0	0	40	
7:10 AM	0	10	0	0	0	15	10	0	2	0	0	0	0	0	0	0	37	
7:15 AM	1	15	0	0	0	6	9	0	1	0	0	0	0	0	0	0	32	
7:20 AM	2	23	0	0	0	3	9	0	2	0	0	0	0	0	0	0	39	
7:25 AM	2	15	0	0	0	2	19	0	2	0	0	0	0	0	0	0	40	
7:30 AM	0	20	0	0	0	4	11	0	2	0	0	0	0	0	0	0	37	
7:35 AM	0	17	0	0	0	9	14	0	1	0	0	0	0	0	0	0	41	
7:40 AM	2	6	0	0	0	11	11	0	1	0	1	0	0	0	0	0	32	
7:45 AM	2	11	0	0	0	10	12	0	2	0	0	0	0	0	0	0	37	
7:50 AM	1	11	0	0	0	9	11	0	2	0	1	0	0	0	0	0	35	
7:55 AM	0	12	0	0	0	9	7	0	3	0	0	0	0	0	0	0	31	439
8:00 AM	3	9	0	0	0	3	11	0	1	0	0	0	0	0	0	0	27	428
8:05 AM	1	6	0	0	0	5	20	0	0	0	1	0	0	0	0	0	33	421
8:10 AM	0	7	0	0	0	6	16	0	1	0	0	0	0	0	0	0	30	414
8:15 AM	0	3	0	0	0	10	15	0	0	0	0	0	0	0	0	0	28	410
8:20 AM	2	5	0	0	0	8	16	0	2	0	2	0	0	0	0	0	35	406
8:25 AM	2	9	0	0	0	3	7	0	2	0	1	0	0	0	0	0	24	390
8:30 AM	3	7	0	0	0	3	6	0	0	0	0	0	0	0	0	0	19	372
8:35 AM	0	9	0	0	0	4	18	0	0	0	0	0	0	0	0	0	31	362
8:40 AM	2	5	0	0	0	1	7	0	1	0	0	0	0	0	0	0	16	346
8:45 AM	1	5	0	0	0	5	5	0	0	0	0	0	0	0	0	0	16	325
8:50 AM	2	4	0	0	0	5	10	0	1	0	1	0	0	0	0	0	23	313
8:55 AM	0	5	0	0	0	6	6	0	2	0	1	0	0	0	0	0	20	302
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	208	0	0	0	60	176	0	20	0	0	0	0	0	0	0	472	
Heavy Trucks	0	4	0	0	0	4	12	0	4	0	0	0	0	0	0	0	24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952622
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	13	0	0	0	7	2	0	11	0	0	0	0	0	0	0	33	
4:05 PM	0	16	0	0	0	11	2	0	7	0	1	0	0	0	0	0	37	
4:10 PM	0	15	0	0	0	19	0	0	6	0	0	0	0	0	0	0	40	
4:15 PM	0	11	0	0	0	13	2	0	4	0	0	0	0	0	0	0	30	
4:20 PM	0	12	0	0	0	17	0	0	8	0	1	0	0	0	0	0	38	
4:25 PM	0	14	0	0	0	12	3	0	5	0	1	0	0	0	0	0	35	
4:30 PM	0	10	0	0	0	20	6	0	6	0	0	0	0	0	0	0	42	
4:35 PM	0	17	0	0	0	15	4	0	7	0	0	0	0	0	0	0	43	
4:40 PM	0	8	0	0	0	16	5	0	4	0	2	0	0	0	0	0	35	
4:45 PM	0	16	0	0	0	24	0	0	7	0	1	0	0	0	0	0	48	
4:50 PM	0	6	0	0	0	12	4	0	4	0	2	0	0	0	0	0	28	
4:55 PM	1	9	0	0	0	8	1	0	4	0	3	0	0	0	0	0	26	435
5:00 PM	0	12	0	0	0	14	2	0	4	0	1	0	0	0	0	0	33	435
5:05 PM	0	9	0	0	0	19	1	0	11	0	1	0	0	0	0	0	41	439
5:10 PM	0	9	0	0	0	10	2	0	2	0	1	0	0	0	0	0	24	423
5:15 PM	0	13	0	0	0	16	1	0	6	0	1	0	0	0	0	0	37	430
5:20 PM	0	5	0	0	0	15	2	0	3	0	1	0	0	0	0	0	26	418
5:25 PM	0	11	0	0	0	8	2	0	3	0	1	0	0	0	0	0	25	408
5:30 PM	0	5	0	0	0	14	3	0	1	0	0	0	0	0	0	0	23	389
5:35 PM	1	3	0	0	0	16	1	0	1	0	2	0	0	0	0	0	24	370
5:40 PM	1	9	0	0	0	8	2	0	1	0	0	0	0	0	0	0	21	356
5:45 PM	0	9	0	0	0	10	1	0	1	0	1	0	0	0	0	0	22	330
5:50 PM	0	5	0	0	0	9	0	0	1	0	1	0	0	0	0	0	16	318
5:55 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	303
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	164	0	0	0	220	36	0	72	0	12	0	0	0	0	0	504	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

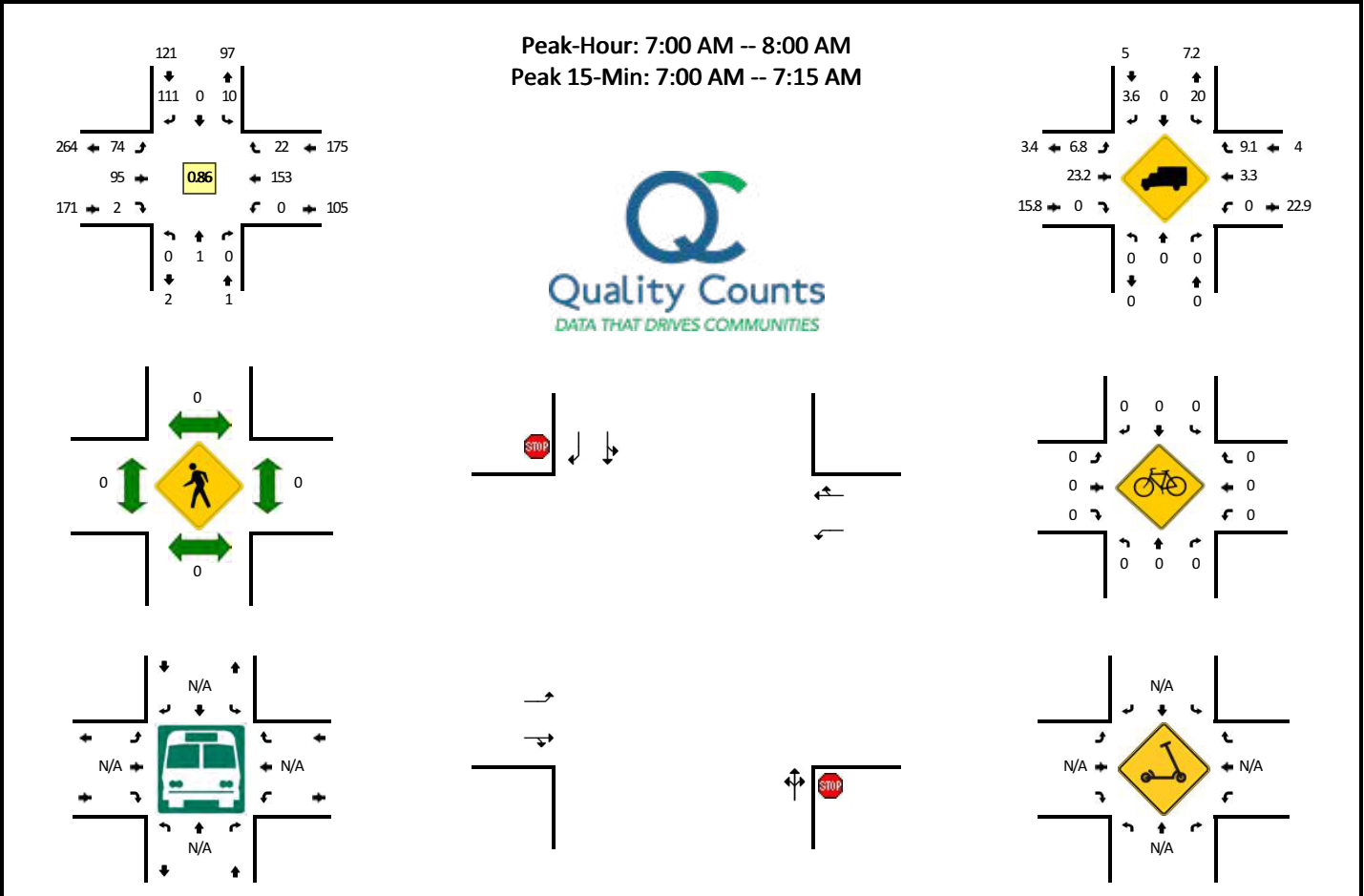
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952626
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	9	0	9	9	0	0	0	18	2	0	48	
7:05 AM	0	1	0	0	0	0	12	0	12	5	0	0	0	12	2	0	44	
7:10 AM	0	0	0	0	0	0	12	0	9	10	0	0	0	12	1	0	44	
7:15 AM	0	0	0	0	2	0	10	0	5	10	1	0	0	8	3	0	39	
7:20 AM	0	0	0	0	1	0	11	0	9	7	0	0	0	10	1	0	39	
7:25 AM	0	0	0	0	1	0	9	0	6	9	0	0	0	15	3	0	43	
7:30 AM	0	0	0	0	0	0	11	0	6	6	0	0	0	20	4	0	47	
7:35 AM	0	0	0	0	0	0	11	0	2	8	0	0	0	21	3	0	45	
7:40 AM	0	0	0	0	0	0	7	0	2	10	1	0	0	9	0	0	29	
7:45 AM	0	0	0	0	1	0	7	0	2	7	0	0	0	10	0	0	27	
7:50 AM	0	0	0	0	1	0	6	0	6	6	0	0	0	12	2	0	33	
7:55 AM	0	0	0	0	3	0	6	0	6	8	0	0	0	6	1	0	30	468
8:00 AM	0	0	0	0	1	0	3	0	4	10	0	0	0	11	1	0	30	450
8:05 AM	1	0	0	0	3	1	13	0	5	15	0	0	0	11	2	0	51	457
8:10 AM	0	0	0	0	0	0	9	0	3	12	0	0	0	13	2	0	39	452
8:15 AM	0	0	0	0	1	0	10	0	4	12	1	0	0	12	2	0	42	455
8:20 AM	0	0	0	0	0	0	3	0	5	7	0	0	1	10	0	0	26	442
8:25 AM	0	0	0	0	3	0	7	0	7	10	1	0	2	15	3	0	48	447
8:30 AM	0	0	0	0	1	0	3	0	4	13	0	1	0	7	3	0	32	432
8:35 AM	0	0	0	0	2	0	9	0	4	11	0	0	0	10	3	0	39	426
8:40 AM	0	0	0	0	3	0	11	0	7	12	0	0	0	10	4	0	47	444
8:45 AM	0	0	0	0	2	0	9	0	3	11	0	0	0	16	4	0	45	462
8:50 AM	0	0	0	0	2	0	3	0	6	5	0	0	0	8	0	0	24	453
8:55 AM	0	0	0	0	1	0	7	0	2	8	0	0	0	9	4	0	31	454
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	4	0	0	4	0	132	0	120	96	0	0	0	168	20	0	544	
Heavy Trucks	0	0	0	0	0	0	4	0	4	12	0	0	0	4	0	0	24	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

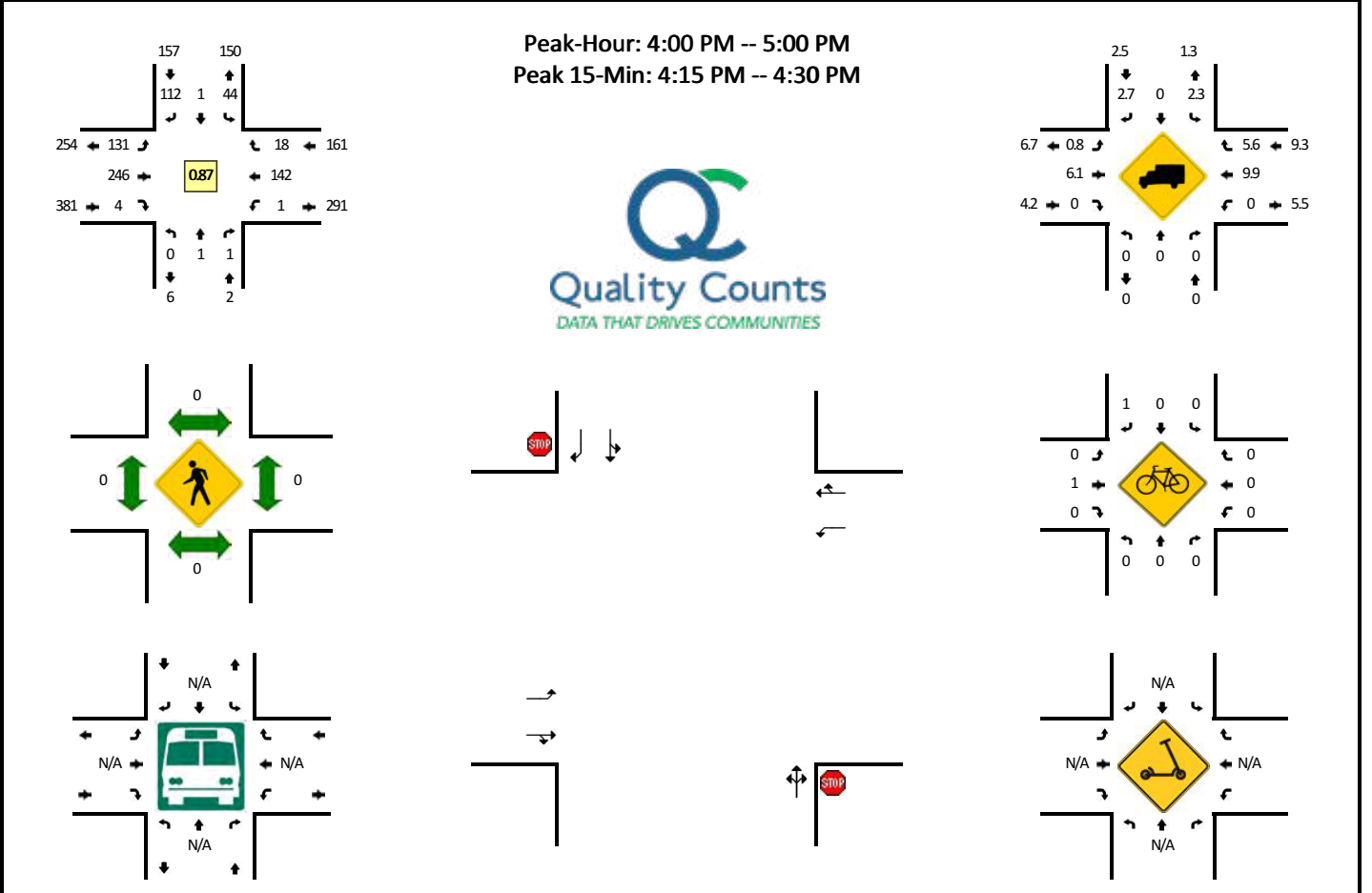
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952627
DATE: Thu, Sep 22 2022

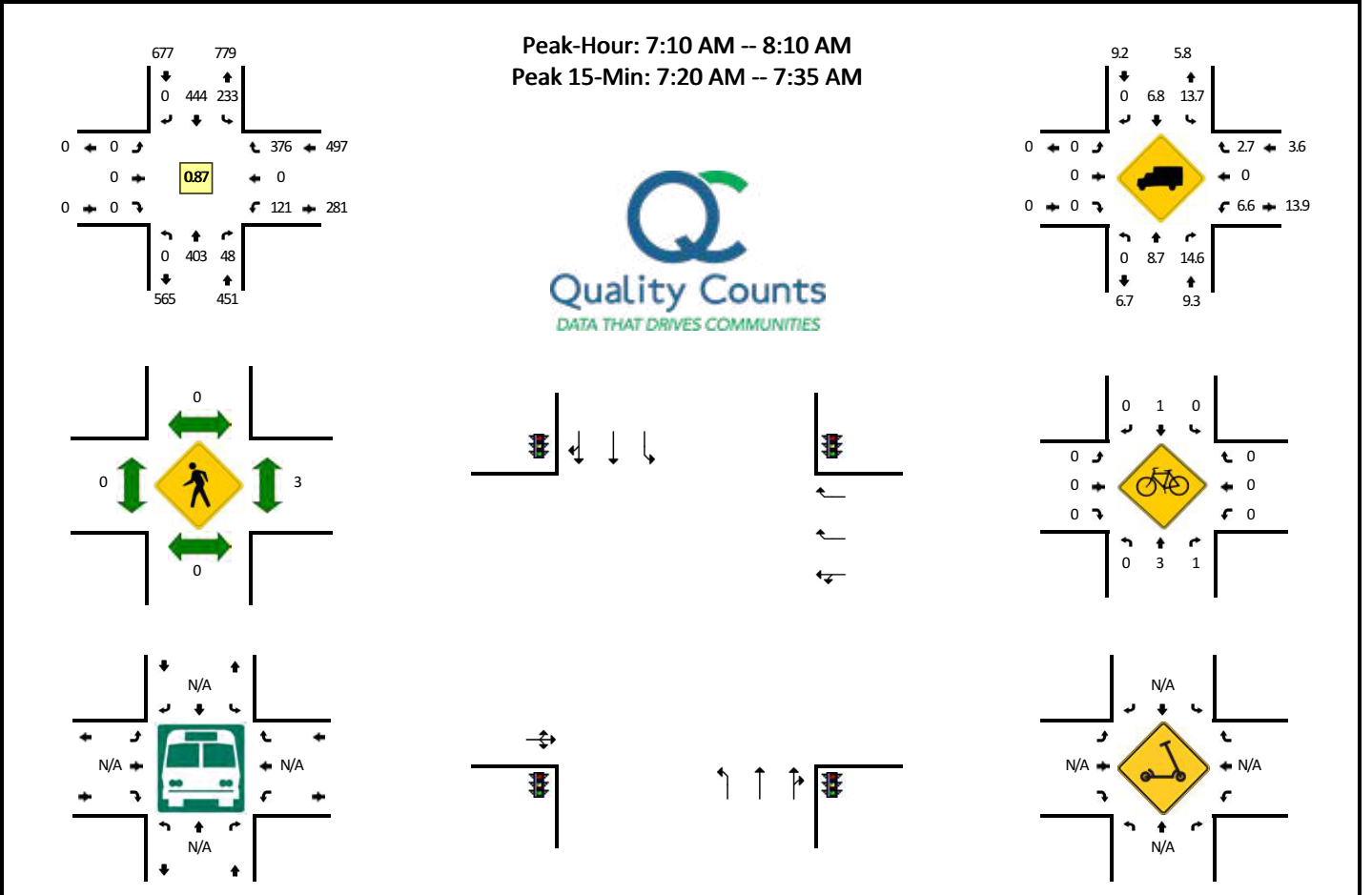


5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	0	0	0	0	1	0	10	0	11	16	0	0	0	15	1	0	54		
4:05 PM	0	0	0	0	3	0	9	0	12	12	1	0	0	0	15	3	0	55	
4:10 PM	0	0	0	0	1	0	12	0	8	16	1	0	0	0	10	2	0	50	
4:15 PM	0	0	0	0	5	0	12	0	15	21	0	0	0	0	16	1	0	70	
4:20 PM	0	0	0	0	4	1	10	0	19	24	0	0	0	0	9	4	0	71	
4:25 PM	0	0	1	0	5	0	16	0	11	23	0	0	0	0	5	0	0	61	
4:30 PM	0	0	0	0	2	0	9	0	8	22	0	0	0	0	12	2	0	55	
4:35 PM	0	0	0	0	4	0	3	0	9	28	0	0	0	0	12	2	0	58	
4:40 PM	0	0	0	0	3	0	6	0	5	23	1	0	1	6	2	0	47		
4:45 PM	0	1	0	0	4	0	9	0	6	21	0	0	0	17	0	0	58		
4:50 PM	0	0	0	0	3	0	15	0	9	16	0	0	0	13	0	0	56		
4:55 PM	0	0	0	0	9	0	1	0	18	24	1	0	0	12	1	0	66	701	
5:00 PM	0	0	1	0	3	0	12	0	12	13	0	0	0	10	1	0	52	699	
5:05 PM	0	0	0	0	2	0	7	0	10	11	0	0	0	8	3	0	41	685	
5:10 PM	0	0	0	0	1	0	4	0	18	18	0	0	0	14	1	0	56	691	
5:15 PM	0	0	0	0	2	0	6	0	15	19	0	0	0	4	3	0	49	670	
5:20 PM	0	0	0	0	3	0	12	0	12	20	0	0	0	1	1	0	49	648	
5:25 PM	0	0	0	0	3	0	7	0	9	17	0	0	0	6	3	0	45	632	
5:30 PM	2	0	0	0	0	0	9	0	12	13	0	0	0	7	0	0	43	620	
5:35 PM	0	0	0	0	0	0	2	0	13	24	0	0	0	4	1	0	44	606	
5:40 PM	0	0	0	0	2	1	4	0	12	21	0	0	0	2	1	0	43	602	
5:45 PM	0	0	0	0	4	0	6	0	16	18	0	0	0	12	1	0	57	601	
5:50 PM	0	0	0	0	2	0	6	0	11	17	0	0	0	3	2	0	41	586	
5:55 PM	0	0	0	0	2	0	7	0	14	7	0	0	0	8	1	0	39	559	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	4	0	56	4	152	0	180	272	0	0	0	120	20	0	808		
Heavy Trucks	0	0	0	0	0	0	4	0	4	24	0	0	0	28	0	0	60		
Buses																	0		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4		
Scoters																			

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952628
DATE: Thu, Sep 22 2022

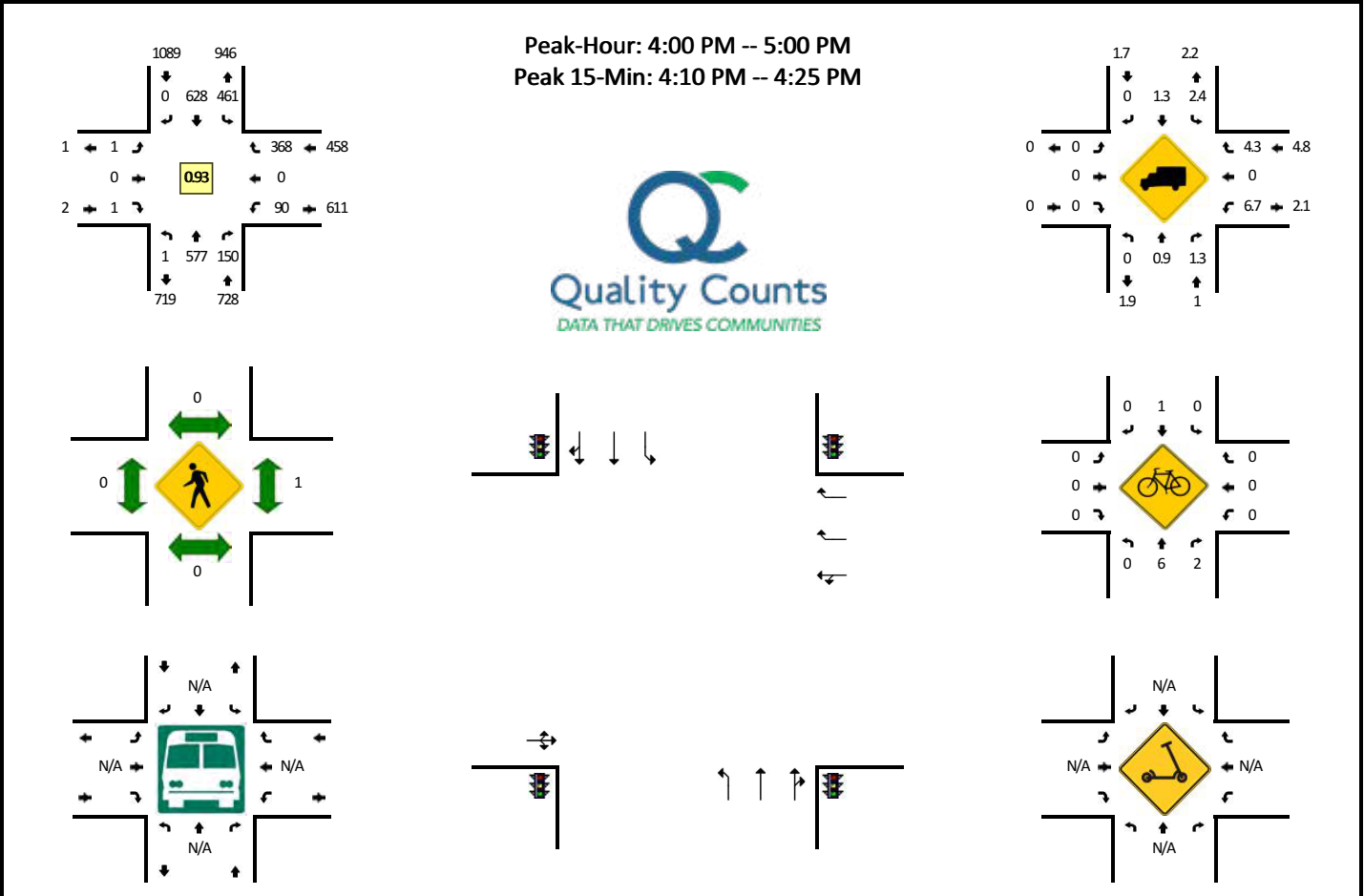


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	22	3	0	21	32	0	0	0	0	0	0	8	0	22	0	108	
7:05 AM	0	19	2	0	16	36	0	0	0	0	0	0	5	0	30	0	108	
7:10 AM	0	31	1	0	27	39	0	0	0	0	0	0	16	0	39	0	153	
7:15 AM	0	40	4	0	20	32	0	0	0	0	0	0	11	0	30	0	137	
7:20 AM	0	39	1	0	23	45	0	0	0	0	0	0	10	0	39	0	157	
7:25 AM	0	50	2	0	21	19	0	0	0	0	0	0	17	0	48	0	157	
7:30 AM	0	48	2	0	26	42	0	0	0	0	0	0	4	0	29	0	151	
7:35 AM	0	26	5	0	17	32	0	0	0	0	0	0	11	0	38	0	129	
7:40 AM	0	40	8	0	19	32	0	0	0	0	0	0	8	0	30	0	137	
7:45 AM	0	31	5	0	20	25	0	0	0	0	0	0	9	0	35	0	125	
7:50 AM	0	23	3	0	12	45	0	0	0	0	0	0	10	0	20	0	113	
7:55 AM	0	37	4	0	18	51	0	0	0	0	0	0	5	0	20	0	135	
8:00 AM	0	21	7	0	13	31	0	0	0	0	0	0	10	0	22	0	104	1610
8:05 AM	0	17	6	0	17	51	0	0	0	0	0	0	10	0	26	0	127	1606
8:10 AM	0	36	0	0	31	21	0	0	0	0	0	0	9	0	26	0	123	1595
8:15 AM	0	25	8	0	7	29	0	0	0	0	0	0	9	0	22	0	100	1558
8:20 AM	0	30	5	0	15	30	0	0	0	0	0	0	6	0	24	0	110	1511
8:25 AM	0	22	3	0	13	25	0	0	0	0	0	0	11	0	24	0	98	1452
8:30 AM	0	18	4	0	20	24	0	0	0	0	0	0	6	0	25	0	97	1398
8:35 AM	0	23	5	0	18	24	0	0	0	0	0	0	7	0	25	0	102	1371
8:40 AM	0	25	5	0	21	38	0	0	0	0	0	0	4	0	19	0	112	1346
8:45 AM	0	30	4	0	11	35	0	0	0	0	0	0	6	0	27	0	113	1334
8:50 AM	0	21	4	0	25	25	0	0	0	0	0	0	9	0	18	0	102	1323
8:55 AM	0	24	5	0	25	26	0	0	0	0	0	0	10	0	20	0	110	1298
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	548	20	0	280	424	0	0	0	0	0	0	124	0	464	0	1860	
Heavy Trucks	0	44	0	0	44	24	0	0	0	0	0	0	4	0	4	0	120	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	4		0	0	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952629
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	49	19	0	42	52	0	0	0	0	0	0	6	0	22	0	190	
4:05 PM	0	54	11	0	40	43	0	0	0	0	0	0	11	0	30	0	189	
4:10 PM	0	43	11	0	43	55	0	0	0	0	0	0	15	0	34	0	201	
4:15 PM	0	63	15	0	45	52	0	0	0	0	0	0	5	0	30	0	210	
4:20 PM	0	56	13	0	41	55	0	0	0	0	0	0	7	0	29	0	201	
4:25 PM	0	56	16	0	28	45	0	0	0	0	0	0	14	0	29	0	188	
4:30 PM	0	53	9	0	42	46	0	0	0	0	0	0	3	0	44	0	197	
4:35 PM	1	43	15	0	32	63	0	0	0	0	0	0	4	0	33	0	191	
4:40 PM	0	44	17	0	36	66	0	0	1	0	1	0	8	0	35	0	208	
4:45 PM	0	35	8	0	36	54	0	0	0	0	0	0	3	0	30	0	166	
4:50 PM	0	52	10	0	41	59	0	0	0	0	0	0	4	0	27	0	193	
4:55 PM	0	29	6	0	35	38	0	0	0	0	0	0	10	0	25	0	143	2277
5:00 PM	0	34	7	0	28	40	0	0	0	0	0	0	13	0	30	0	152	2239
5:05 PM	0	41	7	0	29	55	0	0	0	0	0	0	4	0	26	0	162	2212
5:10 PM	0	30	7	0	31	36	0	0	0	0	0	0	5	0	26	0	135	2146
5:15 PM	0	38	10	0	25	41	0	0	0	0	0	0	2	0	24	0	140	2076
5:20 PM	0	35	5	0	37	34	0	0	0	0	0	0	3	0	24	0	138	2013
5:25 PM	0	33	12	0	36	32	0	0	0	0	0	0	5	0	30	0	148	1973
5:30 PM	0	30	7	0	28	23	0	0	0	0	0	0	5	0	19	0	112	1888
5:35 PM	0	39	4	0	23	22	0	0	0	0	0	0	3	0	13	0	104	1801
5:40 PM	0	13	10	0	28	30	0	0	0	0	0	0	4	0	18	0	103	1696
5:45 PM	0	26	9	0	26	28	0	0	0	0	0	0	3	0	17	0	109	1639
5:50 PM	0	37	3	0	31	26	0	0	0	0	0	0	5	0	26	0	128	1574
5:55 PM	0	32	6	0	27	30	0	0	0	0	0	0	5	0	17	0	117	1548
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	648	156	0	516	648	0	0	0	0	0	0	108	0	372	0	2448	
Heavy Trucks	0	4	4	0	12	12	0	0	0	0	0	0	0	0	24	0	56	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	8		0	0	0		0	0	0		0	0	0		8	
Scoters																		

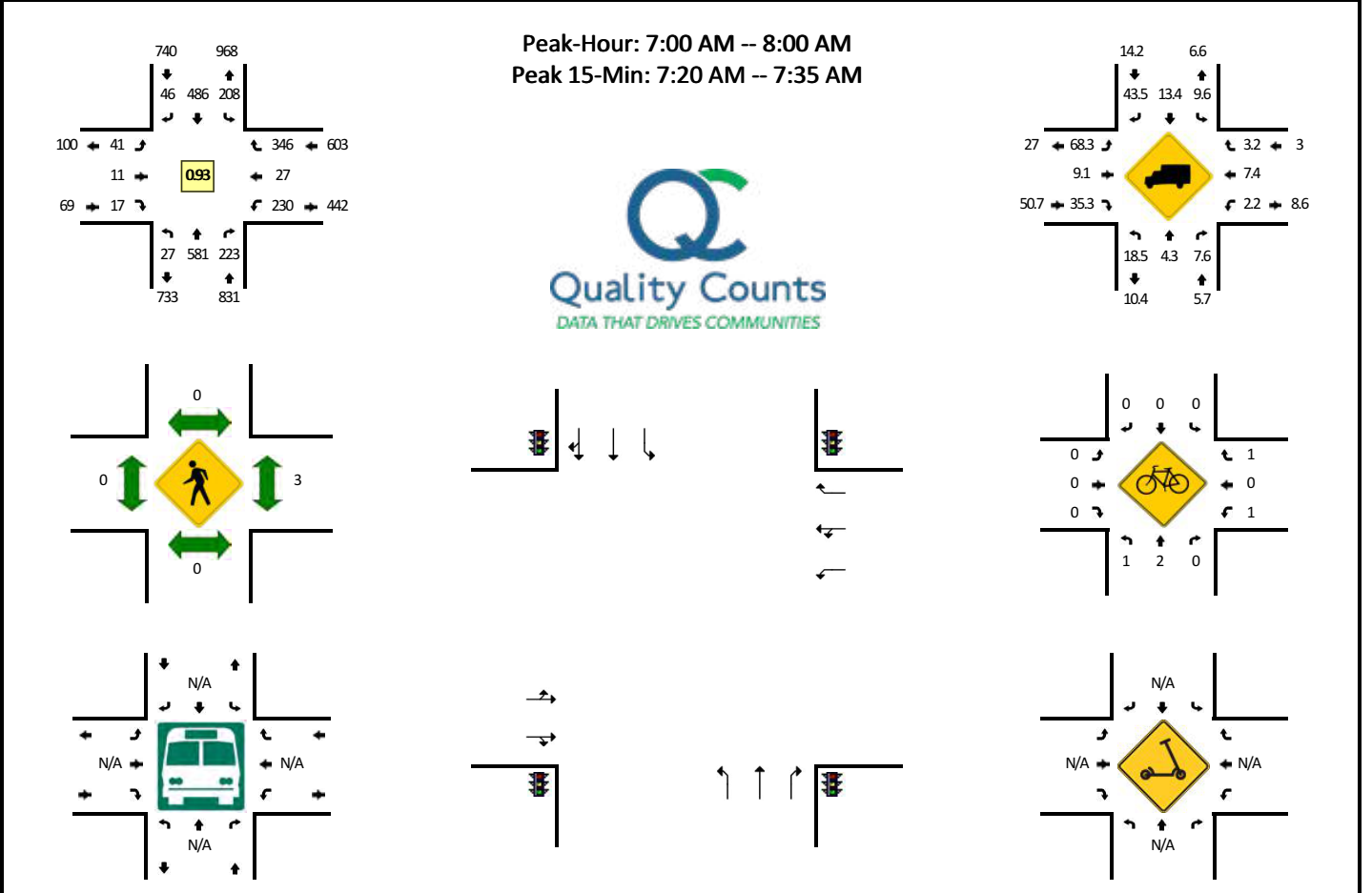
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952630
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	44	12	0	17	33	6	0	3	2	2	0	22	3	24	0	168	
7:05 AM	2	35	5	0	26	50	2	0	5	1	0	0	23	0	17	0	166	
7:10 AM	2	58	15	0	24	49	5	0	2	2	2	0	15	1	28	0	203	
7:15 AM	3	48	20	0	11	39	5	0	0	0	2	0	15	0	27	0	170	
7:20 AM	3	52	20	0	18	47	4	0	4	0	2	0	21	3	28	0	202	
7:25 AM	2	58	36	0	18	35	1	0	5	1	1	0	11	3	25	0	196	
7:30 AM	3	52	29	0	15	36	5	0	5	1	1	0	20	0	37	0	204	
7:35 AM	2	51	19	0	14	40	5	0	4	2	0	0	18	5	30	0	190	
7:40 AM	2	45	21	0	21	48	2	0	5	1	1	0	16	0	41	0	203	
7:45 AM	4	61	17	0	9	36	3	0	1	1	1	0	20	3	35	0	191	
7:50 AM	3	36	20	0	21	40	4	0	6	0	3	0	21	2	27	0	183	
7:55 AM	1	41	9	0	14	33	4	0	1	0	2	0	28	7	27	0	167	2243
8:00 AM	6	24	11	0	19	37	1	0	7	2	3	0	26	4	14	0	154	2229
8:05 AM	4	35	7	0	17	45	2	0	3	2	3	0	18	4	29	0	169	2232
8:10 AM	4	48	13	0	20	42	2	0	4	0	3	0	9	3	20	0	168	2197
8:15 AM	5	40	9	0	11	27	5	0	5	2	1	0	14	5	29	0	153	2180
8:20 AM	5	46	11	0	11	40	1	0	1	1	1	0	17	5	18	0	157	2135
8:25 AM	7	32	7	0	18	29	4	0	3	3	2	0	10	3	16	0	134	2073
8:30 AM	2	36	11	0	23	36	2	0	3	1	4	0	15	1	21	0	155	2024
8:35 AM	6	38	8	0	16	30	0	0	6	2	3	0	6	1	17	0	133	1967
8:40 AM	5	27	14	0	21	50	2	0	4	2	3	0	12	7	29	0	176	1940
8:45 AM	6	36	10	0	13	36	2	0	3	2	6	0	8	3	29	0	154	1903
8:50 AM	8	35	11	0	9	34	2	0	5	3	4	0	14	3	31	0	159	1879
8:55 AM	2	31	9	0	13	40	3	0	3	3	3	0	6	7	23	0	143	1855
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	648	340	0	204	472	40	0	56	8	16	0	208	24	360	0	2408	
Heavy Trucks	4	28	20		16	68	16		40	0	4		8	0	12		216	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4	
Scoters																		

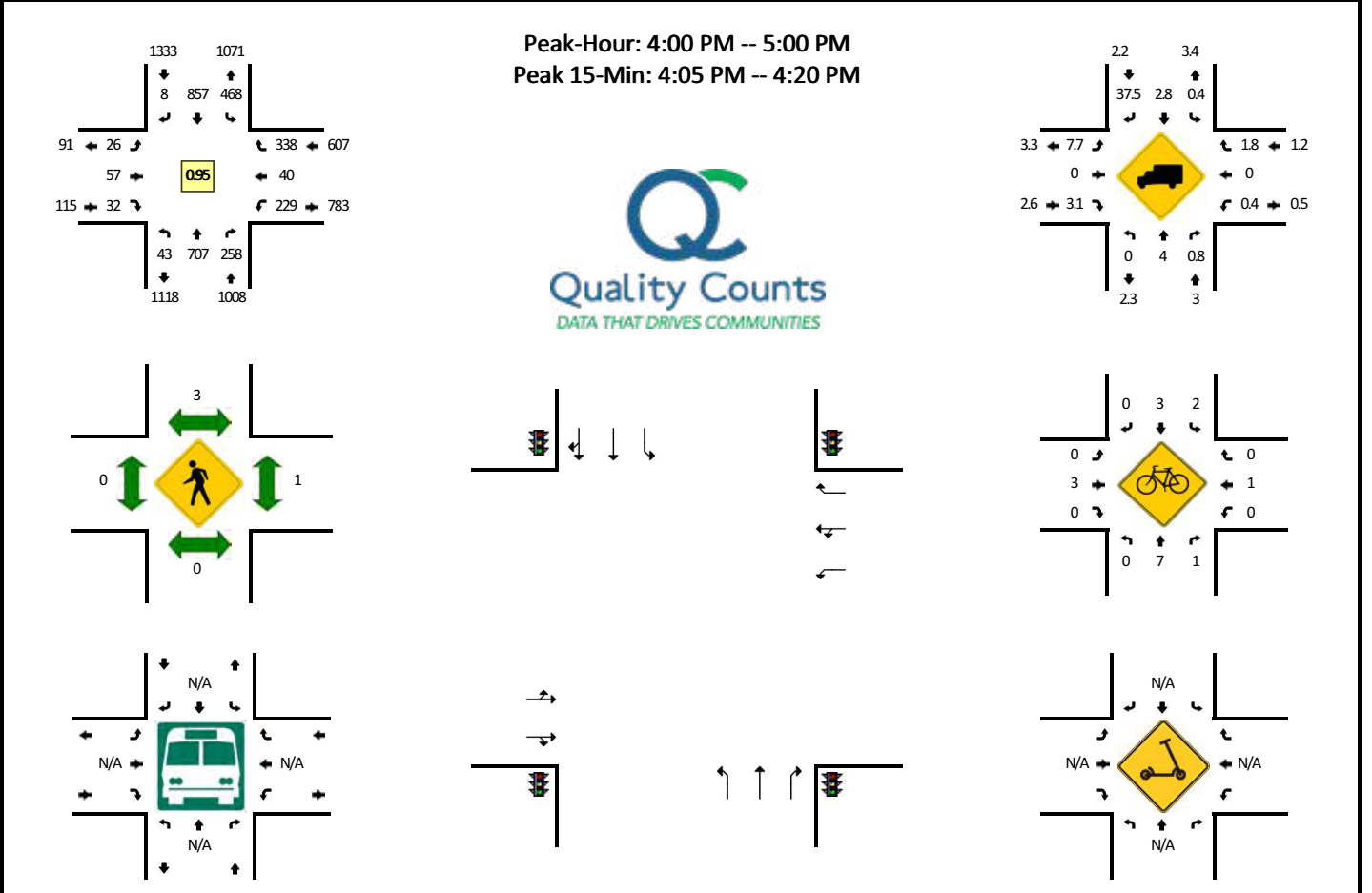
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952631
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	65	19	0	33	82	2	0	3	9	0	0	16	4	24	0	263	
4:05 PM	4	57	24	0	27	59	1	0	2	5	2	0	24	6	35	0	246	
4:10 PM	4	49	17	0	62	80	1	0	4	4	3	0	16	6	34	0	280	
4:15 PM	3	75	34	0	32	73	0	0	4	6	3	0	19	2	33	0	284	
4:20 PM	3	54	27	0	36	69	1	0	0	3	0	0	20	4	21	0	238	
4:25 PM	3	52	16	0	62	66	0	0	2	2	2	0	19	4	21	0	249	
4:30 PM	5	77	26	0	44	75	0	0	1	6	1	0	12	4	24	0	275	
4:35 PM	6	59	21	0	34	72	1	0	3	8	8	0	24	0	31	0	267	
4:40 PM	5	54	20	0	48	81	2	0	2	1	1	0	21	2	26	0	263	
4:45 PM	0	62	23	0	27	82	0	0	2	3	5	0	19	0	33	0	256	
4:50 PM	4	58	16	0	23	58	0	0	2	5	3	0	25	5	25	0	224	
4:55 PM	0	45	15	0	40	60	0	0	1	5	4	0	14	3	31	0	218	3063
5:00 PM	1	50	20	0	27	59	1	0	1	3	6	0	22	2	32	0	224	3024
5:05 PM	3	59	16	0	35	56	0	0	3	5	2	0	15	6	32	0	232	3010
5:10 PM	5	56	10	0	41	42	2	0	2	2	3	0	21	4	19	0	207	2937
5:15 PM	2	54	18	0	39	58	0	0	0	1	1	0	9	6	20	0	208	2861
5:20 PM	1	39	13	0	32	64	1	0	4	3	1	0	18	5	29	0	210	2833
5:25 PM	1	38	21	0	29	46	1	0	2	3	3	0	14	5	24	0	187	2771
5:30 PM	2	39	21	0	34	39	2	0	0	4	1	0	12	2	12	0	168	2664
5:35 PM	3	32	21	0	16	31	0	0	0	5	3	0	12	1	21	0	145	2542
5:40 PM	1	37	10	0	40	67	2	0	2	1	2	0	12	3	21	0	198	2477
5:45 PM	2	20	9	0	23	44	0	0	4	5	1	0	14	3	13	0	138	2359
5:50 PM	1	45	15	0	26	37	0	0	0	0	1	0	12	1	13	0	151	2286
5:55 PM	2	40	20	0	14	53	0	0	0	2	5	0	11	5	13	0	165	2233
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	724	300	0	484	848	8	0	40	60	32	0	236	56	408	0	3240	
Heavy Trucks	0	24	0	0	8	40	8	0	4	0	0	0	0	0	12	0	96	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	4	4		0	4	0		0	0	0		0	0	0		12	
Scoters																		

Comments:

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
 Intersection: Federal Wy / Technology Ln
 City, State: Boise, Idaho
 Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
 Site Code : 00000000
 Start Date : 4/26/2022
 Page No : 1

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
05:00 AM	57	14	0	71	0	0	0	0	1	1	0	2	73
05:15 AM	111	35	0	146	0	1	0	1	1	7	0	8	155
05:30 AM	127	61	0	188	2	0	0	2	2	8	0	10	200
05:45 AM	137	77	0	214	6	0	0	6	1	22	0	23	243
Total	432	187	0	619	8	1	0	9	5	38	0	43	671
06:00 AM	67	19	0	86	2	3	0	5	2	23	0	25	116
06:15 AM	62	32	2	96	1	2	0	3	2	25	0	27	126
06:30 AM	56	33	0	89	1	0	0	1	1	25	0	26	116
06:45 AM	81	28	2	111	0	1	0	1	0	24	3	27	139
Total	266	112	4	382	4	6	0	10	5	97	3	105	497
07:00 AM	74	16	0	90	1	1	0	2	2	12	0	14	106
07:15 AM	85	24	0	109	1	0	0	1	0	4	0	4	114
07:30 AM	118	33	2	153	1	0	0	1	1	5	0	6	160
07:45 AM	168	30	1	199	0	1	0	1	0	14	0	14	214
Total	445	103	3	551	3	2	0	5	3	35	0	38	594
08:00 AM	170	30	0	200	0	0	0	0	0	15	0	15	215
08:15 AM	146	28	0	174	0	1	0	1	0	14	0	14	189
08:30 AM	124	27	2	153	1	0	0	1	0	22	0	22	176
08:45 AM	154	20	2	176	0	0	0	0	1	24	1	26	202
Total	594	105	4	703	1	1	0	2	1	75	1	77	782
09:00 AM	117	24	0	141	0	0	0	0	0	14	0	14	155
09:15 AM	88	25	1	114	1	1	0	2	2	16	1	19	135
09:30 AM	56	11	0	67	1	0	0	1	1	19	0	20	88
09:45 AM	62	5	1	68	0	0	0	0	0	19	0	19	87
Total	323	65	2	390	2	1	0	3	3	68	1	72	465
10:00 AM	36	10	0	46	1	0	0	1	0	18	0	18	65
10:15 AM	31	3	0	34	2	0	0	2	0	18	0	18	54
10:30 AM	35	11	0	46	2	1	0	3	0	20	0	20	69
10:45 AM	27	8	1	36	3	1	0	4	0	28	0	28	68
Total	129	32	1	162	8	2	0	10	0	84	0	84	256
11:00 AM	28	2	0	30	1	0	0	1	0	42	0	42	73
11:15 AM	38	9	1	48	3	0	0	3	0	29	0	29	80
11:30 AM	39	6	0	45	2	0	0	2	0	41	0	41	88
11:45 AM	33	7	0	40	2	0	0	2	0	54	0	54	96
Total	138	24	1	163	8	0	0	8	0	166	0	166	337
12:00 PM	40	11	0	51	2	0	1	3	1	46	0	47	101
12:15 PM	40	7	0	47	1	0	0	1	0	43	0	43	91
12:30 PM	34	9	0	43	0	0	1	1	0	38	0	38	82
12:45 PM	52	10	0	62	7	0	1	8	0	33	0	33	103
Total	166	37	0	203	10	0	3	13	1	160	0	161	377
01:00 PM	50	11	0	61	5	1	1	7	0	29	0	29	97
01:15 PM	39	3	0	42	1	1	1	3	0	31	0	31	76
01:30 PM	36	3	0	39	2	0	1	3	0	30	0	30	72
01:45 PM	25	5	0	30	2	0	0	2	0	21	0	21	53
Total	150	22	0	172	10	2	3	15	0	111	0	111	298

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044

Intersection: Federal Wy / Technology Ln

City, State: Boise, Idaho

Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)

Site Code : 00000000

Start Date : 4/26/2022

Page No : 2

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
02:00 PM	29	8	0	37	1	0	0	1	0	38	0	38	76
02:15 PM	20	6	0	26	3	1	3	7	0	43	0	43	76
02:30 PM	22	7	0	29	3	0	0	3	0	52	0	52	84
02:45 PM	20	2	0	22	0	1	1	2	1	44	0	45	69
Total	91	23	0	114	7	2	4	13	1	177	0	178	305
03:00 PM	15	6	0	21	6	0	0	6	0	63	0	63	90
03:15 PM	21	3	0	24	4	1	0	5	0	69	0	69	98
03:30 PM	21	5	0	26	11	2	0	13	1	78	0	79	118
03:45 PM	12	4	0	16	2	0	0	2	0	109	0	109	127
Total	69	18	0	87	23	3	0	26	1	319	0	320	433
04:00 PM	14	5	0	19	8	2	1	11	0	169	0	169	199
04:15 PM	10	4	0	14	6	4	2	12	0	148	0	148	174
04:30 PM	23	1	0	24	17	3	3	23	0	223	0	223	270
04:45 PM	22	1	0	23	7	0	0	7	0	109	0	109	139
Total	69	11	0	80	38	9	6	53	0	649	0	649	782
05:00 PM	25	4	0	29	4	2	1	7	0	164	0	164	200
05:15 PM	19	6	0	25	6	1	1	8	0	125	0	125	158
05:30 PM	35	9	0	44	9	2	1	12	0	112	0	112	168
05:45 PM	39	4	0	43	4	1	0	5	1	133	0	134	182
Total	118	23	0	141	23	6	3	32	1	534	0	535	708
06:00 PM	24	4	0	28	5	0	0	5	0	129	0	129	162
06:15 PM	26	3	0	29	2	1	1	4	1	81	0	82	115
06:30 PM	7	3	0	10	1	0	0	1	0	84	0	84	95
06:45 PM	9	1	0	10	1	0	0	1	0	55	0	55	66
Total	66	11	0	77	9	1	1	11	1	349	0	350	438
07:00 PM	8	0	0	8	0	0	0	0	0	48	0	48	56
07:15 PM	9	0	0	9	2	0	1	3	0	46	0	46	58
07:30 PM	5	1	0	6	1	0	0	1	0	28	0	28	35
07:45 PM	4	1	0	5	0	0	0	0	0	18	0	18	23
Total	26	2	0	28	3	0	1	4	0	140	0	140	172
Grand Total	3082	775	15	3872	157	36	21	214	22	3002	5	3029	7115
Apprch %	79.6	20	0.4		73.4	16.8	9.8		0.7	99.1	0.2		
Total %	43.3	10.9	0.2	54.4	2.2	0.5	0.3	3	0.3	42.2	0.1	42.6	

Type of report: Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	17	10	0	0	0	0	0	0	0	0	0	0	0	27
01:00 AM	0	18	10	0	0	0	0	0	0	0	0	0	0	0	28
02:00 AM	0	4	1	0	0	2	0	0	0	0	0	0	0	0	7
03:00 AM	0	10	3	0	0	0	0	0	8	1	0	0	0	0	22
04:00 AM	0	17	10	0	0	0	0	0	2	0	0	0	0	0	29
05:00 AM	0	61	41	0	1	2	0	0	3	0	0	0	0	0	108
06:00 AM	1	18	13	0	1	3	0	2	5	0	0	0	0	0	43
07:00 AM	0	31	22	0	3	1	0	0	1	0	0	0	0	0	58
08:00 AM	0	42	29	0	5	1	0	3	5	1	0	0	0	0	86
09:00 AM	1	41	30	0	7	1	1	2	3	0	0	0	0	0	86
10:00 AM	2	111	75	1	5	2	1	2	3	0	0	0	0	0	202
11:00 AM	0	108	73	0	3	2	1	2	2	0	0	0	0	0	191
12:00 PM	1	81	53	0	2	4	0	0	5	1	0	0	0	0	147
01:00 PM	0	121	80	1	5	0	0	3	3	0	0	0	0	0	213
02:00 PM	9	204	136	0	2	0	0	3	4	1	0	0	0	0	359
03:00 PM	10	395	266	0	1	0	0	0	0	1	0	0	0	0	673
04:00 PM	9	414	277	0	5	0	0	1	0	0	0	0	0	0	706
05:00 PM	10	239	156	0	1	0	0	0	0	2	0	0	0	0	408
06:00 PM	4	100	64	0	0	1	0	0	0	0	0	0	0	0	169
07:00 PM	0	33	26	0	1	0	0	0	1	0	1	0	0	0	62
08:00 PM	0	15	8	0	0	0	0	0	0	0	0	0	0	0	23
09:00 PM	1	12	8	0	0	0	0	0	0	0	0	0	0	0	21
10:00 PM	0	12	7	0	0	1	0	0	0	0	0	0	0	0	20
11:00 PM	1	8	4	0	0	0	0	0	0	0	0	0	0	0	13
Day Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															
AM Peak	10:00 AM	10:00 AM	10:00 AM	10:00 AM	9:00 AM	6:00 AM	9:00 AM	8:00 AM	3:00 AM	3:00 AM	12:00 AM	12:00 AM	12:00 AM		10:00 AM
Volume	2	111	75	1	7	3	1	3	8	1	0	0	0		202
PM Peak	3:00 PM	4:00 PM	4:00 PM	1:00 PM	1:00 PM	12:00 PM	12:00 PM	1:00 PM	12:00 PM	5:00 PM	7:00 PM	12:00 PM	12:00 PM		4:00 PM
Volume	10	414	277	1	5	4	0	3	5	2	1	0	0		706

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				27		27			27	
01:00 AM				28		28			28	
02:00 AM				7		7			7	
03:00 AM				22		22			22	
04:00 AM				29		29			29	
05:00 AM				108		108			108	
06:00 AM				43		43			43	
07:00 AM				58		58			58	
08:00 AM				86		86			86	
09:00 AM				86		86			86	
10:00 AM				202		202			202	
11:00 AM				191		191			191	
12:00 PM				147		147			147	
01:00 PM				213		213			213	
02:00 PM				359		359			359	
03:00 PM				673		673			673	
04:00 PM				706		706			706	
05:00 PM				408		408			408	
06:00 PM				169		169			169	
07:00 PM				62		62			62	
08:00 PM				23		23			23	
09:00 PM				21		21			21	
10:00 PM				20		20			20	
11:00 PM				13		13			13	
Day Total				3701		3701			3701	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				10:00 AM 202		10:00 AM 202			10:00 AM 202	
PM Peak Volume				4:00 PM 706		4:00 PM 706			4:00 PM 706	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB, SB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	23	12	0	1	0	0	0	0	0	0	0	0	0	36
01:00 AM	0	22	10	0	0	0	0	0	0	0	0	0	0	0	32
02:00 AM	0	14	5	0	0	2	0	0	1	0	0	0	0	0	22
03:00 AM	0	55	34	0	1	0	0	0	8	1	0	0	0	0	99
04:00 AM	5	395	261	0	4	1	0	1	2	0	0	0	0	0	669
05:00 AM	10	289	195	0	5	3	0	1	5	0	0	0	0	0	508
06:00 AM	11	374	250	0	4	4	0	3	7	0	0	0	0	0	653
07:00 AM	7	487	328	0	9	1	0	0	6	1	0	0	0	0	839
08:00 AM	8	261	175	0	9	1	0	4	6	2	0	0	0	0	466
09:00 AM	4	139	94	0	13	3	2	5	3	0	0	0	0	0	263
10:00 AM	5	213	141	1	12	2	1	4	9	1	0	0	0	0	389
11:00 AM	2	227	150	0	6	3	1	4	6	2	0	0	0	0	401
12:00 PM	1	181	120	0	5	6	0	1	11	1	0	0	0	0	326
01:00 PM	0	180	118	1	10	1	0	6	7	0	0	0	0	0	323
02:00 PM	10	281	188	0	3	0	0	5	7	3	0	0	0	0	497
03:00 PM	10	445	298	0	5	0	0	0	1	1	0	0	0	0	760
04:00 PM	9	507	335	0	7	1	0	2	0	0	0	0	0	0	861
05:00 PM	11	279	180	0	2	0	0	0	0	2	0	0	0	0	474
06:00 PM	6	118	76	0	1	1	0	0	1	0	0	0	0	0	203
07:00 PM	0	44	32	0	2	0	0	0	2	0	1	0	0	0	81
08:00 PM	0	24	11	0	0	0	0	0	1	0	0	0	0	0	36
09:00 PM	1	19	10	0	1	0	0	0	0	0	0	0	0	0	31
10:00 PM	0	17	11	0	1	1	0	0	1	0	0	0	0	0	31
11:00 PM	1	9	4	0	1	0	0	0	0	0	0	0	0	0	15
Day Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															
AM Peak	6:00 AM	7:00 AM	7:00 AM	10:00 AM	9:00 AM	6:00 AM	9:00 AM	9:00 AM	10:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	7:00 AM
Volume	11	487	328	1	13	4	2	5	9	2	0	0	0	0	839
PM Peak	5:00 PM	4:00 PM	4:00 PM	1:00 PM	1:00 PM	12:00 PM	12:00 PM	1:00 PM	12:00 PM	2:00 PM	7:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM
Volume	11	507	335	1	10	6	0	6	11	3	1	0	0	0	861

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB, SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB, SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				36		36			36	
01:00 AM				32		32			32	
02:00 AM				22		22			22	
03:00 AM				99		99			99	
04:00 AM				669		669			669	
05:00 AM				508		508			508	
06:00 AM				653		653			653	
07:00 AM				839		839			839	
08:00 AM				466		466			466	
09:00 AM				263		263			263	
10:00 AM				389		389			389	
11:00 AM				401		401			401	
12:00 PM				326		326			326	
01:00 PM				323		323			323	
02:00 PM				497		497			497	
03:00 PM				760		760			760	
04:00 PM				861		861			861	
05:00 PM				474		474			474	
06:00 PM				203		203			203	
07:00 PM				81		81			81	
08:00 PM				36		36			36	
09:00 PM				31		31			31	
10:00 PM				31		31			31	
11:00 PM				15		15			15	
Day Total				8015		8015			8015	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 839		7:00 AM 839			7:00 AM 839	
PM Peak Volume				4:00 PM 861		4:00 PM 861			4:00 PM 861	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: SB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	6	2	0	1	0	0	0	0	0	0	0	0	0	9
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	10	4	0	0	0	0	0	1	0	0	0	0	0	15
03:00 AM	0	45	31	0	1	0	0	0	0	0	0	0	0	0	77
04:00 AM	5	378	251	0	4	1	0	1	0	0	0	0	0	0	640
05:00 AM	10	228	154	0	4	1	0	1	2	0	0	0	0	0	400
06:00 AM	10	356	237	0	3	1	0	1	2	0	0	0	0	0	610
07:00 AM	7	456	306	0	6	0	0	0	5	1	0	0	0	0	781
08:00 AM	8	219	146	0	4	0	0	1	1	1	0	0	0	0	380
09:00 AM	3	98	64	0	6	2	1	3	0	0	0	0	0	0	177
10:00 AM	3	102	66	0	7	0	0	2	6	1	0	0	0	0	187
11:00 AM	2	119	77	0	3	1	0	2	4	2	0	0	0	0	210
12:00 PM	0	100	67	0	3	2	0	1	6	0	0	0	0	0	179
01:00 PM	0	59	38	0	5	1	0	3	4	0	0	0	0	0	110
02:00 PM	1	77	52	0	1	0	0	2	3	2	0	0	0	0	138
03:00 PM	0	50	32	0	4	0	0	0	1	0	0	0	0	0	87
04:00 PM	0	93	58	0	2	1	0	1	0	0	0	0	0	0	155
05:00 PM	1	40	24	0	1	0	0	0	0	0	0	0	0	0	66
06:00 PM	2	18	12	0	1	0	0	0	1	0	0	0	0	0	34
07:00 PM	0	11	6	0	1	0	0	0	1	0	0	0	0	0	19
08:00 PM	0	9	3	0	0	0	0	0	1	0	0	0	0	0	13
09:00 PM	0	7	2	0	1	0	0	0	0	0	0	0	0	0	10
10:00 PM	0	5	4	0	1	0	0	0	1	0	0	0	0	0	11
11:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
Day Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															
AM Peak Volume	5:00 AM 10	7:00 AM 456	7:00 AM 306	12:00 AM 0	10:00 AM 7	9:00 AM 2	9:00 AM 1	9:00 AM 3	10:00 AM 6	11:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0		7:00 AM 781
PM Peak Volume	6:00 PM 2	12:00 PM 100	12:00 PM 67	12:00 PM 0	1:00 PM 5	12:00 PM 2	12:00 PM 0	1:00 PM 3	12:00 PM 6	2:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0		12:00 PM 179

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				9		9			9	
01:00 AM				4		4			4	
02:00 AM				15		15			15	
03:00 AM				77		77			77	
04:00 AM				640		640			640	
05:00 AM				400		400			400	
06:00 AM				610		610			610	
07:00 AM				781		781			781	
08:00 AM				380		380			380	
09:00 AM				177		177			177	
10:00 AM				187		187			187	
11:00 AM				210		210			210	
12:00 PM				179		179			179	
01:00 PM				110		110			110	
02:00 PM				138		138			138	
03:00 PM				87		87			87	
04:00 PM				155		155			155	
05:00 PM				66		66			66	
06:00 PM				34		34			34	
07:00 PM				19		19			19	
08:00 PM				13		13			13	
09:00 PM				10		10			10	
10:00 PM				11		11			11	
11:00 PM				2		2			2	
Day Total				4314		4314			4314	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 781		7:00 AM 781			7:00 AM 781	
PM Peak Volume				12:00 PM 179		12:00 PM 179			12:00 PM 179	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
03:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
04:00 AM	0	15	10	0	0	0	0	0	0	0	0	0	0		25
05:00 AM	0	13	7	1	1	0	0	0	0	0	0	0	0		22
06:00 AM	2	42	29	4	1	0	0	0	0	0	0	0	0		78
07:00 AM	0	56	39	0	0	0	0	0	0	0	0	0	0		95
08:00 AM	0	38	23	0	4	0	0	0	0	0	0	0	0		65
09:00 AM	0	36	21	0	2	0	0	0	0	0	0	0	0		59
10:00 AM	1	42	29	1	3	0	0	0	1	0	0	0	0		77
11:00 AM	0	56	38	0	3	0	0	1	0	0	0	0	0		98
12:00 PM	0	49	35	0	2	0	0	0	0	0	0	0	0		86
01:00 PM	1	58	40	1	3	1	0	0	0	0	0	0	0		104
02:00 PM	0	81	55	4	0	1	0	0	0	0	0	0	0		141
03:00 PM	0	98	68	2	1	0	0	0	0	0	0	0	0		169
04:00 PM	1	110	73	0	1	0	0	0	0	0	0	0	0		185
05:00 PM	0	92	60	0	0	0	0	0	0	0	0	0	0		152
06:00 PM	1	75	46	0	0	0	0	0	0	0	0	0	0		122
07:00 PM	0	53	38	0	0	0	0	0	1	0	0	0	0		92
08:00 PM	0	30	21	0	0	0	0	0	0	0	0	0	0		51
09:00 PM	0	20	13	0	0	0	0	0	0	0	0	0	0		33
10:00 PM	0	7	3	0	0	0	0	0	0	0	0	0	0		10
11:00 PM	0	4	1	0	0	0	0	0	0	0	0	0	0		5
Day Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															
AM Peak Volume	6:00 AM 2	7:00 AM 56	7:00 AM 39	6:00 AM 4	8:00 AM 4	12:00 AM 0	12:00 AM 0	11:00 AM 1	10:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0		11:00 AM 98
PM Peak Volume	1:00 PM 1	4:00 PM 110	4:00 PM 73	2:00 PM 4	1:00 PM 3	1:00 PM 1	12:00 PM 0	12:00 PM 0	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0		4:00 PM 185

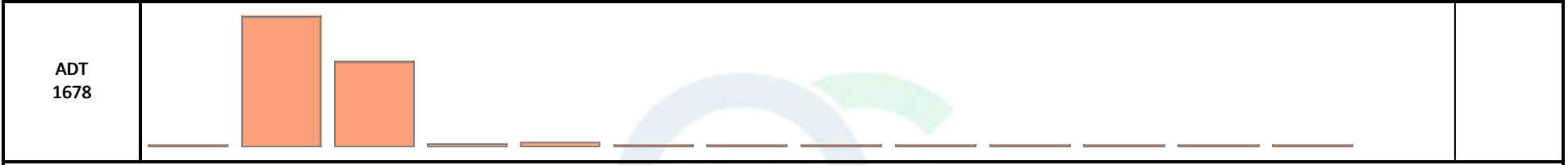
Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		



Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				1		1			1	
03:00 AM				3		3			3	
04:00 AM				25		25			25	
05:00 AM				22		22			22	
06:00 AM				78		78			78	
07:00 AM				95		95			95	
08:00 AM				65		65			65	
09:00 AM				59		59			59	
10:00 AM				77		77			77	
11:00 AM				98		98			98	
12:00 PM				86		86			86	
01:00 PM				104		104			104	
02:00 PM				141		141			141	
03:00 PM				169		169			169	
04:00 PM				185		185			185	
05:00 PM				152		152			152	
06:00 PM				122		122			122	
07:00 PM				92		92			92	
08:00 PM				51		51			51	
09:00 PM				33		33			33	
10:00 PM				10		10			10	
11:00 PM				5		5			5	
Day Total				1678		1678			1678	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				11:00 AM 98		11:00 AM 98			11:00 AM 98	
PM Peak Volume				4:00 PM 185		4:00 PM 185			4:00 PM 185	
Comments:										

Type of report: Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way
SPECIFIC LOCATION:
CITY/STATE: Boise, ID

QC JOB #: 15952633
DIRECTION: EB, WB
DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
03:00 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
04:00 AM	0	41	26	0	0	0	0	0	0	0	0	0	0	0	67
05:00 AM	0	45	31	1	1	0	0	0	0	0	0	0	0	0	78
06:00 AM	4	159	108	6	2	0	0	0	0	0	0	0	0	0	279
07:00 AM	2	162	110	3	0	0	0	0	0	0	0	0	0	0	277
08:00 AM	0	91	57	0	6	0	0	0	0	0	0	0	0	0	154
09:00 AM	0	87	55	0	3	0	0	0	0	0	0	0	0	0	145
10:00 AM	2	95	65	1	6	0	0	0	2	0	0	0	0	0	171
11:00 AM	0	104	71	1	5	0	0	1	0	0	0	0	0	0	182
12:00 PM	0	94	66	0	8	0	0	0	0	0	0	0	0	0	168
01:00 PM	1	116	77	2	6	2	0	1	0	0	0	0	0	0	205
02:00 PM	0	154	103	8	3	2	0	0	0	0	0	0	0	0	270
03:00 PM	0	176	120	4	4	0	0	0	0	0	0	0	0	0	304
04:00 PM	3	197	130	0	2	0	0	0	0	0	0	0	0	0	332
05:00 PM	0	149	100	0	0	0	0	0	0	0	0	0	0	0	249
06:00 PM	1	105	64	0	0	0	0	0	0	0	0	0	0	0	170
07:00 PM	0	78	53	0	1	0	0	0	2	0	0	0	0	0	134
08:00 PM	0	48	33	0	0	0	0	0	0	0	0	0	0	0	81
09:00 PM	0	28	18	0	0	0	0	0	0	0	0	0	0	0	46
10:00 PM	0	12	3	0	0	0	0	0	0	0	0	0	0	0	15
11:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
Day Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															
AM Peak Volume	6:00 AM 4	7:00 AM 162	7:00 AM 110	6:00 AM 6	8:00 AM 6	12:00 AM 0	12:00 AM 0	11:00 AM 1	10:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	6:00 AM 279
PM Peak Volume	4:00 PM 3	4:00 PM 197	4:00 PM 130	2:00 PM 8	12:00 PM 8	1:00 PM 2	12:00 PM 0	1:00 PM 1	7:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	4:00 PM 332

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB, WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				6		6			6	
01:00 AM				4		4			4	
02:00 AM				4		4			4	
03:00 AM				10		10			10	
04:00 AM				67		67			67	
05:00 AM				78		78			78	
06:00 AM				279		279			279	
07:00 AM				277		277			277	
08:00 AM				154		154			154	
09:00 AM				145		145			145	
10:00 AM				171		171			171	
11:00 AM				182		182			182	
12:00 PM				168		168			168	
01:00 PM				205		205			205	
02:00 PM				270		270			270	
03:00 PM				304		304			304	
04:00 PM				332		332			332	
05:00 PM				249		249			249	
06:00 PM				170		170			170	
07:00 PM				134		134			134	
08:00 PM				81		81			81	
09:00 PM				46		46			46	
10:00 PM				15		15			15	
11:00 PM				6		6			6	
Day Total				3357		3357			3357	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 279		6:00 AM 279			6:00 AM 279	
PM Peak Volume				4:00 PM 332		4:00 PM 332			4:00 PM 332	
Comments:										

Type of report: Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
03:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0		7
04:00 AM	0	26	16	0	0	0	0	0	0	0	0	0	0		42
05:00 AM	0	32	24	0	0	0	0	0	0	0	0	0	0		56
06:00 AM	2	117	79	2	1	0	0	0	0	0	0	0	0		201
07:00 AM	2	106	71	3	0	0	0	0	0	0	0	0	0		182
08:00 AM	0	53	34	0	2	0	0	0	0	0	0	0	0		89
09:00 AM	0	51	34	0	1	0	0	0	0	0	0	0	0		86
10:00 AM	1	53	36	0	3	0	0	0	1	0	0	0	0		94
11:00 AM	0	48	33	1	2	0	0	0	0	0	0	0	0		84
12:00 PM	0	45	31	0	6	0	0	0	0	0	0	0	0		82
01:00 PM	0	58	37	1	3	1	0	1	0	0	0	0	0		101
02:00 PM	0	73	48	4	3	1	0	0	0	0	0	0	0		129
03:00 PM	0	78	52	2	3	0	0	0	0	0	0	0	0		135
04:00 PM	2	87	57	0	1	0	0	0	0	0	0	0	0		147
05:00 PM	0	57	40	0	0	0	0	0	0	0	0	0	0		97
06:00 PM	0	30	18	0	0	0	0	0	0	0	0	0	0		48
07:00 PM	0	25	15	0	1	0	0	0	1	0	0	0	0		42
08:00 PM	0	18	12	0	0	0	0	0	0	0	0	0	0		30
09:00 PM	0	8	5	0	0	0	0	0	0	0	0	0	0		13
10:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0		5
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
Day Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															
AM Peak	6:00 AM	6:00 AM	6:00 AM	7:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM		6:00 AM
Volume	2	117	79	3	3	0	0	0	1	0	0	0	0		201
PM Peak	4:00 PM	4:00 PM	4:00 PM	2:00 PM	12:00 PM	1:00 PM	12:00 PM	1:00 PM	7:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM		4:00 PM
Volume	2	87	57	4	6	1	0	1	1	0	0	0	0		147

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				3		3			3	
03:00 AM				7		7			7	
04:00 AM				42		42			42	
05:00 AM				56		56			56	
06:00 AM				201		201			201	
07:00 AM				182		182			182	
08:00 AM				89		89			89	
09:00 AM				86		86			86	
10:00 AM				94		94			94	
11:00 AM				84		84			84	
12:00 PM				82		82			82	
01:00 PM				101		101			101	
02:00 PM				129		129			129	
03:00 PM				135		135			135	
04:00 PM				147		147			147	
05:00 PM				97		97			97	
06:00 PM				48		48			48	
07:00 PM				42		42			42	
08:00 PM				30		30			30	
09:00 PM				13		13			13	
10:00 PM				5		5			5	
11:00 PM				1		1			1	
Day Total				1679		1679			1679	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 201		6:00 AM 201			6:00 AM 201	
PM Peak Volume				4:00 PM 147		4:00 PM 147			4:00 PM 147	

Comments:

APPENDIX C: Scoping Document

TIS SCOPING MEMO

To: Christy Little, ACHD

From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)

cc: Heather Baldwin, Micron
Deborah E. Nelson, Givens Pursley, LLP

Date: October 10, 2022

Re: Traffic Impact Study Scoping Documentation
Proposed Micron FAB1 Development, S Federal Way, Boise, ID

This memorandum conveys current information related to the preliminary scope of a Traffic Impact Study (TIS) for a microprocessor fabrication facility in Boise, Idaho. The following include trip generation, study area, background growth, nearby approved development, trip distribution and analysis scenarios.

Site Description

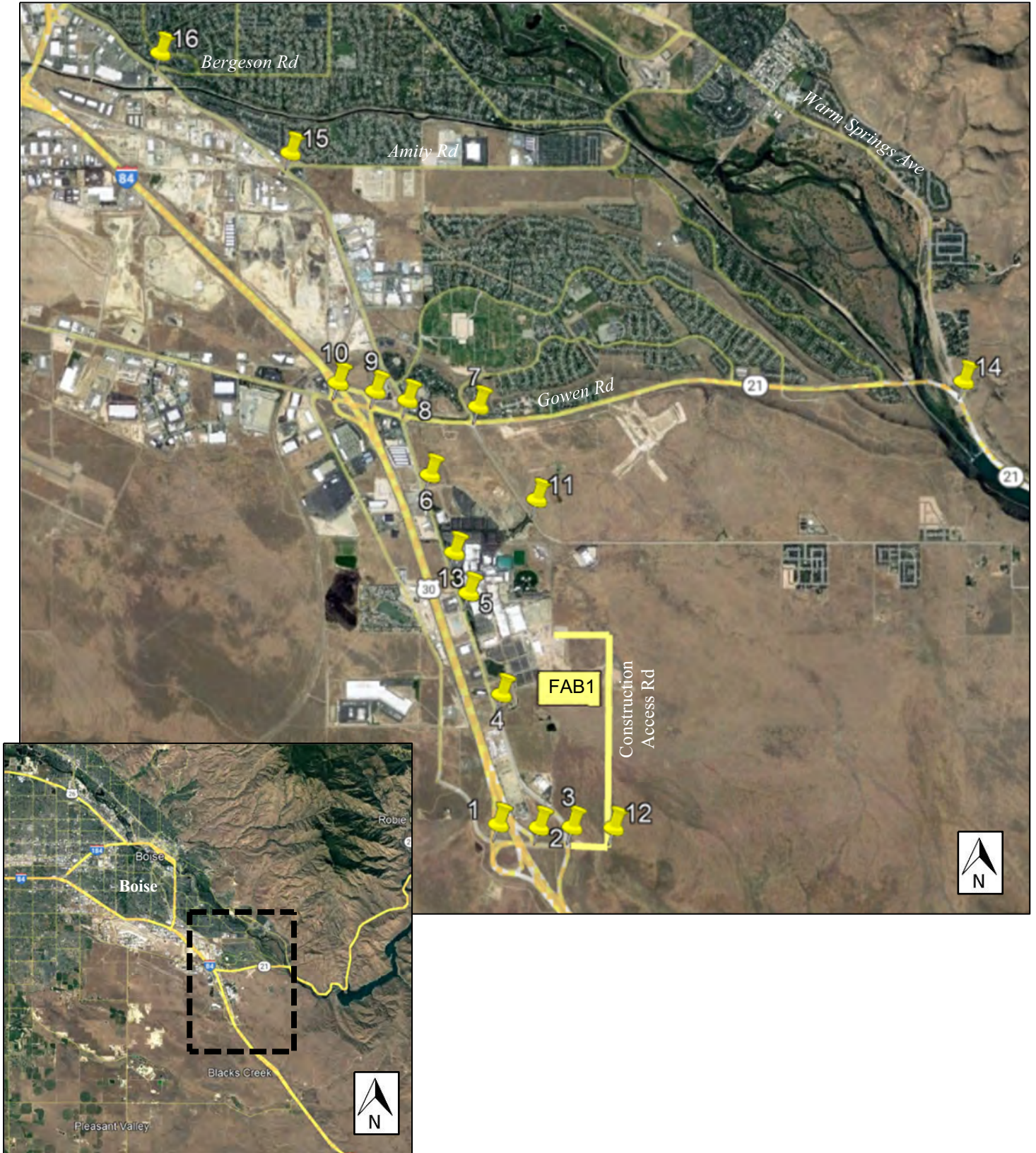
The TIS will comply with all the requirements of the ACHD including analysis, reporting, and development of any necessary mitigation measures meeting minimum design Level-of-Service (LOS) D for suburban roadways and intersections. The proposed development will include several buildings in support of the main fabrication building. The buildings will be east of S Federal Way, north of Memory Lane, and west of Columbia Road. There will be multiple points of egress for the development, all of which are existing. Construction traffic will utilize a temporary road, which will be the extension of Memory Lane.

This study will consider only the first phase of development which will be the Fab building, related office and support buildings, and a vendor building. The site location is shown in Figure 1.

Site Access

Access to the site will be available from existing driveways along S Federal Way and Technology Way.

Figure 1. Site Location and Study Area Map



Site Trip Generation

A new manufacturing facility will be built on land adjacent to the existing Micron R&D campus. The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” with an independent variable of number of employees is the more prudent land use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions.

Table 1. Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

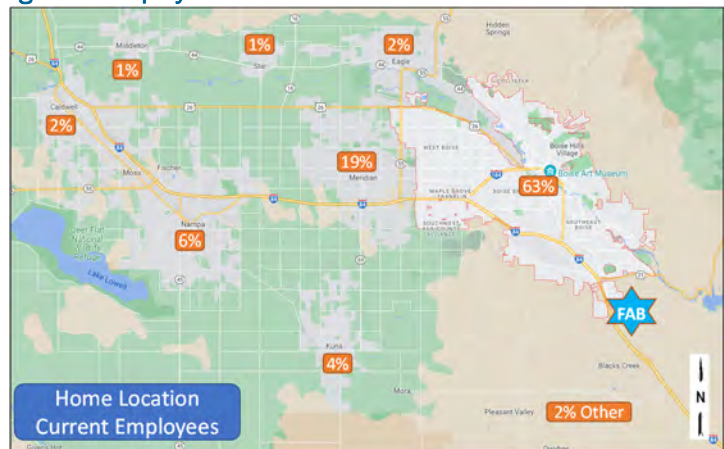
Trip Distribution and Trip Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home locations of current employees is tabulated in Table 2 and shown in Figure 2.

Table 2. Employee Home Base

Current Employee Home City	% of Total
Boise	63%
Meridian	19%
Nampa	6%
Kuna	4%
Caldwell	2%
Eagle	2%
Mountain Home	1%
Middleton	1%
Star	1%
Garden City	0.4%
Emmett	0.4%
Idaho City	0.2%

Figure 2. Employee Home Base



Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 3-5.

Figure 3. Macro Area Trip Distribution – Autos and Trucks



Study Locations

The following intersections and road segments (as illustrated in Figure 1) will be analyzed:

- Intersections
 1. Eisenman Rd & I-84 SB Ramp
 2. Eisenman Rd & I-84 NB On-Ramp
 3. Memory Ln & Federal Way/I-84 NB Off-Ramp
 4. Federal Way & Gate C (signal)
 5. Federal Way & Gate B
 6. Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & Federal Way (signal)
 9. Gowen Road & I-84 NB Ramp (signal)
 10. Gowen Road & I-85 SB Ramp (signal)
 11. Technology Ln & Circuit Way
 - ~~12. Memory Ln & Fab Access Road~~
 13. Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)
- Segments
 - A. Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn I-84 NB Ramp and Federal Way
 - C. Memory Ln, Btwn I-84 NB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way
 - E. Columbia Road, east of Circuit Way

Traffic Counts

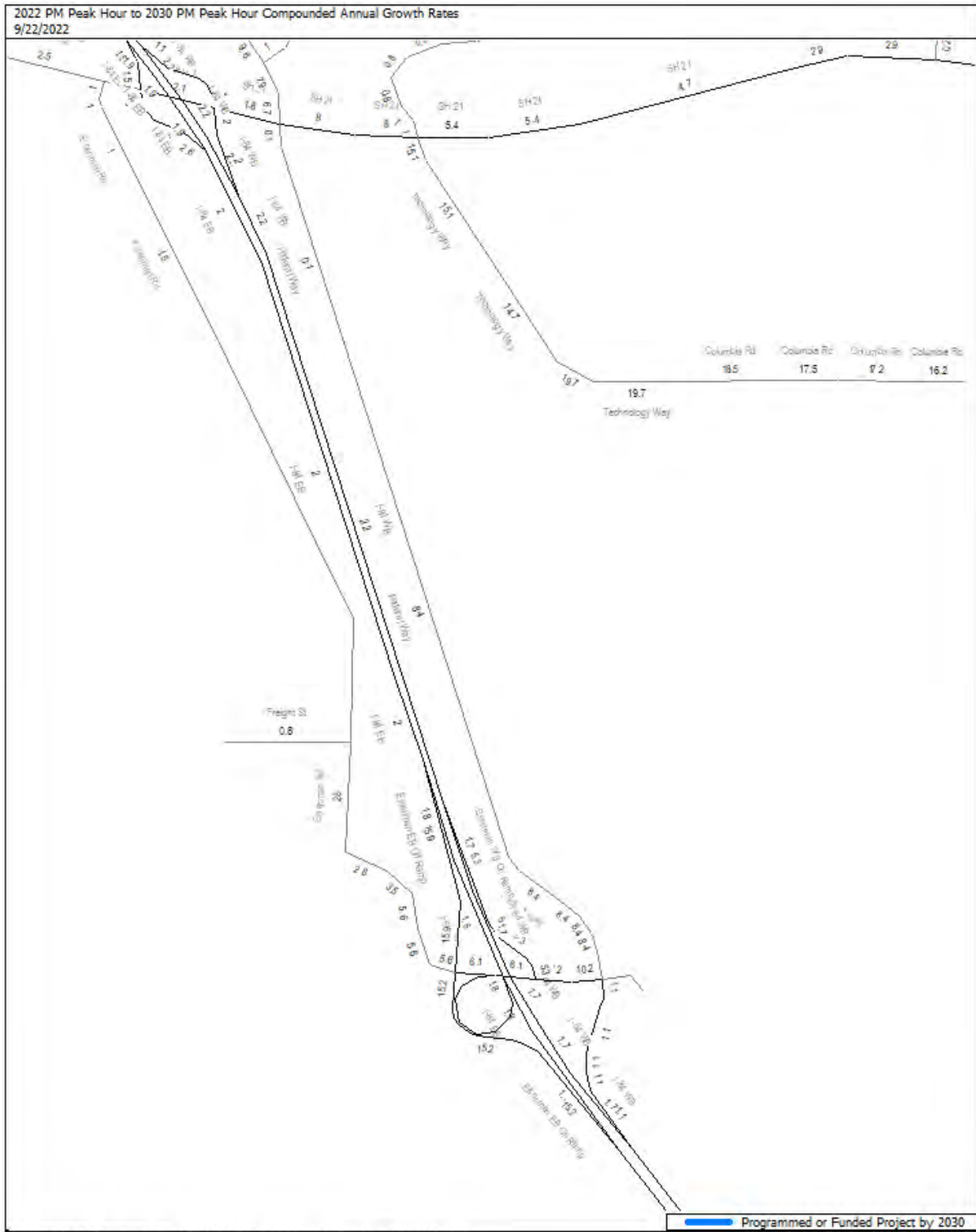
Daily (24-hour) counts, and Intersection turning movement counts will be recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Based on previous traffic counts, the AM Peak Hour is generally between 7:45 and 8:45 am. The PM Peak Hour is between 4:15 and 5:15p. There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low.

Background Growth

Future 2025 turning movement conditions will be forecast utilizing growth rates provided by COMPASS. Table 3 shows the growth changes from the COMPASS model. Figure 7 shows the annual growth rates for each corridor. These rates will be applied to existing traffic counts for three years to determine future year background traffic conditions. No other background project traffic will be considered.

Location	2022-2030 Annual Growth	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	2.5%	1.08
SH 21 w/o Federal Way	1.6%	1.05
SH 21 e/o Federal Way	8.0%	1.26
SH 21 e/o Technology Way	5.4%	1.17
SH 21 w/o Warm Springs	2.9%	1.09
Federal Way s/o SH 21	1.0%	1.00
Federal Way n/o Yamhill Rd	9.6%	1.32
Technology Way, s/o SH 21	15.1%	1.52
Columbia Rd e/o Circuit Way	19.7%	1.72
Eisenman Pkwy/Memory Ln	6.1%	1.19

Figure 7. COMPASS 2022 to 2030 Compounded Annual Growth Rates



Signal Warrants

Signal warrant analysis will be performed for any intersection that is found to exceed ACHD's acceptable v/c ratio of 1.0 in the analysis.

Planned Roadway & Approved Development Projects

There is a planned connector road in the Integrated Five-Year Work Plan (2022-2026). The road would go between Memory Lane and Columbia Road. The alignment of the road has not been determined and no plans current exist. The road will not be considered for this traffic study. Also in the IFYWP is a future widening of Amity Road but the date of such a widening appears to be well into the future.

Analysis Scenarios

Capacity analyses will be completed utilizing Synchro 11® and *Highway Capacity Manual, 6th Edition* methodology. All study intersections will be analyzed during the surrounding roadways' weekday AM and PM peak hours under the following traffic scenarios:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Phase 1 Build with Existing Roadway Conditions

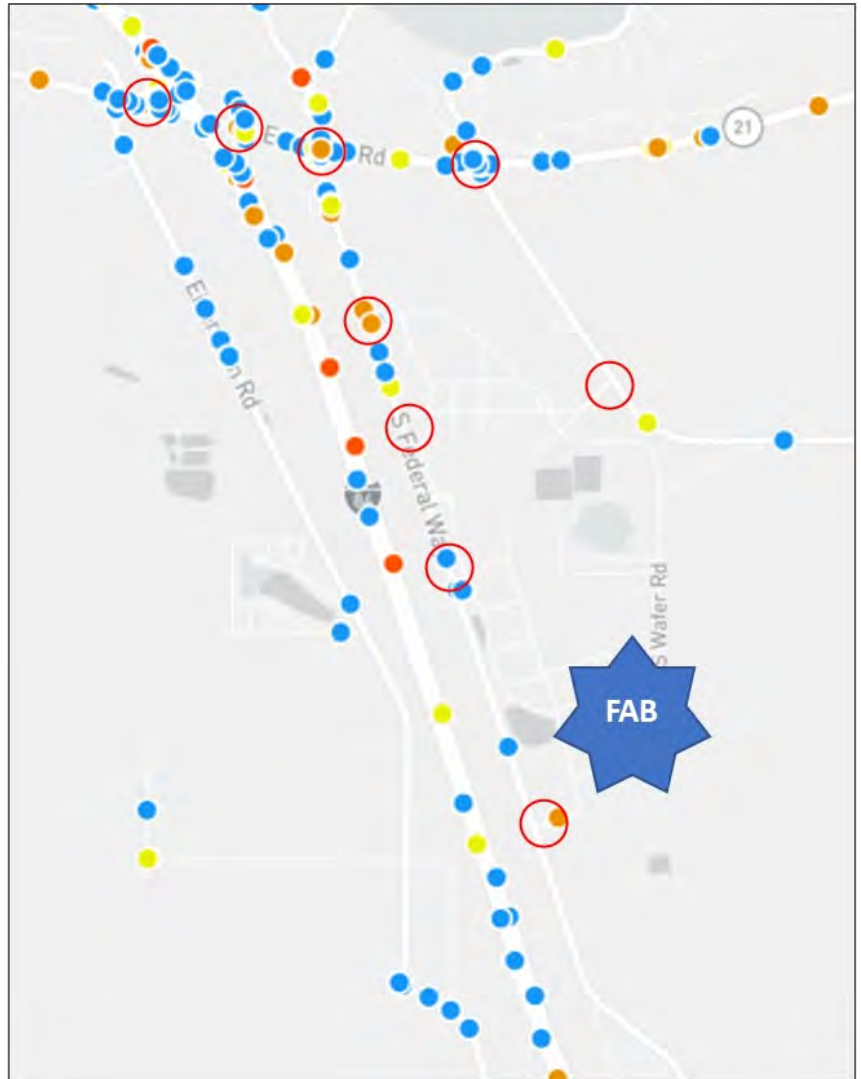
Traffic Operations and Safety Review

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) will be reviewed and summarized at each of the project area intersections. If certain crash trends exist, they will be noted along with possible countermeasure improvements that could be implemented to reduce crash frequency. A further safety review at these locations will not be completed.

A traffic operations review will be performed at the previously noted intersections using Synchro 11 software. In accordance with ACHD Policy, the maximum overall intersection v/c ratio is 0.90 for signalized intersections while the maximum lane group v/c ratio for signalized and unsignalized intersections is 1.0, and 0.85 for roundabouts. Default values as summarized in Policy 7106.6 will be assumed.

Roadway segments will be evaluated using the ACHD LOS Planning Threshold table. Based on the current ACHD Policy Manual, the minimum acceptable LOS for a roadway segment is LOS E for principal arterials and minor arterials, and LOS D for collectors.

Driveway locations will be reviewed to determine if ACHD Access Spacing Policy is met. Additionally, a turn lane analysis in accordance with NCHRP 457 will be performed at the site access points to determine if auxiliary right and left turn lanes are warranted.



Study Area Crashes – 2017-2021 (Source LHTAC)

Report

The TIS report will be prepared with adherence to TIS requirements found in the ACHD General Requirements and Procedures for Development except as may be deviated by this document.

Construction Period Traffic

In a separate analysis and memo, the construction traffic will be assessed relative to the plans and recommendations identified in the TIS. The number of construction vehicles and contractor private vehicles – over time – will be estimated and the expected distribution and relative impacts will be considered. Graphics showing the volume of traffic through the study area will be included in the technical memo. No detailed capacity analysis will be performed unless the volume of traffic appears to be concentrated in any one area and believed to cause problems. In that case, limited capacity analysis will be performed to determine possible construction-time period mitigation.

APPENDIX D: Highway Capacity Worksheets

The following is the required setup for capacity analysis per ACHD guidelines. These were followed, as applicable, in the Synchro analysis.

Variable	Existing Analysis	Future Year Analysis
HCS Analysis Type ¹	Operations	
HCS Report Type	Full Report and Back of Queue Worksheets or Long Report	
HCM Analysis Duration	0.25 hours	
PHF	Actual by approach	0.90 ²
RTOR	Actual count or 0	Existing percentage or 0
Unit Extension	3 sec	
Arrival Type	HCM Exhibit 10-18	
Start Up Time	2 sec	
Extension of Effective Green Time	2 sec	
Walking Speed	4 ft/sec ³	3.5 ft/sec ³
Pedestrian Volume	Actual count or 400 CBD or 50 non-CBD	
Pedestrian Travel Distance	Distance from top of ramp to opposite curb	
Lane Utilization Factor	HCM Exhibit 10-23	
Phasing	Existing	Leading/Protected left turns
Actuation Type	Existing	Fully actuated except Boise CBD
Cycle Length	Use Cycle Length from Table	
Base (Ideal) Saturation Flow Rate	1800	
Lane Width Existing	Existing	Existing ⁴
% Heavy Vehicles	Existing %	
% Grade	Existing %	
Parking maneuvers per hour	HCM Exhibit 10-20	
Bus Stops per hour	HCM Exhibit 10-21	
Yellow Time	4 sec 40 mph and under; 5 sec over 40 mph	
Red Time	1 sec	
Min Vehicle Green Time	5 sec	
Min Pedestrian Green Time	5 sec	
Upstream filtering adjust factor	HCM Exhibit 15-7 5	

¹The preferred software is the latest version of the HCS or Synchro.

²Use existing PHF if existing PHF is > 0.90 and no capacity improvements are planned.

³Use walking speed of 3 ft/sec around certain land uses such as schools.

⁴Use ACHD Policy Manual if improvements will be completed by analysis year.






















⁵Use value of 1.0 if nearest upstream signal is greater than 1/2 mile away.

Synchro Output – Existing Conditions Analysis

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Future Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.79	0.79	0.79	0.67	0.67	0.67	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	10	25	0	0	0	0	37	68	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Future Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	67	67	67	75	75	75	73	73	73
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	49	43	10	25	0	0	0	0	37	0	68

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	92	0	0		70	137	25
Stage 1	-	-	-	-	-	-		45	45	-
Stage 2	-	-	-	-	-	-		25	92	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1264	-	0		925	664	950
Stage 1	0	-	-	-	-	0		972	765	-
Stage 2	0	-	-	-	-	0		989	726	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1264	-	-		918	0	950
Mov Cap-2 Maneuver	-	-	-	-	-	-		918	0	-
Stage 1	-	-	-	-	-	-		972	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1264	-	918	950
HCM Lane V/C Ratio	-	-	0.008	-	0.04	0.072
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↩	↑↑	↑	↗↗		
Traffic Volume (vph)	32	41	23	4	0	0
Future Volume (vph)	32	41	23	4	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.87	0.87	0.75	0.75	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	47	31	5	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Future Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.77	0.90	0.77	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.67	0.67
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1	0	0	1	0	15	21	0	0	0	24
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		TT				TT	
Traffic Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Future Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	90	77	90	90	90	75	75	90	90	67	67
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	51	1	0	0	1	0	15	21	0	0	0	24

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.016	0.024	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	18	32	50	21
Future Volume (vph)	4	7	18	32	50	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	14	20	36	74	31
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.9	5.9	27.2	27.2	27.2	27.2
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.6		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.07
Intersection Signal Delay:	2.8
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	14	20	36	74	31
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022






















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Volume (veh/h)	4	7	18	32	50	21
Future Volume (veh/h)	4	7	18	32	50	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	8	14	20	0	74	31
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	50	44	474		827	423
Arrive On Green	0.03	0.03	0.30	0.00	0.30	0.30
Sat Flow, veh/h	1714	1525	1561	1525	1326	1393
Grp Volume(v), veh/h	8	14	20	0	74	31
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1326	1393
Q Serve(g_s), s	0.1	0.1	0.1	0.0	0.7	0.3
Cycle Q Clear(g_c), s	0.1	0.1	0.1	0.0	0.8	0.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	50	44	474		827	423
V/C Ratio(X)	0.16	0.32	0.04		0.09	0.07
Avail Cap(c_a), veh/h	2185	1944	2653		2678	2367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.8	7.8	4.0	0.0	4.3	4.1
Incr Delay (d2), s/veh	1.5	4.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	11.8	4.1	0.0	4.4	4.2
LnGrp LOS	A	B	A		A	A
Approach Vol, veh/h	22		20			105
Approach Delay, s/veh	10.9		4.1			4.3
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.1		2.1		2.8
Green Ext Time (p_c), s		0.0		0.0		0.3

Intersection Summary		
HCM 6th Ctrl Delay		5.3
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Future Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	39	0	0	24	0	655	123	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Future Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	80	80	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	39	0	22	2	655	119	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1442	1455	62	1393	1456	12	123	0	0	24	0	0
Stage 1	1431	1431	-	23	23	-	-	-	-	-	-	-
Stage 2	11	24	-	1370	1433	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	95	131	996	103	131	1072	1477	-	-	1604	-	-
Stage 1	144	202	-	998	880	-	-	-	-	-	-	-
Stage 2	1014	879	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	78	996	70	78	1072	1477	-	-	1604	-	-
Mov Cap-2 Maneuver	62	78	-	70	78	-	-	-	-	-	-	-
Stage 1	144	120	-	998	880	-	-	-	-	-	-	-
Stage 2	977	879	-	93	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10	0	7.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1477	-	-	-	70	1072	1604	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.036	0.408	-	-
HCM Control Delay (s)	0	-	-	0	57.4	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Future Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.38	0.38	0.38	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	0	3	3	0	21	0	68	0	0	867	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗	↙		↗		↕			↕	↕
Traffic Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Future Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	96	96	96	88	88	88	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	5	0	3	3	0	21	0	68	0	0	864	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	900	-	434	500	-	34	867	0	-	-	-	0
Stage 1	866	-	-	68	-	-	-	-	-	-	-	-
Stage 2	34	-	-	432	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	170	0	367	458	0	1006	785	-	0	0	-	-
Stage 1	231	0	-	940	0	-	-	-	0	0	-	-
Stage 2	854	0	-	577	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	166	-	367	455	-	1006	785	-	-	-	-	-
Mov Cap-2 Maneuver	206	-	-	502	-	-	-	-	-	-	-	-
Stage 1	231	-	-	940	-	-	-	-	-	-	-	-
Stage 2	836	-	-	573	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.2		9.2		0		0	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	785	-	206	367	502	1006	-	-
HCM Lane V/C Ratio	-	-	0.026	0.007	0.006	0.021	-	-
HCM Control Delay (s)	0	-	22.9	14.9	12.2	8.7	-	-
HCM Lane LOS	A	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	237	210	37	504	0	167	39	13	5	216	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.7	90.0	90.0	95.2	88.7		12.6	29.8	29.8	22.8	16.9	
Actuated g/C Ratio	0.67	0.62	0.62	0.66	0.61		0.09	0.21	0.21	0.16	0.12	
v/c Ratio	0.14	0.13	0.21	0.05	0.25		0.61	0.11	0.03	0.02	0.82	
Control Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
LOS	A	B	A	A	B		E	D	A	D	E	
Approach Delay		8.6			14.8			63.6			56.2	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	19	48	0	10	114		79	29	0	4	110	
Queue Length 95th (ft)	38	73	23	24	152		111	59	0	11	143	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

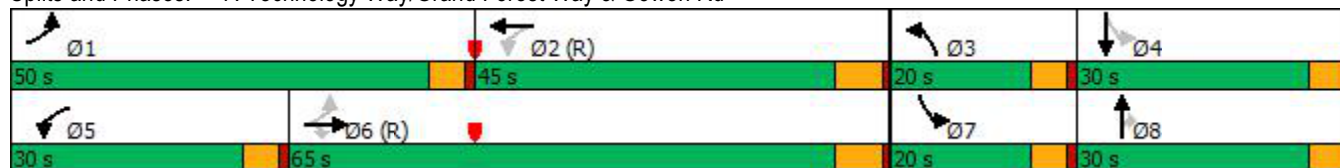


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	672	1845	983	860	2025		326	395	422	329	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25		0.51	0.10	0.03	0.02	0.63	

Intersection Summary

Area Type:	Other
Cycle Length:	145
Actuated Cycle Length:	145
Offset:	70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	25.9
Intersection LOS:	C
Intersection Capacity Utilization	47.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	237	210	37	504	167	39	13	5	216
v/c Ratio	0.14	0.13	0.21	0.05	0.25	0.61	0.11	0.03	0.02	0.82
Control Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Length 50th (ft)	19	48	0	10	114	79	29	0	4	110
Queue Length 95th (ft)	38	73	23	24	152	111	59	0	11	143
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	672	1845	983	860	2025	326	395	422	329	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25	0.51	0.10	0.03	0.02	0.63

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	592	2176		905	2389		213	179		118	74	
Arrive On Green	0.03	0.72	0.00	0.03	0.72	0.00	0.07	0.10	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Cycle Q Clear(g_c), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	592	2176		905	2389		213	179		118	74	
V/C Ratio(X)	0.11	0.11		0.04	0.21		0.78	0.22		0.04	0.67	
Avail Cap(c_a), veh/h	980	2176		1154	2389		331	303		284	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.1	6.1	0.0	5.0	6.9	0.0	66.6	59.8	0.0	66.0	68.5	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	6.4	0.6	0.0	0.1	10.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.0	0.3	2.5	0.0	3.2	1.3	0.0	0.2	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	6.2	0.0	5.0	7.1	0.0	73.1	60.4	0.0	66.1	78.6	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		302			529			206			55	
Approach Delay, s/veh		6.0			6.9			70.7			77.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	109.7	14.7	11.0	8.9	110.5	5.9	19.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	3.8	9.1	9.5	6.0	2.8	5.5	2.4	5.0				
Green Ext Time (p_c), s	0.2	3.4	0.2	0.1	0.1	1.6	0.0	0.1				

Intersection Summary































HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.1	38.6	38.6	9.0	33.7	33.7	7.9	18.2	18.2	28.0	22.0	35.1
Actuated g/C Ratio	0.12	0.43	0.43	0.10	0.37	0.37	0.09	0.20	0.20	0.31	0.24	0.39
v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.19	0.10	0.02	0.29	0.37	0.45
Control Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
LOS	E	B	A	D	C	A	D	C	A	C	C	A
Approach Delay		21.9			22.3			29.5			16.6	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	83	45	10	37	116	0	13	13	0	40	70	4

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

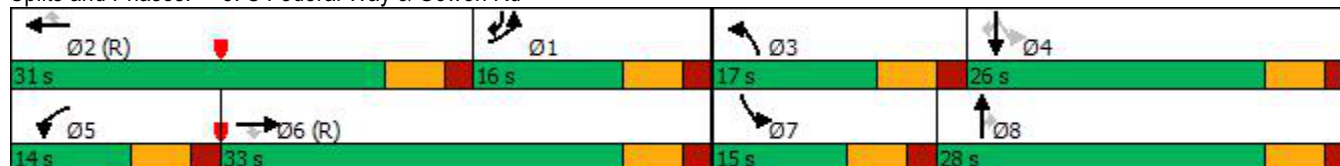
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#150	78	56	77	160	14	28	27	0	75	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1275	914	167	1206	669	413	753	580	400	894	708
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.12	0.08	0.02	0.29	0.33	0.45

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 20.9 Intersection LOS: C
 Intersection Capacity Utilization 59.0% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.19	0.10	0.02	0.29	0.37	0.45
Control Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
Queue Length 50th (ft)	83	45	10	37	116	0	13	13	0	40	70	4
Queue Length 95th (ft)	#150	78	56	77	160	14	28	27	0	75	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1275	914	167	1206	669	413	753	580	400	894	708
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.12	0.08	0.02	0.29	0.33	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1088	1460		141	630		161	366	186	362	536	725
Arrive On Green	0.12	0.16	0.00	0.08	0.19	0.00	0.05	0.12	0.12	0.09	0.16	0.16
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.0	7.8	0.0	3.5	12.2	0.0	1.4	1.6	0.6	5.3	7.4	2.7
Cycle Q Clear(g_c), s	8.0	7.8	0.0	3.5	12.2	0.0	1.4	1.6	0.6	5.3	7.4	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1088	1460		141	630		161	366	186	362	536	725
V/C Ratio(X)	0.26	0.21		0.48	0.74		0.32	0.17	0.06	0.32	0.56	0.44
Avail Cap(c_a), veh/h	1088	1460		169	942		419	765	390	400	786	825
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.95	0.95	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	22.8	0.0	39.4	34.2	0.0	41.2	35.4	34.9	29.9	34.9	3.9
Incr Delay (d2), s/veh	0.1	0.3	0.0	2.4	7.4	0.0	1.1	0.2	0.1	0.5	0.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.9	0.0	1.5	5.3	0.0	0.6	0.6	0.2	2.1	3.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	23.1	0.0	41.8	41.6	0.0	42.3	35.6	35.1	30.4	35.8	4.3
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		25.7			41.6			38.3			21.2	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.7	22.4	9.6	19.3	12.5	48.5	12.9	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.0	14.2	3.4	9.4	5.5	9.8	7.3	3.6				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.2	0.0	1.7	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	1182	0	0	215	603	34	0	33	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.4	78.2			63.5	63.5	10.1		10.6			
Actuated g/C Ratio	0.85	0.87			0.71	0.71	0.11		0.12			
v/c Ratio	0.23	0.30			0.10	0.31	0.21		0.15			
Control Delay	2.6	2.2			3.9	0.9	39.9		1.5			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.6	2.2			3.9	0.9	39.9		1.5			
LOS	A	A			A	A	D		A			
Approach Delay		2.3			1.7			21.0				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	55			12	0	18		0			
Queue Length 95th (ft)	34	65			21	0	39		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

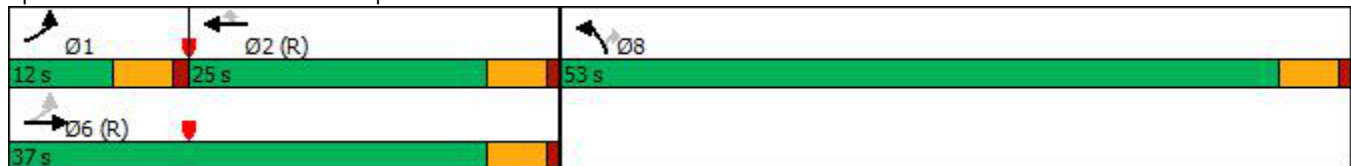
Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	844	3918			2080	1953	766		683			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.10	0.31	0.04		0.05			

Intersection Summary	
Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	2.6
Intersection LOS:	A
Intersection Capacity Utilization	50.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	194	1182	215	603	34	33
v/c Ratio	0.23	0.30	0.10	0.31	0.21	0.15
Control Delay	2.6	2.2	3.9	0.9	39.9	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.2	3.9	0.9	39.9	1.5
Queue Length 50th (ft)	21	55	12	0	18	0
Queue Length 95th (ft)	34	65	21	0	39	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	844	3918	2080	1953	766	683
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.10	0.31	0.04	0.05
Intersection Summary						

HCM 6th Signalized Intersection Summary













9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	194	1182	0	0	215	0	34	0	33			
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	858	3674	0	0	2076		132	0	114			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.10			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	194	1182	0	0	215	0	34	0	33			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.9	6.2	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Cycle Q Clear(g_c), s	2.9	6.2	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	858	3674	0	0	2076		132	0	114			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.10		0.26	0.00	0.29			
Avail Cap(c_a), veh/h	893	3674	0	0	2076		779	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.79	0.79	0.00	0.00	0.92	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.9	2.3	0.0	0.0	12.6	0.0	38.1	0.0	37.8			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.0	0.0	0.0	1.5	0.0	0.7	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	2.5	0.0	0.0	12.7	0.0	39.1	0.0	39.2			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1376			215			67				
Approach Delay, s/veh		2.6			12.7			39.2				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	66.9				76.9		13.1				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.9	7.1				8.2		4.3				
Green Ext Time (p_c), s	0.1	1.0				9.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								
Notes												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		127.1		137.6	137.6					72.4		72.4
Actuated g/C Ratio		0.58		0.63	0.63					0.33		0.33
v/c Ratio		0.21		0.08	0.12					0.81		0.48
Control Delay		23.9		18.6	18.0					73.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		23.9		18.6	18.0					73.7		6.2
LOS		C		B	B					E		A
Approach Delay		23.9			18.1							54.9
Approach LOS		C			B							D
Queue Length 50th (ft)		126		20	63					574		0
Queue Length 95th (ft)		157		45	100					598		75
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

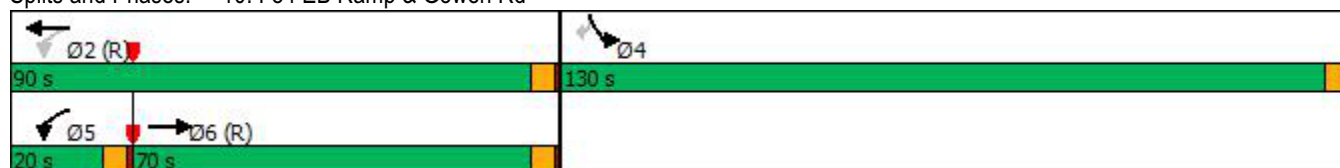
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2422		473	1828					1778		914
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.08	0.12					0.47		0.35

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	42.0
Intersection Capacity Utilization	50.1%
Analysis Period (min)	15
Intersection LOS:	D
ICU Level of Service	A

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.21	0.08	0.12	0.81	0.48
Control Delay	23.9	18.6	18.0	73.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	18.6	18.0	73.7	6.2
Queue Length 50th (ft)	126	20	63	574	0
Queue Length 95th (ft)	157	45	100	598	75
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2422	473	1828	1778	914
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.12	0.47	0.35
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2582	193	535	1987	0				902	0	393
Arrive On Green	0.00	0.63	0.63	0.02	0.67	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4262	308	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Cycle Q Clear(g_c), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1813	962	535	1987	0				902	0	393
V/C Ratio(X)	0.00	0.18	0.18	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1813	962	608	1987	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.2	17.3	13.7	12.9	0.0				76.3	0.0	73.3
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.5	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	4.0	0.7	2.0	0.0				22.9	0.0	34.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.5	17.7	13.7	13.0	0.0				80.9	0.0	77.5
LnGrp LOS	A	B	B	B	B	A				F	A	E
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		17.5			13.1						79.9	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		152.4		67.6	9.5	142.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		7.6		58.0	3.9	12.5						
Green Ext Time (p_c), s		1.5		4.6	0.0	3.5						
Intersection Summary												
HCM 6th Ctrl Delay			54.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	12	169	93	141
Future Volume (vph)	21	3	12	169	93	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.86	0.86
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	4	15	217	108	164
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.4% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 1.2

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	21	3	12	169	93	141
Future Vol, veh/h	21	3	12	169	93	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	78	78	86	86
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	28	4	15	217	108	164

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	355	-	108	0	-	0
Stage 1	108	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-	-
Pot Cap-1 Maneuver	601	0	1495	-	-	0
Stage 1	864	0	-	-	-	0
Stage 2	745	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	595	-	1495	-	-	-
Mov Cap-2 Maneuver	595	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	745	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	11.3	0.5	0
HCM LOS	B		























Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h)	1495	-	595	-	-
HCM Lane V/C Ratio	0.01	-	0.047	-	-
HCM Control Delay (s)	7.4	-	11.3	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Future Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.63	0.63	0.63	0.68	0.68	0.68	0.69	0.69	0.69
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	3	5	0	0	55	0	149	645	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Future Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	63	63	63	68	68	68	69	69	69
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	3	0	5	0	51	4	149	645	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	969	998	323	674	996	28	645	0	0	55	0	0
Stage 1	943	943	-	53	53	-	-	-	-	-	-	-
Stage 2	26	55	-	621	943	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	211	246	679	344	246	1047	950	-	-	1563	-	-
Stage 1	286	344	-	959	855	-	-	-	-	-	-	-
Stage 2	994	853	-	446	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	195	223	679	319	223	1047	950	-	-	1563	-	-
Mov Cap-2 Maneuver	195	223	-	319	223	-	-	-	-	-	-	-
Stage 1	286	311	-	959	855	-	-	-	-	-	-	-
Stage 2	989	853	-	403	311	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.7	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	950	-	-	-	-	319	1047	1563	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.01	0.005	0.096	-	-
HCM Control Delay (s)	0	-	-	0	0	16.4	8.5	7.5	-	-
HCM Lane LOS	A	-	-	A	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	95	153	22	10	111
Future Volume (vph)	74	95	153	22	10	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.79	0.79	0.77	0.77	0.89	0.89
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	120	228	0	11	125
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.6% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 3.7

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	74	95	153	22	10	111
Future Vol, veh/h	74	95	153	22	10	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	77	77	89	89
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	94	120	199	29	11	125

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	228	0	-	0	522	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	308	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1352	-	-	-	519	831
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	750	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1352	-	-	-	483	831
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	750	-

Approach EB WB SB

HCM Control Delay, s	3.4	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1352	-	-	-	483	831
HCM Lane V/C Ratio	0.069	-	-	-	0.023	0.15
HCM Control Delay (s)	7.9	-	-	-	12.6	10.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.5

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	475	0	544	0	245	439	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					14.9	14.9		44.2		64.0	63.0	
Actuated g/C Ratio					0.14	0.14		0.40		0.58	0.57	
v/c Ratio					0.65	0.62		0.43		0.56	0.24	
Control Delay					58.9	7.8		28.3		19.2	17.2	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					58.9	7.8		28.3		19.2	17.2	
LOS					E	A		C		B	B	
Approach Delay					19.6			28.3			18.0	
Approach LOS					B			C			B	
Queue Length 50th (ft)					95	0		162		123	114	
Queue Length 95th (ft)					142	24		194		m140	m116	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					251	805		1254		456	1847	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.57	0.59		0.43		0.54	0.24	

Intersection Summary	
Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization	44.7%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	143	475	544	245	439
v/c Ratio	0.65	0.62	0.43	0.56	0.24
Control Delay	58.9	7.8	28.3	19.2	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	7.8	28.3	19.2	17.2
Queue Length 50th (ft)	95	0	162	123	114
Queue Length 95th (ft)	142	24	194	m140	m116
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	251	805	1254	456	1847
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.59	0.43	0.54	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	142	0	475	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	265	0	405	691	1907	188	632	2489	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.65	0.64	0.08	0.76	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2948	291	1514	3346	0
Grp Volume(v), veh/h	0	0	0	142	0	475	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	8.4	0.0	17.0	0.0	7.8	7.9	5.4	4.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.4	0.0	17.0	0.0	7.8	7.9	5.4	4.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	265	0	405	691	1037	1058	632	2489	0
V/C Ratio(X)	0.00	0.00	0.00	0.54	0.00	1.17	0.00	0.26	0.26	0.39	0.18	0.00
Avail Cap(c_a), veh/h	0	393	0	265	0	405	955	1037	1058	744	2489	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.50	0.50	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.3	0.0	46.5	0.0	8.2	8.3	4.9	3.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.1	0.0	100.8	0.0	0.6	0.6	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.6	0.0	11.2	0.0	2.5	2.6	1.3	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	45.5	0.0	147.3	0.0	8.8	8.9	5.1	3.6	0.0
LnGrp LOS	A	A	A	D	A	F	A	A	A	A	A	A
Approach Vol, veh/h		0			617			544			684	
Approach Delay, s/veh		0.0			123.8			8.9			4.2	
Approach LOS					F			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	76.2		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	7.4	9.9		19.0	0.0	6.0		0.0				
Green Ext Time (p_c), s	0.4	3.0		0.0	0.0	2.7		0.0				

Intersection Summary






















HCM 6th Ctrl Delay	45.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	81	0	142	146	389	31	676	259	239	612	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.5		31.0	31.0	31.0	41.6	41.1	41.1	15.0	52.3	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.38	0.37	0.37	0.14	0.48	
v/c Ratio		0.45		2.37	2.70	0.56	0.14	0.55	0.37	0.58	0.44	
Control Delay		44.8		684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.8		684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1	
LOS		D		F	F	A	B	B	A	D	C	
Approach Delay		44.8			327.6			13.8			30.2	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		21		~172	~184	0	7	90	0	82	162	
Queue Length 95th (ft)		45		#265	#283	71	m16	128	7	119	214	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

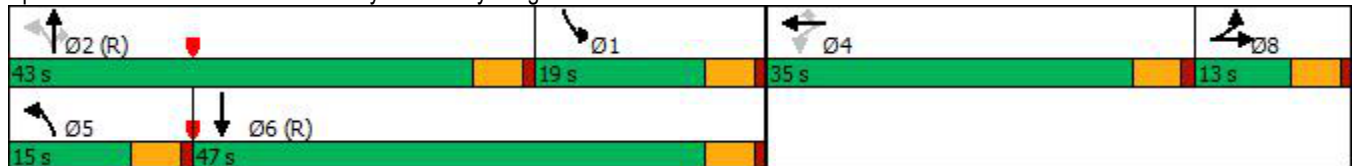
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		192		60	54	697	251	1228	691	411	1393	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.42		2.37	2.70	0.56	0.12	0.55	0.37	0.58	0.44	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.70
Intersection Signal Delay:	102.7
Intersection LOS:	F
Intersection Capacity Utilization	54.2%
ICU Level of Service	A
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	142	146	389	31	676	259	239	612
v/c Ratio	0.45	2.37	2.70	0.56	0.14	0.55	0.37	0.58	0.44
Control Delay	44.8	684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1
Queue Length 50th (ft)	21	~172	~184	0	7	90	0	82	162
Queue Length 95th (ft)	45	#265	#283	71	m16	128	7	119	214
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	192	60	54	697	251	1228	691	411	1393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	2.37	2.70	0.56	0.12	0.55	0.37	0.58	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	279	0	389	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	85	32	49	950	0	419	226	1160	501	507	1357	128
Arrive On Green	0.04	0.05	0.04	0.28	0.00	0.28	0.04	0.35	0.35	0.17	0.48	0.47
Sat Flow, veh/h	1594	594	915	3375	0	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	279	0	389	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	1594	0	1509	1688	0	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	3.2	0.0	2.3	7.1	0.0	27.9	1.6	18.3	15.8	7.8	14.0	14.1
Cycle Q Clear(g_c), s	3.2	0.0	2.3	7.1	0.0	27.9	1.6	18.3	15.8	7.8	14.0	14.1
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	85	0	81	950	0	419	226	1160	501	507	735	750
V/C Ratio(X)	0.56	0.00	0.41	0.29	0.00	0.93	0.14	0.58	0.52	0.47	0.41	0.41
Avail Cap(c_a), veh/h	130	0	123	951	0	420	319	1160	501	507	735	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	50.7	31.0	0.0	38.4	26.0	29.2	28.4	41.6	18.6	18.7
Incr Delay (d2), s/veh	5.7	0.0	3.3	0.2	0.0	26.8	0.2	1.8	3.2	0.7	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.0	2.9	0.0	13.3	0.5	7.3	5.7	2.8	4.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	54.0	31.1	0.0	65.2	26.2	31.0	31.6	42.3	20.3	20.4
LnGrp LOS	E	A	D	C	A	E	C	C	C	D	C	C
Approach Vol, veh/h		81			668			966			851	
Approach Delay, s/veh		55.8			51.0			31.0			26.5	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.2	43.0		35.0	8.1	57.1		9.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	9.8	20.3		29.9	3.6	16.1		5.2				
Green Ext Time (p_c), s	0.3	5.0		0.0	0.0	3.2		0.1				






















Intersection Summary												
HCM 6th Ctrl Delay				35.5								
HCM 6th LOS				D								

Notes
 User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Future Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.79	0.79	0.79	0.67	0.67	0.67	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	75	52	0	0	0	0	7	97	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Future Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	67	67	67	75	75	75	73	73	73
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	41	54	75	52	0	0	0	0	7	0	97

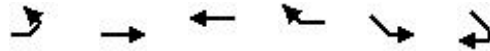
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	95	0	0		223	297	52
Stage 1	-	-	-	-	-	-		202	202	-
Stage 2	-	-	-	-	-	-		21	95	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1260	-	0		750	529	916
Stage 1	0	-	-	-	-	0		826	641	-
Stage 2	0	-	-	-	-	0		994	723	-
Platoon blocked, %		-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	-	1260	-	-		705	0	916
Mov Cap-2 Maneuver	-	-	-	-	-	-		705	0	-
Stage 1	-	-	-	-	-	-		826	0	-
Stage 2	-	-	-	-	-	-		934	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1260	-	705	916
HCM Lane V/C Ratio	-	-	0.059	-	0.01	0.106
HCM Control Delay (s)	-	-	8	-	10.2	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↙	↑↑	↑	↘↘		
Traffic Volume (vph)	30	13	83	72	0	0
Future Volume (vph)	30	13	83	72	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.87	0.87	0.75	0.75	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	15	111	96	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Future Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.77	0.90	0.77	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.67	0.67
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	0	0	0	1	0	33	20	0	0	0	191
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Future Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	90	77	90	90	90	75	75	90	90	67	67
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	16	0	0	0	1	0	33	20	0	0	0	191













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.035	0.022	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	26	4	6	36
Future Volume (vph)	67	101	26	4	6	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	202	29	4	9	53
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.6	7.6	9.0	9.0	9.0	9.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.32	0.32
v/c Ratio	0.29	0.36	0.06	0.01	0.02	0.12
Control Delay	8.7	3.5	7.6	5.5	7.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	3.5	7.6	5.5	7.3	8.1
LOS	A	A	A	A	A	A
Approach Delay	5.6		7.4			8.0
Approach LOS	A		A			A
Queue Length 50th (ft)	11	0	3	0	1	5
Queue Length 95th (ft)	16	1	11	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1322	1228	1458	1450	1166	1322
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.02	0.00	0.01	0.04

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.9
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	6.1
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	202	29	4	9	53
v/c Ratio	0.29	0.36	0.06	0.01	0.02	0.12
Control Delay	8.7	3.5	7.6	5.5	7.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	3.5	7.6	5.5	7.3	8.1
Queue Length 50th (ft)	11	0	3	0	1	5
Queue Length 95th (ft)	16	1	11	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1322	1228	1458	1450	1166	1322
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.02	0.00	0.01	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary




















4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	26	4	6	36
Future Volume (veh/h)	67	101	26	4	6	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	134	202	29	0	9	53
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	385	343	378		649	337
Arrive On Green	0.22	0.22	0.24	0.00	0.24	0.24
Sat Flow, veh/h	1714	1525	1561	1525	1315	1393
Grp Volume(v), veh/h	134	202	29	0	9	53
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1315	1393
Q Serve(g_s), s	1.4	2.4	0.3	0.0	0.1	0.6
Cycle Q Clear(g_c), s	1.4	2.4	0.3	0.0	0.4	0.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	385	343	378		649	337
V/C Ratio(X)	0.35	0.59	0.08		0.01	0.16
Avail Cap(c_a), veh/h	1744	1552	2118		2114	1890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.7	7.1	6.0	0.0	6.2	6.2
Incr Delay (d2), s/veh	0.5	1.6	0.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.3	8.8	6.1	0.0	6.2	6.4
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	336		29			62
Approach Delay, s/veh	8.2		6.1			6.3
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		9.6		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		4.4		2.6
Green Ext Time (p_c), s		0.1		1.0		0.2
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			
Notes						
User approved ignoring U-Turning movement.						
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.						

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Future Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	8	673	0	0	160	0	102	37	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	12.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵			↔		↵	↔	
Traffic Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Future Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	80	80	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	8	0	673	0	157	3	102	37	0




















Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	320	401	19	382	400	80	37	0	0	160	0	0
Stage 1	241	241	-	159	159	-	-	-	-	-	-	-
Stage 2	79	160	-	223	241	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	614	541	1061	556	541	971	1587	-	-	1432	-	-
Stage 1	747	710	-	833	770	-	-	-	-	-	-	-
Stage 2	927	769	-	765	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	179	503	1061	526	503	971	1587	-	-	1432	-	-
Mov Cap-2 Maneuver	179	503	-	526	503	-	-	-	-	-	-	-
Stage 1	747	660	-	833	770	-	-	-	-	-	-	-
Stage 2	285	769	-	711	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.3	16.5	0	5.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	179	526	971	1432	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.014	0.693	0.071	-	-
HCM Control Delay (s)	0	-	-	25.3	11.9	16.6	7.7	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.8	0.2	-	-


Lanes, Volumes, Timings
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	742	0	1	0	153
Future Volume (vph)	1	0	0	1	0	145	0	742	0	1	0	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45				45
Link Distance (ft)		255			1077			2303				2188
Travel Time (s)		7.0			21.0			34.9				33.2
Peak Hour Factor	0.38	0.38	0.38	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	0	0	1	0	151	0	843	0	0	0	172
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.5%
	ICU Level of Service A
Analysis Period (min)	15



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	67%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↙		↗	↙		↗	↔	↔				↔	↔
Traffic Vol, veh/h	1	0	0	1	0	145	0	742	0	1	0	153	1
Future Vol, veh/h	1	0	0	1	0	145	0	742	0	1	0	153	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	38	38	38	96	96	96	88	88	88	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	2	0	2	67
Mvmt Flow	3	0	0	1	0	151	0	843	0	1	0	170	1

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	595	-	86	930	-	422	171	0	-	843	-	-	0
Stage 1	173	-	-	843	-	-	-	-	-	-	-	-	-
Stage 2	422	-	-	87	-	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	6.44	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	2.52	-	-	-
Pot Cap-1 Maneuver	302	0	712	225	0	559	1418	-	0	419	0	-	-
Stage 1	690	0	-	329	0	-	-	-	0	-	0	-	-
Stage 2	468	0	-	917	0	-	-	-	0	-	0	-	-
Platoon blocked, %													
Mov Cap-1 Maneuver	220	-	712	224	-	559	1418	-	-	310	-	-	-
Mov Cap-2 Maneuver	220	-	-	224	-	-	-	-	-	-	-	-	-
Stage 1	690	-	-	329	-	-	-	-	-	-	-	-	-
Stage 2	342	-	-	913	-	-	-	-	-	-	-	-	-
























Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.6		13.9		0		0.1	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1418	-	220	-	224	559	-	-
HCM Lane V/C Ratio	-	-	0.012	-	0.005	0.27	-	-
HCM Control Delay (s)	0	-	21.6	0	21.1	13.8	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	613	220	17	377	0	196	35	35	8	171	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.2	91.7	91.7	82.2	75.2		13.1	23.3	23.3	15.8	9.7	
Actuated g/C Ratio	0.72	0.68	0.68	0.61	0.56		0.10	0.17	0.17	0.12	0.07	
v/c Ratio	0.46	0.30	0.21	0.03	0.20		0.64	0.12	0.11	0.05	0.70	
Control Delay	10.1	10.8	2.1	8.3	17.0		68.3	45.5	0.7	40.0	26.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.1	10.8	2.1	8.3	17.0		68.3	45.5	0.7	40.0	26.6	
LOS	B	B	A	A	B		E	D	A	D	C	
Approach Delay		8.9			16.6			56.4			27.2	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	69	86	0	4	78		86	26	0	6	15	
Queue Length 95th (ft)	120	163	21	12	123		119	54	0	16	49	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	593	2019	1059	616	1845		351	582	538	284	586	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.45	0.30	0.21	0.03	0.20		0.56	0.06	0.07	0.03	0.29	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	135
Offset:	70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	18.7
Intersection LOS:	B
Intersection Capacity Utilization	51.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	268	613	220	17	377	196	35	35	8	171
v/c Ratio	0.46	0.30	0.21	0.03	0.20	0.64	0.12	0.11	0.05	0.70
Control Delay	10.1	10.8	2.1	8.3	17.0	68.3	45.5	0.7	40.0	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	10.8	2.1	8.3	17.0	68.3	45.5	0.7	40.0	26.6
Queue Length 50th (ft)	69	86	0	4	78	86	26	0	6	15
Queue Length 95th (ft)	120	163	21	12	123	119	54	0	16	49
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	593	2019	1059	616	1845	351	582	538	284	586
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.30	0.21	0.03	0.20	0.56	0.06	0.07	0.03	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	268	613	0	17	367	0	196	35	0	8	17	0
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	676	2165		613	2195		246	177		116	60	
Arrive On Green	0.08	0.72	0.00	0.02	0.66	0.00	0.08	0.10	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	268	613	0	17	367	0	196	35	0	8	17	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	8.1	9.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.6	1.2	0.0
Cycle Q Clear(g_c), s	8.1	9.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.6	1.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	676	2165		613	2195		246	177		116	60	
V/C Ratio(X)	0.40	0.28		0.03	0.17		0.80	0.20		0.07	0.29	
Avail Cap(c_a), veh/h	723	2165		774	2195		355	586		290	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.6	6.8	0.0	7.2	8.9	0.0	61.3	55.7	0.0	62.1	63.7	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	7.9	0.5	0.0	0.2	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.0	0.0	0.2	2.1	0.0	3.5	1.1	0.0	0.3	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.9	7.1	0.0	7.2	9.1	0.0	69.2	56.3	0.0	62.4	66.3	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		881			384			231			25	
Approach Delay, s/veh		6.7			9.0			67.2			65.0	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	94.7	15.4	9.5	7.4	102.8	6.3	18.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	10.1	7.7	10.1	3.2	2.4	11.7	2.6	4.5				
Green Ext Time (p_c), s	0.4	2.5	0.2	0.1	0.0	4.4	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	39.0	52.0	52.0	17.0	30.0	30.0	50.0	56.0	56.0	25.0	31.0	39.0
Total Split (%)	26.0%	34.7%	34.7%	11.3%	20.0%	20.0%	33.3%	37.3%	37.3%	16.7%	20.7%	26.0%
Maximum Green (s)	34.0	47.0	47.0	12.0	25.0	25.0	45.0	51.0	51.0	20.0	26.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	33.2	66.7	66.7	9.0	34.7	34.7	36.2	46.3	46.3	49.6	29.9	67.1
Actuated g/C Ratio	0.22	0.44	0.44	0.06	0.23	0.23	0.24	0.31	0.31	0.33	0.20	0.45
v/c Ratio	0.88	0.48	0.16	0.10	0.64	0.21	0.82	0.43	0.13	0.67	0.10	0.62
Control Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
LOS	E	C	A	E	E	A	E	D	A	D	D	C
Approach Delay		47.6			50.1			51.2			32.6	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	268	231	0	10	243	0	294	149	0	146	25	210

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

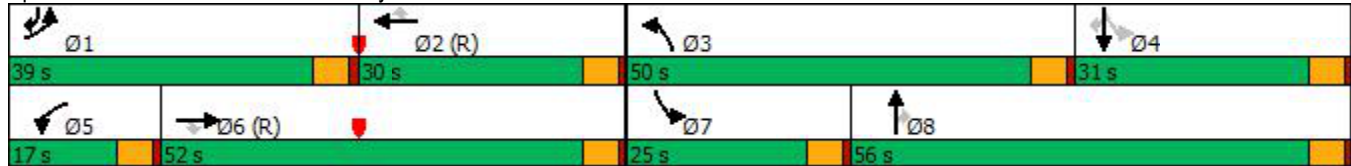
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#343	337	41	30	#319	0	313	182	0	212	51	354
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1322	736	145	746	466	950	1036	618	409	745	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.48	0.16	0.07	0.64	0.21	0.65	0.37	0.11	0.65	0.09	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 46.1 Intersection LOS: D
 Intersection Capacity Utilization 65.6% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022
































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
v/c Ratio	0.88	0.48	0.16	0.10	0.64	0.21	0.82	0.43	0.13	0.67	0.10	0.62
Control Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
Queue Length 50th (ft)	268	231	0	10	243	0	294	149	0	146	25	210
Queue Length 95th (ft)	#343	337	41	30	#319	0	313	182	0	212	51	354
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1322	736	145	746	466	950	1036	618	409	745	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.48	0.16	0.07	0.64	0.21	0.65	0.37	0.11	0.65	0.09	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 		 	 			 	
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	615	1409		42	913		698	784	399	420	606	532
Arrive On Green	0.21	0.47	0.00	0.02	0.28	0.00	0.22	0.26	0.26	0.14	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	27.8	21.1	0.0	0.9	18.7	0.0	28.3	16.5	5.4	19.3	2.4	27.0
Cycle Q Clear(g_c), s	27.8	21.1	0.0	0.9	18.7	0.0	28.3	16.5	5.4	19.3	2.4	27.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	615	1409		42	913		698	784	399	420	606	532
V/C Ratio(X)	0.90	0.45		0.24	0.53		0.88	0.50	0.18	0.63	0.11	0.76
Avail Cap(c_a), veh/h	679	1409		146	913		964	1038	529	420	606	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	27.0	0.0	71.7	45.6	0.0	56.4	46.9	42.9	41.3	51.4	39.6
Incr Delay (d2), s/veh	13.6	1.0	0.0	2.7	2.0	0.0	7.1	0.5	0.2	3.0	0.1	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	7.8	0.0	0.4	7.8	0.0	11.8	6.2	2.1	8.2	1.0	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.2	27.9	0.0	74.5	47.6	0.0	63.5	47.4	43.1	44.3	51.5	46.0
LnGrp LOS	E	C		E	D		E	D	D	D	D	D
Approach Vol, veh/h		1185			491			1072				734
Approach Delay, s/veh		48.1			48.2			56.3				45.8
Approach LOS		D			D			E				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.7	46.0	37.3	31.0	7.7	74.0	25.0	43.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	34.0	25.0	45.0	26.0	12.0	47.0	20.0	51.0				
Max Q Clear Time (g_c+I1), s	29.8	20.7	30.3	29.0	2.9	23.1	21.3	18.5				
Green Ext Time (p_c), s	0.9	1.2	2.0	0.0	0.0	4.4	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			50.2									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	411	1360	0	0	364	1097	47	0	80	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	109.5	109.5			91.2	91.2	11.0		11.5			
Actuated g/C Ratio	0.84	0.84			0.70	0.70	0.08		0.09			
v/c Ratio	0.54	0.36			0.18	0.52	0.39		0.45			
Control Delay	5.1	2.7			7.4	1.5	65.5		19.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.1	2.7			7.4	1.5	65.5		19.6			
LOS	A	A			A	A	E		B			
Approach Delay		3.2			2.9			36.6				
Approach LOS		A			A			D				
Queue Length 50th (ft)	53	67			47	0	39		0			
Queue Length 95th (ft)	88	91			84	25	66		31			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

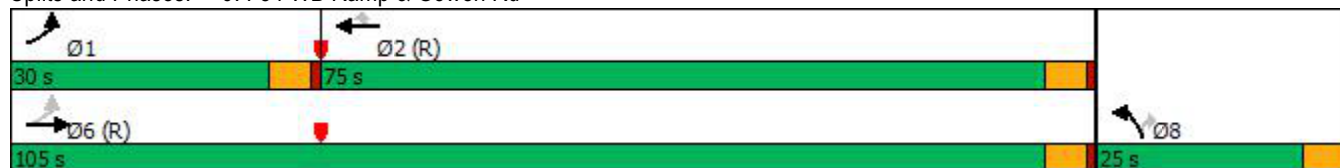


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	828	3796			2067	2092	221		255			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.50	0.36			0.18	0.52	0.21		0.31			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	4.4
Intersection LOS:	A
Intersection Capacity Utilization	77.7%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	411	1360	364	1097	47	80
v/c Ratio	0.54	0.36	0.18	0.52	0.39	0.45
Control Delay	5.1	2.7	7.4	1.5	65.5	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	2.7	7.4	1.5	65.5	19.6
Queue Length 50th (ft)	53	67	47	0	39	0
Queue Length 95th (ft)	88	91	84	25	66	31
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	828	3796	2067	2092	221	255
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.36	0.18	0.52	0.21	0.31
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	411	1360	0	0	364	0	47	0	80			
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	834	3861	0	0	2154		120	0	102			
Arrive On Green	0.09	0.85	0.00	0.00	0.72	0.00	0.08	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	411	1360	0	0	364	0	47	0	80			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.1	8.5	0.0	0.0	5.0	0.0	4.0	0.0	8.5			
Cycle Q Clear(g_c), s	8.1	8.5	0.0	0.0	5.0	0.0	4.0	0.0	8.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	834	3861	0	0	2154		120	0	102			
V/C Ratio(X)	0.49	0.35	0.00	0.00	0.17		0.39	0.00	0.78			
Avail Cap(c_a), veh/h	998	3861	0	0	2154		225	0	188			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.66	0.66	0.00	0.00	0.64	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.0	2.2	0.0	0.0	5.8	0.0	56.6	0.0	58.2			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	12.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.7	0.0	0.0	1.5	0.0	1.5	0.0	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.4	0.0	0.0	5.9	0.0	58.7	0.0	70.5			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1771			364			127				
Approach Delay, s/veh		2.6			5.9			66.1				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.3	98.1				114.4		15.6				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.1	7.0				10.5		10.5				
Green Ext Time (p_c), s	1.2	2.6				14.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.













Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	71	316	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		102.1		116.3	116.3					63.7		63.7
Actuated g/C Ratio		0.54		0.61	0.61					0.34		0.34
v/c Ratio		0.36		0.22	0.18					0.96		0.38
Control Delay		25.8		17.1	16.6					80.1		6.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		25.8		17.1	16.6					80.1		6.3
LOS		C		B	B					F		A
Approach Delay		25.8			16.7							66.4
Approach LOS		C			B							E
Queue Length 50th (ft)		208		36	89					628		0
Queue Length 95th (ft)		219		61	116					#761		66
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2254		355	1788					1070		617
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.36		0.20	0.18					0.94		0.37

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

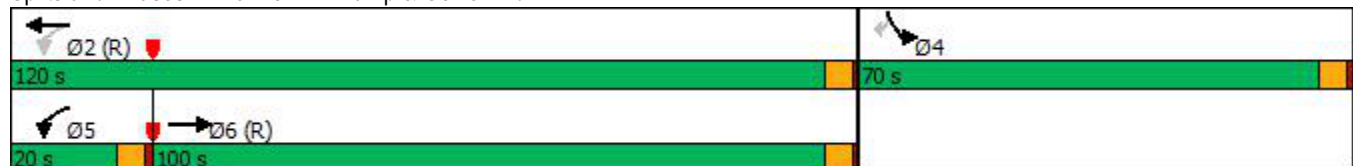
Intersection Signal Delay: 45.0 Intersection LOS: D

Intersection Capacity Utilization 77.7% ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	806	71	316	1003	229
v/c Ratio	0.36	0.22	0.18	0.96	0.38
Control Delay	25.8	17.1	16.6	80.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	17.1	16.6	80.1	6.3
Queue Length 50th (ft)	208	36	89	628	0
Queue Length 95th (ft)	219	61	116	#761	66
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2254	355	1788	1070	617
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.20	0.18	0.94	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	746	60	71	316	0				1003	0	229
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2296	184	366	1829	0				1048	0	457
Arrive On Green	0.00	0.56	0.56	0.03	0.62	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	4239	328	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	526	280	71	316	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	18.5	18.7	3.7	8.7	0.0				58.9	0.0	25.2
Cycle Q Clear(g_c), s	0.0	18.5	18.7	3.7	8.7	0.0				58.9	0.0	25.2
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1622	858	366	1829	0				1048	0	457
V/C Ratio(X)	0.00	0.32	0.33	0.19	0.17	0.00				0.96	0.00	0.50
Avail Cap(c_a), veh/h	0	1622	858	441	1829	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.4	22.4	17.1	15.6	0.0				62.3	0.0	51.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.2	0.0				17.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	7.1	1.4	3.1	0.0				25.6	0.0	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.9	23.5	17.4	15.8	0.0				79.9	0.0	51.9
LnGrp LOS	A	C	C	B	B	A				E	A	D
Approach Vol, veh/h		806			387						1232	
Approach Delay, s/veh		23.1			16.1						74.7	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		122.2		67.8	10.6	111.5						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		10.7		60.9	5.7	20.7						
Green Ext Time (p_c), s		2.3		2.0	0.1	6.2						

Intersection Summary

HCM 6th Ctrl Delay	48.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	1	147	174	29
Future Volume (vph)	73	11	1	147	174	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.86	0.86
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	15	1	188	202	34
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 2.5

Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 

Traffic Vol, veh/h 73 11 1 147 174 29

Future Vol, veh/h 73 11 1 147 174 29

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 75 75 78 78 86 86

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 97 15 1 188 202 34

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 392 - 202 0 - 0

Stage 1 202 - - - - -

Stage 2 190 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 572 0 1382 - - 0

Stage 1 782 0 - - - 0

Stage 2 792 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 571 - 1382 - - -

Mov Cap-2 Maneuver 571 - - - - -

Stage 1 781 - - - - -

Stage 2 792 - - - - -

Approach EB NB SB

HCM Control Delay, s 12.6 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1382 - 571 - -

HCM Lane V/C Ratio 0.001 - 0.17 - -

HCM Control Delay (s) 7.6 - 12.6 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0 - 0.6 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Future Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.63	0.63	0.63	0.68	0.68	0.68	0.69	0.69	0.69
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	14	60	0	0	954	0	16	100	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Future Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	63	63	63	68	68	68	69	69	69
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	14	0	60	0	954	0	16	100	0

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	609	1086	50	1036	1086	477	100	0	0	954	0	0
Stage 1	132	132	-	954	954	-	-	-	-	-	-	-
Stage 2	477	954	-	82	132	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	383	218	1014	189	218	540	1505	-	-	729	-	-
Stage 1	864	791	-	282	340	-	-	-	-	-	-	-
Stage 2	543	340	-	923	791	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	334	213	1014	186	213	540	1505	-	-	729	-	-
Mov Cap-2 Maneuver	334	213	-	186	213	-	-	-	-	-	-	-
Stage 1	864	774	-	282	340	-	-	-	-	-	-	-
Stage 2	482	340	-	903	774	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15.1	0	1.4
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1505	-	-	-	-	186	540	729	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.077	0.112	0.022	-	-
HCM Control Delay (s)	0	-	-	0	0	26	12.5	10	-	-
HCM Lane LOS	A	-	-	A	A	D	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	0.4	0.1	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	131	246	142	18	44	112
Future Volume (vph)	131	246	142	18	44	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.79	0.79	0.77	0.77	0.89	0.89
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	311	207	0	49	126
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	131	246	142	18	44	112
Future Vol, veh/h	131	246	142	18	44	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	77	77	89	89
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	166	311	184	23	49	126

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	207	0	-	0	839	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1376	-	-	-	339	850
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1376	-	-	-	298	850
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	527	-

Approach EB WB SB

HCM Control Delay, s	2.8	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1376	-	-	-	298	850
HCM Lane V/C Ratio	0.121	-	-	-	0.166	0.148
HCM Control Delay (s)	8	-	-	-	19.5	10
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.6	0.5

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	113	460	1	887	0	470	641	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			14.6	14.6	42.6	35.0		79.4	76.3	
Actuated g/C Ratio		0.20			0.11	0.11	0.33	0.27		0.61	0.59	
v/c Ratio		0.00			0.62	0.66	0.00	1.07		0.94	0.34	
Control Delay		0.0			69.6	9.4	17.0	94.4		58.3	19.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			69.6	9.4	17.0	94.4		58.3	19.2	
LOS		A			E	A	B	F		E	B	
Approach Delay					21.2			94.3			35.8	
Approach LOS					C			F			D	
Queue Length 50th (ft)		0			91	0	0	~426		~443	136	
Queue Length 95th (ft)		0			135	24	3	#474		m#510	m184	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		516			213	741	426	832		501	1892	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.53	0.62	0.00	1.07		0.94	0.34	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	125
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.07
Intersection Signal Delay:	52.7
Intersection LOS:	D
Intersection Capacity Utilization	69.0%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	113	460	1	887	470	641
v/c Ratio	0.00	0.62	0.66	0.00	1.07	0.94	0.34
Control Delay	0.0	69.6	9.4	17.0	94.4	58.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	69.6	9.4	17.0	94.4	58.3	19.2
Queue Length 50th (ft)	0	91	0	0	~426	~443	136
Queue Length 95th (ft)	0	135	24	3	#474	m#510	m184
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	516	213	741	426	832	501	1892
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.53	0.62	0.00	1.07	0.94	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.




















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	112	0	460	1	704	183	470	641	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	8	0	8	224	0	343	599	1462	380	513	2223	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.13	0.05	0.58	0.57	0.15	0.68	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2519	654	1514	3346	0
Grp Volume(v), veh/h	2	0	0	112	0	460	1	448	439	470	641	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	7.9	0.0	17.0	0.0	21.2	21.3	15.0	10.1	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	7.9	0.0	17.0	0.0	21.2	21.3	15.0	10.1	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	17	0	0	224	0	343	599	931	911	513	2223	0
V/C Ratio(X)	0.12	0.00	0.00	0.50	0.00	1.34	0.00	0.48	0.48	0.92	0.29	0.00
Avail Cap(c_a), veh/h	397	0	0	224	0	343	744	931	911	627	2223	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	64.2	0.0	0.0	53.0	0.0	56.5	9.1	15.9	16.0	15.8	8.2	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	1.7	0.0	172.1	0.0	1.8	1.8	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.5	0.0	13.9	0.0	7.7	7.6	8.7	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	0.0	54.7	0.0	228.6	9.1	17.7	17.8	17.8	8.2	0.0
LnGrp LOS	E	A	A	D	A	F	A	B	B	B	A	A
Approach Vol, veh/h		2			572			888			1111	
Approach Delay, s/veh		67.4			194.6			17.7			12.3	
Approach LOS		E			F			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.2	80.5		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	17.0	23.3		19.0	2.0	12.1		2.2				
Green Ext Time (p_c), s	1.2	3.9		0.0	0.0	4.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				54.7								
HCM 6th LOS				D								

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	133	0	149	153	380	50	822	300	538	994	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		15.1		35.0	35.0	35.0	48.3	39.0	39.0	24.4	56.7	
Actuated g/C Ratio		0.12		0.27	0.27	0.27	0.37	0.30	0.30	0.19	0.44	
v/c Ratio		0.41		2.92	3.56	0.56	0.25	0.83	0.53	0.95	0.76	
Control Delay		41.9		934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		41.9		934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0	
LOS		D		F	F	A	B	C	A	F	D	
Approach Delay		41.9			482.4			17.0			52.1	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		39		~227	~242	0	9	143	0	~239	386	
Queue Length 95th (ft)		68		#332	#354	77	m13	m172	m7	#339	466	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		358		51	43	677	255	986	566	566	1316	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.37		2.92	3.56	0.56	0.20	0.83	0.53	0.95	0.76	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.56
 Intersection Signal Delay: 123.4 Intersection LOS: F
 Intersection Capacity Utilization 59.6% ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

























Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	149	153	380	50	822	300	538	994
v/c Ratio	0.41	2.92	3.56	0.56	0.25	0.83	0.53	0.95	0.76
Control Delay	41.9	934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0
Queue Length 50th (ft)	39	~227	~242	0	9	143	0	~239	386
Queue Length 95th (ft)	68	#332	#354	77	m13	m172	m7	#339	466
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	358	51	43	677	255	986	566	566	1316
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	2.92	3.56	0.56	0.20	0.83	0.53	0.95	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	30	66	37	289	0	380	50	822	300	538	985	9
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	47	105	60	909	0	401	245	1191	514	543	1549	14
Arrive On Green	0.06	0.07	0.06	0.27	0.00	0.27	0.04	0.36	0.36	0.18	0.50	0.49
Sat Flow, veh/h	699	1559	893	3375	0	1490	1460	3313	1430	3066	3120	29
Grp Volume(v), veh/h	70	0	63	289	0	380	50	822	300	538	485	509
Grp Sat Flow(s),veh/h/ln	1639	0	1513	1688	0	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	5.4	0.0	5.2	8.9	0.0	32.5	2.8	27.5	22.1	22.8	30.2	30.2
Cycle Q Clear(g_c), s	5.4	0.0	5.2	8.9	0.0	32.5	2.8	27.5	22.1	22.8	30.2	30.2
Prop In Lane	0.43		0.59	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	111	0	102	909	0	401	245	1191	514	543	763	801
V/C Ratio(X)	0.64	0.00	0.61	0.32	0.00	0.95	0.20	0.69	0.58	0.99	0.64	0.64
Avail Cap(c_a), veh/h	214	0	198	909	0	401	344	1191	514	543	763	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.26	0.26	0.26	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	59.3	38.0	0.0	46.6	24.6	35.5	33.8	53.4	24.1	24.1
Incr Delay (d2), s/veh	5.9	0.0	5.8	0.2	0.0	31.7	0.1	0.9	1.3	36.4	4.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.2	3.7	0.0	15.6	0.9	11.0	7.7	11.1	10.9	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	0.0	65.1	38.2	0.0	78.3	24.7	36.3	35.0	89.8	28.1	27.9
LnGrp LOS	E	A	E	D	A	E	C	D	D	F	C	C
Approach Vol, veh/h		133			669			1172			1532	
Approach Delay, s/veh		65.2			61.0			35.5			49.7	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.2		39.0	9.2	69.0		12.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	24.8	29.5		34.5	4.8	32.2		7.4				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	4.8		0.4				

Intersection Summary

HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes






















- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Background Conditions Analysis

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Future Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	9	22	0	0	0	0	36	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Future Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	52	46	9	22	0	0	0	0	36	0	67

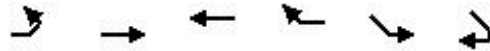
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	98	0	0		66	138	22
Stage 1	-	-	-	-	-	-		40	40	-
Stage 2	-	-	-	-	-	-		26	98	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1256	-	0		930	663	954
Stage 1	0	-	-	-	-	0		977	769	-
Stage 2	0	-	-	-	-	0		988	721	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1256	-	-		923	0	954
Mov Cap-2 Maneuver	-	-	-	-	-	-		923	0	-
Stage 1	-	-	-	-	-	-		977	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1256	-	923	954
HCM Lane V/C Ratio	-	-	0.007	-	0.039	0.07
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↶	↷↷	↶	↷↷		
Traffic Volume (vph)	38	49	27	5	0	0
Future Volume (vph)	38	49	27	5	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	54	30	6	0	0
Sign Control		Free	Free		Free	






















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 		 					 
Traffic Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Future Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	0	0	0	1	0	14	21	0	0	0	21
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Future Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	52	0	0	0	1	0	14	21	0	0	0	21













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.023	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	19	32	50	22
Future Volume (vph)	4	7	19	32	50	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	8	21	36	56	24
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.8	5.8	27.0	27.0	27.0	27.0
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.9		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.5
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.05
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	8	21	36	56	24
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↷	↑	↷	↶	↓
Traffic Volume (veh/h)	4	7	19	32	50	22
Future Volume (veh/h)	4	7	19	32	50	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	4	8	21	0	56	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	28	25	480		837	428
Arrive On Green	0.02	0.02	0.31	0.00	0.31	0.31
Sat Flow, veh/h	1714	1525	1561	1525	1325	1393
Grp Volume(v), veh/h	4	8	21	0	56	24
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1325	1393
Q Serve(g_s), s	0.0	0.1	0.2	0.0	0.5	0.2
Cycle Q Clear(g_c), s	0.0	0.1	0.2	0.0	0.7	0.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	28	25	480		837	428
V/C Ratio(X)	0.14	0.32	0.04		0.07	0.06
Avail Cap(c_a), veh/h	2213	1970	2688		2711	2398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.9	7.9	4.0	0.0	4.2	4.0
Incr Delay (d2), s/veh	2.3	7.3	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.2	15.2	4.0	0.0	4.2	4.0
LnGrp LOS	B	B	A		A	A
Approach Vol, veh/h	12		21			80
Approach Delay, s/veh	13.6		4.0			4.2
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.3		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.7
Green Ext Time (p_c), s		0.0		0.0		0.2

Intersection Summary		
HCM 6th Ctrl Delay		5.1
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Future Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	34	0	0	25	0	655	126	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↗	↘			↔		↗	↘	
Traffic Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Future Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	34	0	23	2	655	122	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1446	1459	63	1395	1460	13	126	0	0	25	0	0
Stage 1	1434	1434	-	24	24	-	-	-	-	-	-	-
Stage 2	12	25	-	1371	1436	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	94	131	995	103	130	1070	1473	-	-	1603	-	-
Stage 1	143	201	-	996	879	-	-	-	-	-	-	-
Stage 2	1012	878	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	77	995	70	77	1070	1473	-	-	1603	-	-
Mov Cap-2 Maneuver	62	77	-	70	77	-	-	-	-	-	-	-
Stage 1	143	119	-	996	879	-	-	-	-	-	-	-
Stage 2	979	878	-	93	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10	0	7.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	-	70	1070	1603	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.032	0.409	-	-
HCM Control Delay (s)	0	-	-	0	57.3	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Future Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	69	0	0	894	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗	↕↕			↕↕		
Traffic Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Future Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	69	0	0	891	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	928	-	447	515	-	35	894	0	-	-	-	0
Stage 1	893	-	-	69	-	-	-	-	-	-	-	-
Stage 2	35	-	-	446	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	161	0	358	447	0	1005	767	-	0	0	-	-
Stage 1	221	0	-	939	0	-	-	-	0	0	-	-
Stage 2	853	0	-	567	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	158	-	358	446	-	1005	767	-	-	-	-	-
Mov Cap-2 Maneuver	197	-	-	495	-	-	-	-	-	-	-	-
Stage 1	221	-	-	939	-	-	-	-	-	-	-	-
Stage 2	835	-	-	565	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	20.7		9.2		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	767	-	197	358	495	1005	-	-
HCM Lane V/C Ratio	-	-	0.011	0.003	0.006	0.021	-	-
HCM Control Delay (s)	0	-	23.5	15.1	12.3	8.7	-	-
HCM Lane LOS	A	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	216	41	550	0	241	56	19	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	99.0	91.3	91.3	96.6	90.1		14.3	28.4	28.4	19.7	13.9	
Actuated g/C Ratio	0.68	0.63	0.63	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.13	0.22	0.05	0.27		0.77	0.16	0.05	0.02	0.78	
Control Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.0			14.1			69.8			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	48	0	11	123		115	42	0	3	76	
Queue Length 95th (ft)	43	83	39	29	192		#166	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

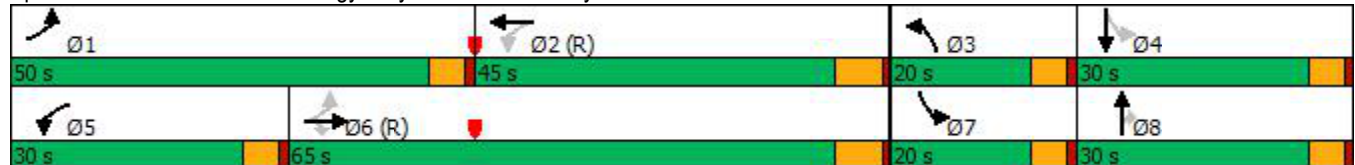


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	665	1871	997	867	2058		326	378	409	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27		0.74	0.15	0.05	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.1
 Intersection LOS: C
 Intersection Capacity Utilization 53.0%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

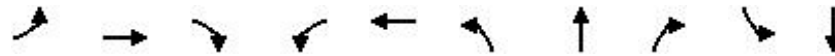
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	216	41	550	241	56	19	4	182
v/c Ratio	0.15	0.13	0.22	0.05	0.27	0.77	0.16	0.05	0.02	0.78
Control Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Length 50th (ft)	19	48	0	11	123	115	42	0	3	76
Queue Length 95th (ft)	43	83	39	29	192	#166	84	0	12	156
Internal Link Dist (ft)	1908				346		3134		856	
Turn Bay Length (ft)	155		415		90		520		240 125	
Base Capacity (vph)	665	1871	997	867	2058	326	378	409	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27	0.74	0.15	0.05	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	552	2117		877	2327		285	213		109	67	
Arrive On Green	0.03	0.70	0.00	0.03	0.70	0.00	0.09	0.12	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	552	2117		877	2327		285	213		109	67	
V/C Ratio(X)	0.12	0.11		0.05	0.23		0.84	0.26		0.04	0.63	
Avail Cap(c_a), veh/h	939	2117		1125	2327		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	7.0	0.0	5.7	7.9	0.0	65.0	57.8	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	16.1	0.7	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.2	0.0	0.3	3.0	0.0	5.0	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	7.2	0.0	5.7	8.2	0.0	81.1	58.5	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			579			297			46	
Approach Delay, s/veh		6.9			8.0			76.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	107.0	17.9	10.4	9.0	107.7	5.7	22.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.4	12.8	5.3	3.0	5.8	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.2	0.1	0.1	1.7	0.0	0.2				

Intersection Summary												
HCM 6th Ctrl Delay											26.9	
HCM 6th LOS											C	

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.2	38.2	9.1	33.2	33.2	7.9	18.2	18.2	28.4	22.4	35.6
Actuated g/C Ratio	0.13	0.42	0.42	0.10	0.37	0.37	0.09	0.20	0.20	0.32	0.25	0.40
v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.18	0.10	0.02	0.40	0.47	0.61
Control Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
LOS	E	B	A	D	C	A	D	C	A	C	C	A
Approach Delay		24.3			24.0			29.6			19.8	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	87	50	35	46	149	0	13	13	0	54	95	36

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	88	184	93	205	33	30	28	0	96	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1263	871	168	1190	663	413	753	580	383	896	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.12	0.08	0.02	0.40	0.44	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 23.0 Intersection LOS: C
 Intersection Capacity Utilization 63.2% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.18	0.10	0.02	0.40	0.47	0.61
Control Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
Queue Length 50th (ft)	87	50	35	46	149	0	13	13	0	54	95	36
Queue Length 95th (ft)	#161	88	184	93	205	33	30	28	0	96	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1263	871	168	1190	663	413	753	580	383	896	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.12	0.08	0.02	0.40	0.44	0.61

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	939	1387		150	736		158	366	186	395	603	682
Arrive On Green	0.11	0.15	0.00	0.09	0.23	0.00	0.05	0.12	0.12	0.11	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.6	8.3	0.0	4.3	15.0	0.0	1.4	1.6	0.6	6.8	9.8	3.9
Cycle Q Clear(g_c), s	8.6	8.3	0.0	4.3	15.0	0.0	1.4	1.6	0.6	6.8	9.8	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	939	1387		150	736		158	366	186	395	603	682
V/C Ratio(X)	0.32	0.23		0.56	0.79		0.31	0.16	0.06	0.39	0.65	0.62
Avail Cap(c_a), veh/h	939	1387		169	942		419	765	390	401	786	755
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	24.2	0.0	39.3	32.8	0.0	41.2	35.4	34.9	27.8	34.3	5.4
Incr Delay (d2), s/veh	0.2	0.4	0.0	2.9	7.5	0.0	1.1	0.2	0.1	0.6	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.2	0.0	1.9	6.5	0.0	0.5	0.6	0.2	2.7	3.9	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	24.5	0.0	42.2	40.3	0.0	42.3	35.6	35.1	28.5	35.6	6.7
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		27.8			40.6			38.3			21.8	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.0	25.3	9.5	21.1	13.0	46.3	14.6	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.6	17.0	3.4	11.8	6.3	10.3	8.8	3.6				
Green Ext Time (p_c), s	0.0	2.3	0.0	2.6	0.0	1.8	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			29.5									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1171	0	0	226	633	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.5	78.3			63.6	63.6	10.0		10.5			
Actuated g/C Ratio	0.85	0.87			0.71	0.71	0.11		0.12			
v/c Ratio	0.23	0.30			0.11	0.32	0.19		0.14			
Control Delay	2.6	2.2			3.4	0.7	39.6		1.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.6	2.2			3.4	0.7	39.6		1.3			
LOS	A	A			A	A	D		A			
Approach Delay		2.2			1.4			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	54			13	0	16		0			
Queue Length 95th (ft)	35	68			24	2	42		0			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

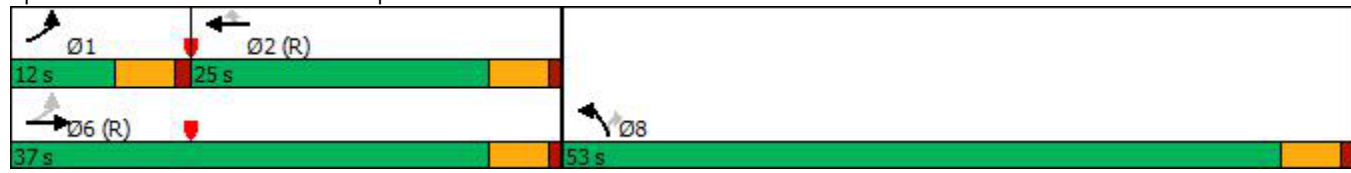


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	837	3922			2084	1965	766		683			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.11	0.32	0.04		0.04			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	2.4
Intersection LOS:	A
Intersection Capacity Utilization	51.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1171	226	633	30	29
v/c Ratio	0.23	0.30	0.11	0.32	0.19	0.14
Control Delay	2.6	2.2	3.4	0.7	39.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.2	3.4	0.7	39.6	1.3
Queue Length 50th (ft)	21	54	13	0	16	0
Queue Length 95th (ft)	35	68	24	2	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	837	3922	2084	1965	766	683
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.11	0.32	0.04	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1171	0	0	226	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	853	3695	0	0	2090		125	0	109			
Arrive On Green	0.06	0.81	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1171	0	0	226	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.8	5.9	0.0	0.0	5.4	0.0	1.7	0.0	2.0			
Cycle Q Clear(g_c), s	2.8	5.9	0.0	0.0	5.4	0.0	1.7	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	853	3695	0	0	2090		125	0	109			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.11		0.24	0.00	0.27			
Avail Cap(c_a), veh/h	888	3695	0	0	2090		779	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.84	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.8	2.2	0.0	0.0	12.5	0.0	38.4	0.0	38.1			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	1.0	0.0	0.0	1.6	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.9	2.4	0.0	0.0	12.6	0.0	39.4	0.0	39.4			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1363			226			59				
Approach Delay, s/veh		2.5			12.6			39.4				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.8	7.4				7.9		4.0				
Green Ext Time (p_c), s	0.1	1.0				9.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		115.9		127.0	127.0					83.0		83.0
Actuated g/C Ratio		0.53		0.58	0.58					0.38		0.38
v/c Ratio		0.21		0.09	0.13					0.74		0.46
Control Delay		32.1		27.4	25.3					62.5		4.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		32.1		27.4	25.3					62.5		4.5
LOS		C		C	C					E		A
Approach Delay		32.1			25.6							46.4
Approach LOS		C			C							D
Queue Length 50th (ft)		123		22	70					597		0
Queue Length 95th (ft)		234		69	150					442		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

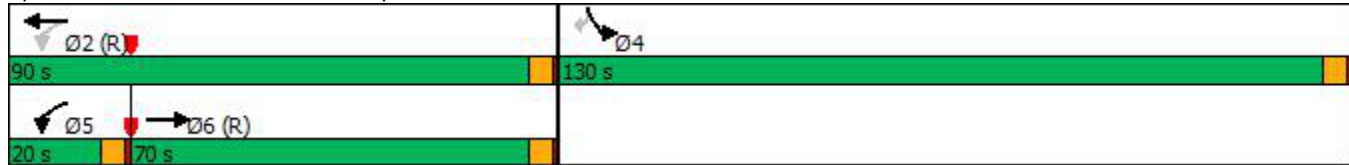
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2211		447	1686					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.09	0.13					0.49		0.36

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	40.1
Intersection LOS:	D
Intersection Capacity Utilization	51.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.21	0.09	0.13	0.74	0.46
Control Delay	32.1	27.4	25.3	62.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	27.4	25.3	62.5	4.5
Queue Length 50th (ft)	123	22	70	597	0
Queue Length 95th (ft)	234	69	150	442	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2211	447	1686	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.09	0.13	0.49	0.36
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2533	183	538	1948	0				944	0	412
Arrive On Green	0.00	0.61	0.61	0.02	0.66	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	4272	299	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Cycle Q Clear(g_c), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1774	942	538	1948	0				944	0	412
V/C Ratio(X)	0.00	0.17	0.17	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1774	942	611	1948	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.4	18.4	14.7	14.0	0.0				74.8	0.0	71.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	3.9	0.8	2.2	0.0				24.0	0.0	35.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	18.8	14.8	14.1	0.0				79.2	0.0	75.6
LnGrp LOS	A	B	B	B	B	A				E	A	E
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		18.7			14.2						78.2	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		149.5		70.5	9.5	139.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		8.1		60.6	4.1	12.2						
Green Ext Time (p_c), s		1.5		4.9	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				55.2								
HCM 6th LOS				E								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	21	290	142	215
Future Volume (vph)	21	3	21	290	142	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	3	23	322	158	239
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 0.9

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations

Traffic Vol, veh/h 21 3 21 290 142 215

Future Vol, veh/h 21 3 21 290 142 215

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 90 90 90 90 90 90

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 23 3 23 322 158 239

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 526 - 158 0 - 0

Stage 1 158 - - - - -

Stage 2 368 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 476 0 1434 - - 0

Stage 1 820 0 - - - 0

Stage 2 654 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 468 - 1434 - - -

Mov Cap-2 Maneuver 468 - - - - -

Stage 1 807 - - - - -

Stage 2 654 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.1 0.5 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1434 - 468 - -

HCM Lane V/C Ratio 0.016 - 0.05 - -

HCM Control Delay (s) 7.6 - 13.1 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0.1 - 0.2 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Future Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	3	0	0	43	0	114	509	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Future Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	2	0	3	0	40	3	114	509	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	757	780	255	525	779	22	509	0	0	43	0	0
Stage 1	737	737	-	42	42	-	-	-	-	-	-	-
Stage 2	20	43	-	483	737	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	300	329	750	440	330	1056	1066	-	-	1579	-	-
Stage 1	381	428	-	973	864	-	-	-	-	-	-	-
Stage 2	1002	863	-	539	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	283	305	750	416	306	1056	1066	-	-	1579	-	-
Mov Cap-2 Maneuver	283	305	-	416	306	-	-	-	-	-	-	-
Stage 1	381	397	-	973	864	-	-	-	-	-	-	-
Stage 2	999	863	-	500	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.5	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1066	-	-	-	-	416	1056	1579	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.005	0.003	0.072	-	-
HCM Control Delay (s)	0	-	-	0	0	13.7	8.4	7.5	-	-
HCM Lane LOS	A	-	-	A	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.2	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	104	167	24	11	121
Future Volume (vph)	81	104	167	24	11	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	116	213	0	12	134
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	81	104	167	24	11	121
Future Vol, veh/h	81	104	167	24	11	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	90	116	186	27	12	134
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	213	0	-	0	496	200
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1369	-	-	-	537	846
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	502	846
Mov Cap-2 Maneuver	-	-	-	-	502	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	759	-
Approach	EB	WB	SB			
HCM Control Delay, s	3.4	0	10.3			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1369	-	-	-	502	846
HCM Lane V/C Ratio	0.066	-	-	-	0.024	0.159
HCM Control Delay (s)	7.8	-	-	-	12.4	10.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					15.7	15.7		41.3		63.7	62.7	
Actuated g/C Ratio					0.14	0.14		0.38		0.58	0.57	
v/c Ratio					0.72	0.65		0.56		0.86	0.34	
Control Delay					63.0	7.6		31.3		26.4	17.6	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					63.0	7.6		31.3		26.4	17.6	
LOS					E	A		C		C	B	
Approach Delay					20.4			31.3			20.7	
Approach LOS					C			C			C	
Queue Length 50th (ft)					112	0		205		179	168	
Queue Length 95th (ft)					#198	52		270		m183	m160	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					251	874		1171		408	1839	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.67	0.64		0.56		0.86	0.34	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	23.6
Intersection LOS:	C
Intersection Capacity Utilization	55.5%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.72	0.65	0.56	0.86	0.34
Control Delay	63.0	7.6	31.3	26.4	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	7.6	31.3	26.4	17.6
Queue Length 50th (ft)	112	0	205	179	168
Queue Length 95th (ft)	#198	52	270	m183	m160
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	251	874	1171	408	1839
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.64	0.56	0.86	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.





















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	556	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	265	0	405	568	1822	181	595	2489	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.62	0.61	0.11	0.76	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2946	292	1514	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	556	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	10.1	0.0	17.0	0.0	10.6	10.7	8.5	6.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.1	0.0	17.0	0.0	10.6	10.7	8.5	6.2	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	265	0	405	568	991	1011	595	2489	0
V/C Ratio(X)	0.00	0.00	0.00	0.63	0.00	1.37	0.00	0.33	0.33	0.59	0.25	0.00
Avail Cap(c_a), veh/h	0	393	0	265	0	405	831	991	1011	664	2489	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.0	0.0	46.5	0.0	10.0	10.1	6.1	3.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	4.7	0.0	182.5	0.0	0.9	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.5	0.0	15.8	0.0	3.5	3.6	1.9	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	48.8	0.0	229.0	0.0	10.9	11.0	6.2	3.8	0.0
LnGrp LOS	A	A	A	D	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			723			653			980	
Approach Delay, s/veh		0.0			187.4			10.9			4.7	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	73.0		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	10.5	12.7		19.0	0.0	8.2		0.0				
Green Ext Time (p_c), s	0.5	3.6		0.0	0.0	4.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				62.5								
HCM 6th LOS				E								
Notes												
User approved pedestrian interval to be less than phase max green.												

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	850	327	304	762	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.5		31.0	31.0	31.0	41.6	41.1	41.1	15.0	52.3	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.38	0.37	0.37	0.14	0.48	
v/c Ratio		0.43		3.03	3.36	0.73	0.16	0.69	0.47	0.74	0.54	
Control Delay		44.3		975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.3		975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		44.3			450.5			15.6			33.6	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		20		~234	~243	75	7	134	0	107	217	
Queue Length 95th (ft)		46		#347	#361	213	m13	246	13	#163	293	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

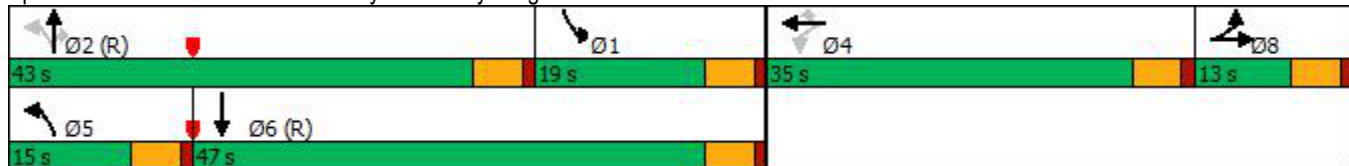


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		191		60	55	690	217	1228	700	411	1404	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.40		3.03	3.36	0.73	0.14	0.69	0.47	0.74	0.54	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.36
Intersection Signal Delay:	140.2
Intersection LOS:	F
Intersection Capacity Utilization	66.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

























Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	850	327	304	762
v/c Ratio	0.43	3.03	3.36	0.73	0.16	0.69	0.47	0.74	0.54
Control Delay	44.3	975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1
Queue Length 50th (ft)	20	~234	~243	75	7	134	0	107	217
Queue Length 95th (ft)	46	#347	#361	213	m13	246	13	#163	293
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	191	60	55	690	217	1228	700	411	1404
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	3.03	3.36	0.73	0.14	0.69	0.47	0.74	0.54

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	82	30	48	951	0	420	188	1160	501	510	1396	100
Arrive On Green	0.04	0.05	0.04	0.28	0.00	0.28	0.04	0.35	0.35	0.17	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	358	0	507	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	24.7	21.2	10.1	18.5	18.5
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	24.7	21.2	10.1	18.5	18.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	82	0	78	951	0	420	188	1160	501	510	738	759
V/C Ratio(X)	0.56	0.00	0.40	0.38	0.00	1.21	0.16	0.73	0.65	0.60	0.51	0.51
Avail Cap(c_a), veh/h	130	0	123	951	0	420	281	1160	501	510	738	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	50.8	31.7	0.0	39.5	26.7	31.3	30.1	42.4	19.7	19.7
Incr Delay (d2), s/veh	5.8	0.0	3.3	0.2	0.0	113.9	0.3	3.2	5.1	1.9	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	3.8	0.0	24.5	0.5	9.9	7.7	3.8	6.4	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	0.0	54.0	32.0	0.0	153.4	27.1	34.5	35.2	44.3	22.2	22.1
LnGrp LOS	E	A	D	C	A	F	C	C	D	D	C	C
Approach Vol, veh/h		77			865			1207			1066	
Approach Delay, s/veh		55.9			103.1			34.5			28.5	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.1	26.7		33.0	3.5	20.5		5.1				
Green Ext Time (p_c), s	0.2	5.1		0.0	0.0	4.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D






















Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Future Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	67	47	0	0	0	0	7	94	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Future Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	42	57	67	47	0	0	0	0	7	0	94

Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	99	0	0				202	280	47
Stage 1	-	-	-	-	-	-				181	181	-
Stage 2	-	-	-	-	-	-				21	99	-
Critical Hdwy	-	-	-	4.745	-	-				6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-				5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-				3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1255	-	0				772	542	922
Stage 1	0	-	-	-	-	0				844	656	-
Stage 2	0	-	-	-	-	0				994	720	-
Platoon blocked, %	-	-	-	-	-	-				-	-	-
Mov Cap-1 Maneuver	-	-	-	1255	-	-				731	0	922
Mov Cap-2 Maneuver	-	-	-	-	-	-				731	0	-
Stage 1	-	-	-	-	-	-				844	0	-
Stage 2	-	-	-	-	-	-				941	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1255	-	731	922
HCM Lane V/C Ratio	-	-	0.053	-	0.009	0.102
HCM Control Delay (s)	-	-	8	-	10	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.3

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↙	↑↑	↑	↘↘		
Traffic Volume (vph)	36	16	99	86	0	0
Future Volume (vph)	36	16	99	86	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	18	110	96	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Future Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	0	0	0	1	0	33	20	0	0	0	170
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Future Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	16	0	0	0	1	0	33	20	0	0	0	170













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.035	0.022	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	27	4	6	37
Future Volume (vph)	67	101	27	4	6	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	112	30	4	7	41
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	6.7	6.7	13.3	13.3	13.3	13.3
Actuated g/C Ratio	0.24	0.24	0.48	0.48	0.48	0.48
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
LOS	A	A	A	A	A	A
Approach Delay	5.5		6.7			7.0
Approach LOS	A		A			A
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.25
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	112	30	4	7	41
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022






















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	27	4	6	37
Future Volume (veh/h)	67	101	27	4	6	37
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	74	112	30	0	7	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	281	250	408		700	364
Arrive On Green	0.16	0.16	0.26	0.00	0.26	0.26
Sat Flow, veh/h	1714	1525	1561	1525	1314	1393
Grp Volume(v), veh/h	74	112	30	0	7	41
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1314	1393
Q Serve(g_s), s	0.7	1.3	0.3	0.0	0.1	0.4
Cycle Q Clear(g_c), s	0.7	1.3	0.3	0.0	0.4	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	281	250	408		700	364
V/C Ratio(X)	0.26	0.45	0.07		0.01	0.11
Avail Cap(c_a), veh/h	1881	1674	2284		2279	2038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	7.2	5.3	0.0	5.5	5.4
Incr Delay (d2), s/veh	0.5	1.3	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.5	8.5	5.4	0.0	5.5	5.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	186		30			48
Approach Delay, s/veh	8.1		5.4			5.5
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		8.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		3.3		2.4
Green Ext Time (p_c), s		0.1		0.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Future Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	7	673	0	0	164	0	102	38	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.0% ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	12.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Future Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	7	0	673	0	161	3	102	38	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	323	406	19	386	405	82	38	0	0	164	0	0
Stage 1	242	242	-	163	163	-	-	-	-	-	-	-
Stage 2	81	164	-	223	242	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	612	537	1061	552	538	968	1585	-	-	1427	-	-
Stage 1	746	709	-	829	767	-	-	-	-	-	-	-
Stage 2	924	766	-	765	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	177	499	1061	522	500	968	1585	-	-	1427	-	-
Mov Cap-2 Maneuver	177	499	-	522	500	-	-	-	-	-	-	-
Stage 1	746	659	-	829	767	-	-	-	-	-	-	-
Stage 2	282	766	-	710	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.6	16.7	0	5.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	177	522	968	1427	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.013	0.695	0.072	-	-
HCM Control Delay (s)	0	-	-	25.6	12	16.7	7.7	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.9	0.2	-	-

Lanes, Volumes, Timings
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	764	0	1	0	158
Future Volume (vph)	1	0	0	1	0	145	0	764	0	1	0	158
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45				45
Link Distance (ft)		255			1077			2303				2188
Travel Time (s)		7.0			21.0			34.9				33.2
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	849	0	0	0	178
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.1% ICU Level of Service A
Analysis Period (min)	15

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	67%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	

Intersection Summary	
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HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection													
Int Delay, s/veh	1.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↘		↗	↘		↗	↔	↔				↕	↕
Traffic Vol, veh/h	1	0	0	1	0	145	0	764	0	1	0	158	1
Future Vol, veh/h	1	0	0	1	0	145	0	764	0	1	0	158	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	2	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	849	0	1	0	176	1

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	604	-	89	939	-	425	177	0	-	849	-	-	0
Stage 1	179	-	-	849	-	-	-	-	-	-	-	-	-
Stage 2	425	-	-	90	-	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	6.44	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	2.52	-	-	-
Pot Cap-1 Maneuver	297	0	708	222	0	556	1411	-	0	415	0	-	-
Stage 1	684	0	-	326	0	-	-	-	0	-	0	-	-
Stage 2	466	0	-	913	0	-	-	-	0	-	0	-	-
Platoon blocked, %								-				-	-
Mov Cap-1 Maneuver	216	-	708	221	-	556	1411	-	-	307	-	-	-
Mov Cap-2 Maneuver	216	-	-	221	-	-	-	-	-	-	-	-	-
Stage 1	684	-	-	326	-	-	-	-	-	-	-	-	-
Stage 2	339	-	-	909	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.8		14		0		0.1	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1411	-	216	-	221	556	-	-
HCM Lane V/C Ratio	-	-	0.005	-	0.005	0.272	-	-
HCM Control Delay (s)	0	-	21.8	0	21.4	13.9	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	227	18	411	0	283	51	51	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.4	90.8	90.8	80.3	73.3		14.6	23.5	23.5	15.0	9.0	
Actuated g/C Ratio	0.71	0.67	0.67	0.59	0.54		0.11	0.17	0.17	0.11	0.07	
v/c Ratio	0.49	0.32	0.22	0.04	0.23		0.83	0.17	0.15	0.04	0.66	
Control Delay	10.7	11.1	2.1	8.5	17.9		79.1	46.5	1.0	39.8	27.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.7	11.1	2.1	8.5	17.9		79.1	46.5	1.0	39.8	27.1	
LOS	B	B	A	A	B		E	D	A	D	C	
Approach Delay		9.2			17.5			64.4			27.7	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	74	93	0	4	91		126	37	0	5	12	
Queue Length 95th (ft)	147	200	37	14	160		#194	77	0	17	77	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

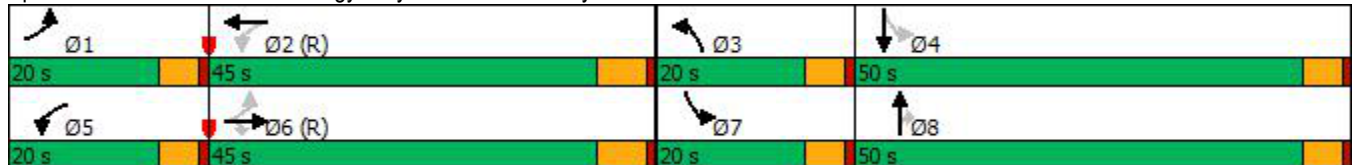


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	572	2000	1054	598	1798		351	582	538	277	570	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.48	0.32	0.22	0.03	0.23		0.81	0.09	0.09	0.03	0.25	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	135
Offset:	70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	22.4
Intersection LOS:	C
Intersection Capacity Utilization	58.9%
ICU Level of Service	B
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	276	630	227	18	411	283	51	51	7	144
v/c Ratio	0.49	0.32	0.22	0.04	0.23	0.83	0.17	0.15	0.04	0.66
Control Delay	10.7	11.1	2.1	8.5	17.9	79.1	46.5	1.0	39.8	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	11.1	2.1	8.5	17.9	79.1	46.5	1.0	39.8	27.1
Queue Length 50th (ft)	74	93	0	4	91	126	37	0	5	12
Queue Length 95th (ft)	147	200	37	14	160	#194	77	0	17	77
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	572	2000	1054	598	1798	351	582	538	277	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.32	0.22	0.03	0.23	0.81	0.09	0.09	0.03	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗		↘	↗	↘	↘	↗	↘
Traffic Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	276	630	0	18	400	0	283	51	0	7	14	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	636	2080		575	2075		329	227		115	62	
Arrive On Green	0.09	0.69	0.00	0.02	0.62	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	276	630	0	18	400	0	283	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	9.3	11.1	0.0	0.5	7.0	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Cycle Q Clear(g_c), s	9.3	11.1	0.0	0.5	7.0	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	636	2080		575	2075		329	227		115	62	
V/C Ratio(X)	0.43	0.30		0.03	0.19		0.86	0.23		0.06	0.23	
Avail Cap(c_a), veh/h	671	2080		735	2075		355	586		291	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	8.3	0.0	8.9	11.0	0.0	59.6	52.8	0.0	62.1	63.4	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.0	0.0	0.2	0.0	17.9	0.5	0.0	0.2	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.5	0.0	0.2	2.6	0.0	5.5	1.6	0.0	0.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	8.6	0.0	8.9	11.2	0.0	77.5	53.2	0.0	62.3	65.2	0.0
LnGrp LOS	A	A		A	B		E	D		E	E	
Approach Vol, veh/h		906			418			334			21	
Approach Delay, s/veh		8.2			11.1			73.8			64.2	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	89.9	18.9	9.7	7.5	99.0	6.2	22.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	11.3	9.0	13.8	3.0	2.5	13.1	2.5	5.5				
Green Ext Time (p_c), s	0.3	2.7	0.1	0.0	0.0	4.5	0.0	0.2				

Intersection Summary												
HCM 6th Ctrl Delay											22.7	
HCM 6th LOS											C	

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	39.0	52.0	52.0	17.0	30.0	30.0	50.0	56.0	56.0	25.0	31.0	39.0
Total Split (%)	26.0%	34.7%	34.7%	11.3%	20.0%	20.0%	33.3%	37.3%	37.3%	16.7%	20.7%	26.0%
Maximum Green (s)	34.0	47.0	47.0	12.0	25.0	25.0	45.0	51.0	51.0	20.0	26.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	33.4	66.4	66.4	9.1	34.3	34.3	35.0	45.3	45.3	52.3	31.3	68.7
Actuated g/C Ratio	0.22	0.44	0.44	0.06	0.23	0.23	0.23	0.30	0.30	0.35	0.21	0.46
v/c Ratio	0.91	0.50	0.17	0.12	0.80	0.26	0.82	0.42	0.13	0.82	0.12	0.81
Control Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
LOS	E	C	A	E	E	A	E	D	A	D	D	D
Approach Delay		49.8			55.3			51.8			42.5	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	284	245	0	11	~333	0	284	143	0	205	34	340

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

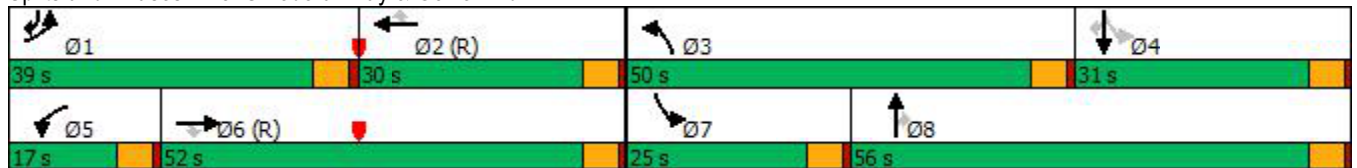
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#380	358	45	34	#458	22	334	191	0	#285	62	552
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1317	733	145	737	462	950	1021	611	421	763	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.50	0.17	0.08	0.80	0.26	0.62	0.37	0.11	0.82	0.11	0.79

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 49.6 Intersection LOS: D
 Intersection Capacity Utilization 74.7% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
v/c Ratio	0.91	0.50	0.17	0.12	0.80	0.26	0.82	0.42	0.13	0.82	0.12	0.81
Control Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
Queue Length 50th (ft)	284	245	0	11	~333	0	284	143	0	205	34	340
Queue Length 95th (ft)	#380	358	45	34	#458	22	334	191	0	#285	62	552
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1317	733	145	737	462	950	1021	611	421	763	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.50	0.17	0.08	0.80	0.26	0.62	0.37	0.11	0.82	0.11	0.79

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	638	1423		47	911		675	762	388	419	606	543
Arrive On Green	0.22	0.47	0.00	0.03	0.28	0.00	0.21	0.25	0.25	0.14	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	29.2	22.3	0.0	1.0	24.0	0.0	27.2	15.9	5.3	21.0	3.2	27.0
Cycle Q Clear(g_c), s	29.2	22.3	0.0	1.0	24.0	0.0	27.2	15.9	5.3	21.0	3.2	27.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	638	1423		47	911		675	762	388	419	606	543
V/C Ratio(X)	0.91	0.47		0.26	0.65		0.87	0.49	0.18	0.83	0.14	0.98
Avail Cap(c_a), veh/h	679	1423		146	911		964	1038	529	419	606	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.88	0.88	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	26.9	0.0	71.4	47.6	0.0	57.0	47.6	43.7	45.6	51.8	44.6
Incr Delay (d2), s/veh	15.2	1.0	0.0	2.5	3.2	0.0	6.5	0.5	0.2	13.0	0.1	34.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	8.2	0.0	0.5	10.1	0.0	11.3	6.0	2.0	3.9	1.4	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.3	27.9	0.0	73.9	50.7	0.0	63.5	48.1	43.9	58.6	51.9	79.0
LnGrp LOS	E	C		E	D		E	D	D	E	D	E
Approach Vol, veh/h		1243			604			1032			967	
Approach Delay, s/veh		48.7			51.2			56.6			69.3	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.9	45.9	36.2	31.0	8.1	74.7	25.0	42.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	34.0	25.0	45.0	26.0	12.0	47.0	20.0	51.0				
Max Q Clear Time (g_c+I1), s	31.2	26.0	29.2	29.0	3.0	24.3	23.0	17.9				
Green Ext Time (p_c), s	0.7	0.0	2.0	0.0	0.0	4.6	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			56.4									
HCM 6th LOS			E									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1347	0	0	382	1150	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.7	113.6			95.2	95.2	10.8		11.3			
Actuated g/C Ratio	0.87	0.87			0.73	0.73	0.08		0.09			
v/c Ratio	0.53	0.34			0.18	0.53	0.35		0.42			
Control Delay	4.6	2.2			6.7	1.4	64.6		20.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	4.6	2.2			6.7	1.4	64.6		20.0			
LOS	A	A			A	A	E		C			
Approach Delay		2.8			2.8			36.6				
Approach LOS		A			A			D				
Queue Length 50th (ft)	52	66			50	0	34		0			
Queue Length 95th (ft)	92	94			86	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	841	3940			2159	2151	221		248			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.48	0.34			0.18	0.53	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	3.9
Intersection LOS:	A
Intersection Capacity Utilization	80.5%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1347	382	1150	42	71
v/c Ratio	0.53	0.34	0.18	0.53	0.35	0.42
Control Delay	4.6	2.2	6.7	1.4	64.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.6	2.2	6.7	1.4	64.6	20.0
Queue Length 50th (ft)	52	66	50	0	34	0
Queue Length 95th (ft)	92	94	86	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	841	3940	2159	2151	221	248
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.34	0.18	0.53	0.19	0.29
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1347	0	0	382	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	827	3890	0	0	2182		110	0	95			
Arrive On Green	0.09	0.85	0.00	0.00	0.73	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1347	0	0	382	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	7.7	8.1	0.0	0.0	5.2	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	7.7	8.1	0.0	0.0	5.2	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	827	3890	0	0	2182		110	0	95			
V/C Ratio(X)	0.49	0.35	0.00	0.00	0.18		0.38	0.00	0.75			
Avail Cap(c_a), veh/h	996	3890	0	0	2182		225	0	188			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.63	0.63	0.00	0.00	0.48	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.8	2.0	0.0	0.0	5.5	0.0	57.2	0.0	58.6			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	11.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.5	0.0	0.0	1.5	0.0	1.3	0.0	2.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.1	2.2	0.0	0.0	5.6	0.0	59.3	0.0	69.7			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1754			382			113				
Approach Delay, s/veh		2.4			5.6			65.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.9	99.3				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	9.7	7.2				10.1		9.6				
Green Ext Time (p_c), s	1.1	2.8				14.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	74	332	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		100.6		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.34		0.22	0.19					0.98		0.38
Control Delay		26.0		17.3	17.0					84.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.0		17.3	17.0					84.7		6.2
LOS		C		B	B					F		A
Approach Delay		26.0			17.1							70.1
Approach LOS		C			B							E
Queue Length 50th (ft)		194		37	94					675		0
Queue Length 95th (ft)		234		64	122					#826		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2222		365	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.34		0.20	0.19					0.98		0.38

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 47.7
 Intersection LOS: D
 Intersection Capacity Utilization 80.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	74	332	1052	240
v/c Ratio	0.34	0.22	0.19	0.98	0.38
Control Delay	26.0	17.3	17.0	84.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	17.3	17.0	84.7	6.2
Queue Length 50th (ft)	194	37	94	675	0
Queue Length 95th (ft)	234	64	122	#826	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2222	365	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.20	0.19	0.98	0.38













Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	74	332	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2249	181	376	1800	0				1079	0	471
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4236	330	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	496	264	74	332	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	17.7	17.9	4.0	9.4	0.0				62.2	0.0	26.3
Cycle Q Clear(g_c), s	0.0	17.7	17.9	4.0	9.4	0.0				62.2	0.0	26.3
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1589	841	376	1800	0				1079	0	471
V/C Ratio(X)	0.00	0.31	0.31	0.20	0.18	0.00				0.97	0.00	0.51
Avail Cap(c_a), veh/h	0	1589	841	449	1800	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.3	23.3	17.9	16.5	0.0				61.8	0.0	50.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.2	0.0				21.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.3	6.8	1.5	3.4	0.0				27.4	0.0	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.8	24.3	18.1	16.8	0.0				83.2	0.0	50.9
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		760			406						1292	
Approach Delay, s/veh		24.0			17.0						77.2	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.3		69.7	10.9	109.4						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		11.4		64.2	6.0	19.9						
Green Ext Time (p_c), s		2.4		0.5	0.1	5.8						
Intersection Summary												
HCM 6th Ctrl Delay				50.8								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	2	252	265	44
Future Volume (vph)	73	11	2	252	265	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	12	2	280	294	49
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.7% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	73	11	2	252	265	44
Future Vol, veh/h	73	11	2	252	265	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	81	12	2	280	294	49

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	578	-	294	0	-
Stage 1	294	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-
Stage 1	709	0	-	-	-
Stage 2	716	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	442	-	1279	-	-
Mov Cap-2 Maneuver	442	-	-	-	-
Stage 1	708	-	-	-	-
Stage 2	716	-	-	-	-























Approach	EB	NB	SB
HCM Control Delay, s	15	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.184	-	-
HCM Control Delay (s)	7.8	-	15	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Future Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	10	42	0	0	743	0	12	79	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↕↔		↔	↕↔	
Traffic Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Future Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	10	0	42	0	743	0	12	79	0

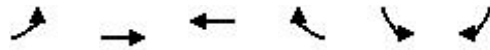
Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	475	846	40	807	846	372	79	0	0	743	0	0
Stage 1	103	103	-	743	743	-	-	-	-	-	-	-
Stage 2	372	743	-	64	103	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	477	301	1029	276	301	631	1532	-	-	873	-	-
Stage 1	897	814	-	378	425	-	-	-	-	-	-	-
Stage 2	626	425	-	945	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	440	297	1029	273	297	631	1532	-	-	873	-	-
Mov Cap-2 Maneuver	440	297	-	273	297	-	-	-	-	-	-	-
Stage 1	897	803	-	378	425	-	-	-	-	-	-	-
Stage 2	584	425	-	932	803	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	12.6	0	1.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	-	-	273	631	873	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.037	0.067	0.014	-	-
HCM Control Delay (s)	0	-	-	0	0	18.7	11.1	9.2	-	-
HCM Lane LOS	A	-	-	A	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1	0.2	0	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	143	268	155	20	48	122
Future Volume (vph)	143	268	155	20	48	122
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	298	194	0	53	136
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.3

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	143	268	155	20	48	122
Future Vol, veh/h	143	268	155	20	48	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	159	298	172	22	53	136

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	194	0	-	0	799	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1391	-	-	-	357	865
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1391	-	-	-	316	865
Mov Cap-2 Maneuver	-	-	-	-	316	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	543	-

Approach EB WB SB

HCM Control Delay, s	2.8	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1391	-	-	-	316	865
HCM Lane V/C Ratio	0.114	-	-	-	0.169	0.157
HCM Control Delay (s)	7.9	-	-	-	18.7	9.9
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.6	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	619	844	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			15.4	15.4	42.6	35.0		78.6	75.5	
Actuated g/C Ratio		0.20			0.12	0.12	0.33	0.27		0.60	0.58	
v/c Ratio		0.00			0.68	0.69	0.00	1.28		1.26	0.45	
Control Delay		0.0			72.7	9.2	17.0	172.6		160.6	23.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			72.7	9.2	17.0	172.6		160.6	23.6	
LOS		A			E	A	B	F		F	C	
Approach Delay					21.6			172.5			81.5	
Approach LOS					C			F			F	
Queue Length 50th (ft)		0			106	0	0	~591		~722	228	
Queue Length 95th (ft)		0			176	56	3	#729		m#595	m208	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		516			213	809	390	832		492	1873	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.62	0.67	0.00	1.28		1.26	0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.28
Intersection Signal Delay:	99.2
Intersection LOS:	F
Intersection Capacity Utilization	87.3%
ICU Level of Service	E
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	619	844
v/c Ratio	0.00	0.68	0.69	0.00	1.28	1.26	0.45
Control Delay	0.0	72.7	9.2	17.0	172.6	160.6	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	72.7	9.2	17.0	172.6	160.6	23.6
Queue Length 50th (ft)	0	106	0	0	~591	~722	228
Queue Length 95th (ft)	0	176	56	3	#729	m#595	m208
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	516	213	809	390	832	492	1873
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.62	0.67	0.00	1.28	1.26	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

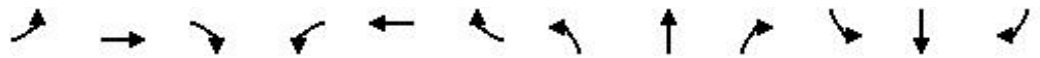
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	538	1	844	219	619	844	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	8	0	8	224	0	343	469	1273	330	514	2223	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.13	0.05	0.51	0.50	0.22	0.68	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2520	654	1514	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	538	1	537	526	619	844	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	9.4	0.0	17.0	0.0	32.4	32.5	29.0	14.4	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	9.4	0.0	17.0	0.0	32.4	32.5	29.0	14.4	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	17	0	0	224	0	343	469	810	793	514	2223	0
V/C Ratio(X)	0.12	0.00	0.00	0.58	0.00	1.57	0.00	0.66	0.66	1.20	0.38	0.00
Avail Cap(c_a), veh/h	397	0	0	224	0	343	614	810	793	514	2223	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	64.2	0.0	0.0	53.7	0.0	56.5	13.1	23.9	24.1	30.2	8.9	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	3.9	0.0	269.8	0.0	4.3	4.4	93.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.2	0.0	18.5	0.0	12.5	12.3	29.1	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	0.0	57.5	0.0	326.3	13.1	28.2	28.5	123.5	8.9	0.0
LnGrp LOS	E	A	A	E	A	F	B	C	C	F	A	A
Approach Vol, veh/h		2			669			1064			1463	
Approach Delay, s/veh		67.4			273.7			28.3			57.4	
Approach LOS		E			F			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	70.7		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	31.0	34.5		19.0	2.0	16.4		2.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	6.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	93.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1034	378	684	1262	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		15.1		35.0	35.0	35.0	47.7	38.5	38.5	24.9	56.8	
Actuated g/C Ratio		0.12		0.27	0.27	0.27	0.37	0.30	0.30	0.19	0.44	
v/c Ratio		0.40		3.67	4.34	0.68	0.34	1.06	0.67	1.18	0.96	
Control Delay		41.0		1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		41.0		1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2	
LOS		D		F	F	B	B	E	A	F	D	
Approach Delay		41.0			620.1			42.3			85.3	
Approach LOS		D			F			D			F	
Queue Length 50th (ft)		37		~296	~276	27	9	~488	0	~376	~597	
Queue Length 95th (ft)		70		#422	#443	144	m12	m291	m10	#498	#764	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

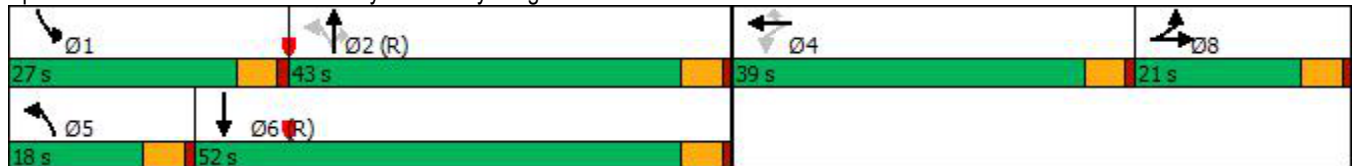


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		358		51	44	729	201	973	561	578	1319	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.36		3.67	4.34	0.68	0.24	1.06	0.67	1.18	0.96	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	4.34
Intersection Signal Delay:	175.6
Intersection LOS:	F
Intersection Capacity Utilization	72.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

























Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1034	378	684	1262
v/c Ratio	0.40	3.67	4.34	0.68	0.34	1.06	0.67	1.18	0.96
Control Delay	41.0	1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2
Queue Length 50th (ft)	37	~296	~276	27	9	~488	0	~376	~597
Queue Length 95th (ft)	70	#422	#443	144	m12	m291	m10	#498	#764
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	358	51	44	729	201	973	561	578	1319
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	3.67	4.34	0.68	0.24	1.06	0.67	1.18	0.96

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	494	48	1034	378	684	1253	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	46	102	59	909	0	401	177	1197	517	543	1560	11
Arrive On Green	0.06	0.07	0.06	0.27	0.00	0.27	0.04	0.36	0.36	0.18	0.50	0.49
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	494	48	1034	378	684	616	646
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	5.2	0.0	5.1	11.5	0.0	35.0	2.6	37.7	29.8	23.0	43.5	43.6
Cycle Q Clear(g_c), s	5.2	0.0	5.1	11.5	0.0	35.0	2.6	37.7	29.8	23.0	43.5	43.6
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	108	0	99	909	0	401	177	1197	517	543	766	805
V/C Ratio(X)	0.63	0.00	0.61	0.40	0.00	1.23	0.27	0.86	0.73	1.26	0.80	0.80
Avail Cap(c_a), veh/h	214	0	198	909	0	401	276	1197	517	543	766	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	0.0	59.4	38.9	0.0	47.5	26.7	38.6	36.1	53.5	27.2	27.3
Incr Delay (d2), s/veh	5.9	0.0	5.9	0.3	0.0	124.3	0.1	0.8	0.8	131.7	8.7	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	2.1	4.8	0.0	26.9	0.9	15.0	10.3	18.4	16.3	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.3	0.0	65.2	39.2	0.0	171.8	26.8	39.4	36.9	185.2	36.0	35.6
LnGrp LOS	E	A	E	D	A	F	C	D	D	F	D	D
Approach Vol, veh/h		128			859			1460			1946	
Approach Delay, s/veh		65.3			115.4			38.3			88.3	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.5		39.0	9.1	69.3		12.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	25.0	39.7		37.0	4.6	45.6		7.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	76.3
HCM 6th LOS	E

Notes






















- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Build Conditions Analysis

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Future Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	62	32	0	0	198	0	90	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Future Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	79	46	62	32	0	0	198	0	90	0	67

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	125	0	0		196	281	32
Stage 1	-	-	-	-	-	-		156	156	-
Stage 2	-	-	-	-	-	-		40	125	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1224	-	0		778	541	941
Stage 1	0	-	-	-	-	0		866	675	-
Stage 2	0	-	-	-	-	0		972	699	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1224	-	-		738	0	941
Mov Cap-2 Maneuver	-	-	-	-	-	-		738	0	-
Stage 1	-	-	-	-	-	-		866	0	-
Stage 2	-	-	-	-	-	-		922	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.3	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1224	-	738	941
HCM Lane V/C Ratio	-	-	0.051	-	0.122	0.071
HCM Control Delay (s)	-	-	8.1	-	10.6	9.1
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0.4	0.2

Lanes, Volumes, Timings

2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↶	↷↷	↶	↷↷		
Traffic Volume (vph)	38	227	84	64	0	0
Future Volume (vph)	38	227	84	64	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	252	93	71	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Future Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	1	0	0	1	0	14	163	0	0	0	150
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Future Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	250	1	0	0	1	0	14	163	0	0	0	150













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.8	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.182	-	-	-	-	-
HCM Control Delay (s)	8.9	9.9	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.7	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	16	68	290	74	39
Future Volume (vph)	103	16	68	290	74	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.5	7.5	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.25	0.25	0.63	0.63	0.63	0.63
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
LOS	B	A	A	A	A	A
Approach Delay	9.8		3.0			6.7
Approach LOS	A		A			A
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	5.1
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	18	76	322	82	43
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022






















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↑	↷	↶	↷
Traffic Volume (veh/h)	103	16	68	290	74	39
Future Volume (veh/h)	103	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	114	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	228	203	423		684	377
Arrive On Green	0.13	0.13	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	114	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.1	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.1	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	228	203	423		684	377
V/C Ratio(X)	0.50	0.09	0.18		0.12	0.11
Avail Cap(c_a), veh/h	1950	1735	2368		2255	2113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	7.0	5.2	0.0	5.8	5.1
Incr Delay (d2), s/veh	1.7	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	7.2	5.4	0.0	5.9	5.2
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	132		76			125
Approach Delay, s/veh	8.9		5.4			5.6
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.1		3.7
Green Ext Time (p_c), s		0.3		0.3		0.4

Intersection Summary		
HCM 6th Ctrl Delay		6.9
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	20	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
	ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection

Int Delay, s/veh 9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	20	0	53	0	33	55	709	148	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	39.6	0	7.7
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	49	1023	1520	-	-
HCM Lane V/C Ratio	-	-	-	-	0.408	0.052	0.466	-	-
HCM Control Delay (s)	0	-	-	0	122	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.2	2.6	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Future Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	108	0	0	1002	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	↕
Traffic Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Future Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	108	0	0	999	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1055	-	501	608	-	54	1002	0	-	-	-	0
Stage 1	1001	-	-	108	-	-	-	-	-	-	-	-
Stage 2	54	-	-	500	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	127	0	322	384	0	976	699	-	0	0	-	-
Stage 1	185	0	-	892	0	-	-	-	0	0	-	-
Stage 2	829	0	-	527	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	124	-	322	383	-	976	699	-	-	-	-	-
Mov Cap-2 Maneuver	164	-	-	451	-	-	-	-	-	-	-	-
Stage 1	185	-	-	892	-	-	-	-	-	-	-	-
Stage 2	811	-	-	525	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	23.6		9.3		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	699	-	164	322	451	976	-	-
HCM Lane V/C Ratio	-	-	0.014	0.003	0.007	0.021	-	-
HCM Control Delay (s)	0	-	27.3	16.2	13	8.8	-	-
HCM Lane LOS	A	-	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	272	96	550	0	261	56	38	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.1	87.3	87.3	97.8	89.8		14.6	28.5	28.5	19.7	13.9	
Actuated g/C Ratio	0.66	0.60	0.60	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.14	0.28	0.13	0.27		0.82	0.16	0.10	0.02	0.78	
Control Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.1			13.7			69.6			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	50	0	27	123		126	42	0	3	76	
Queue Length 95th (ft)	43	86	44	56	192		#192	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

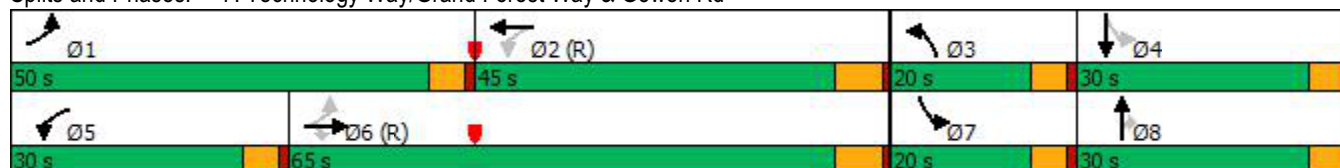


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	671	1789	985	855	2052		326	379	410	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27		0.80	0.15	0.09	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 26.9
 Intersection LOS: C
 Intersection Capacity Utilization 53.5%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

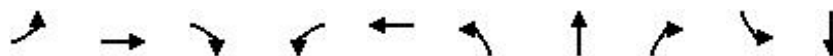
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	272	96	550	261	56	38	4	182
v/c Ratio	0.15	0.14	0.28	0.13	0.27	0.82	0.16	0.10	0.02	0.78
Control Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Length 50th (ft)	19	50	0	27	123	126	42	0	3	76
Queue Length 95th (ft)	43	86	44	56	192	#192	84	0	12	156
Internal Link Dist (ft)	1908				346		3134		856	
Turn Bay Length (ft)	155		415		90		520		240 125	
Base Capacity (vph)	671	1789	985	855	2052	326	379	410	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27	0.80	0.15	0.09	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	547	2082		872	2308		304	223		109	67	
Arrive On Green	0.03	0.69	0.00	0.03	0.69	0.00	0.10	0.13	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	547	2082		872	2308		304	223		109	67	
V/C Ratio(X)	0.12	0.12		0.11	0.23		0.86	0.25		0.04	0.63	
Avail Cap(c_a), veh/h	934	2082		1110	2308		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.2	7.6	0.0	5.9	8.3	0.0	64.6	57.1	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.2	0.0	18.6	0.6	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	0.0	0.8	3.1	0.0	5.5	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	7.7	0.0	6.0	8.5	0.0	83.3	57.7	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			634			317			46	
Approach Delay, s/veh		7.4			8.1			78.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	106.2	18.8	10.4	9.9	106.0	5.7	23.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.6	13.7	5.3	4.4	5.9	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.1	0.1	0.2	1.7	0.0	0.2				

























Intersection Summary												
HCM 6th Ctrl Delay											27.5	
HCM 6th LOS											C	

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	35.8	35.8	9.0	30.7	30.7	8.6	20.6	20.6	29.7	21.7	34.0
Actuated g/C Ratio	0.13	0.40	0.40	0.10	0.34	0.34	0.10	0.23	0.23	0.33	0.24	0.38
v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.26	0.10	0.02	0.43	0.52	0.66
Control Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
LOS	E	C	B	D	C	A	D	C	A	C	C	B
Approach Delay		26.5			25.5			30.9			22.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	88	56	62	46	152	0	21	15	0	64	104	52

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

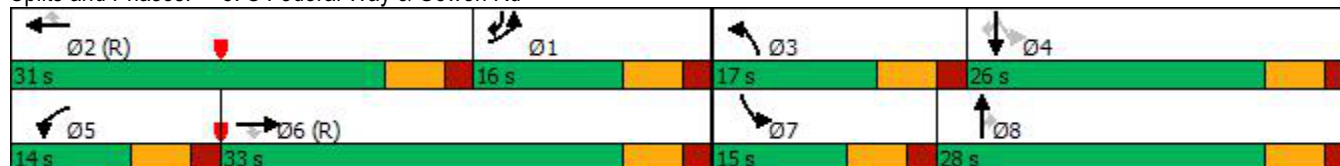


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	96	#328	93	210	39	42	32	0	110	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1182	836	167	1100	626	413	753	580	417	867	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.19	0.09	0.02	0.43	0.48	0.66

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.1 Intersection LOS: C
 Intersection Capacity Utilization 68.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.26	0.10	0.02	0.43	0.52	0.66
Control Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
Queue Length 50th (ft)	88	56	62	46	152	0	21	15	0	64	104	52
Queue Length 95th (ft)	#161	96	#328	93	210	39	42	32	0	110	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1182	836	167	1100	626	413	753	580	417	867	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.19	0.09	0.02	0.43	0.48	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	906	1363		150	746		185	378	193	402	601	666
Arrive On Green	0.10	0.15	0.00	0.09	0.23	0.00	0.06	0.13	0.13	0.11	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.6	9.1	0.0	4.3	15.3	0.0	2.2	1.9	0.6	8.0	10.5	4.2
Cycle Q Clear(g_c), s	8.6	9.1	0.0	4.3	15.3	0.0	2.2	1.9	0.6	8.0	10.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	906	1363		150	746		185	378	193	402	601	666
V/C Ratio(X)	0.33	0.25		0.56	0.79		0.42	0.18	0.06	0.44	0.70	0.64
Avail Cap(c_a), veh/h	906	1363		169	942		419	765	390	402	786	740
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	24.9	0.0	39.3	32.7	0.0	40.9	35.2	34.6	27.9	34.7	5.6
Incr Delay (d2), s/veh	0.2	0.4	0.0	2.9	7.5	0.0	1.5	0.2	0.1	0.8	1.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.5	0.0	1.9	6.6	0.0	0.8	0.7	0.2	3.1	4.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	25.3	0.0	42.2	40.1	0.0	42.4	35.4	34.7	28.7	36.5	7.1
LnGrp LOS	C	C		D	D		D	D	C	C	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		28.4			40.4			38.8			22.9	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.0	25.6	10.3	21.1	13.0	45.6	15.0	16.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.6	17.3	4.2	12.5	6.3	11.1	10.0	3.9				
Green Ext Time (p_c), s	0.0	2.3	0.1	2.6	0.0	1.9	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1281	0	0	245	652	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.5	78.3			63.6	63.6	10.0		10.5			
Actuated g/C Ratio	0.85	0.87			0.71	0.71	0.11		0.12			
v/c Ratio	0.23	0.33			0.12	0.33	0.19		0.14			
Control Delay	2.6	2.3			3.8	0.8	39.6		1.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.6	2.3			3.8	0.8	39.6		1.3			
LOS	A	A			A	A	D		A			
Approach Delay		2.3			1.6			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	61			15	0	16		0			
Queue Length 95th (ft)	35	76			27	3	42		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

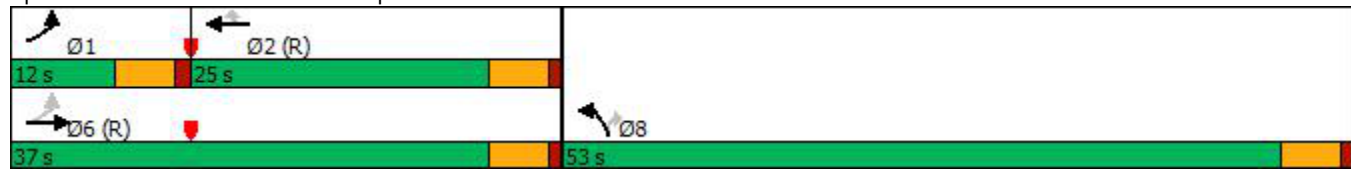


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	824	3922			2084	1970	766		683			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.33			0.12	0.33	0.04		0.04			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.33
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	52.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1281	245	652	30	29
v/c Ratio	0.23	0.33	0.12	0.33	0.19	0.14
Control Delay	2.6	2.3	3.8	0.8	39.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.3	3.8	0.8	39.6	1.3
Queue Length 50th (ft)	21	61	15	0	16	0
Queue Length 95th (ft)	35	76	27	3	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	824	3922	2084	1970	766	683
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.33	0.12	0.33	0.04	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1281	0	0	245	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	836	3695	0	0	2090		125	0	109			
Arrive On Green	0.06	0.81	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1281	0	0	245	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.8	6.7	0.0	0.0	5.8	0.0	1.7	0.0	2.0			
Cycle Q Clear(g_c), s	2.8	6.7	0.0	0.0	5.8	0.0	1.7	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	836	3695	0	0	2090		125	0	109			
V/C Ratio(X)	0.23	0.35	0.00	0.00	0.12		0.24	0.00	0.27			
Avail Cap(c_a), veh/h	871	3695	0	0	2090		779	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	0.80	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.9	2.3	0.0	0.0	12.7	0.0	38.4	0.0	38.1			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.0	0.0	1.8	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	2.5	0.0	0.0	12.8	0.0	39.4	0.0	39.4			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1473			245			59				
Approach Delay, s/veh		2.6			12.8			39.4				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.8	7.8				8.7		4.0				
Green Ext Time (p_c), s	0.1	1.1				9.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.2								
HCM 6th LOS				A								
Notes												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		112.0		123.2	123.2					86.8		86.8
Actuated g/C Ratio		0.51		0.56	0.56					0.39		0.39
v/c Ratio		0.24		0.10	0.15					0.75		0.45
Control Delay		34.4		28.8	26.9					60.8		4.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		34.4		28.8	26.9					60.8		4.2
LOS		C		C	C					E		A
Approach Delay		34.4			27.2							45.7
Approach LOS		C			C							D
Queue Length 50th (ft)		146		24	80					628		0
Queue Length 95th (ft)		262		69	162					479		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

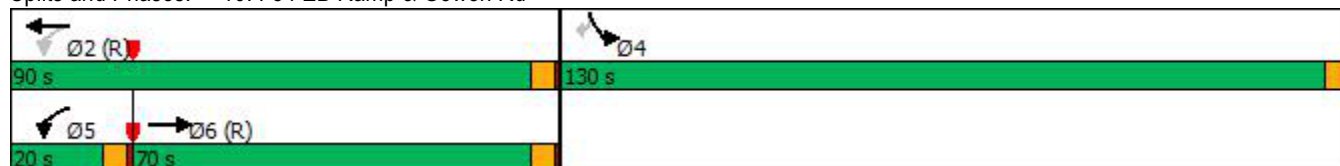
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2141		411	1636					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.24		0.09	0.15					0.52		0.36

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	40.4
Intersection LOS:	D
Intersection Capacity Utilization	52.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022
























Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.24	0.10	0.15	0.75	0.45
Control Delay	34.4	28.8	26.9	60.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	28.8	26.9	60.8	4.2
Queue Length 50th (ft)	146	24	80	628	0
Queue Length 95th (ft)	262	69	162	479	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2141	411	1636	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.09	0.15	0.52	0.36
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 					 		
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2480	160	495	1895	0				1001	0	436
Arrive On Green	0.00	0.60	0.60	0.02	0.64	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	4308	269	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Cycle Q Clear(g_c), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1723	918	495	1895	0				1001	0	436
V/C Ratio(X)	0.00	0.20	0.20	0.08	0.13	0.00				0.93	0.00	0.77
Avail Cap(c_a), veh/h	0	1723	918	567	1895	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.4	20.4	16.3	15.6	0.0				72.8	0.0	68.1
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				4.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	4.6	0.8	2.5	0.0				25.4	0.0	34.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.6	20.9	16.4	15.7	0.0				77.5	0.0	70.9
LnGrp LOS	A	C	C	B	B	A				E	A	E
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		20.7			15.8						75.8	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		145.6		74.4	9.5	136.0						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		9.0		64.2	4.2	14.0						
Green Ext Time (p_c), s		1.7		5.2	0.0	3.7						
Intersection Summary												
HCM 6th Ctrl Delay			53.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	3	21	290	142	314
Future Volume (vph)	57	3	21	290	142	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	3	23	322	158	349
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 1.9

Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 

Traffic Vol, veh/h 57 3 21 290 142 314

Future Vol, veh/h 57 3 21 290 142 314

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 90 90 90 90 90 90

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 63 3 23 322 158 349

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 526 - 158 0 - 0

Stage 1 158 - - - - -

Stage 2 368 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 476 0 1434 - - 0

Stage 1 820 0 - - - 0

Stage 2 654 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 468 - 1434 - - -

Mov Cap-2 Maneuver 468 - - - - -

Stage 1 807 - - - - -

Stage 2 654 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.9 0.5 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1434 - 468 - -

HCM Lane V/C Ratio 0.016 - 0.135 - -

HCM Control Delay (s) 7.6 - 13.9 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0.1 - 0.5 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Future Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	105	0	2	13	0	12	72	0	134	597	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Traffic Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Future Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	6	56	49	2	0	13	12	69	3	134	590	7

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	921	958	299	686	960	36	597	0	0	72	0	0
Stage 1	862	862	-	95	95	-	-	-	-	-	-	-
Stage 2	59	96	-	591	865	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	229	259	703	338	259	1035	989	-	-	1541	-	-
Stage 1	320	375	-	907	820	-	-	-	-	-	-	-
Stage 2	951	819	-	465	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	209	234	703	238	234	1035	989	-	-	1541	-	-
Mov Cap-2 Maneuver	209	234	-	238	234	-	-	-	-	-	-	-
Stage 1	316	342	-	896	810	-	-	-	-	-	-	-
Stage 2	927	809	-	331	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.3	10.2	1.3	1.4
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	989	-	-	209	340	238	1035	1541	-	-
HCM Lane V/C Ratio	0.012	-	-	0.027	0.307	0.009	0.013	0.087	-	-
HCM Control Delay (s)	8.7	-	-	22.7	20.2	20.3	8.5	7.6	-	-
HCM Lane LOS	A	-	-	C	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.3	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	113	191	24	11	145
Future Volume (vph)	90	113	191	24	11	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	126	239	0	12	161
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	↗
Traffic Vol, veh/h	90	113	191	24	11	145
Future Vol, veh/h	90	113	191	24	11	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	100	126	212	27	12	161

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	239	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1340	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1340	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1340	-	-	-	461	818
HCM Lane V/C Ratio	0.075	-	-	-	0.027	0.197
HCM Control Delay (s)	7.9	-	-	-	13	10.5
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.7

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	193	556	0	673	0	351	656	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					16.2	16.2		40.5		63.4	62.4	
Actuated g/C Ratio					0.15	0.15		0.37		0.58	0.57	
v/c Ratio					0.80	0.65		0.59		0.88	0.36	
Control Delay					70.2	7.5		32.0		27.3	17.9	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					70.2	7.5		32.0		27.3	17.9	
LOS					E	A		C		C	B	
Approach Delay					23.6			32.0			21.2	
Approach LOS					C			C			C	
Queue Length 50th (ft)					132	0		212		181	177	
Queue Length 95th (ft)					#245	52		279		m188	m168	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					251	874		1148		401	1828	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.77	0.64		0.59		0.88	0.36	

Intersection Summary	
Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	24.9
Intersection LOS:	C
Intersection Capacity Utilization	57.4%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	193	556	673	351	656
v/c Ratio	0.80	0.65	0.59	0.88	0.36
Control Delay	70.2	7.5	32.0	27.3	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	7.5	32.0	27.3	17.9
Queue Length 50th (ft)	132	0	212	181	177
Queue Length 95th (ft)	#245	52	279	m188	m168
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	251	874	1148	401	1828
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.64	0.59	0.88	0.36

Intersection Summary

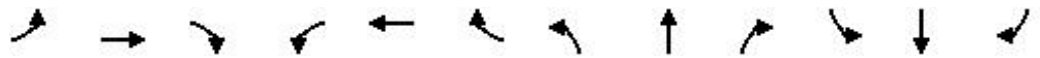
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	193	0	556	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	265	0	405	555	1793	204	585	2489	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.62	0.61	0.11	0.76	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2901	331	1514	3346	0
Grp Volume(v), veh/h	0	0	0	193	0	556	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1628	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.8	0.0	17.0	0.0	11.0	11.1	8.5	6.6	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.8	0.0	17.0	0.0	11.0	11.1	8.5	6.6	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	265	0	405	555	991	1007	585	2489	0
V/C Ratio(X)	0.00	0.00	0.00	0.73	0.00	1.37	0.00	0.34	0.34	0.60	0.26	0.00
Avail Cap(c_a), veh/h	0	393	0	265	0	405	819	991	1007	654	2489	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.8	0.0	46.5	0.0	10.1	10.2	6.2	3.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	9.7	0.0	182.5	0.0	0.9	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	5.6	0.0	15.8	0.0	3.7	3.8	1.9	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	54.5	0.0	229.0	0.0	11.0	11.1	6.4	3.9	0.0
LnGrp LOS	A	A	A	D	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			749			673			1007	
Approach Delay, s/veh		0.0			184.0			11.1			4.7	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	73.0		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	10.5	13.1		19.0	0.0	8.6		0.0				
Green Ext Time (p_c), s	0.5	3.7		0.0	0.0	4.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	61.8
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	860	327	304	789	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.5		31.0	31.0	31.0	41.6	41.1	41.1	15.0	52.3	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.38	0.37	0.37	0.14	0.48	
v/c Ratio		0.43		3.03	3.36	0.74	0.17	0.70	0.47	0.74	0.56	
Control Delay		44.3		975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.3		975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		44.3			450.6			15.5			33.7	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		20		~234	~243	76	7	135	0	107	227	
Queue Length 95th (ft)		46		#347	#361	214	m13	245	13	#163	307	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

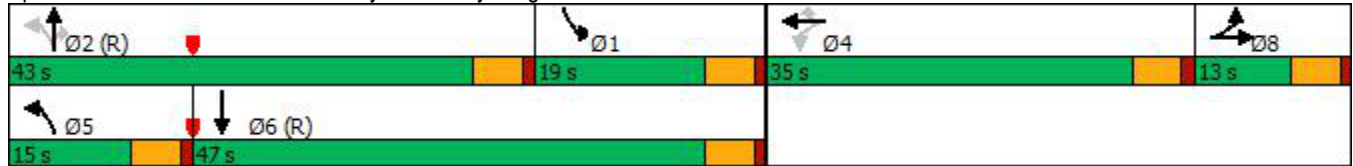
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		191		60	55	689	212	1228	697	411	1404	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.40		3.03	3.36	0.74	0.14	0.70	0.47	0.74	0.56	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.36
 Intersection Signal Delay: 138.9 Intersection LOS: F
 Intersection Capacity Utilization 67.0% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	860	327	304	789
v/c Ratio	0.43	3.03	3.36	0.74	0.17	0.70	0.47	0.74	0.56
Control Delay	44.3	975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6
Queue Length 50th (ft)	20	~234	~243	76	7	135	0	107	227
Queue Length 95th (ft)	46	#347	#361	214	m13	245	13	#163	307
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	191	60	55	689	212	1228	697	411	1404
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	3.03	3.36	0.74	0.14	0.70	0.47	0.74	0.56

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	82	30	48	951	0	420	181	1160	501	510	1400	97
Arrive On Green	0.04	0.05	0.04	0.28	0.00	0.28	0.04	0.35	0.35	0.17	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	358	0	507	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	25.1	21.2	10.1	19.4	19.4
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	25.1	21.2	10.1	19.4	19.4
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	82	0	78	951	0	420	181	1160	501	510	738	759
V/C Ratio(X)	0.56	0.00	0.40	0.38	0.00	1.21	0.17	0.74	0.65	0.60	0.53	0.53
Avail Cap(c_a), veh/h	130	0	123	951	0	420	274	1160	501	510	738	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	50.8	31.7	0.0	39.5	26.9	31.4	30.1	42.4	19.9	19.9
Incr Delay (d2), s/veh	5.8	0.0	3.3	0.2	0.0	113.9	0.3	3.3	4.9	1.9	2.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	3.8	0.0	24.5	0.5	10.1	7.7	3.8	6.7	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	0.0	54.0	32.0	0.0	153.4	27.2	34.6	35.1	44.3	22.6	22.5
LnGrp LOS	E	A	D	C	A	F	C	C	D	D	C	C
Approach Vol, veh/h		77			865			1217			1093	
Approach Delay, s/veh		55.9			103.1			34.6			28.6	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.1	27.1		33.0	3.5	21.4		5.1				
Green Ext Time (p_c), s	0.2	5.1		0.0	0.0	4.2		0.1				

Intersection Summary

HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D






















Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Future Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	0	177	68	0	0	90	0	31	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Future Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	54	57	177	68	0	0	90	0	31	0	94

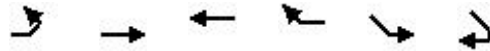
Major/Minor	Major1			Major2			Minor2				
Conflicting Flow All	-	0	0	111	0	0			449	533	68
Stage 1	-	-	-	-	-	-			422	422	-
Stage 2	-	-	-	-	-	-			27	111	-
Critical Hdwy	-	-	-	4.745	-	-			6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-			5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-			3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1241	-	0			548	376	896
Stage 1	0	-	-	-	-	0			655	497	-
Stage 2	0	-	-	-	-	0			987	710	-
Platoon blocked, %	-	-	-	-	-	-			-	-	-
Mov Cap-1 Maneuver	-	-	-	1241	-	-			470	0	896
Mov Cap-2 Maneuver	-	-	-	-	-	-			470	0	-
Stage 1	-	-	-	-	-	-			655	0	-
Stage 2	-	-	-	-	-	-			846	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.1	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1241	-	470	896
HCM Lane V/C Ratio	-	-	0.142	-	0.066	0.105
HCM Control Delay (s)	-	-	8.4	-	13.2	9.5
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	-	0.2	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↩	↑↑	↑	↘↘		
Traffic Volume (vph)	36	97	216	205	0	0
Future Volume (vph)	36	97	216	205	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	108	240	228	0	0
Sign Control		Free	Free		Free	






















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.0% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 		 					 
Traffic Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Future Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	0	0	0	1	0	33	84	0	0	1	432
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
 3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Future Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	106	0	0	0	1	0	33	84	0	1	0	432













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.3	9
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	891	-
HCM Lane V/C Ratio	0.035	0.094	-	-	-	0.001	-
HCM Control Delay (s)	9	9.4	0	-	-	9	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.3	-	-	-	0	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	266	120	49	122	17	74
Future Volume (vph)	266	120	49	122	17	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	10.4	10.4	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.34	0.34	0.29	0.29	0.29	0.29
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
LOS	B	A	A	A	A	B
Approach Delay	8.4		5.7			10.5
Approach LOS	A		A			B
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.4
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	8.0
Intersection LOS:	A
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	296	133	54	136	19	82
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	266	120	49	122	17	74
Future Volume (veh/h)	266	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	296	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	474	422	353		581	315
Arrive On Green	0.28	0.28	0.23	0.00	0.23	0.23
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	296	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	3.3	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	3.3	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	474	422	353		581	315
V/C Ratio(X)	0.62	0.32	0.15		0.03	0.26
Avail Cap(c_a), veh/h	1628	1449	1977		1918	1764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	6.3	6.9	0.0	7.2	7.0
Incr Delay (d2), s/veh	1.4	0.4	0.2	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.3	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.8	7.1	0.0	7.2	7.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	429		54			101
Approach Delay, s/veh	7.9		7.1			7.4
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		11.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		5.3		3.1
Green Ext Time (p_c), s		0.2		1.2		0.4
Intersection Summary						
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			



















Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	48	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0% ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection

Int Delay, s/veh 11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	48	0	639	0	182	27	126	51	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.6	16.5	0	5.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	445	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.107	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	14.1	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	5.6	0.3	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Future Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	931	0	0	224	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↘	↙		↘	↔	↔			↕	↕
Traffic Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Future Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	931	0	0	223	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	690	-	112	1043	-	466	224	0	-	-	-	0
Stage 1	224	-	-	931	-	-	-	-	-	-	-	-
Stage 2	466	-	-	112	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	253	0	678	186	0	522	1357	-	0	0	-	-
Stage 1	638	0	-	291	0	-	-	-	0	0	-	-
Stage 2	437	0	-	887	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	180	-	678	186	-	522	1357	-	-	-	-	-
Mov Cap-2 Maneuver	257	-	-	253	-	-	-	-	-	-	-	-
Stage 1	638	-	-	291	-	-	-	-	-	-	-	-
Stage 2	311	-	-	887	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.1		14.7		0		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1357	-	257	-	253	522	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.004	0.289	-	-
HCM Control Delay (s)	0	-	19.1	0	19.3	14.7	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.2	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	252	42	411	0	327	51	92	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	105.9	95.5	95.5	91.7	84.2		15.0	26.7	26.7	15.1	9.1	
Actuated g/C Ratio	0.73	0.66	0.66	0.63	0.58		0.10	0.18	0.18	0.10	0.06	
v/c Ratio	0.49	0.32	0.24	0.08	0.21		1.00	0.16	0.25	0.05	0.68	
Control Delay	10.2	12.3	2.0	7.7	16.2		114.4	51.2	3.6	44.7	29.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.2	12.3	2.0	7.7	16.2		114.4	51.2	3.6	44.7	29.2	
LOS	B	B	A	A	B		F	D	A	D	C	
Approach Delay		9.5			15.4			85.8			29.9	
Approach LOS		A			B			F			C	
Queue Length 50th (ft)	74	126	0	9	88		~161	41	0	5	13	
Queue Length 95th (ft)	144	201	37	26	157		#267	83	15	19	82	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

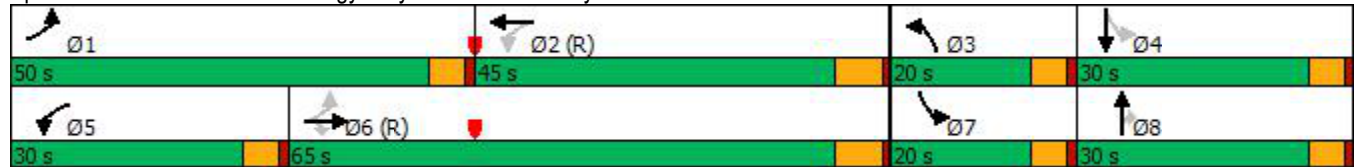
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	711	1958	1045	705	1921		326	321	368	258	357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.39	0.32	0.24	0.06	0.21		1.00	0.16	0.25	0.03	0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 28.2 Intersection LOS: C
 Intersection Capacity Utilization 60.0% ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	276	630	252	42	411	327	51	92	7	144
v/c Ratio	0.49	0.32	0.24	0.08	0.21	1.00	0.16	0.25	0.05	0.68
Control Delay	10.2	12.3	2.0	7.7	16.2	114.4	51.2	3.6	44.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	12.3	2.0	7.7	16.2	114.4	51.2	3.6	44.7	29.2
Queue Length 50th (ft)	74	126	0	9	88	~161	41	0	5	13
Queue Length 95th (ft)	144	201	37	26	157	#267	83	15	19	82
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	711	1958	1045	705	1921	326	321	368	258	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.32	0.24	0.06	0.21	1.00	0.16	0.25	0.03	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	276	630	0	42	400	0	327	51	0	7	14	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	644	2087		591	2116		331	224		109	59	
Arrive On Green	0.09	0.69	0.00	0.03	0.63	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	276	630	0	42	400	0	327	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	9.6	11.8	0.0	1.2	7.2	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Cycle Q Clear(g_c), s	9.6	11.8	0.0	1.2	7.2	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	644	2087		591	2116		331	224		109	59	
V/C Ratio(X)	0.43	0.30		0.07	0.19		0.99	0.23		0.06	0.24	
Avail Cap(c_a), veh/h	957	2087		838	2116		331	303		272	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.9	8.7	0.0	8.6	11.1	0.0	64.9	56.8	0.0	66.9	68.4	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.1	0.2	0.0	46.4	0.5	0.0	0.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.8	0.0	0.5	2.7	0.0	8.1	1.7	0.0	0.3	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	9.0	0.0	8.6	11.3	0.0	111.3	57.3	0.0	67.2	70.5	0.0
LnGrp LOS	A	A		A	B		F	E		E	E	
Approach Vol, veh/h		906			442			378				21
Approach Delay, s/veh		8.5			11.0			104.0				69.4
Approach LOS		A			B			F				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	97.8	20.0	9.7	9.1	106.2	6.2	23.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	11.6	9.2	16.8	3.1	3.2	13.8	2.6	5.8				
Green Ext Time (p_c), s	0.9	2.7	0.0	0.0	0.1	4.9	0.0	0.1				

Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	39.0	52.0	52.0	17.0	30.0	30.0	50.0	56.0	56.0	25.0	31.0	39.0
Total Split (%)	26.0%	34.7%	34.7%	11.3%	20.0%	20.0%	33.3%	37.3%	37.3%	16.7%	20.7%	26.0%
Maximum Green (s)	34.0	47.0	47.0	12.0	25.0	25.0	45.0	51.0	51.0	20.0	26.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	33.7	66.1	66.1	9.1	33.7	33.7	38.0	45.6	45.6	49.6	28.6	66.3
Actuated g/C Ratio	0.22	0.44	0.44	0.06	0.22	0.22	0.25	0.30	0.30	0.33	0.19	0.44
v/c Ratio	0.90	0.51	0.21	0.12	0.85	0.31	0.83	0.44	0.13	0.90	0.15	0.83
Control Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
LOS	E	D	A	E	E	A	E	D	A	E	D	D
Approach Delay		48.3			57.4			51.5			48.3	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	284	252	0	11	~358	0	313	153	0	214	40	355

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

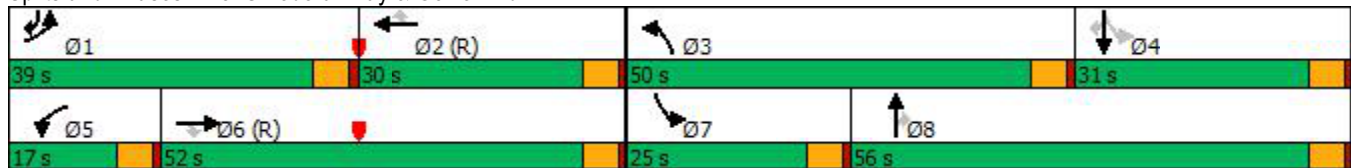
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#380	366	51	34	#485	44	361	202	0	#364	71	#592
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1310	748	145	724	457	950	1021	611	401	712	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.51	0.21	0.08	0.85	0.31	0.69	0.39	0.11	0.90	0.14	0.82

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 50.8 Intersection LOS: D
 Intersection Capacity Utilization 77.0% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
v/c Ratio	0.90	0.51	0.21	0.12	0.85	0.31	0.83	0.44	0.13	0.90	0.15	0.83
Control Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
Queue Length 50th (ft)	284	252	0	11	~358	0	313	153	0	214	40	355
Queue Length 95th (ft)	#380	366	51	34	#485	44	361	202	0	#364	71	#592
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1310	748	145	724	457	950	1021	611	401	712	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.51	0.21	0.08	0.85	0.31	0.69	0.39	0.11	0.90	0.14	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	638	1364		47	847		736	821	418	431	606	543
Arrive On Green	0.22	0.45	0.00	0.03	0.26	0.00	0.23	0.27	0.27	0.14	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	29.2	23.6	0.0	1.0	25.9	0.0	30.1	16.5	5.2	21.0	3.7	27.0
Cycle Q Clear(g_c), s	29.2	23.6	0.0	1.0	25.9	0.0	30.1	16.5	5.2	21.0	3.7	27.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	638	1364		47	847		736	821	418	431	606	543
V/C Ratio(X)	0.91	0.49		0.26	0.73		0.89	0.48	0.17	0.83	0.16	0.98
Avail Cap(c_a), veh/h	679	1364		146	847		964	1038	529	431	606	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.80	0.80	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	29.0	0.0	71.4	50.7	0.0	55.5	45.5	41.4	45.8	51.9	44.6
Incr Delay (d2), s/veh	15.1	1.2	0.0	2.3	4.4	0.0	8.1	0.4	0.2	13.2	0.1	34.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	8.8	0.0	0.5	11.0	0.0	12.6	6.1	2.0	4.2	1.6	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.2	30.2	0.0	73.7	55.0	0.0	63.6	45.9	41.6	59.0	52.1	79.0
LnGrp LOS	E	C		E	E		E	D	D	E	D	E
Approach Vol, veh/h		1255			628			1115			991	
Approach Delay, s/veh		49.7			55.4			56.0			69.1	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.9	43.0	39.1	31.0	8.1	71.7	25.0	45.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	34.0	25.0	45.0	26.0	12.0	47.0	20.0	51.0				
Max Q Clear Time (g_c+I1), s	31.2	27.9	32.1	29.0	3.0	25.6	23.0	18.5				
Green Ext Time (p_c), s	0.7	0.0	2.1	0.0	0.0	4.6	0.0	2.8				

Intersection Summary

HCM 6th Ctrl Delay	57.2
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

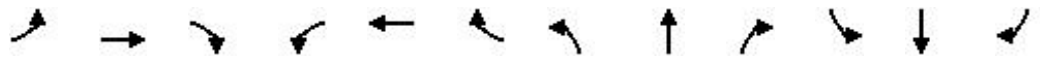
Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1396	0	0	422	1192	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.7	113.6			95.2	95.2	10.8		11.3			
Actuated g/C Ratio	0.87	0.87			0.73	0.73	0.08		0.09			
v/c Ratio	0.55	0.35			0.20	0.55	0.35		0.42			
Control Delay	5.0	2.3			6.8	1.5	64.6		20.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.0	2.3			6.8	1.5	64.6		20.0			
LOS	A	A			A	A	E		C			
Approach Delay		2.9			2.9			36.6				
Approach LOS		A			A			D				
Queue Length 50th (ft)	52	69			55	0	34		0			
Queue Length 95th (ft)	92	99			95	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	816	3940			2159	2162	221		248			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.50	0.35			0.20	0.55	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	4.0
Intersection LOS:	A
Intersection Capacity Utilization	81.9%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1396	422	1192	42	71
v/c Ratio	0.55	0.35	0.20	0.55	0.35	0.42
Control Delay	5.0	2.3	6.8	1.5	64.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	2.3	6.8	1.5	64.6	20.0
Queue Length 50th (ft)	52	69	55	0	34	0
Queue Length 95th (ft)	92	99	95	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	816	3940	2159	2162	221	248
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.35	0.20	0.55	0.19	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1396	0	0	422	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	800	3890	0	0	2182		110	0	95			
Arrive On Green	0.09	0.85	0.00	0.00	0.73	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1396	0	0	422	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	7.7	8.5	0.0	0.0	5.8	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	7.7	8.5	0.0	0.0	5.8	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	800	3890	0	0	2182		110	0	95			
V/C Ratio(X)	0.51	0.36	0.00	0.00	0.19		0.38	0.00	0.75			
Avail Cap(c_a), veh/h	968	3890	0	0	2182		225	0	188			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	0.43	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.9	2.1	0.0	0.0	5.6	0.0	57.2	0.0	58.6			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	11.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.6	0.0	0.0	1.7	0.0	1.3	0.0	2.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	2.2	0.0	0.0	5.6	0.0	59.3	0.0	69.7			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1803			422			113				
Approach Delay, s/veh		2.5			5.6			65.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.9	99.3				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	9.7	7.8				10.5		9.6				
Green Ext Time (p_c), s	1.1	3.1				15.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	74	371	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		100.6		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.35		0.23	0.21					1.01		0.38
Control Delay		26.3		17.3	17.3					89.9		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.3		17.3	17.3					89.9		6.2
LOS		C		B	B					F		A
Approach Delay		26.3			17.3							74.6
Approach LOS		C			B							E
Queue Length 50th (ft)		202		37	107					~705		0
Queue Length 95th (ft)		243		64	136					#859		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2222		357	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.35		0.21	0.21					1.01		0.38

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.7 Intersection LOS: D

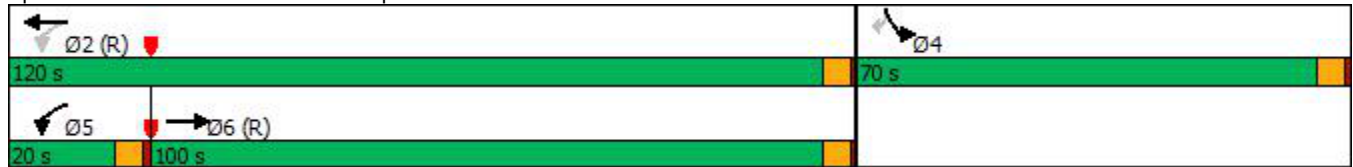
Intersection Capacity Utilization 81.9% ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	74	371	1077	240
v/c Ratio	0.35	0.23	0.21	1.01	0.38
Control Delay	26.3	17.3	17.3	89.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	17.3	17.3	89.9	6.2
Queue Length 50th (ft)	202	37	107	~705	0
Queue Length 95th (ft)	243	64	136	#859	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2222	357	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.21	0.21	1.01	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.













95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑					↔		↔
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	74	371	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2248	175	366	1796	0				1084	0	473
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4248	320	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	512	273	74	371	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	18.5	18.6	4.0	10.7	0.0				64.3	0.0	26.3
Cycle Q Clear(g_c), s	0.0	18.5	18.6	4.0	10.7	0.0				64.3	0.0	26.3
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1584	839	366	1796	0				1084	0	473
V/C Ratio(X)	0.00	0.32	0.33	0.20	0.21	0.00				0.99	0.00	0.51
Avail Cap(c_a), veh/h	0	1584	839	439	1796	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.6	23.7	18.1	16.9	0.0				62.3	0.0	49.8
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.3	0.0				25.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	7.1	1.5	3.8	0.0				28.9	0.0	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.2	24.7	18.4	17.2	0.0				87.9	0.0	50.6
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		785			445						1317	
Approach Delay, s/veh		24.3			17.4						81.1	
Approach LOS		C			B						F	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.0		70.0	10.9	109.1						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		12.7		66.3	6.0	20.6						
Green Ext Time (p_c), s		2.7		0.0	0.1	6.0						
Intersection Summary												
HCM 6th Ctrl Delay				52.5								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	149	11	2	252	265	88
Future Volume (vph)	149	11	2	252	265	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	12	2	280	294	98
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗	↘	↗	↗	↘
Traffic Vol, veh/h	149	11	2	252	265	88
Future Vol, veh/h	149	11	2	252	265	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	166	12	2	280	294	98

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	578	-	294	0	-
Stage 1	294	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-
Stage 1	709	0	-	-	-
Stage 2	716	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	442	-	1279	-	-
Mov Cap-2 Maneuver	442	-	-	-	-
Stage 1	708	-	-	-	-
Stage 2	716	-	-	-	-























Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.375	-	-
HCM Control Delay (s)	7.8	-	17.9	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Future Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45				45
Link Distance (ft)		273			287			1256				2303
Travel Time (s)		9.3			9.8			19.0				34.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	7	0	3	70	0	50	806	0	24	114	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↶↷		↶	↶↷	
Traffic Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Future Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	119	0	7	3	56	14	50	806	0	24	114	0

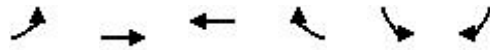
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	693	1068	57	1011	1068	403	114	0	0	806	0	0
Stage 1	162	162	-	906	906	-	-	-	-	-	-	-
Stage 2	531	906	-	105	162	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	334	223	1004	197	223	603	1488	-	-	828	-	-
Stage 1	830	768	-	301	358	-	-	-	-	-	-	-
Stage 2	505	358	-	895	768	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	247	209	1004	187	209	603	1488	-	-	828	-	-
Mov Cap-2 Maneuver	247	209	-	187	209	-	-	-	-	-	-	-
Stage 1	802	746	-	291	346	-	-	-	-	-	-	-
Stage 2	400	346	-	863	746	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	31.1		25.7		0.4		1.7	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	247	1004	187	242	828	-	-
HCM Lane V/C Ratio	0.034	-	-	0.481	0.007	0.018	0.289	0.03	-	-
HCM Control Delay (s)	7.5	-	-	32.4	8.6	24.6	25.8	9.5	-	-
HCM Lane LOS	A	-	-	D	A	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0	0.1	1.2	0.1	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	162	287	166	20	48	133
Future Volume (vph)	162	287	166	20	48	133
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	180	319	206	0	53	148
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	287	166	20	48	133
Future Vol, veh/h	162	287	166	20	48	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	180	319	184	22	53	148

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	206	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1377	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1377	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1377	-	-	-	281	851
HCM Lane V/C Ratio	0.131	-	-	-	0.19	0.174
HCM Control Delay (s)	8	-	-	-	20.8	10.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.7	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	143	538	1	1106	0	674	931	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		21.1			15.1	15.1	42.6	35.0		64.0	60.8	
Actuated g/C Ratio		0.19			0.14	0.14	0.39	0.32		0.58	0.55	
v/c Ratio		0.00			0.64	0.65	0.00	1.12		1.76	0.52	
Control Delay		0.0			58.2	7.8	14.0	103.9		362.9	23.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			58.2	7.8	14.0	103.9		362.9	23.1	
LOS		A			E	A	B	F		F	C	
Approach Delay					18.4			103.8			165.8	
Approach LOS					B			F			F	
Queue Length 50th (ft)		0			95	0	0	~468		~751	313	
Queue Length 95th (ft)		0			162	51	3	#603		m#625	m293	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		465			251	858	445	984		384	1784	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.57	0.63	0.00	1.12		1.76	0.52	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.76
Intersection Signal Delay:	115.9
Intersection LOS:	F
Intersection Capacity Utilization	89.7%
ICU Level of Service	E
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	143	538	1	1106	674	931
v/c Ratio	0.00	0.64	0.65	0.00	1.12	1.76	0.52
Control Delay	0.0	58.2	7.8	14.0	103.9	362.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	58.2	7.8	14.0	103.9	362.9	23.1
Queue Length 50th (ft)	0	95	0	0	~468	~751	313
Queue Length 95th (ft)	0	162	51	3	#603	m#625	m293
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	465	251	858	445	984	384	1784
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.57	0.63	0.00	1.12	1.76	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

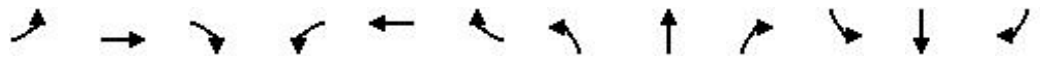
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	143	0	538	1	866	240	674	931	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	10	0	10	265	0	405	449	1301	360	422	2036	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.05	0.52	0.52	0.15	0.62	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2481	687	1514	3346	0
Grp Volume(v), veh/h	2	0	0	143	0	538	1	559	547	674	931	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1564	1514	1630	0
Q Serve(g_s), s	0.1	0.0	0.0	8.5	0.0	17.0	0.0	28.0	28.2	17.0	16.5	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	8.5	0.0	17.0	0.0	28.0	28.2	17.0	16.5	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	19	0	0	265	0	405	449	841	820	422	2036	0
V/C Ratio(X)	0.11	0.00	0.00	0.54	0.00	1.33	0.00	0.67	0.67	1.60	0.46	0.00
Avail Cap(c_a), veh/h	352	0	0	265	0	405	620	841	820	422	2036	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	54.3	0.0	0.0	43.4	0.0	46.5	9.9	19.1	19.3	23.6	10.9	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.0	2.2	0.0	163.7	0.0	4.1	4.3	269.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	14.8	0.0	10.4	10.3	37.1	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	0.0	0.0	45.6	0.0	210.2	9.9	23.2	23.6	293.4	10.9	0.0
LnGrp LOS	E	A	A	D	A	F	A	C	C	F	B	A
Approach Vol, veh/h		2			681			1107			1605	
Approach Delay, s/veh		56.7			175.6			23.4			129.5	
Approach LOS		E			F			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	62.7		21.0	10.0	73.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	19.0	30.2		19.0	2.0	18.5		2.1				
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	5.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	104.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1056	378	684	1275	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.6		31.0	31.0	31.0	39.4	38.9	38.9	15.0	47.2	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.36	0.35	0.35	0.14	0.43	
v/c Ratio		0.56		3.12	3.60	0.71	0.28	0.91	0.57	1.66	0.98	
Control Delay		44.9		1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.9		1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3	
LOS		D		F	F	B	B	C	A	F	D	
Approach Delay		44.9			494.9			16.7			154.4	
Approach LOS		D			F			B			F	
Queue Length 50th (ft)		33		~243	~221	57	10	155	0	~363	~514	
Queue Length 95th (ft)		65		#356	#375	188	m13	m190	m7	#479	#675	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

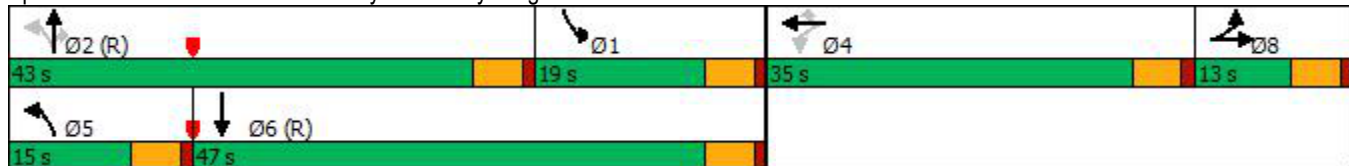


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		237		60	53	697	194	1163	665	411	1295	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.54		3.12	3.60	0.71	0.25	0.91	0.57	1.66	0.98	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.60
Intersection Signal Delay:	172.2
Intersection LOS:	F
Intersection Capacity Utilization	73.3%
ICU Level of Service	D
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1056	378	684	1275
v/c Ratio	0.56	3.12	3.60	0.71	0.28	0.91	0.57	1.66	0.98
Control Delay	44.9	1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3
Queue Length 50th (ft)	33	~243	~221	57	10	155	0	~363	~514
Queue Length 95th (ft)	65	#356	#375	188	m13	m190	m7	#479	#675
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	237	60	53	697	194	1163	665	411	1295
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	3.12	3.60	0.71	0.25	0.91	0.57	1.66	0.98

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	494	48	1056	378	684	1266	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	47	104	61	951	0	420	130	1160	501	463	1429	10
Arrive On Green	0.06	0.07	0.06	0.28	0.00	0.28	0.04	0.35	0.35	0.15	0.46	0.45
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	494	48	1056	378	684	622	653
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	4.4	0.0	4.3	9.6	0.0	31.0	2.5	33.4	25.7	16.6	40.6	40.6
Cycle Q Clear(g_c), s	4.4	0.0	4.3	9.6	0.0	31.0	2.5	33.4	25.7	16.6	40.6	40.6
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	110	0	101	951	0	420	130	1160	501	463	702	737
V/C Ratio(X)	0.62	0.00	0.59	0.38	0.00	1.18	0.37	0.91	0.76	1.48	0.89	0.89
Avail Cap(c_a), veh/h	134	0	124	951	0	420	211	1160	501	463	702	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.16	0.16	0.16	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	0.0	50.1	31.8	0.0	39.5	29.7	34.1	31.6	46.7	27.2	27.2
Incr Delay (d2), s/veh	5.7	0.0	5.5	0.3	0.0	101.8	0.3	2.4	1.7	225.9	15.3	14.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	3.9	0.0	23.1	0.8	13.2	8.7	20.5	16.1	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	0.0	55.6	32.1	0.0	141.3	30.0	36.5	33.3	272.6	42.5	42.0
LnGrp LOS	E	A	E	C	A	F	C	D	C	F	D	D
Approach Vol, veh/h		128			859			1482			1959	
Approach Delay, s/veh		55.7			94.9			35.5			122.7	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.6	43.0		35.0	8.8	54.8		11.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	18.6	35.4		33.0	4.5	42.6		6.4				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	86.2
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Mitigation Conditions Analysis

EXISTING Traffic Conditions

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	C	22.3	-	-	B	17.4	-
			EBL	155	0.10	A	3.0	14	0.37	A	3.5	85
			EBT	-	0.10	A	3.9	38	0.27	A	4.4	125
			EBR	415	-	A	0.0	0	-	A	0.0	16
			WBL	90	0.04	A	3.0	8	0.03	A	4.4	9
			WBTR	-	0.19	A	4.5	91	0.15	A	5.7	99
			NBL	520	0.65	E	58.6	59	0.74	E	57.7	109
			NBT	-	0.28	E	55.2	26	0.24	E	52.3	54
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49			
8	Gowen Rd at Federal Way	- Add SBL Lane	Overall	-	-	C	28.3	-	-	D	50.2	-
			EBL	420	0.26	C	25.5	155	0.68	C	31.1	257
			EBT	-	0.21	C	22.2	142	0.50	C	20.6	233
			EBR	390	-	A	0.0	312	-	A	0.0	26
			WBL	175	0.48	D	41.8	77	0.21	D	44.8	21
			WBT	-	0.74	D	39.8	104	0.62	D	38.4	126
		- Add a WBT Lane	WBR	225	-	A	0.0	14	-	A	0.0	15
			NBL	495	0.32	D	42.3	28	0.88	D	46.1	238
			NBT	-	0.17	D	35.0	27	0.48	C	27.9	124
		- Retiming	NBR	150	0.06	D	34.5	0	0.17	C	25.2	0
			SBL	275	0.32	C	30.6	36	0.34	C	27.2	63
			SBT	-	0.56	D	37.7	109	0.13	C	32.9	32
			SBR	255	0.44	A	3.3	37	0.69	A	9.1	96
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	D	48.2	-
			EBTR	-	0.18	B	13.2	73	0.30	B	14.1	185
			WBL	110	0.07	B	13.5	11	0.17	B	10.2	52
			WBT	-	0.11	B	9.9	33	0.16	A	8.8	95
			SBL	-	0.92	D	49.9	270	0.85	E	55.1	346
			SBTR	600	0.82	E	59.1	75	0.65	D	51.9	61
15	Federal Way at Amity Rd	- Add Free-flow WBR	Overall	-	-	C	21.4	-	-	D	54.7	-
			EBLTR	-	0.00	A	0.0	6	0.01	D	53.0	-
			WBLT	-	0.64	E	59.0	151	0.59	E	60.3	121
			WBR	190	-	A	0.0	0	-	A	0.0	38
		- Add 2nd SBL Lane and Prot signal phase	NBL	130	0.00	A	0.0	0	0.46	A	7.7	2
			NBTR	-	0.25	A	8.8	131	0.46	B	15.4	350
			SBL	420	0.76	E	59.7	102	0.84	D	54.3	238
			SBTR	-	0.17	A	3.6	63	0.26	A	5.2	165
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	29.8	-	-	D	47.7	-
			EBLTR	-	0.54	E	56.0	34	0.58	D	53.9	52
			WBL	140	0.75	D	51.8	303	0.75	D	51.2	316
			WBT	-	0.00	A	0.0	315	0.00	A	0.0	330
			WBR	140	-	A	0.0	90	-	A	0.0	87
			NBL	100	0.13	C	28.4	36	0.29	C	29.0	50
			NBT	-	0.65	D	35.7	265	0.73	D	35.9	319
			NBR	160	0.58	D	37.0	50	0.62	D	35.9	77
			SBL	350	0.21	C	23.8	125	0.55	C	31.4	365
			SBTR	-	0.30	A	9.4	224	0.51	C	13.7	388

No-Build 2025 Traffic Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	C	22.3	-	-	B	15.8	-
			EBL	155	0.11	A	3.6	22	0.40	A	4.6	94
			EBT	-	0.11	A	4.6	51	0.28	A	5.6	144
			EBR	415	-	A	0.0	26	-	A	0.0	28
			WBL	90	0.04	A	3.5	15	0.03	A	5.8	9
			WBTR	-	0.22	A	5.3	116	0.18	A	7.4	115
			NBL	520	0.77	E	59.1	136	0.48	E	55.6	147
			NBT	-	0.33	E	53.6	82	0.26	D	49.3	71
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49			
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	-	B	13.4	-
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	A	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	28.3	-	-	C	33.0	-
			EBL	420	0.28	C	28.6	161	0.85	D	41.9	275
			EBT	-	0.23	C	24.2	82	0.59	C	24.9	246
			EBR	390	-	A	0.0	185	-	A	0.0	29
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.3	131	0.76	D	42.1	159
			WBR	225	-	A	0.0	33	-	A	0.0	32
			NBL	495	0.31	D	42.3	30	0.87	D	45.0	255
			NBT	-	0.13	D	33.3	28	0.42	C	25.7	135
			NBR	150	0.05	D	32.8	0	15.00	C	23.4	0
			SBL	275	0.21	C	28.7	45	0.38	C	23.3	81
			SBT	-	0.68	D	36.4	142	0.13	C	29.4	40
			SBR	255	0.57	A	4.7	91	0.90	C	22.7	209
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.8	-	-	C	34.3	-
			EBTR	-	0.18	B	14.0	105	0.28	B	14.8	207
			WBL	110	0.07	B	10.6	29	0.29	B	15.2	56
			WBT	-	0.11	A	9.7	61	0.17	A	10.8	105
			SBL	-	0.68	D	48.9	311	0.86	D	54.1	357
			SBTR	600	0.87	E	58.0	80	0.65	D	50.7	61
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	22.7	-	-	C	26.9	-
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.67	E	57.9	195	0.62	E	59.4	159
			WBR	190	-	A	0.0	106	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.62	B	11.0	2
			NBTR	-	0.33	B	13.3	263	0.62	C	23.7	635
			SBL	420	0.81	E	57.2	188	0.87	D	53.1	296
			SBTR	-	0.24	A	3.8	134	0.35	A	6.4	231
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	29.8	-	-	D	36.7	-
			EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
			WBL	140	0.80	D	54.8	384	0.80	D	53.8	392
			WBT	-	0.00	A	0.0	393	0.00	A	0.0	406
			WBR	140	-	A	0.0	115	-	A	0.0	111
			NBL	100	0.15	C	29.0	37	0.37	C	31.9	50
			NBT	-	0.82	D	42.0	371	0.92	D	47.6	497
			NBR	160	0.73	D	43.6	118	0.78	D	43.9	163
			SBL	350	0.28	C	26.0	194	0.74	D	37.6	500
SBTR	-	0.39	A	11.3	307	0.67	C	18.6	642			

Build 2025 Traffic Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
4	Federal Way at Gate C	No WBL at Gate 5	Overall	-	-	A	6.9	-	-	A	7.8	-
			WBL	-	0.54	A	9.2	38	0.65	A	8.3	91
			WBR	-	0.08	A	7.1	7	0.29	A	6.8	18
			NBT	-	0.18	A	5.5	23	0.16	A	7.1	26
			NBR	240	-	A	0.0	27	-	A	0.0	26
			SBL	225	0.12	A	6.0	25	0.03	A	7.2	13
			SBT	-	0.12	A	5.3	15	0.27	A	7.5	36
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	-	-	-	-	-	-	-	-
			WBR	-	0.52	A	8.7	30	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	B	18.3	-	-	B	17.1	-
			EBL	155	0.11	A	3.9	24	0.41	A	5.2	102
			EBT	-	0.11	A	5.1	56	0.29	A	6.8	155
			EBR	415	-	A	0.0	31	-	A	0.0	32
			WBL	90	0.10	A	3.7	31	0.07	A	6.1	18
			WBTR	-	0.22	A	5.6	123	0.18	A	8.3	122
			NBL	520	0.78	E	58.6	144	0.80	D	54.6	165
			NBT	-	0.31	E	52.7	80	0.23	D	47.6	69
			NBR	240	-	A	0.0	9	-	A	0.0	27
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	-	B	13.4	-
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	29.9	-	-	D	37.6	-
			EBL	420	0.29	C	29.5	161	0.88	C	45.7	275
			EBT	-	0.25	C	25.3	90	0.62	C	25.9	252
			EBR	390	-	A	0.0	328	-	A	0.0	44
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.2	133	0.79	D	43.3	169
			WBR	225	-	A	0.0	39	-	A	0.0	47
			NBL	495	0.42	D	42.4	42	0.93	D	53.9	296
			NBT	-	0.15	C	33.4	32	0.47	C	27.1	145
			NBR	150	0.05	C	32.8	0	0.16	C	24.4	0
			SBL	275	0.63	C	42.1	82	0.77	C	42.0	144
			SBT	-	0.70	D	36.5	154	0.14	C	29.3	44
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	C	33.9	-
			EBTR	-	0.20	B	14.3	123	0.30	B	15.3	218
			WBL	110	0.08	B	10.7	31	0.18	B	11.2	57
			WBT	-	0.12	A	9.9	70	0.19	A	10.1	120
			SBL	-	0.72	D	49.5	324	0.86	D	53.6	363
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	23.5	-	-	C	28.7	-
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.70	E	57.9	220	0.64	E	58.9	173
			WBR	190	-	A	0.0	103	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.68	B	12.5	2
			NBTR	-	0.35	B	13.3	281	0.68	C	27.9	702
			SBL	420	0.81	E	57.2	188	0.88	D	53.1	319
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	33.7	-	-	D	37.4	-
			EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
			WBL	140	0.80	D	54.8	384	0.80	D	53.8	392
			WBT	-	0.00	A	0.0	393	0.00	A	0.0	406
			WBR	140	-	A	0.0	115	-	A	0.0	111
			NBL	100	0.16	C	29.1	37	0.37	C	31.9	50
			NBT	-	0.83	D	42.6	376	0.93	D	50.2	515
			NBR	160	0.73	D	43.6	120	0.78	D	43.9	167

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	0	0	0
Future Volume (vph)	51	187	166	29	384	9	142	33	11	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	237	210	37	504	0	167	39	13	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		30.0	30.0	30.0			
Total Split (s)	22.0	68.0	68.0	19.0	65.0		38.0	38.0	38.0			
Total Split (%)	17.6%	54.4%	54.4%	15.2%	52.0%		30.4%	30.4%	30.4%			
Maximum Green (s)	17.0	62.0	62.0	14.0	59.0		33.0	33.0	33.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0		5.0	5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0		20.0	20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50		50	50	50			
Act Effct Green (s)	90.8	85.0	85.0	88.1	81.9		22.0	22.0	22.0			
Actuated g/C Ratio	0.73	0.68	0.68	0.70	0.66		0.18	0.18	0.18			
v/c Ratio	0.13	0.12	0.20	0.05	0.23		0.30	0.13	0.04			
Control Delay	5.7	8.6	1.7	5.3	10.3		45.2	42.3	0.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	5.7	8.6	1.7	5.3	10.3		45.2	42.3	0.3			
LOS	A	A	A	A	B		D	D	A			
Approach Delay		5.4			10.0			42.0				
Approach LOS		A			A			D				
Queue Length 50th (ft)	14	38	0	8	91		59	26	0			
Queue Length 95th (ft)	23	50	17	15	104		87	55	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

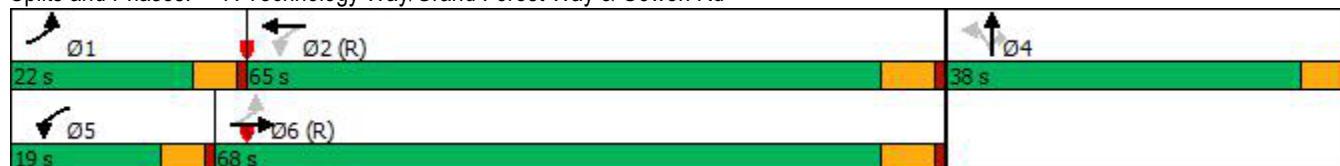
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	581	2022	1058	878	2170		833	461	422			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.11	0.12	0.20	0.04	0.23		0.20	0.08	0.03			

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization	37.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	65	237	210	37	504	167	39	13
v/c Ratio	0.13	0.12	0.20	0.05	0.23	0.30	0.13	0.04
Control Delay	5.7	8.6	1.7	5.3	10.3	45.2	42.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	8.6	1.7	5.3	10.3	45.2	42.3	0.3
Queue Length 50th (ft)	14	38	0	8	91	59	26	0
Queue Length 95th (ft)	23	50	17	15	104	87	55	0
Internal Link Dist (ft)	1908				346		3134	
Turn Bay Length (ft)	155		415		90		520	
Base Capacity (vph)	581	2022	1058	878	2170	833	461	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.12	0.20	0.04	0.23	0.20	0.08	0.03

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗			
Traffic Volume (veh/h)	51	187	166	29	384	9	142	33	11	0	0	0
Future Volume (veh/h)	51	187	166	29	384	9	142	33	11	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	65	237	0	37	492	0	167	39	0			
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	641	2305		970	2526		255	141				
Arrive On Green	0.04	0.76	0.00	0.03	0.76	0.00	0.08	0.08	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	65	237	0	37	492	0	167	39	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	1.3	2.5	0.0	0.6	5.3	0.0	6.3	2.6	0.0			
Cycle Q Clear(g_c), s	1.3	2.5	0.0	0.6	5.3	0.0	6.3	2.6	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	641	2305		970	2526		255	141				
V/C Ratio(X)	0.10	0.10		0.04	0.19		0.65	0.28				
Avail Cap(c_a), veh/h	781	2305		1112	2526		844	464				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.99	0.99	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.0	3.8	0.0	3.0	4.4	0.0	55.8	54.1	0.0			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	2.8	1.1	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.7	0.0	0.2	1.6	0.0	2.6	1.2	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	3.9	0.0	3.0	4.5	0.0	58.6	55.2	0.0			
LnGrp LOS	A	A		A	A		E	E				
Approach Vol, veh/h		302			529			206				
Approach Delay, s/veh		3.7			4.4			58.0				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.5	100.5		15.0	8.6	101.4						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	17.0	59.0		33.0	14.0	62.0						
Max Q Clear Time (g_c+I1), s	3.3	7.3		8.3	2.6	4.5						
Green Ext Time (p_c), s	0.1	3.6		0.7	0.0	1.6						

Intersection Summary												
HCM 6th Ctrl Delay				14.9								
HCM 6th LOS				B								

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.1	38.9	38.9	9.0	34.0	34.0	7.9	18.7	18.7	27.2	21.7	34.8
Actuated g/C Ratio	0.12	0.43	0.43	0.10	0.38	0.38	0.09	0.21	0.21	0.30	0.24	0.39
v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.19	0.10	0.02	0.15	0.37	0.46
Control Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
LOS	E	D	C	D	C	A	D	C	A	B	C	A
Approach Delay		40.3			20.8			29.3			16.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	92	98	212	37	76	0	13	13	0	19	70	4

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

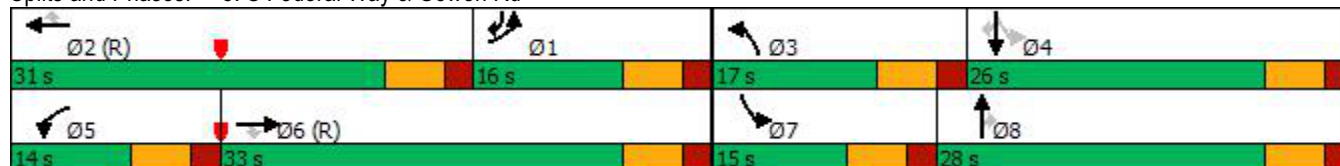
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#155	142	312	77	104	14	28	27	0	36	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1285	917	167	1749	673	413	769	587	787	883	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.12	0.08	0.02	0.15	0.34	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	28.2
Intersection LOS:	C
Intersection Capacity Utilization	59.0%
ICU Level of Service	B
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.19	0.10	0.02	0.15	0.37	0.46
Control Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Length 50th (ft)	92	98	212	37	76	0	13	13	0	19	70	4
Queue Length 95th (ft)	#155	142	312	77	104	14	28	27	0	36	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1285	917	167	1749	673	413	769	587	787	883	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.12	0.08	0.02	0.15	0.34	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.













HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1248	1514		141	732		161	387	197	646	477	775
Arrive On Green	0.14	0.17	0.00	0.08	0.16	0.00	0.05	0.13	0.13	0.06	0.14	0.14
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	7.9	7.8	0.0	3.5	8.4	0.0	1.4	1.6	0.6	2.7	7.5	2.7
Cycle Q Clear(g_c), s	7.9	7.8	0.0	3.5	8.4	0.0	1.4	1.6	0.6	2.7	7.5	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1248	1514		141	732		161	387	197	646	477	775
V/C Ratio(X)	0.23	0.20		0.48	0.64		0.32	0.16	0.06	0.18	0.63	0.42
Avail Cap(c_a), veh/h	1248	1514		169	1353		419	765	390	799	786	899
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.00	0.98	0.98	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	22.0	0.0	39.4	35.6	0.0	41.2	34.8	34.4	30.4	36.4	2.9
Incr Delay (d2), s/veh	0.1	0.3	0.0	2.5	4.2	0.0	1.1	0.2	0.1	0.1	1.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.9	0.0	1.5	3.4	0.0	0.6	0.6	0.2	1.0	3.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	22.2	0.0	41.8	39.8	0.0	42.3	35.0	34.5	30.6	37.7	3.3
LnGrp LOS	C	C		D	D		D	D	C	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		23.9			40.0			38.0			21.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	43.6	19.1	9.6	17.8	12.5	50.1	10.7	16.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	9.9	10.4	3.4	9.5	5.5	9.8	4.7	3.6				
Green Ext Time (p_c), s	0.0	2.6	0.0	2.2	0.0	1.7	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			28.3									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

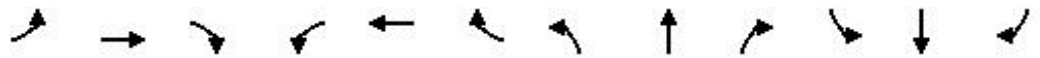
Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑					↔↔↔		↔
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		94.3		104.0	104.0					36.0		36.0
Actuated g/C Ratio		0.63		0.69	0.69					0.24		0.24
v/c Ratio		0.19		0.07	0.10					0.76		0.56
Control Delay		12.9		8.8	8.4					57.6		8.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		12.9		8.8	8.4					57.6		8.2
LOS		B		A	A					E		A
Approach Delay		12.9			8.5							43.8
Approach LOS		B			A							D
Queue Length 50th (ft)		73		11	33					270		0
Queue Length 95th (ft)		96		27	56					300		80
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

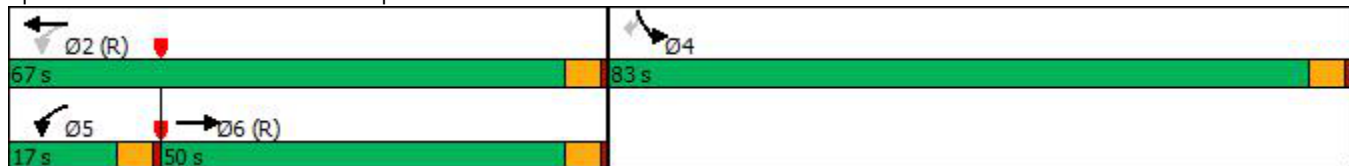


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2637		536	2025					2365		864
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.19		0.07	0.10					0.35		0.37

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	31.1
Intersection LOS:	C
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

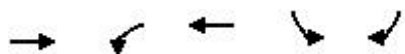
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.19	0.07	0.10	0.76	0.56
Control Delay	12.9	8.8	8.4	57.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	8.8	8.4	57.6	8.2
Queue Length 50th (ft)	73	11	33	270	0
Queue Length 95th (ft)	96	27	56	300	80
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2637	536	2025	2365	864
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.07	0.10	0.35	0.37
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2502	187	542	1979	0				1227	0	368
Arrive On Green	0.00	0.61	0.61	0.03	0.67	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	4262	308	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	7.4	7.5	1.3	3.8	0.0				24.3	0.0	33.3
Cycle Q Clear(g_c), s	0.0	7.4	7.5	1.3	3.8	0.0				24.3	0.0	33.3
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1758	932	542	1979	0				1227	0	368
V/C Ratio(X)	0.00	0.18	0.19	0.07	0.11	0.00				0.68	0.00	0.87
Avail Cap(c_a), veh/h	0	1758	932	624	1979	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.0	13.0	9.9	8.9	0.0				49.3	0.0	52.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				0.7	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	2.7	0.4	1.3	0.0				9.1	0.0	23.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	13.5	9.9	9.1	0.0				49.9	0.0	59.1
LnGrp LOS	A	B	B	A	A	A				D	A	E
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		13.3			9.2						52.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.1		44.9	8.9	96.1						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		5.8		35.3	3.3	9.5						
Green Ext Time (p_c), s		1.5		4.6	0.0	3.4						
Intersection Summary												
HCM 6th Ctrl Delay				36.6								
HCM 6th LOS				D								

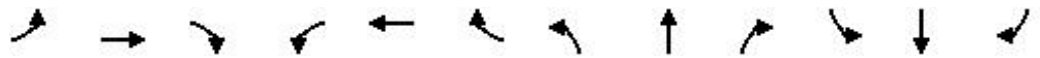
Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	1	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	143	475	0	544	0	245	439	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			27.3	27.3		72.2		17.5	93.7	
Actuated g/C Ratio		0.20			0.21	0.21		0.56		0.13	0.72	
v/c Ratio		0.01			0.53	0.69		0.32		0.63	0.19	
Control Delay		38.0			51.7	9.4		17.4		60.3	6.7	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		38.0			51.7	9.4		17.4		60.3	6.7	
LOS		D			D	A		B		E	A	
Approach Delay		38.0			19.2			17.4			25.9	
Approach LOS		D			B			B			C	
Queue Length 50th (ft)		1			104	0		131		102	63	
Queue Length 95th (ft)		6			151	38		165		141	84	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

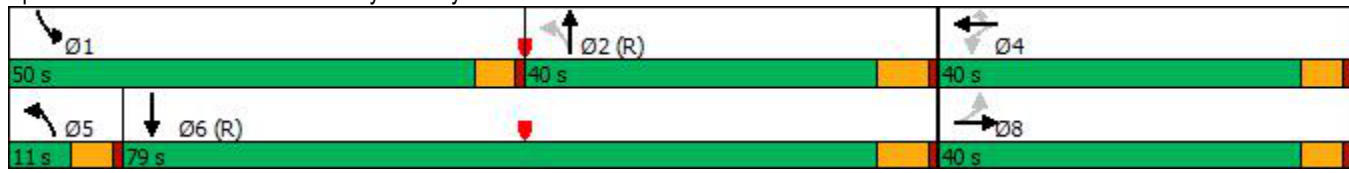


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		272			359	754		1726		1020	2324	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.00			0.40	0.63		0.32		0.24	0.19	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	21.2
Intersection LOS:	C
Intersection Capacity Utilization	53.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1	143	475	544	245	439
v/c Ratio	0.01	0.53	0.69	0.32	0.63	0.19
Control Delay	38.0	51.7	9.4	17.4	60.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	51.7	9.4	17.4	60.3	6.7
Queue Length 50th (ft)	1	104	0	131	102	63
Queue Length 95th (ft)	6	151	38	165	141	84
Internal Link Dist (ft)	68	1420		4542		2223
Turn Bay Length (ft)			190		420	
Base Capacity (vph)	272	359	754	1726	1020	2324
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.40	0.63	0.32	0.24	0.19
Intersection Summary						

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	1	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	0	142	0	0	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	261	0	0	233	0		699	1963	194	324	2632	0
Arrive On Green	0.12	0.00	0.00	0.12	0.00	0.00	0.00	0.67	0.66	0.11	0.81	0.00
Sat Flow, veh/h	1669	0	0	1441	0	1490	1714	2948	291	2937	3346	0
Grp Volume(v), veh/h	1	0	0	142	0	0	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	1669	0	0	1441	0	1490	1714	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	12.5	0.0	0.0	0.0	8.7	8.8	10.5	3.9	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	12.6	0.0	0.0	0.0	8.7	8.8	10.5	3.9	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	249	0	0	222	0		699	1068	1089	324	2632	0
V/C Ratio(X)	0.00	0.00	0.00	0.64	0.00		0.00	0.25	0.25	0.76	0.17	0.00
Avail Cap(c_a), veh/h	470	0	0	443	0		790	1068	1089	1039	2632	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	55.9	0.0	0.0	0.0	8.7	8.8	56.1	2.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.6	0.6	3.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.7	0.0	0.0	0.0	2.9	3.0	4.0	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	0.0	0.0	59.0	0.0	0.0	0.0	9.3	9.3	59.7	2.9	0.0
LnGrp LOS	D	A	A	E	A		A	A	A	E	A	A
Approach Vol, veh/h		1			142			544			684	
Approach Delay, s/veh		50.4			59.0			9.3			23.3	
Approach LOS		D			E			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.4	91.6		20.1	0.0	109.9		20.1				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	12.5	10.8		14.6	0.0	5.9		2.1				
Green Ext Time (p_c), s	0.8	3.0		0.6	0.0	2.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

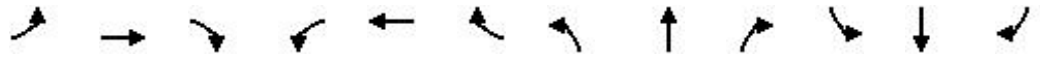
Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	81	0	142	146	389	31	676	259	239	612	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	35.0	35.0		20.0	20.0	20.0	10.0	39.0	39.0	16.0	45.0	
Total Split (%)	31.8%	31.8%		18.2%	18.2%	18.2%	9.1%	35.5%	35.5%	14.5%	40.9%	
Maximum Green (s)	30.0	30.0		15.0	15.0	15.0	5.0	34.0	34.0	11.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		26.1		16.0	16.0	16.0	42.0	41.5	41.5	12.0	51.5	
Actuated g/C Ratio		0.24		0.15	0.15	0.15	0.38	0.38	0.38	0.11	0.47	
v/c Ratio		0.16		2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45	
Control Delay		23.3		686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		23.3		686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3	
LOS		C		F	F	B	C	C	A	E	C	
Approach Delay		23.3			331.5			24.4			34.6	
Approach LOS		C			F			C			C	
Queue Length 50th (ft)		16		~172	~184	0	15	216	1	85	176	
Queue Length 95th (ft)		34		#303	#315	90	36	265	50	#125	224	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		613		60	54	548	210	1240	694	329	1372	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.13		2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.70
Intersection Signal Delay:	108.5
Intersection LOS:	F
Intersection Capacity Utilization	54.2%
ICU Level of Service	A
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	142	146	389	31	676	259	239	612
v/c Ratio	0.16	2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45
Control Delay	23.3	686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3
Queue Length 50th (ft)	16	~172	~184	0	15	216	1	85	176
Queue Length 95th (ft)	34	#303	#315	90	36	265	50	#125	224
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	613	60	54	548	210	1240	694	329	1372
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	279	0	0	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	89	33	51	374	0	0	230	1039	449	1133	1834	173
Arrive On Green	0.05	0.06	0.05	0.11	0.00	0.00	0.04	0.31	0.31	0.37	0.65	0.64
Sat Flow, veh/h	1594	594	915	3375	0	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	279	0	0	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	1594	0	1509	1688	0	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	3.2	0.0	2.3	8.8	0.0	0.0	1.7	19.4	16.7	5.9	9.5	9.6
Cycle Q Clear(g_c), s	3.2	0.0	2.3	8.8	0.0	0.0	1.7	19.4	16.7	5.9	9.5	9.6
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	89	0	85	374	0	0	230	1039	449	1133	993	1014
V/C Ratio(X)	0.54	0.00	0.39	0.75	0.00	0.00	0.13	0.65	0.58	0.21	0.30	0.31
Avail Cap(c_a), veh/h	449	0	425	491	0	0	256	1039	449	1133	993	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	50.4	47.4	0.0	0.0	28.2	32.6	31.6	23.7	8.6	8.6
Incr Delay (d2), s/veh	4.9	0.0	2.9	4.4	0.0	0.0	0.3	3.2	5.3	0.1	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.0	3.9	0.0	0.0	0.6	7.9	6.2	2.0	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	0.0	53.3	51.8	0.0	0.0	28.4	35.7	37.0	23.8	9.4	9.4
LnGrp LOS	E	A	D	D	A		C	D	D	C	A	A
Approach Vol, veh/h		81			279			966			851	
Approach Delay, s/veh		54.9			51.8			35.8			13.4	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	44.6	39.0		16.2	8.1	75.6		10.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	34.0		15.0	5.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	7.9	21.4		10.8	3.7	11.6		5.2				
Green Ext Time (p_c), s	0.2	4.3		0.4	0.0	3.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				29.8								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	0	0	0
Future Volume (vph)	212	484	174	13	286	8	167	30	30	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	613	220	17	377	0	196	35	35	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	35.0	59.0	59.0	16.0	40.0		45.0	45.0	45.0			
Total Split (%)	29.2%	49.2%	49.2%	13.3%	33.3%		37.5%	37.5%	37.5%			
Maximum Green (s)	30.0	53.0	53.0	11.0	34.0		40.0	40.0	40.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	97.2	91.7	91.7	86.6	79.8		12.8	12.8	12.8			
Actuated g/C Ratio	0.81	0.76	0.76	0.72	0.66		0.11	0.11	0.11			
v/c Ratio	0.41	0.27	0.19	0.03	0.17		0.58	0.19	0.14			
Control Delay	5.0	5.4	1.2	3.5	8.5		57.7	49.9	1.1			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	5.0	5.4	1.2	3.5	8.5		57.7	49.9	1.1			
LOS	A	A	A	A	A		E	D	A			
Approach Delay		4.5			8.2			49.2				
Approach LOS		A			A			D				
Queue Length 50th (ft)	39	50	0	2	52		75	25	0			
Queue Length 95th (ft)	62	101	14	6	76		104	53	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

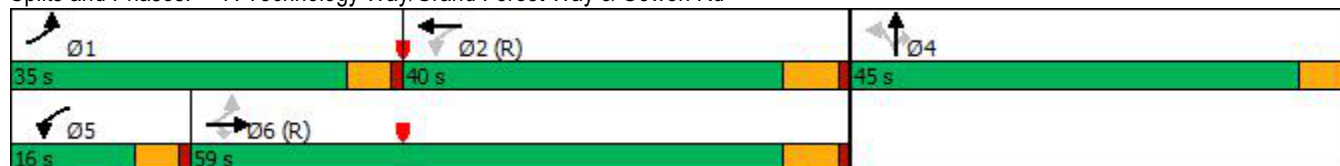


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	748	2273	1165	665	2202		1053	582	546			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.36	0.27	0.19	0.03	0.17		0.19	0.06	0.06			

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	12.1
Intersection LOS:	B
Intersection Capacity Utilization	39.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	268	613	220	17	377	196	35	35
v/c Ratio	0.41	0.27	0.19	0.03	0.17	0.58	0.19	0.14
Control Delay	5.0	5.4	1.2	3.5	8.5	57.7	49.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	5.4	1.2	3.5	8.5	57.7	49.9	1.1
Queue Length 50th (ft)	39	50	0	2	52	75	25	0
Queue Length 95th (ft)	62	101	14	6	76	104	53	0
Internal Link Dist (ft)	1908				346		3134	
Turn Bay Length (ft)	155	415		90	520		240	
Base Capacity (vph)	748	2273	1165	665	2202	1053	582	546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27	0.19	0.03	0.17	0.19	0.06	0.06
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↗	↖	↑↑		↖↗	↑	↗			
Traffic Volume (veh/h)	212	484	174	13	286	8	167	30	30	0	0	0
Future Volume (veh/h)	212	484	174	13	286	8	167	30	30	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	268	613	0	17	367	0	196	35	0			
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	726	2311		671	2380		266	146				
Arrive On Green	0.07	0.77	0.00	0.02	0.71	0.00	0.08	0.08	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	268	613	0	17	367	0	196	35	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	5.7	7.2	0.0	0.3	4.3	0.0	7.2	2.2	0.0			
Cycle Q Clear(g_c), s	5.7	7.2	0.0	0.3	4.3	0.0	7.2	2.2	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	726	2311		671	2380		266	146				
V/C Ratio(X)	0.37	0.27		0.03	0.15		0.74	0.24				
Avail Cap(c_a), veh/h	976	2311		797	2380		1065	586				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.2	4.1	0.0	4.4	5.6	0.0	53.7	51.4	0.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.1	0.0	3.9	0.8	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	1.9	0.0	0.1	1.4	0.0	3.0	1.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	4.4	0.0	4.4	5.7	0.0	57.7	52.3	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		881			384			231				
Approach Delay, s/veh		4.1			5.6			56.8				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	13.5	91.5		15.0	7.2	97.8						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	30.0	34.0		40.0	11.0	53.0						
Max Q Clear Time (g_c+I1), s	7.7	6.3		9.2	2.3	9.2						
Green Ext Time (p_c), s	0.8	2.4		0.8	0.0	4.7						

Intersection Summary												
HCM 6th Ctrl Delay												12.7
HCM 6th LOS												B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.9	38.9	8.0	18.3	18.3	21.5	25.7	25.7	27.0	17.3	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.29	0.29	0.30	0.19	0.39
v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.46	0.12	0.38	0.10	0.66
Control Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
LOS	E	C	A	D	D	A	D	C	A	B	C	B
Approach Delay		35.5			30.2			35.6			16.2	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)	159	134	0	5	94	0	175	88	0	41	15	49

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

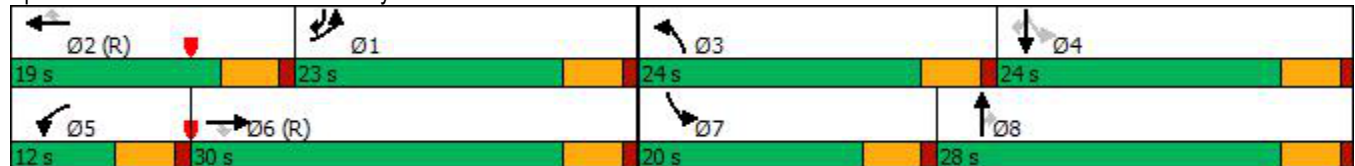
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#257	233	26	21	126	15	#238	124	0	63	32	96
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1286	731	148	943	417	739	912	615	878	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.43	0.12	0.30	0.09	0.66

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 30.8 Intersection LOS: C
 Intersection Capacity Utilization 59.3% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.46	0.12	0.38	0.10	0.66
Control Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
Queue Length 50th (ft)	159	134	0	5	94	0	175	88	0	41	15	49
Queue Length 95th (ft)	#257	233	26	21	126	15	#238	124	0	63	32	96
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1286	731	148	943	417	739	912	615	878	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.43	0.12	0.30	0.09	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	813	1261		48	781		698	812	414	773	520	589
Arrive On Green	0.28	0.42	0.00	0.03	0.17	0.00	0.22	0.27	0.27	0.10	0.15	0.15
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	15.2	13.8	0.0	0.5	8.6	0.0	17.0	9.8	3.2	6.0	1.5	9.8
Cycle Q Clear(g_c), s	15.2	13.8	0.0	0.5	8.6	0.0	17.0	9.8	3.2	6.0	1.5	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	813	1261		48	781		698	812	414	773	520	589
V/C Ratio(X)	0.68	0.50		0.21	0.62		0.88	0.48	0.17	0.34	0.13	0.69
Avail Cap(c_a), veh/h	813	1261		150	781		699	812	414	1008	748	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.96	0.96	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	19.3	0.0	42.7	34.8	0.0	33.8	27.4	25.1	26.9	32.8	6.7
Incr Delay (d2), s/veh	2.2	1.3	0.0	2.1	3.5	0.0	12.3	0.4	0.2	0.3	0.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	4.8	0.0	0.2	3.4	0.0	7.3	3.4	1.1	2.2	0.6	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	20.6	0.0	44.8	38.3	0.0	46.1	27.9	25.2	27.2	32.9	9.1
LnGrp LOS	C	C		D	D		D	C	C	C	C	A
Approach Vol, veh/h		1185			491			1072			734	
Approach Delay, s/veh		25.5			38.4			38.2			17.7	
Approach LOS		C			D			D			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	19.0	24.0	17.9	6.5	41.6	13.4	28.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	17.2	10.6	19.0	11.8	2.5	15.8	8.0	11.8				
Green Ext Time (p_c), s	0.2	1.0	0.0	1.1	0.0	2.8	0.5	2.0				

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑					↔↔↔		↔
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	71	316	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		84.1		97.4	97.4					42.6		42.6
Actuated g/C Ratio		0.56		0.65	0.65					0.28		0.28
v/c Ratio		0.34		0.20	0.17					0.78		0.41
Control Delay		19.1		12.3	11.3					53.5		6.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		19.1		12.3	11.3					53.5		6.5
LOS		B		B	B					D		A
Approach Delay		19.1			11.5							44.7
Approach LOS		B			B							D
Queue Length 50th (ft)		149		24	60					321		0
Queue Length 95th (ft)		185		52	95					346		61
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

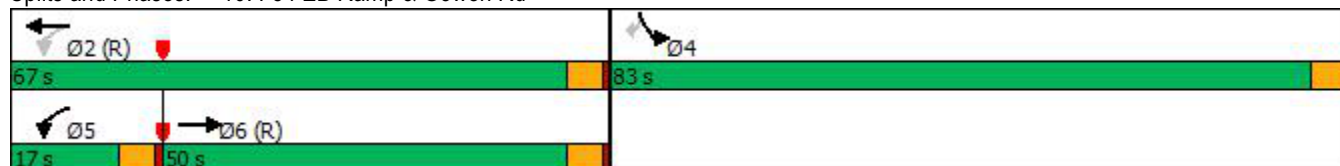
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2351		377	1897					2365		820
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.34		0.19	0.17					0.42		0.28

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	30.9
Intersection LOS:	C
Intersection Capacity Utilization	77.7%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	806	71	316	1003	229
v/c Ratio	0.34	0.20	0.17	0.78	0.41
Control Delay	19.1	12.3	11.3	53.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	12.3	11.3	53.5	6.5
Queue Length 50th (ft)	149	24	60	321	0
Queue Length 95th (ft)	185	52	95	346	61
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2351	377	1897	2365	820
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.19	0.17	0.42	0.28
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↗↗↗		↖
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	746	60	71	316	0				1003	0	229
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2513	201	419	2013	0				1174	0	352
Arrive On Green	0.00	0.61	0.61	0.03	0.68	0.00				0.25	0.00	0.25
Sat Flow, veh/h	0	4239	328	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	526	280	71	316	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	12.9	13.0	2.5	5.7	0.0				31.1	0.0	22.2
Cycle Q Clear(g_c), s	0.0	12.9	13.0	2.5	5.7	0.0				31.1	0.0	22.2
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1775	939	419	2013	0				1174	0	352
V/C Ratio(X)	0.00	0.30	0.30	0.17	0.16	0.00				0.85	0.00	0.65
Avail Cap(c_a), veh/h	0	1775	939	492	2013	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	13.7	10.0	8.7	0.0				53.2	0.0	49.9
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.2	0.2	0.0				1.9	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.3	4.7	0.8	1.9	0.0				11.7	0.0	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.1	14.5	10.2	8.8	0.0				55.1	0.0	51.9
LnGrp LOS	A	B	B	B	A	A				E	A	D
Approach Vol, veh/h		806			387						1232	
Approach Delay, s/veh		14.3			9.1						54.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		106.8		43.2	9.7	97.0						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		7.7		33.1	4.5	15.0						
Green Ext Time (p_c), s		2.2		5.1	0.1	5.8						

Intersection Summary

HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	113	460	1	887	0	470	641	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			26.9	26.9	69.8	62.3		27.8	92.0	
Actuated g/C Ratio		0.20			0.21	0.21	0.54	0.48		0.21	0.71	
v/c Ratio		0.00			0.42	0.68	0.00	0.61		0.76	0.28	
Control Delay		0.0			48.2	9.4	9.0	28.6		56.0	8.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			48.2	9.4	9.0	28.6		56.0	8.5	
LOS		A			D	A	A	C		E	A	
Approach Delay					17.0			28.6			28.6	
Approach LOS					B			C			C	
Queue Length 50th (ft)		0			80	0	0	293		193	99	
Queue Length 95th (ft)		0			121	38	2	350		238	165	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

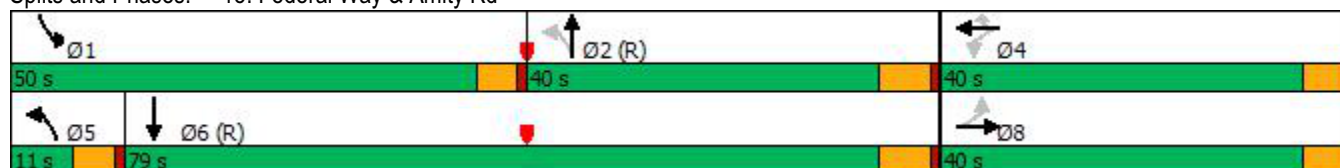
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		514			359	743	449	1462		1020	2282	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.31	0.62	0.00	0.61		0.46	0.28	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	26.0
Intersection LOS:	C
Intersection Capacity Utilization	60.9%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

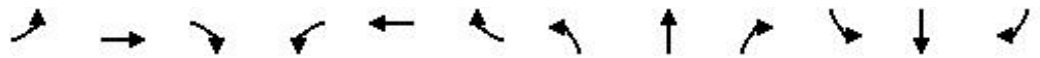
10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	113	460	1	887	470	641
v/c Ratio	0.00	0.42	0.68	0.00	0.61	0.76	0.28
Control Delay	0.0	48.2	9.4	9.0	28.6	56.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	48.2	9.4	9.0	28.6	56.0	8.5
Queue Length 50th (ft)	0	80	0	0	293	193	99
Queue Length 95th (ft)	0	121	38	2	350	238	165
Internal Link Dist (ft)	68	1420			4542		2223
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	514	359	743	449	1462	1020	2282
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.31	0.62	0.00	0.61	0.46	0.28
Intersection Summary							

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↗	
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	112	0	0	1	704	183	470	641	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	113	14	85	201	0		622	1533	398	558	2453	0
Arrive On Green	0.09	0.00	0.09	0.09	0.00	0.00	0.05	0.61	0.60	0.19	0.75	0.00
Sat Flow, veh/h	710	134	844	1442	0	1490	1714	2519	654	2937	3346	0
Grp Volume(v), veh/h	2	0	0	112	0	0	1	448	439	470	641	0
Grp Sat Flow(s),veh/h/ln	1688	0	0	1442	0	1490	1714	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	9.8	0.0	0.0	0.0	19.7	19.9	20.1	7.9	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	9.9	0.0	0.0	0.0	19.7	19.9	20.1	7.9	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	199	0	0	190	0		622	976	956	558	2453	0
V/C Ratio(X)	0.01	0.00	0.00	0.59	0.00		0.00	0.46	0.46	0.84	0.26	0.00
Avail Cap(c_a), veh/h	460	0	0	443	0		635	976	956	1039	2453	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.0	0.0	0.0	57.4	0.0	0.0	7.7	13.8	14.0	50.8	5.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.9	0.0	0.0	0.0	1.6	1.6	3.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	0.0	0.0	7.0	6.9	7.5	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	0.0	0.0	60.3	0.0	0.0	7.7	15.4	15.5	54.3	5.2	0.0
LnGrp LOS	D	A	A	E	A		A	B	B	D	A	A
Approach Vol, veh/h		2			112			888			1111	
Approach Delay, s/veh		53.0			60.3			15.4			26.0	
Approach LOS		D			E			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.7	84.1		17.2	10.0	102.8		17.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	22.1	21.9		11.9	2.0	9.9		2.1				
Green Ext Time (p_c), s	1.6	4.2		0.5	0.0	4.5		0.0				

Intersection Summary






















HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	133	0	149	153	380	50	822	300	538	994	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	30.0	30.0		21.0	21.0	21.0	10.0	42.0	42.0	17.0	49.0	
Total Split (%)	27.3%	27.3%		19.1%	19.1%	19.1%	9.1%	38.2%	38.2%	15.5%	44.5%	
Maximum Green (s)	25.0	25.0		16.0	16.0	16.0	5.0	37.0	37.0	12.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		22.2		17.0	17.0	17.0	41.8	41.3	41.3	13.0	50.3	
Actuated g/C Ratio		0.20		0.15	0.15	0.15	0.38	0.38	0.38	0.12	0.46	
v/c Ratio		0.25		2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72	
Control Delay		25.8		736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.8		736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1	
LOS		C		F	F	B	C	C	A	F	C	
Approach Delay		25.8			384.7			26.6			117.4	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		28		~184	~197	0	24	266	22	~273	322	
Queue Length 95th (ft)		52		#316	#330	87	50	319	77	#364	388	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		619		60	51	550	134	1234	691	356	1380	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.21		2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.00
Intersection Signal Delay:	135.5
Intersection LOS:	F
Intersection Capacity Utilization	59.6%
ICU Level of Service	B
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	149	153	380	50	822	300	538	994
v/c Ratio	0.25	2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72
Control Delay	25.8	736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1
Queue Length 50th (ft)	28	~184	~197	0	24	266	22	~273	322
Queue Length 95th (ft)	52	#316	#330	87	50	319	77	#364	388
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	619	60	51	550	134	1234	691	356	1380
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.























Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	30	66	37	289	0	0	50	822	300	538	985	9
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	51	115	66	386	0		174	1130	488	985	1927	18
Arrive On Green	0.06	0.07	0.06	0.11	0.00	0.00	0.04	0.34	0.34	0.32	0.62	0.61
Sat Flow, veh/h	699	1559	893	3375	0	1490	1460	3313	1430	3066	3120	29
Grp Volume(v), veh/h	70	0	63	289	0	0	50	822	300	538	485	509
Grp Sat Flow(s),veh/h/ln	1639	0	1513	1688	0	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	4.6	0.0	4.4	9.1	0.0	0.0	2.6	23.9	19.2	15.9	19.4	19.4
Cycle Q Clear(g_c), s	4.6	0.0	4.4	9.1	0.0	0.0	2.6	23.9	19.2	15.9	19.4	19.4
Prop In Lane	0.43		0.59	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	121	0	111	386	0		174	1130	488	985	949	996
V/C Ratio(X)	0.58	0.00	0.56	0.75	0.00		0.29	0.73	0.62	0.55	0.51	0.51
Avail Cap(c_a), veh/h	387	0	358	522	0		188	1130	488	985	949	996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	49.5	47.2	0.0	0.0	28.1	31.8	30.2	30.7	11.8	11.8
Incr Delay (d2), s/veh	4.4	0.0	4.4	4.1	0.0	0.0	0.9	4.1	5.7	0.6	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	4.0	0.0	0.0	0.9	9.8	7.1	5.5	6.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	0.0	53.9	51.2	0.0	0.0	29.0	35.9	35.9	31.4	13.7	13.6
LnGrp LOS	D	A	D	D	A		C	D	D	C	B	B
Approach Vol, veh/h		133			289			1172			1532	
Approach Delay, s/veh		53.9			51.2			35.6			19.9	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.3	42.0		16.6	8.9	72.4		12.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	12.0	37.0		16.0	5.0	44.0		25.0				
Max Q Clear Time (g_c+I1), s	17.9	25.9		11.1	4.6	21.4		6.6				
Green Ext Time (p_c), s	0.0	4.8		0.4	0.0	5.7		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				30.1								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	0	0	0
Future Volume (vph)	60	219	194	37	484	11	217	50	17	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	216	41	550	0	241	56	19	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	22.0	68.0	68.0	19.0	65.0		38.0	38.0	38.0			
Total Split (%)	17.6%	54.4%	54.4%	15.2%	52.0%		30.4%	30.4%	30.4%			
Maximum Green (s)	17.0	62.0	62.0	14.0	59.0		33.0	33.0	33.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	96.7	90.0	90.0	95.5	89.4		14.9	14.9	14.9			
Actuated g/C Ratio	0.77	0.72	0.72	0.76	0.72		0.12	0.12	0.12			
v/c Ratio	0.13	0.11	0.19	0.05	0.23		0.64	0.27	0.08			
Control Delay	3.6	6.3	1.4	3.3	7.1		60.2	52.3	0.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	3.6	6.3	1.4	3.3	7.1		60.2	52.3	0.7			
LOS	A	A	A	A	A		E	D	A			
Approach Delay		3.9			6.9			55.2				
Approach LOS		A			A			E				
Queue Length 50th (ft)	9	30	0	6	75		97	42	0			
Queue Length 95th (ft)	22	51	26	15	116		136	82	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

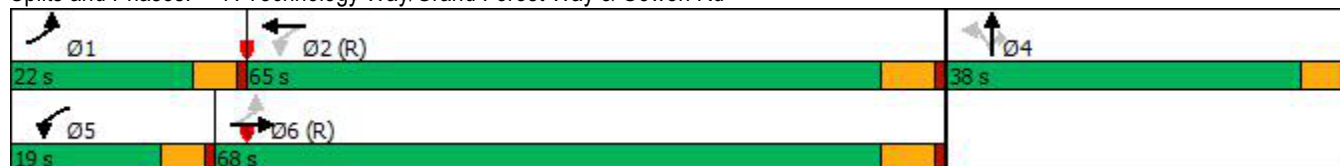


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	610	2142	1109	936	2370		833	461	422			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.11	0.11	0.19	0.04	0.23		0.29	0.12	0.05			

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	16.4
Intersection LOS:	B
Intersection Capacity Utilization	38.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	67	243	216	41	550	241	56	19
v/c Ratio	0.13	0.11	0.19	0.05	0.23	0.64	0.27	0.08
Control Delay	3.6	6.3	1.4	3.3	7.1	60.2	52.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	6.3	1.4	3.3	7.1	60.2	52.3	0.7
Queue Length 50th (ft)	9	30	0	6	75	97	42	0
Queue Length 95th (ft)	22	51	26	15	116	136	82	0
Internal Link Dist (ft)		1908			346		3134	
Turn Bay Length (ft)	155		415	90		520		240
Base Capacity (vph)	610	2142	1109	936	2370	833	461	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.19	0.04	0.23	0.29	0.12	0.05

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗			
Traffic Volume (veh/h)	60	219	194	37	484	11	217	50	17	0	0	0
Future Volume (veh/h)	60	219	194	37	484	11	217	50	17	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	67	243	0	41	538	0	241	56	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	600	2246		943	2465		312	172				
Arrive On Green	0.04	0.74	0.00	0.03	0.74	0.00	0.10	0.10	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	67	243	0	41	538	0	241	56	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	1.4	2.8	0.0	0.7	6.3	0.0	9.2	3.7	0.0			
Cycle Q Clear(g_c), s	1.4	2.8	0.0	0.7	6.3	0.0	9.2	3.7	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	600	2246		943	2465		312	172				
V/C Ratio(X)	0.11	0.11		0.04	0.22		0.77	0.33				
Avail Cap(c_a), veh/h	740	2246		1083	2465		844	464				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.5	4.5	0.0	3.4	5.1	0.0	55.0	52.6	0.0			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	4.0	1.1	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.8	0.0	0.2	2.0	0.0	3.8	1.7	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.6	4.6	0.0	3.5	5.3	0.0	59.1	53.6	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		310			579			297				
Approach Delay, s/veh		4.3			5.2			58.0				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.5	98.3		17.2	8.8	99.0						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	17.0	59.0		33.0	14.0	62.0						
Max Q Clear Time (g_c+I1), s	3.4	8.3		11.2	2.7	4.8						
Green Ext Time (p_c), s	0.1	4.0		1.0	0.0	1.7						

Intersection Summary												
HCM 6th Ctrl Delay												18.2
HCM 6th LOS												B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.4	38.4	9.1	33.4	33.4	7.9	18.4	18.4	28.0	22.2	35.5
Actuated g/C Ratio	0.13	0.43	0.43	0.10	0.37	0.37	0.09	0.20	0.20	0.31	0.25	0.39
v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.18	0.10	0.02	0.21	0.48	0.61
Control Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
LOS	E	B	A	D	C	A	D	C	A	B	C	A
Approach Delay		24.1			22.1			29.5			19.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	87	47	34	46	97	0	13	13	0	26	95	36

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

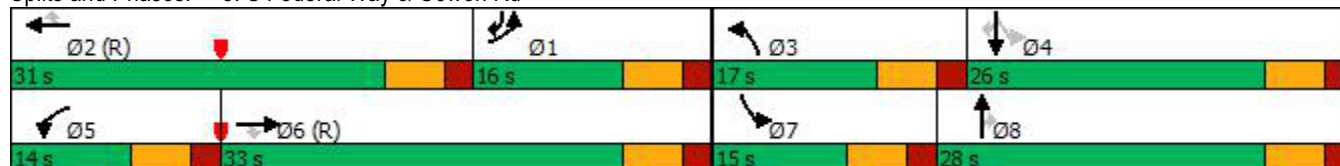


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	82	185	93	131	33	30	28	0	45	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1268	873	168	1718	665	413	760	583	747	891	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.12	0.08	0.02	0.20	0.44	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.3 Intersection LOS: C
 Intersection Capacity Utilization 63.2% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022




































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.18	0.10	0.02	0.21	0.48	0.61
Control Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Length 50th (ft)	87	47	34	46	97	0	13	13	0	26	95	36
Queue Length 95th (ft)	#161	82	185	93	131	33	30	28	0	45	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1268	873	168	1718	665	413	760	583	747	891	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.12	0.08	0.02	0.20	0.44	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	 
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1085	1408		150	855		158	449	229	731	579	740
Arrive On Green	0.12	0.15	0.00	0.09	0.18	0.00	0.05	0.15	0.15	0.07	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	8.5	8.3	0.0	4.3	10.4	0.0	1.4	1.5	0.6	3.5	9.9	3.9
Cycle Q Clear(g_c), s	8.5	8.3	0.0	4.3	10.4	0.0	1.4	1.5	0.6	3.5	9.9	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1085	1408		150	855		158	449	229	731	579	740
V/C Ratio(X)	0.28	0.23		0.56	0.68		0.31	0.13	0.05	0.21	0.68	0.57
Avail Cap(c_a), veh/h	1085	1408		169	1353		419	765	390	856	786	824
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	23.8	0.0	39.3	34.3	0.0	41.2	33.2	32.7	28.6	34.9	4.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.0	4.0	0.0	1.1	0.1	0.1	0.1	1.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.2	0.0	1.9	4.1	0.0	0.5	0.5	0.2	1.3	4.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	24.2	0.0	42.3	38.3	0.0	42.3	33.3	32.8	28.7	36.4	4.7
LnGrp LOS	C	C		D	D		D	C	C	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		26.3			38.8			37.0			21.3	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.6	21.4	9.5	20.5	13.0	47.0	11.5	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.5	12.4	3.4	11.9	6.3	10.3	5.5	3.5				
Green Ext Time (p_c), s	0.0	3.1	0.0	2.6	0.0	1.8	0.1	0.2				

Intersection Summary

HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

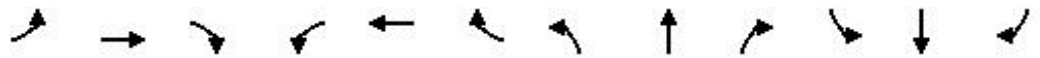
Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↗↗↗		↖
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		92.6		102.3	102.3					37.7		37.7
Actuated g/C Ratio		0.62		0.68	0.68					0.25		0.25
v/c Ratio		0.18		0.08	0.11					0.76		0.57
Control Delay		13.5		9.4	9.0					56.5		7.9
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		13.5		9.4	9.0					56.5		7.9
LOS		B		A	A					E		A
Approach Delay		13.5			9.1							42.9
Approach LOS		B			A							D
Queue Length 50th (ft)		70		12	36					282		0
Queue Length 95th (ft)		105		29	61					311		80
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

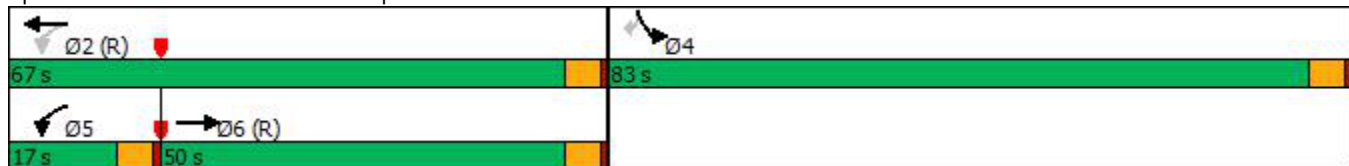
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2592		540	1993					2365		871
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.18		0.07	0.11					0.37		0.39

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	31.3
Intersection LOS:	C
Intersection Capacity Utilization	52.9%
ICU Level of Service	A
Analysis Period (min)	15

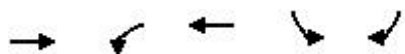
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.18	0.08	0.11	0.76	0.57
Control Delay	13.5	9.4	9.0	56.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	9.4	9.0	56.5	7.9
Queue Length 50th (ft)	70	12	36	282	0
Queue Length 95th (ft)	105	29	61	311	80
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2592	540	1993	2365	871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.07	0.11	0.37	0.39
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2458	178	546	1944	0				1281	0	384
Arrive On Green	0.00	0.60	0.60	0.03	0.66	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4272	299	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	7.1	7.3	1.4	4.2	0.0				25.3	0.0	34.8
Cycle Q Clear(g_c), s	0.0	7.1	7.3	1.4	4.2	0.0				25.3	0.0	34.8
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1722	914	546	1944	0				1281	0	384
V/C Ratio(X)	0.00	0.18	0.18	0.07	0.11	0.00				0.68	0.00	0.87
Avail Cap(c_a), veh/h	0	1722	914	627	1944	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	13.8	10.5	9.6	0.0				48.2	0.0	51.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				0.6	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.6	0.5	1.4	0.0				9.4	0.0	24.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.0	14.2	10.6	9.7	0.0				48.9	0.0	58.0
LnGrp LOS	A	B	B	B	A	A				D	A	E
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		14.0			9.9						51.4	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		103.3		46.7	9.0	94.3						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		6.2		36.8	3.4	9.3						
Green Ext Time (p_c), s		1.5		4.9	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				36.8								
HCM 6th LOS				D								

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45				45
Link Distance (ft)		148			1500			4622				2303
Travel Time (s)		4.0			22.7			70.0				34.9
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					28.3	28.3		66.3		22.4	92.7	
Actuated g/C Ratio					0.22	0.22		0.51		0.17	0.71	
v/c Ratio					0.59	0.73		0.41		0.71	0.27	
Control Delay					53.6	9.6		22.2		58.4	7.6	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					53.6	9.6		22.2		58.4	7.6	
LOS					D	A		C		E	A	
Approach Delay					19.8			22.2			25.8	
Approach LOS					B			C			C	
Queue Length 50th (ft)					124	0		180		145	97	
Queue Length 95th (ft)					195	106		263		188	134	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)							190			420		

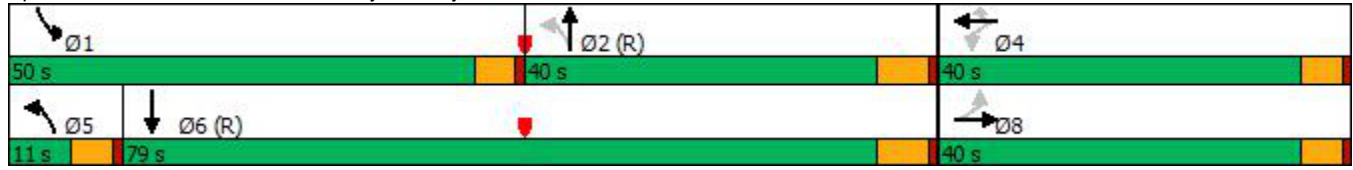
Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					359	813		1587		1020	2301	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.47	0.68		0.41		0.34	0.27	

Intersection Summary	
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	23.0
Intersection Capacity Utilization	57.6%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	B

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.59	0.73	0.41	0.71	0.27
Control Delay	53.6	9.6	22.2	58.4	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	9.6	22.2	58.4	7.6
Queue Length 50th (ft)	124	0	180	145	97
Queue Length 95th (ft)	195	106	263	188	134
Internal Link Dist (ft)	1420		4542		2223
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	359	813	1587	1020	2301
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.68	0.41	0.34	0.27
Intersection Summary					

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	0	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	255	0	259	0		551	1798	178	435	2573	0
Arrive On Green	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.61	0.60	0.15	0.79	0.00
Sat Flow, veh/h	0	1800	0	1440	0	1490	1714	2946	292	2937	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	0	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1490	1714	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	14.8	0.0	0.0	0.0	12.8	12.9	15.0	6.6	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	14.8	0.0	0.0	0.0	12.8	12.9	15.0	6.6	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	255	0	248	0		551	978	998	435	2573	0
V/C Ratio(X)	0.00	0.00	0.00	0.67	0.00		0.00	0.33	0.33	0.81	0.24	0.00
Avail Cap(c_a), veh/h	0	498	0	443	0		642	978	998	1039	2573	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	54.7	0.0	0.0	0.0	12.4	12.4	53.6	3.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.9	0.9	3.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	5.5	0.0	0.0	0.0	4.5	4.6	5.6	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	57.9	0.0	0.0	0.0	13.3	13.3	57.2	3.8	0.0
LnGrp LOS	A	A	A	E	A		A	B	B	E	A	A
Approach Vol, veh/h		0			167			653			980	
Approach Delay, s/veh		0.0			57.9			13.3			22.9	
Approach LOS					E			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.3	84.3		22.4	0.0	107.6		22.4				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	17.0	14.9		16.8	0.0	8.6		0.0				
Green Ext Time (p_c), s	1.2	3.5		0.7	0.0	4.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	850	327	304	762	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	35.0	35.0		20.0	20.0	20.0	10.0	39.0	39.0	16.0	45.0	
Total Split (%)	31.8%	31.8%		18.2%	18.2%	18.2%	9.1%	35.5%	35.5%	14.5%	40.9%	
Maximum Green (s)	30.0	30.0		15.0	15.0	15.0	5.0	34.0	34.0	11.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		26.1		16.0	16.0	16.0	42.0	41.5	41.5	12.0	51.5	
Actuated g/C Ratio		0.24		0.15	0.15	0.15	0.38	0.38	0.38	0.11	0.47	
v/c Ratio		0.15		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55	
Control Delay		23.4		976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		23.4		976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5	
LOS		C		F	F	B	C	D	A	F	C	
Approach Delay		23.4			449.2			28.1			42.6	
Approach LOS		C			F			C			D	
Queue Length 50th (ft)		15		~234	~243	0	15	291	35	111	235	
Queue Length 95th (ft)		35		#384	#393	115	37	371	118	#194	307	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		611		60	55	649	171	1240	695	329	1382	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.13		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.36
Intersection Signal Delay:	146.9
Intersection LOS:	F
Intersection Capacity Utilization	66.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	850	327	304	762
v/c Ratio	0.15	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55
Control Delay	23.4	976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5
Queue Length 50th (ft)	15	~234	~243	0	15	291	35	111	235
Queue Length 95th (ft)	35	#384	#393	115	37	371	118	#194	307
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	611	60	55	649	171	1240	695	329	1382
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	0	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	86	32	50	447	0		194	1039	449	1073	1823	131
Arrive On Green	0.05	0.05	0.05	0.13	0.00	0.00	0.04	0.31	0.31	0.35	0.63	0.62
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	358	0	0	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.1	22.4	7.9	13.3	13.3
Cycle Q Clear(g_c), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.1	22.4	7.9	13.3	13.3
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	86	0	82	447	0		194	1039	449	1073	964	991
V/C Ratio(X)	0.53	0.00	0.38	0.80	0.00		0.15	0.82	0.73	0.28	0.39	0.39
Avail Cap(c_a), veh/h	449	0	425	491	0		221	1039	449	1073	964	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	0.0	50.5	46.3	0.0	0.0	28.6	34.9	33.6	25.8	10.1	10.1
Incr Delay (d2), s/veh	5.0	0.0	2.9	8.5	0.0	0.0	0.4	7.2	10.0	0.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	5.3	0.0	0.0	0.6	11.1	8.7	2.7	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	53.4	54.8	0.0	0.0	29.0	42.0	43.6	26.0	11.3	11.3
LnGrp LOS	E	A	D	D	A		C	D	D	C	B	B
Approach Vol, veh/h		77			358			1207			1066	
Approach Delay, s/veh		55.1			54.8			42.1			15.5	
Approach LOS		E			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	39.0		18.6	8.0	73.5		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	34.0		15.0	5.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	9.9	28.1		13.3	3.6	15.3		5.1				
Green Ext Time (p_c), s	0.1	3.3		0.2	0.0	4.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	0	0	0
Future Volume (vph)	248	567	204	16	360	10	255	46	46	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	227	18	411	0	283	51	51	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	35.0	59.0	59.0	16.0	40.0		45.0	45.0	45.0			
Total Split (%)	29.2%	49.2%	49.2%	13.3%	33.3%		37.5%	37.5%	37.5%			
Maximum Green (s)	30.0	53.0	53.0	11.0	34.0		40.0	40.0	40.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	93.7	88.2	88.2	81.9	75.1		16.3	16.3	16.3			
Actuated g/C Ratio	0.78	0.74	0.74	0.68	0.63		0.14	0.14	0.14			
v/c Ratio	0.45	0.29	0.20	0.03	0.20		0.66	0.22	0.17			
Control Delay	6.5	6.8	1.5	4.7	10.8		56.3	46.8	1.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	6.5	6.8	1.5	4.7	10.8		56.3	46.8	1.3			
LOS	A	A	A	A	B		E	D	A			
Approach Delay		5.7			10.6			47.8				
Approach LOS		A			B			D				
Queue Length 50th (ft)	48	62	0	3	65		108	36	0			
Queue Length 95th (ft)	94	144	28	9	115		147	71	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

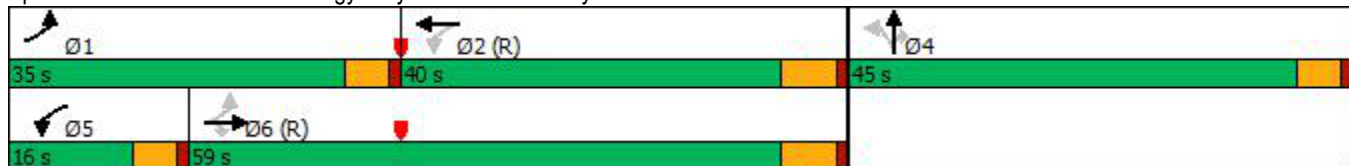


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	712	2185	1131	627	2072		1053	582	546			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.39	0.29	0.20	0.03	0.20		0.27	0.09	0.09			

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	15.1
Intersection LOS:	B
Intersection Capacity Utilization	46.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	276	630	227	18	411	283	51	51
v/c Ratio	0.45	0.29	0.20	0.03	0.20	0.66	0.22	0.17
Control Delay	6.5	6.8	1.5	4.7	10.8	56.3	46.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	6.8	1.5	4.7	10.8	56.3	46.8	1.3
Queue Length 50th (ft)	48	62	0	3	65	108	36	0
Queue Length 95th (ft)	94	144	28	9	115	147	71	0
Internal Link Dist (ft)		1908			346		3134	
Turn Bay Length (ft)	155		415	90		520		240
Base Capacity (vph)	712	2185	1131	627	2072	1053	582	546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.29	0.20	0.03	0.20	0.27	0.09	0.09
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	567	204	16	360	10	255	46	46	0	0	0
Future Volume (veh/h)	248	567	204	16	360	10	255	46	46	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	276	630	0	18	400	0	283	51	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	683	2220		630	2250		361	198				
Arrive On Green	0.08	0.74	0.00	0.02	0.67	0.00	0.11	0.11	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	276	630	0	18	400	0	283	51	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	6.8	8.4	0.0	0.4	5.3	0.0	10.3	3.2	0.0			
Cycle Q Clear(g_c), s	6.8	8.4	0.0	0.4	5.3	0.0	10.3	3.2	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	683	2220		630	2250		361	198				
V/C Ratio(X)	0.40	0.28		0.03	0.18		0.78	0.26				
Avail Cap(c_a), veh/h	920	2220		755	2250		1065	586				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	4.3	5.3	0.0	5.7	7.3	0.0	51.8	48.6	0.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	3.8	0.7	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.4	0.0	0.1	1.8	0.0	4.2	1.4	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	5.6	0.0	5.8	7.4	0.0	55.6	49.3	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		906			418			334				
Approach Delay, s/veh		5.3			7.4			54.6				
Approach LOS		A			A			D				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	14.6	86.9		18.5	7.3	94.2						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	30.0	34.0		40.0	11.0	53.0						
Max Q Clear Time (g_c+I1), s	8.8	7.3		12.3	2.4	10.4						
Green Ext Time (p_c), s	0.8	2.6		1.2	0.0	4.8						

Intersection Summary

HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.6	38.6	8.0	18.0	18.0	21.8	24.3	24.3	28.6	17.3	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.27	0.27	0.32	0.19	0.39
v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.47	0.12	0.45	0.13	0.88
Control Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
LOS	E	C	A	D	D	A	D	C	A	B	C	C
Approach Delay		39.2			32.6			34.4			24.4	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	169	143	0	6	119	0	167	87	0	55	20	89

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

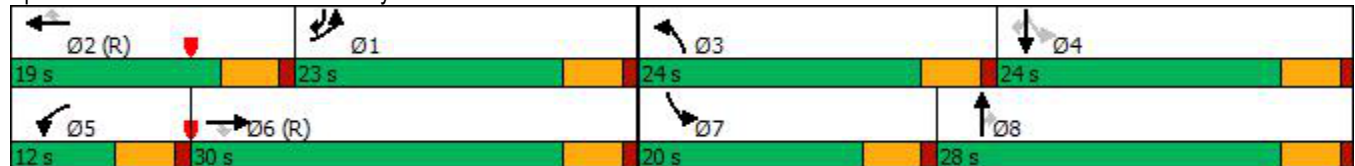
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#275	246	29	23	159	32	#255	135	0	81	40	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1276	726	148	929	413	749	869	596	883	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.43	0.12	0.39	0.12	0.88

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 33.3 Intersection LOS: C
 Intersection Capacity Utilization 70.0% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

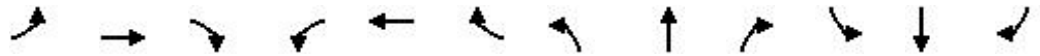
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.47	0.12	0.45	0.13	0.88
Control Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
Queue Length 50th (ft)	169	143	0	6	119	0	167	87	0	55	20	89
Queue Length 95th (ft)	#275	246	29	23	159	32	#255	135	0	81	40	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1276	726	148	929	413	749	869	596	883	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.43	0.12	0.39	0.12	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	687	1122		53	781		681	892	454	910	683	597
Arrive On Green	0.24	0.37	0.00	0.03	0.17	0.00	0.22	0.30	0.30	0.12	0.20	0.20
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	17.1	15.9	0.0	0.6	10.9	0.0	16.3	9.0	3.0	7.3	1.9	14.6
Cycle Q Clear(g_c), s	17.1	15.9	0.0	0.6	10.9	0.0	16.3	9.0	3.0	7.3	1.9	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	687	1122		53	781		681	892	454	910	683	597
V/C Ratio(X)	0.85	0.59		0.23	0.76		0.87	0.42	0.15	0.38	0.13	0.90
Avail Cap(c_a), veh/h	687	1122		150	781		699	892	454	1091	748	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.93	0.93	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	22.8	0.0	42.5	35.8	0.0	34.0	25.3	23.2	23.0	29.3	7.6
Incr Delay (d2), s/veh	9.1	2.2	0.0	2.0	6.4	0.0	11.0	0.3	0.2	0.3	0.1	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	5.7	0.0	0.3	4.5	0.0	6.9	3.1	1.0	2.7	0.7	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	24.9	0.0	44.5	42.1	0.0	45.0	25.7	23.4	23.3	29.4	22.7
LnGrp LOS	D	C		D	D		D	C	C	C	C	C
Approach Vol, veh/h		1243			604			1032			967	
Approach Delay, s/veh		32.9			42.2			36.6			23.5	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.2	19.0	23.5	22.3	6.8	37.4	14.9	30.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	19.1	12.9	18.3	16.6	2.6	17.9	9.3	11.0				
Green Ext Time (p_c), s	0.0	0.5	0.2	0.7	0.0	2.5	0.6	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘↘		↗
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	74	332	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		81.9		95.4	95.4					44.6		44.6
Actuated g/C Ratio		0.55		0.64	0.64					0.30		0.30
v/c Ratio		0.33		0.21	0.18					0.78		0.42
Control Delay		20.1		13.2	12.3					52.2		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		20.1		13.2	12.3					52.2		6.2
LOS		C		B	B					D		A
Approach Delay		20.1			12.4							43.7
Approach LOS		C			B							D
Queue Length 50th (ft)		143		26	66					335		0
Queue Length 95th (ft)		207		56	105					357		61
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

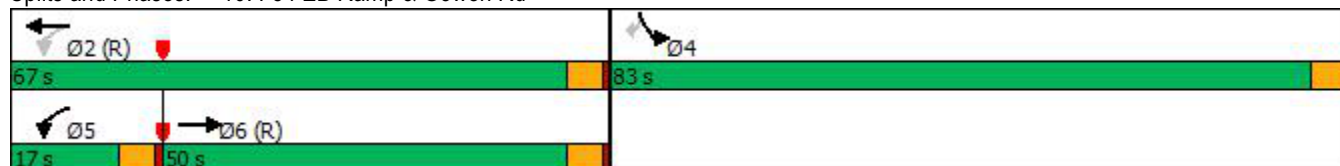
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2292		384	1859					2365		825
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.33		0.19	0.18					0.44		0.29

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	31.2
Intersection LOS:	C
Intersection Capacity Utilization	80.5%
ICU Level of Service	D
Analysis Period (min)	15

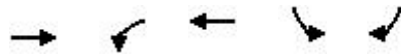
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	74	332	1052	240
v/c Ratio	0.33	0.21	0.18	0.78	0.42
Control Delay	20.1	13.2	12.3	52.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	13.2	12.3	52.2	6.2
Queue Length 50th (ft)	143	26	66	335	0
Queue Length 95th (ft)	207	56	105	357	61
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2292	384	1859	2365	825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.19	0.18	0.44	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	74	332	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2462	198	427	1978	0				1229	0	369
Arrive On Green	0.00	0.60	0.60	0.03	0.67	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	4236	330	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	496	264	74	332	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	12.4	12.5	2.7	6.3	0.0				32.5	0.0	23.1
Cycle Q Clear(g_c), s	0.0	12.4	12.5	2.7	6.3	0.0				32.5	0.0	23.1
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1740	920	427	1978	0				1229	0	369
V/C Ratio(X)	0.00	0.28	0.29	0.17	0.17	0.00				0.86	0.00	0.65
Avail Cap(c_a), veh/h	0	1740	920	501	1978	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.4	14.4	10.6	9.4	0.0				52.3	0.0	48.8
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.2	0.2	0.0				1.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	4.5	0.9	2.1	0.0				12.3	0.0	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.8	15.2	10.8	9.6	0.0				54.1	0.0	50.7
LnGrp LOS	A	B	B	B	A	A				D	A	D
Approach Vol, veh/h		760			406						1292	
Approach Delay, s/veh		14.9			9.8						53.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.0		45.0	9.8	95.2						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		8.3		34.5	4.7	14.5						
Green Ext Time (p_c), s		2.4		5.5	0.1	5.4						
Intersection Summary												
HCM 6th Ctrl Delay				34.3								
HCM 6th LOS				C								













Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	619	844	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			27.2	27.2	62.7	55.2		34.6	91.7	
Actuated g/C Ratio		0.20			0.21	0.21	0.48	0.42		0.27	0.71	
v/c Ratio		0.00			0.48	0.73	0.00	0.82		0.81	0.37	
Control Delay		0.0			50.2	9.9	11.0	40.5		52.9	9.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			50.2	9.9	11.0	40.5		52.9	9.4	
LOS		A			D	A	B	D		D	A	
Approach Delay					17.8			40.5			27.8	
Approach LOS					B			D			C	
Queue Length 50th (ft)		0			94	0	0	424		252	142	
Queue Length 95th (ft)		0			159	108	2	#635		296	231	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings 15: Federal Way & Amity Rd

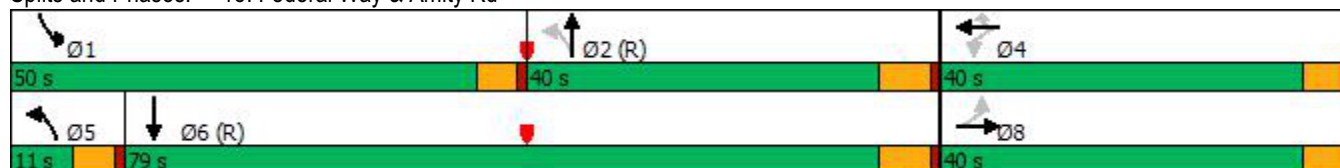
10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		514			359	800	352	1300		1020	2276	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.36	0.67	0.00	0.82		0.61	0.37	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 29.9
 Intersection LOS: C
 Intersection Capacity Utilization 75.4%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



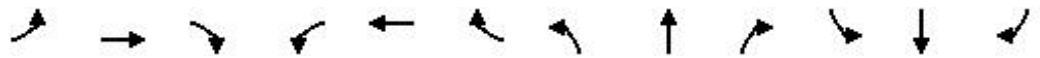
Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	619	844
v/c Ratio	0.00	0.48	0.73	0.00	0.82	0.81	0.37
Control Delay	0.0	50.2	9.9	11.0	40.5	52.9	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	50.2	9.9	11.0	40.5	52.9	9.4
Queue Length 50th (ft)	0	94	0	0	424	252	142
Queue Length 95th (ft)	0	159	108	2	#635	296	231
Internal Link Dist (ft)	68	1420			4542		2223
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	514	359	800	352	1300	1020	2276
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.36	0.67	0.00	0.82	0.61	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↗	↖	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	0	1	844	219	619	844	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	126	14	98	222	0		494	1368	355	710	2407	0
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.00	0.05	0.54	0.54	0.24	0.74	0.00
Sat Flow, veh/h	730	117	847	1441	0	1490	1714	2520	654	2937	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	0	1	537	526	619	844	0
Grp Sat Flow(s),veh/h/ln	1694	0	0	1441	0	1490	1714	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.4	0.0	0.0	0.0	29.9	30.1	26.3	11.9	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	11.6	0.0	0.0	0.0	29.9	30.1	26.3	11.9	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	224	0	0	211	0		494	870	852	710	2407	0
V/C Ratio(X)	0.01	0.00	0.00	0.62	0.00		0.00	0.62	0.62	0.87	0.35	0.00
Avail Cap(c_a), veh/h	463	0	0	443	0		507	870	852	1039	2407	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	56.5	0.0	0.0	11.0	20.4	20.6	47.3	6.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.3	3.3	5.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.3	0.0	0.0	0.0	11.2	11.1	9.9	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	0.0	0.0	59.4	0.0	0.0	11.0	23.7	24.0	53.1	6.4	0.0
LnGrp LOS	D	A	A	E	A		B	C	C	D	A	A
Approach Vol, veh/h		2			131			1064			1463	
Approach Delay, s/veh		51.4			59.4			23.8			26.2	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	35.4	75.6		19.0	10.0	101.0		19.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	28.3	32.1		13.6	2.0	13.9		2.1				
Green Ext Time (p_c), s	2.1	1.2		0.5	0.0	6.4		0.0				

Intersection Summary






















HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1034	378	684	1262	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	30.0	30.0		21.0	21.0	21.0	10.0	42.0	42.0	17.0	49.0	
Total Split (%)	27.3%	27.3%		19.1%	19.1%	19.1%	9.1%	38.2%	38.2%	15.5%	44.5%	
Maximum Green (s)	25.0	25.0		16.0	16.0	16.0	5.0	37.0	37.0	12.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		22.2		17.0	17.0	17.0	41.8	41.3	41.3	13.0	50.3	
Actuated g/C Ratio		0.20		0.15	0.15	0.15	0.38	0.38	0.38	0.12	0.46	
v/c Ratio		0.24		3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91	
Control Delay		25.6		1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.6		1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6	
LOS		C		F	F	B	C	D	B	F	D	
Approach Delay		25.6			494.3			32.7			186.2	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		27		~243	~254	0	23	366	63	~384	~505	
Queue Length 95th (ft)		53		#392	#406	111	50	#497	163	#500	#642	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		618		60	53	647	134	1235	691	356	1381	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.21		3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.60
Intersection Signal Delay:	191.7
Intersection LOS:	F
Intersection Capacity Utilization	72.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1034	378	684	1262
v/c Ratio	0.24	3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91
Control Delay	25.6	1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6
Queue Length 50th (ft)	27	~243	~254	0	23	366	63	~384	~505
Queue Length 95th (ft)	53	#392	#406	111	50	#497	163	#500	#642
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	618	60	53	647	134	1235	691	356	1381
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.













HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	0	48	1034	378	684	1253	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	50	111	65	457	0		130	1130	488	926	1873	13
Arrive On Green	0.06	0.07	0.06	0.14	0.00	0.00	0.04	0.34	0.34	0.30	0.60	0.59
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	0	48	1034	378	684	616	646
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	32.9	26.0	22.0	29.5	29.5
Cycle Q Clear(g_c), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	32.9	26.0	22.0	29.5	29.5
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	117	0	108	457	0		130	1130	488	926	920	966
V/C Ratio(X)	0.58	0.00	0.56	0.80	0.00		0.37	0.92	0.78	0.74	0.67	0.67
Avail Cap(c_a), veh/h	387	0	357	522	0		145	1130	488	926	920	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	49.7	46.1	0.0	0.0	30.1	34.7	32.5	34.5	14.8	14.8
Incr Delay (d2), s/veh	4.4	0.0	4.4	7.7	0.0	0.0	1.7	12.9	11.4	3.1	3.8	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	5.3	0.0	0.0	0.9	14.6	10.2	8.0	9.5	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	0.0	54.1	53.8	0.0	0.0	31.9	47.6	43.9	37.6	18.6	18.4
LnGrp LOS	D	A	D	D	A		C	D	D	D	B	B
Approach Vol, veh/h		128			365			1460			1946	
Approach Delay, s/veh		54.1			53.8			46.1			25.2	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.2	42.0		18.9	8.8	70.4		11.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	12.0	37.0		16.0	5.0	44.0		25.0				
Max Q Clear Time (g_c+I1), s	24.0	34.9		13.5	4.5	31.5		6.4				
Green Ext Time (p_c), s	0.0	1.5		0.3	0.0	5.8		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				36.7								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	121	16	68	290	74	39
Future Volume (vph)	121	16	68	290	74	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.9	7.9	16.5	16.5	16.5	16.5
Actuated g/C Ratio	0.25	0.25	0.52	0.52	0.52	0.52
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
LOS	B	A	A	A	A	A
Approach Delay	10.5		3.4			7.5
Approach LOS	B		A			A
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	31.6
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.34
Intersection Signal Delay:	5.7
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	18	76	322	82	43
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022





















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	121	16	68	290	74	39
Future Volume (veh/h)	121	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	134	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	250	223	417		674	372
Arrive On Green	0.15	0.15	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	134	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.4	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.4	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	250	223	417		674	372
V/C Ratio(X)	0.54	0.08	0.18		0.12	0.12
Avail Cap(c_a), veh/h	1922	1710	2334		2221	2082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	6.9	5.3	0.0	5.9	5.2
Incr Delay (d2), s/veh	1.8	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	7.1	5.5	0.0	6.0	5.3
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	152		76			125
Approach Delay, s/veh	8.9		5.5			5.8
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.7		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.4		3.7
Green Ext Time (p_c), s		0.3		0.4		0.4

Intersection Summary		
HCM 6th Ctrl Delay		7.1
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
	ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↗	↘			↔		↗	↘	
Traffic Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	0	0	53	0	33	55	709	148	4

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.7	0	7.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	-	-	1023	1520	-
HCM Lane V/C Ratio	-	-	-	-	-	-	0.052	0.466	-
HCM Control Delay (s)	0	-	-	0	0	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	2.6	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	0	0	0
Future Volume (vph)	60	219	245	86	484	11	235	50	34	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	272	96	550	0	261	56	38	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	22.0	68.0	68.0	19.0	65.0		38.0	38.0	38.0			
Total Split (%)	17.6%	54.4%	54.4%	15.2%	52.0%		30.4%	30.4%	30.4%			
Maximum Green (s)	17.0	62.0	62.0	14.0	59.0		33.0	33.0	33.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	93.9	86.0	86.0	95.3	88.4		15.9	15.9	15.9			
Actuated g/C Ratio	0.75	0.69	0.69	0.76	0.71		0.13	0.13	0.13			
v/c Ratio	0.13	0.12	0.25	0.11	0.23		0.65	0.25	0.16			
Control Delay	4.0	7.3	1.6	3.7	7.6		59.4	50.7	3.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	4.0	7.3	1.6	3.7	7.6		59.4	50.7	3.7			
LOS	A	A	A	A	A		E	D	A			
Approach Delay		4.2			7.0			52.1				
Approach LOS		A			A			D				
Queue Length 50th (ft)	10	31	0	14	77		105	42	0			
Queue Length 95th (ft)	24	56	31	31	123		144	80	9			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

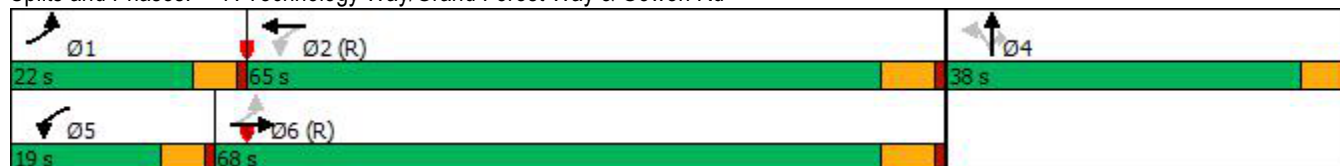


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	612	2047	1087	917	2342		833	461	422			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.11	0.12	0.25	0.10	0.23		0.31	0.12	0.09			

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	16.1
Intersection LOS:	B
Intersection Capacity Utilization	39.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	67	243	272	96	550	261	56	38
v/c Ratio	0.13	0.12	0.25	0.11	0.23	0.65	0.25	0.16
Control Delay	4.0	7.3	1.6	3.7	7.6	59.4	50.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	7.3	1.6	3.7	7.6	59.4	50.7	3.7
Queue Length 50th (ft)	10	31	0	14	77	105	42	0
Queue Length 95th (ft)	24	56	31	31	123	144	80	9
Internal Link Dist (ft)		1908			346		3134	
Turn Bay Length (ft)	155		415	90		520		240
Base Capacity (vph)	612	2047	1087	917	2342	833	461	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.12	0.25	0.10	0.23	0.31	0.12	0.09
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	219	245	86	484	11	235	50	34	0	0	0
Future Volume (veh/h)	60	219	245	86	484	11	235	50	34	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	67	243	0	96	538	0	261	56	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	595	2202		938	2443		333	183				
Arrive On Green	0.04	0.73	0.00	0.04	0.73	0.00	0.10	0.10	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	67	243	0	96	538	0	261	56	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	1.5	3.0	0.0	1.7	6.4	0.0	10.0	3.7	0.0			
Cycle Q Clear(g_c), s	1.5	3.0	0.0	1.7	6.4	0.0	10.0	3.7	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	595	2202		938	2443		333	183				
V/C Ratio(X)	0.11	0.11		0.10	0.22		0.78	0.31				
Avail Cap(c_a), veh/h	734	2202		1064	2443		844	464				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.8	5.0	0.0	3.6	5.4	0.0	54.6	51.8	0.0			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	4.0	0.9	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.4	0.9	0.0	0.5	2.1	0.0	4.1	1.6	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	5.1	0.0	3.7	5.6	0.0	58.6	52.7	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		310			634			317				
Approach Delay, s/veh		4.8			5.3			57.6				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.5	97.4		18.0	9.8	97.1						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	17.0	59.0		33.0	14.0	62.0						
Max Q Clear Time (g_c+I1), s	3.5	8.4		12.0	3.7	5.0						
Green Ext Time (p_c), s	0.1	4.0		1.1	0.1	1.7						

Intersection Summary

































HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.0	38.0	9.1	33.0	33.0	8.6	18.3	18.3	10.6	19.4	31.7
Actuated g/C Ratio	0.13	0.42	0.42	0.10	0.37	0.37	0.10	0.20	0.20	0.12	0.22	0.35
v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.26	0.12	0.02	0.47	0.58	0.69
Control Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
LOS	E	B	B	D	C	A	D	C	A	D	C	B
Approach Delay		25.4			22.2			31.4			27.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	88	52	61	46	99	0	21	15	0	50	104	52

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

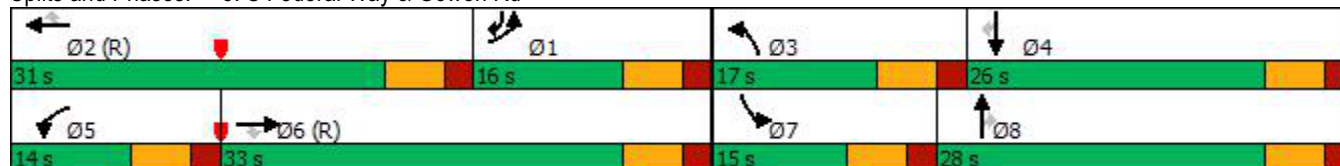
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	90	#328	93	133	39	42	32	0	82	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1256	864	168	1699	659	413	753	580	376	836	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.19	0.09	0.02	0.47	0.50	0.69

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.5 Intersection LOS: C
 Intersection Capacity Utilization 68.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.26	0.12	0.02	0.47	0.58	0.69
Control Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Length 50th (ft)	88	52	61	46	99	0	21	15	0	50	104	52
Queue Length 95th (ft)	#161	90	#328	93	133	39	42	32	0	82	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1256	864	168	1699	659	413	753	580	376	836	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.19	0.09	0.02	0.47	0.50	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1034	1363		150	867		185	450	229	281	601	725
Arrive On Green	0.12	0.15	0.00	0.09	0.19	0.00	0.06	0.15	0.15	0.09	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	8.5	9.1	0.0	4.3	10.5	0.0	2.2	1.8	0.6	4.8	10.5	4.2
Cycle Q Clear(g_c), s	8.5	9.1	0.0	4.3	10.5	0.0	2.2	1.8	0.6	4.8	10.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1034	1363		150	867		185	450	229	281	601	725
V/C Ratio(X)	0.29	0.25		0.56	0.68		0.42	0.15	0.05	0.63	0.70	0.58
Avail Cap(c_a), veh/h	1034	1363		169	1353		419	765	390	358	786	800
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	24.9	0.0	39.3	34.2	0.0	40.9	33.3	32.7	39.7	34.7	4.1
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.0	4.0	0.0	1.5	0.2	0.1	2.4	1.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.5	0.0	1.9	4.2	0.0	0.8	0.6	0.2	1.9	4.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	25.3	0.0	42.3	38.2	0.0	42.4	33.4	32.8	42.1	36.5	5.1
LnGrp LOS	C	C		D	D		D	C	C	D	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		27.3			38.7			37.8			24.4	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	21.7	10.3	21.1	13.0	45.6	12.8	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.5	12.5	4.2	12.5	6.3	11.1	6.8	3.8				
Green Ext Time (p_c), s	0.0	3.1	0.1	2.6	0.0	1.9	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			29.9									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		90.2		100.0	100.0					40.0		40.0
Actuated g/C Ratio		0.60		0.67	0.67					0.27		0.27
v/c Ratio		0.21		0.08	0.12					0.76		0.55
Control Delay		15.0		10.4	10.0					54.8		7.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		15.0		10.4	10.0					54.8		7.3
LOS		B		B	A					D		A
Approach Delay		15.0			10.0							42.2
Approach LOS		B			B							D
Queue Length 50th (ft)		83		12	41					299		0
Queue Length 95th (ft)		123		31	70					324		77
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

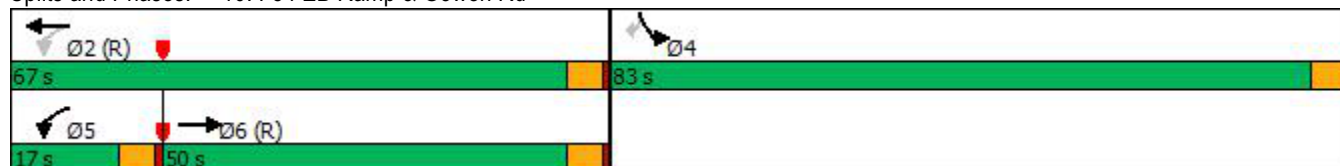


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2530		503	1949					2365		871
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.08	0.12					0.39		0.39

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	31.0
Intersection LOS:	C
Intersection Capacity Utilization	53.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd













10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.21	0.08	0.12	0.76	0.55
Control Delay	15.0	10.4	10.0	54.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	10.4	10.0	54.8	7.3
Queue Length 50th (ft)	83	12	41	299	0
Queue Length 95th (ft)	123	31	70	324	77
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2530	503	1949	2365	871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.12	0.39	0.39
Intersection Summary					




















HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2472	160	518	1939	0				1288	0	387
Arrive On Green	0.00	0.59	0.59	0.03	0.65	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4308	269	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	8.1	8.2	1.4	4.6	0.0				27.2	0.0	34.7
Cycle Q Clear(g_c), s	0.0	8.1	8.2	1.4	4.6	0.0				27.2	0.0	34.7
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1717	915	518	1939	0				1288	0	387
V/C Ratio(X)	0.00	0.20	0.20	0.08	0.12	0.00				0.72	0.00	0.87
Avail Cap(c_a), veh/h	0	1717	915	599	1939	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.0	14.1	10.7	9.8	0.0				48.7	0.0	51.4
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				0.8	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	3.0	0.5	1.5	0.0				10.1	0.0	24.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.3	14.5	10.7	9.9	0.0				49.5	0.0	57.5
LnGrp LOS	A	B	B	B	A	A				D	A	E
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		14.4			10.0						51.6	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		103.1		46.9	9.0	94.1						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		6.6		36.7	3.4	10.2						
Green Ext Time (p_c), s		1.7		5.2	0.0	3.6						
Intersection Summary												
HCM 6th Ctrl Delay				36.6								
HCM 6th LOS				D								

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	174	0	500	0	544	62	316	590	0
Future Volume (vph)	1	0	1	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	193	556	0	673	0	351	656	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		27.1			29.1	29.1		65.5		22.4	91.9	
Actuated g/C Ratio		0.21			0.22	0.22		0.50		0.17	0.71	
v/c Ratio		0.00			0.67	0.73		0.43		0.71	0.29	
Control Delay		0.0			56.7	9.3		23.0		58.4	8.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		0.0			56.7	9.3		23.0		58.4	8.0	
LOS		A			E	A		C		E	A	
Approach Delay					21.5			23.0			25.6	
Approach LOS					C			C			C	
Queue Length 50th (ft)		0			146	0		186		145	102	
Queue Length 95th (ft)		0			220	103		281		188	148	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190				420		

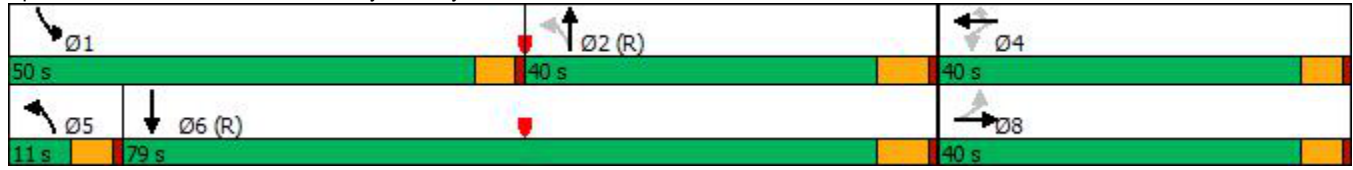
Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		511			359	813		1566		1020	2281	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.00			0.54	0.68		0.43		0.34	0.29	

Intersection Summary	
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	23.6
Intersection LOS:	C
Intersection Capacity Utilization	65.6%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

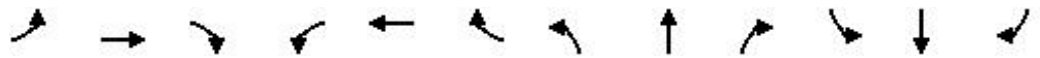
10/14/2022



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	2	193	556	673	351	656
v/c Ratio	0.00	0.67	0.73	0.43	0.71	0.29
Control Delay	0.0	56.7	9.3	23.0	58.4	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	56.7	9.3	23.0	58.4	8.0
Queue Length 50th (ft)	0	146	0	186	145	102
Queue Length 95th (ft)	0	220	103	281	188	148
Internal Link Dist (ft)	68	1420		4542		2223
Turn Bay Length (ft)			190		420	
Base Capacity (vph)	511	359	813	1566	1020	2281
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.54	0.68	0.43	0.34	0.29
Intersection Summary						

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕↔	↕↔	
Traffic Volume (veh/h)	1	0	1	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	1	0	1	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	193	0	0	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	165	13	137	286	0		524	1717	196	435	2513	0
Arrive On Green	0.15	0.00	0.15	0.15	0.00	0.00	0.00	0.59	0.58	0.15	0.77	0.00
Sat Flow, veh/h	770	83	854	1441	0	1490	1714	2901	331	2937	3346	0
Grp Volume(v), veh/h	2	0	0	193	0	0	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	1707	0	0	1441	0	1490	1714	1603	1628	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	16.9	0.0	0.0	0.0	13.9	14.0	15.0	7.5	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	17.0	0.0	0.0	0.0	13.9	14.0	15.0	7.5	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	302	0	0	275	0		524	949	964	435	2513	0
V/C Ratio(X)	0.01	0.00	0.00	0.70	0.00		0.00	0.35	0.35	0.81	0.26	0.00
Avail Cap(c_a), veh/h	475	0	0	443	0		615	949	964	1039	2513	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.3	0.0	0.0	53.5	0.0	0.0	0.0	13.7	13.7	53.6	4.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.3	0.0	0.0	0.0	1.0	1.0	3.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	6.3	0.0	0.0	0.0	5.0	5.1	5.6	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	0.0	0.0	56.8	0.0	0.0	0.0	14.7	14.8	57.2	4.5	0.0
LnGrp LOS	D	A	A	E	A		A	B	B	E	A	A
Approach Vol, veh/h		2			193			673			1007	
Approach Delay, s/veh		46.4			56.8			14.7			22.9	
Approach LOS		D			E			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.3	81.9		24.8	0.0	105.2		24.8				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	17.0	16.0		19.0	0.0	9.5		2.1				
Green Ext Time (p_c), s	1.2	3.5		0.8	0.0	4.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	860	327	304	789	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	35.0	35.0		20.0	20.0	20.0	10.0	39.0	39.0	16.0	45.0	
Total Split (%)	31.8%	31.8%		18.2%	18.2%	18.2%	9.1%	35.5%	35.5%	14.5%	40.9%	
Maximum Green (s)	30.0	30.0		15.0	15.0	15.0	5.0	34.0	34.0	11.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		26.1		16.0	16.0	16.0	42.0	41.5	41.5	12.0	51.5	
Actuated g/C Ratio		0.24		0.15	0.15	0.15	0.38	0.38	0.38	0.11	0.47	
v/c Ratio		0.15		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57	
Control Delay		23.4		976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		23.4		976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0	
LOS		C		F	F	B	C	D	A	F	C	
Approach Delay		23.4			449.2			28.4			42.5	
Approach LOS		C			F			C			D	
Queue Length 50th (ft)		15		~234	~243	0	15	295	37	111	247	
Queue Length 95th (ft)		35		#384	#393	115	37	376	120	#194	322	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

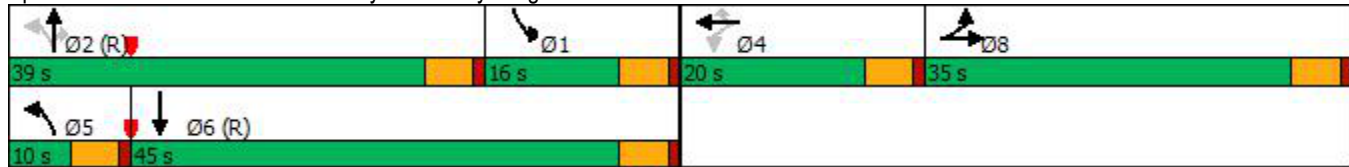


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		611		60	55	649	164	1240	693	329	1383	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.13		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.36
Intersection Signal Delay:	145.8
Intersection LOS:	F
Intersection Capacity Utilization	67.0%
ICU Level of Service	C
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	860	327	304	789
v/c Ratio	0.15	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57
Control Delay	23.4	976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0
Queue Length 50th (ft)	15	~234	~243	0	15	295	37	111	247
Queue Length 95th (ft)	35	#384	#393	115	37	376	120	#194	322
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	611	60	55	649	164	1240	693	329	1383
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	0	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	86	32	50	447	0		189	1039	449	1073	1829	126
Arrive On Green	0.05	0.05	0.05	0.13	0.00	0.00	0.04	0.31	0.31	0.35	0.63	0.62
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	358	0	0	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.5	22.4	7.9	13.9	13.9
Cycle Q Clear(g_c), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.5	22.4	7.9	13.9	13.9
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	86	0	82	447	0		189	1039	449	1073	964	991
V/C Ratio(X)	0.53	0.00	0.38	0.80	0.00		0.16	0.83	0.73	0.28	0.40	0.40
Avail Cap(c_a), veh/h	449	0	425	491	0		216	1039	449	1073	964	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	0.0	50.5	46.3	0.0	0.0	28.7	35.0	33.6	25.8	10.2	10.3
Incr Delay (d2), s/veh	5.0	0.0	2.9	8.5	0.0	0.0	0.4	7.6	10.0	0.1	1.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	5.3	0.0	0.0	0.6	11.3	8.7	2.7	4.2	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	53.4	54.8	0.0	0.0	29.1	42.6	43.6	26.0	11.5	11.5
LnGrp LOS	E	A	D	D	A		C	D	D	C	B	B
Approach Vol, veh/h		77			358			1217			1093	
Approach Delay, s/veh		55.1			54.8			42.5			15.5	
Approach LOS		E			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	39.0		18.6	8.0	73.5		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	34.0		15.0	5.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	9.9	28.5		13.3	3.6	15.9		5.1				
Green Ext Time (p_c), s	0.1	3.1		0.2	0.0	4.3		0.4				

Intersection Summary













HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	309	120	49	122	17	74
Future Volume (vph)	309	120	49	122	17	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	11.3	11.3	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.37	0.37	0.27	0.27	0.27	0.27
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
LOS	B	A	B	A	B	B
Approach Delay	8.9		6.2			11.3
Approach LOS	A		A			B
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

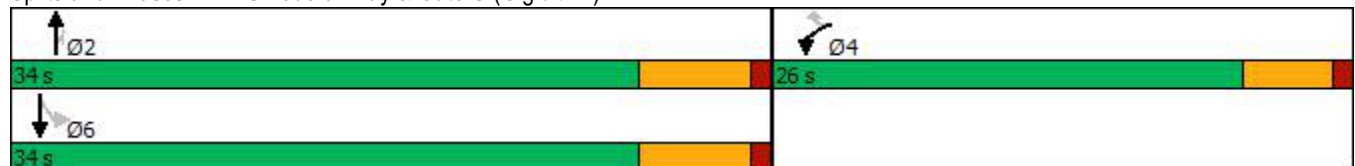
10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	8.5
Intersection LOS:	A
Intersection Capacity Utilization	34.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	343	133	54	136	19	82
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022






















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	309	120	49	122	17	74
Future Volume (veh/h)	309	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	343	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	524	466	339		555	302
Arrive On Green	0.31	0.31	0.22	0.00	0.22	0.22
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	343	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	4.0	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	4.0	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	524	466	339		555	302
V/C Ratio(X)	0.65	0.29	0.16		0.03	0.27
Avail Cap(c_a), veh/h	1562	1390	1897		1839	1693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	6.1	7.3	0.0	7.7	7.5
Incr Delay (d2), s/veh	1.4	0.3	0.2	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.3	0.1	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.4	7.5	0.0	7.7	8.0
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	476		54			101
Approach Delay, s/veh	7.8		7.5			7.9
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		12.0		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		6.0		3.1
Green Ext Time (p_c), s		0.2		1.4		0.4

Intersection Summary		
HCM 6th Ctrl Delay		7.8
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0% ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	0	0	639	0	182	27	126	51	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.6	16.7	0	5.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	-	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	-	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	0	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	5.6	0.3	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	0	0	0
Future Volume (vph)	248	567	227	38	360	10	294	46	83	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	252	42	411	0	327	51	92	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	35.0	59.0	59.0	16.0	40.0		45.0	45.0	45.0			
Total Split (%)	29.2%	49.2%	49.2%	13.3%	33.3%		37.5%	37.5%	37.5%			
Maximum Green (s)	30.0	53.0	53.0	11.0	34.0		40.0	40.0	40.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	91.7	81.6	81.6	80.0	72.8		18.2	18.2	18.2			
Actuated g/C Ratio	0.76	0.68	0.68	0.67	0.61		0.15	0.15	0.15			
v/c Ratio	0.46	0.31	0.24	0.08	0.20		0.68	0.19	0.29			
Control Delay	7.2	9.3	1.7	5.3	12.0		55.3	44.5	6.1			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	7.2	9.3	1.7	5.3	12.0		55.3	44.5	6.1			
LOS	A	A	A	A	B		E	D	A			
Approach Delay		7.1			11.4			44.5				
Approach LOS		A			B			D				
Queue Length 50th (ft)	52	99	0	7	68		125	35	0			
Queue Length 95th (ft)	102	155	32	18	122		165	69	27			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

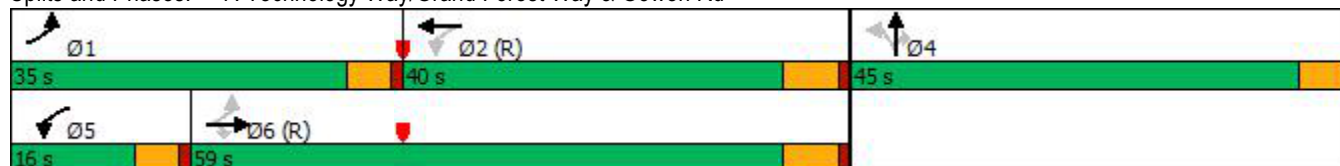


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	700	2022	1071	613	2007		1053	582	546			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.39	0.31	0.24	0.07	0.20		0.31	0.09	0.17			

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	16.5
Intersection LOS:	B
Intersection Capacity Utilization	47.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	276	630	252	42	411	327	51	92
v/c Ratio	0.46	0.31	0.24	0.08	0.20	0.68	0.19	0.29
Control Delay	7.2	9.3	1.7	5.3	12.0	55.3	44.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	9.3	1.7	5.3	12.0	55.3	44.5	6.1
Queue Length 50th (ft)	52	99	0	7	68	125	35	0
Queue Length 95th (ft)	102	155	32	18	122	165	69	27
Internal Link Dist (ft)	1908				346		3134	
Turn Bay Length (ft)	155	415		90	520		240	
Base Capacity (vph)	700	2022	1071	613	2007	1053	582	546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.31	0.24	0.07	0.20	0.31	0.09	0.17

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↗	↑	↗			
Traffic Volume (veh/h)	248	567	227	38	360	10	294	46	83	0	0	0
Future Volume (veh/h)	248	567	227	38	360	10	294	46	83	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	276	630	0	42	400	0	327	51	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	671	2138		624	2190		407	224				
Arrive On Green	0.08	0.71	0.00	0.03	0.66	0.00	0.13	0.13	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	276	630	0	42	400	0	327	51	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	7.2	9.2	0.0	0.9	5.6	0.0	11.9	3.1	0.0			
Cycle Q Clear(g_c), s	7.2	9.2	0.0	0.9	5.6	0.0	11.9	3.1	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	671	2138		624	2190		407	224				
V/C Ratio(X)	0.41	0.29		0.07	0.18		0.80	0.23				
Avail Cap(c_a), veh/h	903	2138		727	2190		1065	586				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	4.8	6.5	0.0	6.1	8.1	0.0	50.9	47.1	0.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	3.7	0.5	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	2.7	0.0	0.3	2.0	0.0	4.9	1.4	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	6.8	0.0	6.1	8.3	0.0	54.6	47.6	0.0			
LnGrp LOS	A	A		A	A		D	D				
Approach Vol, veh/h		906			442			378				
Approach Delay, s/veh		6.3			8.1			53.7				
Approach LOS		A			A			D				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	15.0	84.7		20.3	8.8	90.9						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	30.0	34.0		40.0	11.0	53.0						
Max Q Clear Time (g_c+I1), s	9.2	7.6		13.9	2.9	11.2						
Green Ext Time (p_c), s	0.8	2.6		1.4	0.0	4.8						

Intersection Summary

HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.5	38.5	8.0	17.9	17.9	21.9	22.2	22.2	14.9	17.4	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.25	0.25	0.17	0.19	0.39
v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.54	0.13	0.68	0.15	0.88
Control Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
LOS	E	C	A	D	D	A	D	C	A	D	C	C
Approach Delay		38.5			33.2			39.1			33.0	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	169	146	0	6	124	0	189	100	0	98	23	89

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

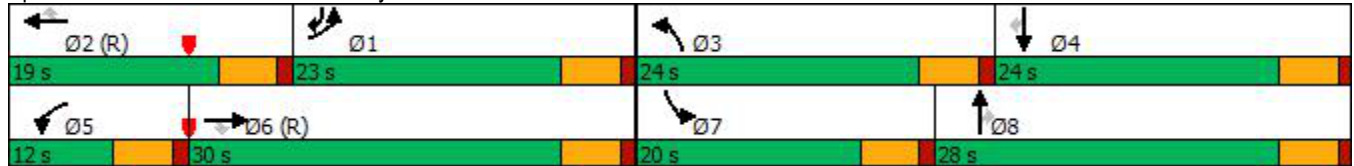


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#275	252	44	23	#169	47	#296	145	0	144	44	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1272	731	148	921	411	754	796	563	567	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.49	0.12	0.63	0.13	0.88

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 36.4 Intersection LOS: D
 Intersection Capacity Utilization 72.1% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.54	0.13	0.68	0.15	0.88
Control Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
Queue Length 50th (ft)	169	146	0	6	124	0	189	100	0	98	23	89
Queue Length 95th (ft)	#275	252	44	23	#169	47	#296	145	0	144	44	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1272	731	148	921	411	754	796	563	567	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.49	0.12	0.63	0.13	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary













8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	662	1096		53	781		699	847	431	468	693	589
Arrive On Green	0.23	0.36	0.00	0.03	0.17	0.00	0.22	0.28	0.28	0.15	0.21	0.21
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	17.3	16.5	0.0	0.6	11.4	0.0	18.3	9.8	3.1	9.6	2.1	14.9
Cycle Q Clear(g_c), s	17.3	16.5	0.0	0.6	11.4	0.0	18.3	9.8	3.1	9.6	2.1	14.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	662	1096		53	781		699	847	431	468	693	589
V/C Ratio(X)	0.88	0.62		0.23	0.79		0.93	0.47	0.16	0.77	0.14	0.91
Avail Cap(c_a), veh/h	662	1096		150	781		699	847	431	573	748	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	23.5	0.0	42.5	36.0	0.0	34.3	26.7	24.2	37.0	29.2	7.8
Incr Delay (d2), s/veh	12.1	2.4	0.0	2.0	7.3	0.0	19.5	0.4	0.2	5.0	0.1	17.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	5.9	0.0	0.3	4.7	0.0	8.5	3.4	1.1	4.0	0.8	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	25.9	0.0	44.5	43.3	0.0	53.9	27.1	24.4	42.0	29.3	24.8
LnGrp LOS	D	C		D	D		D	C	C	D	C	C
Approach Vol, veh/h		1255			628			1115			991	
Approach Delay, s/veh		35.1			43.3			42.6			31.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.5	19.0	24.0	22.5	6.8	36.7	17.1	29.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	19.3	13.4	20.3	16.9	2.6	18.5	11.6	11.8				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.6	0.0	2.4	0.4	2.0				
Intersection Summary												
HCM 6th Ctrl Delay				37.6								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖↖		↗
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	74	371	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		81.0		94.5	94.5					45.5		45.5
Actuated g/C Ratio		0.54		0.63	0.63					0.30		0.30
v/c Ratio		0.35		0.21	0.20					0.78		0.41
Control Delay		20.9		13.7	12.9					51.7		6.0
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		20.9		13.7	12.9					51.7		6.0
LOS		C		B	B					D		A
Approach Delay		20.9			13.0							43.3
Approach LOS		C			B							D
Queue Length 50th (ft)		152		27	76					342		0
Queue Length 95th (ft)		218		57	120					363		60
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

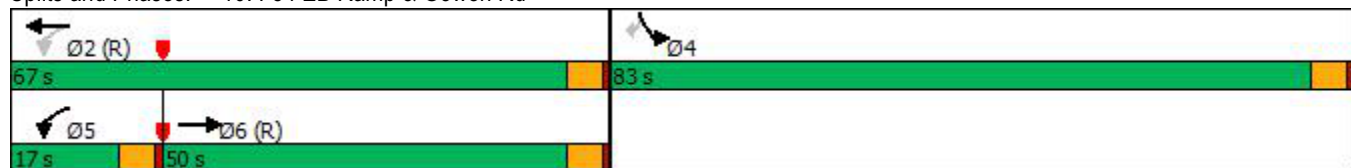
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2264		371	1841					2365		825
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.35		0.20	0.20					0.46		0.29

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	31.1
Intersection LOS:	C
Intersection Capacity Utilization	81.9%
ICU Level of Service	D
Analysis Period (min)	15

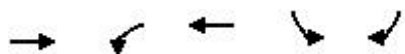
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	74	371	1077	240
v/c Ratio	0.35	0.21	0.20	0.78	0.41
Control Delay	20.9	13.7	12.9	51.7	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	13.7	12.9	51.7	6.0
Queue Length 50th (ft)	152	27	76	342	0
Queue Length 95th (ft)	218	57	120	363	60
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2264	371	1841	2365	825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.20	0.20	0.46	0.29
Intersection Summary					

HCM 6th Signalized Intersection Summary




















10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	74	371	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2445	190	413	1960	0				1256	0	377
Arrive On Green	0.00	0.60	0.60	0.03	0.66	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	4248	320	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	512	273	74	371	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	13.0	13.2	2.7	7.3	0.0				33.3	0.0	22.9
Cycle Q Clear(g_c), s	0.0	13.0	13.2	2.7	7.3	0.0				33.3	0.0	22.9
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1723	912	413	1960	0				1256	0	377
V/C Ratio(X)	0.00	0.30	0.30	0.18	0.19	0.00				0.86	0.00	0.64
Avail Cap(c_a), veh/h	0	1723	912	487	1960	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.9	14.9	11.0	9.9	0.0				51.8	0.0	48.0
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.2	0.2	0.0				1.8	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	4.8	0.9	2.4	0.0				12.5	0.0	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.3	15.8	11.2	10.1	0.0				53.6	0.0	49.8
LnGrp LOS	A	B	B	B	B	A				D	A	D
Approach Vol, veh/h		785			445						1317	
Approach Delay, s/veh		15.5			10.3						52.9	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		104.1		45.9	9.8	94.3						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		9.3		35.3	4.7	15.2						
Green Ext Time (p_c), s		2.7		5.6	0.1	5.6						
Intersection Summary												
HCM 6th Ctrl Delay				33.9								
HCM 6th LOS				C								

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	0	484	1	779	216	607	838	0
Future Volume (vph)	0	0	0	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	538	1	1106	0	674	931	0
Turn Type				Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					27.3	27.3	60.2	52.7		37.0	91.6	
Actuated g/C Ratio					0.21	0.21	0.46	0.41		0.28	0.70	
v/c Ratio					0.53	0.73	0.00	0.89		0.82	0.41	
Control Delay					51.7	9.9	12.0	47.2		51.9	9.8	
Queue Delay					0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay					51.7	9.9	12.0	47.2		51.9	9.8	
LOS					D	A	B	D		D	A	
Approach Delay					18.7			47.1			27.5	
Approach LOS					B			D			C	
Queue Length 50th (ft)					104	0	0	466		273	162	
Queue Length 95th (ft)					173	108	2	#702		319	263	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

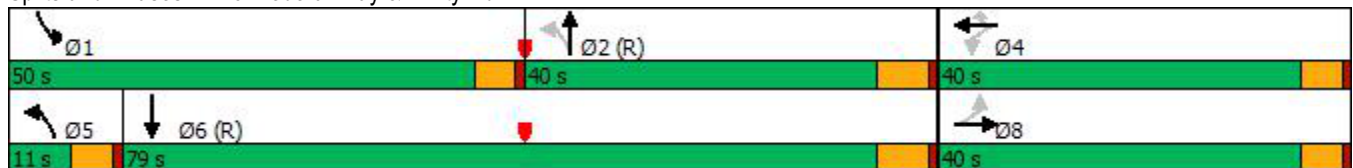
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					359	800	320	1239		1020	2272	
Starvation Cap Reductn					0	0	0	0		0	0	
Spillback Cap Reductn					0	0	0	0		0	0	
Storage Cap Reductn					0	0	0	0		0	0	
Reduced v/c Ratio					0.40	0.67	0.00	0.89		0.66	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 32.1
 Intersection LOS: C
 Intersection Capacity Utilization 69.1%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022






















Lane Group	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	143	538	1	1106	674	931
v/c Ratio	0.53	0.73	0.00	0.89	0.82	0.41
Control Delay	51.7	9.9	12.0	47.2	51.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	9.9	12.0	47.2	51.9	9.8
Queue Length 50th (ft)	104	0	0	466	273	162
Queue Length 95th (ft)	173	108	2	#702	319	263
Internal Link Dist (ft)	1420			4542		2223
Turn Bay Length (ft)		190	130		420	
Base Capacity (vph)	359	800	320	1239	1020	2272
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.67	0.00	0.89	0.66	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	0	0	0	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	143	0	0	1	866	240	674	931	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	224	0	234	0		449	1278	354	765	2378	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.00	0.05	0.52	0.51	0.26	0.73	0.00
Sat Flow, veh/h	0	1800	0	1440	0	1490	1714	2481	687	2937	3346	0
Grp Volume(v), veh/h	0	0	0	143	0	0	1	559	547	674	931	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1490	1714	1603	1564	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	12.7	0.0	0.0	0.0	33.8	34.0	28.6	14.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	12.7	0.0	0.0	0.0	33.8	34.0	28.6	14.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	0	224	0	223	0		449	826	806	765	2378	0
V/C Ratio(X)	0.00	0.00	0.00	0.64	0.00		0.00	0.68	0.68	0.88	0.39	0.00
Avail Cap(c_a), veh/h	0	498	0	443	0		462	826	806	1039	2378	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	55.9	0.0	0.0	12.5	23.5	23.7	46.1	6.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	4.4	4.6	6.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.7	0.0	0.0	0.0	13.0	12.8	10.9	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	58.9	0.0	0.0	12.5	27.9	28.2	53.1	7.1	0.0
LnGrp LOS	A	A	A	E	A		B	C	C	D	A	A
Approach Vol, veh/h		0			143			1107			1605	
Approach Delay, s/veh		0.0			58.9			28.1			26.4	
Approach LOS					E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.9	72.0		20.2	10.0	99.8		20.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	30.6	36.0		14.7	2.0	16.1		0.0				
Green Ext Time (p_c), s	2.2	0.0		0.6	0.0	7.4		0.0				

Intersection Summary























HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1056	378	684	1275	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	30.0	30.0		21.0	21.0	21.0	10.0	42.0	42.0	17.0	49.0	
Total Split (%)	27.3%	27.3%		19.1%	19.1%	19.1%	9.1%	38.2%	38.2%	15.5%	44.5%	
Maximum Green (s)	25.0	25.0		16.0	16.0	16.0	5.0	37.0	37.0	12.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		22.2		17.0	17.0	17.0	41.8	41.3	41.3	13.0	50.3	
Actuated g/C Ratio		0.20		0.15	0.15	0.15	0.38	0.38	0.38	0.12	0.46	
v/c Ratio		0.24		3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92	
Control Delay		25.6		1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.6		1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7	
LOS		C		F	F	B	C	D	B	F	D	
Approach Delay		25.6			494.3			33.8			186.0	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		27		~243	~254	0	23	378	67	~384	~515	
Queue Length 95th (ft)		53		#392	#406	111	50	#515	167	#500	#653	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		618		60	53	647	134	1235	688	356	1381	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.21		3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.60
Intersection Signal Delay:	191.1
Intersection LOS:	F
Intersection Capacity Utilization	73.3%
ICU Level of Service	D
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1056	378	684	1275
v/c Ratio	0.24	3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92
Control Delay	25.6	1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7
Queue Length 50th (ft)	27	~243	~254	0	23	378	67	~384	~515
Queue Length 95th (ft)	53	#392	#406	111	50	#515	167	#500	#653
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	618	60	53	647	134	1235	688	356	1381
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.























Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	0	48	1056	378	684	1266	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	50	111	65	457	0		130	1130	488	926	1873	13
Arrive On Green	0.06	0.07	0.06	0.14	0.00	0.00	0.04	0.34	0.34	0.30	0.60	0.59
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	0	48	1056	378	684	622	653
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	33.9	26.0	22.0	30.0	30.0
Cycle Q Clear(g_c), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	33.9	26.0	22.0	30.0	30.0
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	117	0	108	457	0		130	1130	488	926	920	966
V/C Ratio(X)	0.58	0.00	0.56	0.80	0.00		0.37	0.93	0.78	0.74	0.68	0.68
Avail Cap(c_a), veh/h	387	0	357	522	0		145	1130	488	926	920	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	49.7	46.1	0.0	0.0	30.1	35.1	32.5	34.5	14.9	14.9
Incr Delay (d2), s/veh	4.4	0.0	4.4	7.7	0.0	0.0	1.7	15.1	11.4	3.1	4.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	5.3	0.0	0.0	0.9	15.4	10.2	8.0	9.7	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	0.0	54.1	53.8	0.0	0.0	31.9	50.2	43.9	37.6	18.8	18.6
LnGrp LOS	D	A	D	D	A		C	D	D	D	B	B
Approach Vol, veh/h		128			365			1482			1959	
Approach Delay, s/veh		54.1			53.8			48.0			25.3	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.2	42.0		18.9	8.8	70.4		11.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	12.0	37.0		16.0	5.0	44.0		25.0				
Max Q Clear Time (g_c+I1), s	24.0	35.9		13.5	4.5	32.0		6.4				
Green Ext Time (p_c), s	0.0	0.8		0.3	0.0	5.8		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				37.4								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Roundabout
7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	7.5								
Intersection LOS	A								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	526		591		316		186		
Demand Flow Rate, veh/h	589		607		332		197		
Vehicles Circulating, veh/h	87		394		366		848		
Vehicles Exiting, veh/h	958		283		83		141		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.4		12.0		5.7		8.2		
Approach LOS	A		B		A		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.814	0.186		0.234	0.766
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	227	4.544	12	4.544	4.544	21	4.544	4.544
Entry Flow, veh/h	362	1890	595	1195	253	58	1034	46	151
Cap Entry Lane, veh/h	1312	0.952	992	1.000	1018	1018	0.917	656	656
Entry HV Adj Factor	0.855	216	0.973	12	0.953	0.971	19	1.000	0.927
Flow Entry, veh/h	310	1800	579	1195	241	56	949	46	140
Cap Entry, veh/h	1122	0.120	965	0.010	970	988	0.020	656	609
V/C Ratio	0.276	0.0	0.600	3.1	0.249	0.057	4.0	0.070	0.230
Control Delay, s/veh	5.8	A	12.2	A	6.2	4.1	A	6.2	8.8
LOS	A	0	B	0	A	A	0	A	A
95th %tile Queue, veh	1		4		1	0		0	1

HCM 6th Roundabout
7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	13.4								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	1133		429		385		151		
Demand Flow Rate, veh/h	1304		441		406		161		
Vehicles Circulating, veh/h	39		692		1074		727		
Vehicles Exiting, veh/h	849		732		32		395		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	13.5		13.7		15.5		7.2		
Approach LOS	B		B		C		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.849	0.151		0.130	0.870
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	238	4.544	11	4.544	4.544	56	4.544	4.544
Entry Flow, veh/h	1066	1890	430	922	297	53	654	21	140
Cap Entry Lane, veh/h	1371	0.952	756	1.000	534	534	0.917	733	733
Entry HV Adj Factor	0.849	227	0.972	11	0.953	0.971	51	1.000	0.929
Flow Entry, veh/h	906	1800	418	922	283	51	600	21	130
Cap Entry, veh/h	1164	0.126	735	0.012	509	519	0.085	733	680
V/C Ratio	0.778	0.0	0.568	4.0	0.556	0.099	7.0	0.029	0.191
Control Delay, s/veh	16.8	A	14.0	A	18.3	8.2	A	5.2	7.5
LOS	C	0	B	0	C	A	0	A	A
95th %tile Queue, veh	8		4		3	0		0	1

HCM 6th Roundabout
7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	8.4								
Intersection LOS	A								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	582		646		355		186		
Demand Flow Rate, veh/h	648		662		373		197		
Vehicles Circulating, veh/h	142		415		366		924		
Vehicles Exiting, veh/h	979		283		138		141		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.3		14.2		5.8		8.9		
Approach LOS	A		B		A		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.825	0.175		0.234	0.766
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	286	4.544	12	4.544	4.544	41	4.544	4.544
Entry Flow, veh/h	362	1890	650	1195	274	58	1034	46	151
Cap Entry Lane, veh/h	1248	0.952	973	1.000	1018	1018	0.917	612	612
Entry HV Adj Factor	0.855	272	0.975	12	0.953	0.971	38	1.000	0.927
Flow Entry, veh/h	310	1800	634	1195	261	56	949	46	140
Cap Entry, veh/h	1067	0.151	949	0.010	969	988	0.040	612	568
V/C Ratio	0.290	0.0	0.668	3.1	0.269	0.057	4.2	0.075	0.247
Control Delay, s/veh	6.2	A	14.4	A	6.4	4.1	A	6.7	9.6
LOS	A	1	B	0	A	A	0	A	A
95th %tile Queue, veh	1		5		1	0		0	1

HCM 6th Roundabout
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	14.9								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	1158		453		470		151		
Demand Flow Rate, veh/h	1331		465		496		161		
Vehicles Circulating, veh/h	63		738		1074		797		
Vehicles Exiting, veh/h	895		732		56		395		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	14.1		16.1		17.8		7.7		
Approach LOS	B		C		C		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.866	0.134		0.130	0.870
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	265	4.544	11	4.544	4.544	100	4.544	4.544
Entry Flow, veh/h	1066	1890	454	922	343	53	654	21	140
Cap Entry Lane, veh/h	1341	0.952	725	1.000	534	534	0.917	688	688
Entry HV Adj Factor	0.849	252	0.974	11	0.953	0.971	92	1.000	0.929
Flow Entry, veh/h	906	1800	442	922	327	51	600	21	130
Cap Entry, veh/h	1139	0.140	706	0.012	509	519	0.153	688	638
V/C Ratio	0.795	0.0	0.626	4.0	0.642	0.099	7.8	0.031	0.204
Control Delay, s/veh	18.1	A	16.4	A	22.1	8.2	A	5.6	8.1
LOS	C	0	C	0	C	A	1	A	A
95th %tile Queue, veh	9		4		4	0		0	1

APPENDIX E: CRASH DATA

Node 4 Federal Way at Gate C					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Concrete Traffic Barrier	None

Node 5 Federal Way at Gate B					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2018	Turning Right	Angle Turning	Improper Turn
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention

Node 6 Federal Way at Silicon Lane					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Changing Lanes	Side Swipe Same	None
local	B Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Turning Right	Rear-End	None

Node 7 Gowan Road at Technology Way					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	Property Dmg Report	2018	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2019	Merging	Rear-End	Failed to Yield
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2019	Going Straight	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Head-On Turning	Failed to Obey Signal
state	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2021	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2021	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2021	Going Straight	Rear-End	Speed Too Fast For Conditions
state	B Injury Accident	2021	Starting in Traffic	Rear-End	Inattention
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close

Node 8 Gowan Road at Federal Way					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2017	Going Straight	Angle	None
local	A Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	A Injury Accident	2017	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Changing Lanes	Side Swipe Same	Improper Lane Change
local	Property Dmg Report	2017	Going Straight	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2018	Turning Left	Side Swipe Same	Improper Turn
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2018	Merging	Side Swipe Same	Improper Lane Change
state	C Injury Accident	2018	Merging	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Rear-End	None
state	C Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
state	Property Dmg Report	2019	Slowing in Traffic	Angle	Speed Too Fast For Conditions
local	Property Dmg Report	2019	Turning Right	Rear-End	Failed to Yield
local	B Injury Accident	2019	Left Turn on Red	Angle Turning	Alcohol Impaired
local	Property Dmg Report	2019	Going Straight	Angle	Distracted IN or ON Vehicle
local	B Injury Accident	2019	Turning Right	Rear-End Turning	Following Too Close
state	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2020	Going Straight	Rear-End	Asleep, Drowsy, Fatigued
local	Property Dmg Report	2020	Going Straight	Rear-End	Inattention
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2021	Turning Left	Same Direction Turning	Improper Turn
local	Property Dmg Report	2021	Changing Lanes	Side Swipe Same	Inattention
local	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal
state	B Injury Accident	2021	Left Turn on Red	Angle Turning	Inattention
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Node 9 Gowan Road at I-84 NB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
state	Fatal Accident	2017	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2017	Negotiating Curve	Side Swipe Same	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Negotiating Curve	Angle	Speed Too Fast For Conditions
state	B Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	B Injury Accident	2018	Going Straight	Rear-End	Alcohol Impaired
state	B Injury Accident	2019	Left Turn on Red	Angle Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Brakes
state	C Injury Accident	2019	Turning Left	Head-On Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2020	Slowing in Traffic	Traffic Sign Support	Speed Too Fast For Conditions
state	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2020	Turning Right	Head-On Turning	Inattention
state	B Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Turning Left	Head-On Turning	Failed to Yield

Node 10 Gowan Road at I-84 SB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	A Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
state	Property Dmg Report	2017	Turning Left	Curb	Alcohol Impaired
state	Property Dmg Report	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2018	Going Straight	Rear-End	Alcohol Impaired
state	C Injury Accident	2018	Negotiating Curve	Rear-End	Inattention
state	Property Dmg Report	2019	Turning Left	Separation of Units	Other
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	B Injury Accident	2020	Turning Left	Curb	Other
state	Property Dmg Report	2021	Turning Left	Side Swipe Same	Failed to Maintain Lane
state	Property Dmg Report	2021	Starting in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2021	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal

Node 14 Gowan Road ar Warm Spring					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	None
state	B Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2019	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2020	Going Straight	Angle	Inattention
state	C Injury Accident	2021	Turning Right	Angle Turning	Inattention

Node 15 Federal Way at Amity Road					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Right	Side Swipe Same	Improper Use of Turn Lane
local	Property Dmg Report	2018	Turning Left	Angle Turning	None
local	C Injury Accident	2018	Turning Left	Side Swipe Same	Failed to Yield
local	Property Dmg Report	2019	Turning Right	Same Direction Turning	Improper Turn
local	B Injury Accident	2019	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2019	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2019	Turning Left	Head-On Turning	None
local	Property Dmg Report	2020	Turning Right	Angle Turning	Failed to Yield
local	B Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Going Straight	Rear-End	Alcohol Impaired
local	Property Dmg Report	2021	Backing	Backed Into	Improper Backing
local	Property Dmg Report	2021	Turning Right	Side Swipe Same	Improper Turn
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2021	Going Straight	Head-On Turning	Other Vehicle Defect
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Stop Sign
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Intersection Crash Rates															
Int No.	Intersection	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Pk Hr Int. Vol.	DHV*	AADT*	K**	Daily Int. Vol. (V)***	Crash Rate (R)	Crashes by Type				
											Angle	Rear-End	Side Swipe	Head On	Obstacle
1	Eisenman Rd at I-84 SB Ramp	0	0/0/0	5	236	120	1000	12%	1967	0.00	0	0	0	0	0
2	Eisenman Rd at I-84 NB On-Ramp	0	0/0/0	5	198	120	1000	12%	1650	0.00	0	0	0	0	0
3	Memory Ln at Federal Way/I-84 NB Off-Ramp	1	0/1/0	5	182	120	1000	12%	1517	0.36	1	0	0	0	0
4	Federal Way at Gate C	1	0/1/0	5	240	204	1700	12%	2000	0.27	0	1	0	0	0
5	Federal Way at Gate B	2	2/0/0	5	820	1104	9200	12%	6833	0.16	1	1	0	0	0
6	Federal Way at Silcon Ln	3	1/2/0	5	1043	1620	13500	12%	8692	0.19	1	1	1	0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	5	1540	680	6800	10%	15400	0.50	1	10	3	0	0
8	Gowen Rd at Federal Way	33	22/11/0	5	3341	1450	14500	10%	33410	0.54	9	16	5	3	0
9	Gowen Rd at I-84 NB Ramp	16	5/10/1	5	2946	2200	22000	10%	29460	0.30	8	1	1	5	1
10	Gowen Rd at I-84 SB Ramp	15	12/3/0	5	2154	1800	18000	10%	21540	0.38	6	5	1	0	3
11	Technology Way at Circuit Ln	0	0/0/0	5	439	406	2900	14%	3136	0.00	0	0	0	0	0
13	Federal Way at Gate A	0	0/0/0	5	776	1104	9200	12%	6467	0.00	0	0	0	0	0
14	Gowen Rd at Warm Springs Ave	6	4/2/0	5	701	1075	5700	19%	3717	0.88	3	2	0	1	0
15	Federal Way at Amity Rd	29	18/11/0	5	2277	1050	10500	10%	22770	0.70	3	8	4	14	0
16	Federal Way at Bergeson Ave	13	9/4/0	5	3063	1200	12000	10%	30630	0.23	1	5	3	1	3

*Source: Idaho AADT ArcGIS map, 2021 volumes

**K = DHV / AADT

***V = Intersection Peak Volume / K

Crashes for spots (such as intersections) are normally expressed in terms of crashes per million entering vehicles (MEV). Use the following formula:

$$R = (A \times 10^6) / (365 \times T \times V)$$

where,
 R = crash rate
 A = number of reported crashes
 T = time period of the analysis in years
 V = daily entering volume at the intersection

Segment Crash Rates							
Seg.	Segment Location	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Seg. Lnth (mi)	AADT (V)*	Crash Rate (R)
A	S Federal Way, btwn Gowen Rd and Memory Ln	11	9/2/0	5	2.51	8133	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	5	0.89	20000	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	5	0.56	18250	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	5	2.69	6800	44.93
E	Memory Ln, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	5	0.18	1000	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	5	0.59	2900	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	5	1.42	2900	13.31

*Source: Idaho AADT ArcGIS map, 2021 volumes

Crashes for roadway segments are normally expressed in terms of crashes per 100 million vehicle-miles (100MVM). Use the following formula:

$$R = (A \times 10^8) / (365 \times T \times V \times L)$$

where,
 R = crash rate
 A = number of reported crashes
 T = time period of the analysis in years
 V = AADT
 L = Length of the segment in miles

Timing Plans Used in Analysis - Source: ACHD Congestion Management Dept

4 Federal & Gigabit Ln (Gate C)

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	15	31	13	31	17	29	13	31	90	Free	
PM Peak	15:30	18:30	4	15	31	13	31	17	29	13	31	90	Free	

7 Gowen & Technology

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	15	31	13	31	17	29	13	31	90	70	1
PM Peak	15:30	18:30	4	15	31	13	31	17	29	13	31	90	70	1

8 Federal Way & Gowen

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	16	31	17	26	14	33	15	28	90	24	3 Lag: 1
PM Peak	15:30	18:30	3	16	31	17	26	14	33	15	28	90	24	3 Lag: 1

9 Gowen & I-84 WB Ramps (NB)

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	12	25	0	0	0	37	0	53	90	27	1
PM Peak	16:00	18:00	1	12	25	0	0	0	37	0	53	90	27	1

10 Gowen & I-84 EB Ramps (SB)

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	0	25	0	65	0	25	0	65	90	27	1
PM Peak	16:00	18:00	1	0	25	0	65	0	25	0	65	90	27	1

15 Federal Way & Amity Road

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	21	40	0	21	21	40	0	28	110	50	2 Split: 8, 4
PM Peak	16:15	18:15	3	33	40	0	21	21	52	0	36	130	126	2 Split: 8, 4

16 Federal Way & Bergeson

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	19	43	0	35	15	47	0	13	110	36	6 Split: 4, 8 Lag: 1
PM Peak	16:15	18:15	3	27	43	0	39	18	52	0	21	130	74	2 Split: 4, 8

Controller Database Timing Sheet



Station: 190 - Federal Way & Amity-Scout 85.2.3 980 ATC (Standard-4/4/2022 9:28:01 AM)

Type: Scout Ethernet v85.2

Firmware: 85.2.194

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	0	6	5	10	0	6
Gap Ext	2.5	3	0	2.5	2.5	3	0	2.5
MAX 1	25	50	0	30	15	50	0	15
Max 2	35	60	0	40	25	60	0	15
Yel Clr	4	5	0	4	4	5	0	4
Red Clr	2	1	0	2	2	1	0	2
Walk	0	5	0	0	0	0	0	5
Ped Clr	0	26	0	0	0	0	0	25
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	0	0	0	0	0	0	0
Max Step	5	0	0	0	0	0	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	.	.	X	X	.	.
Guarant'd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	1
Startup	RED	WALK	RED	RED	RED	GREEN	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																			
Cycle	110	0	130	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	50	0	126	0	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	0	3	4	5	0	0	0	0	0	0	0	0	14	15	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	31	0	
seqnc	2	0	2	2	2	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	21	40	0	21	21	40	0	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 3								
Time	33	40	0	21	21	52	0	36
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON
Table - 4								
Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 5								
Time	21	37	0	21	13	45	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 8								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 11								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 12								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 13								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 14								
Time	35	10	0	20	10	35	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 15								
Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 19								
Time	0	0	0	0	0	0	0	0

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 20								
Time	15	100	0	15	10	100	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	MIN	NON	NON	OMT	MIN	NON	NON

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	X
Mon	X	.	.	.	X
Tue	X	.	.	.	X
Wed	X	.	.	.	X
Thu	X	.	.	X	X
Fri	X	.	.	.	X
Sat	.	X	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X
Apr	X	X	X
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	1	4	5	3	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20																
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0														
Actions(4.5)																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33			
Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	39	30	31	32	254			
Aux 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 241 - Federal Way & Bergeson_Gekeler-Scout 85.3 (Standard-4/1/2022 7:31:17 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	5	0	10	5	10	0	5
Gap Ext	2.5	3	0	2	2	3	0	2
MAX 1	30	60	0	40	25	60	0	40
Max 2	35	45	0	45	35	45	0	45
Yel Clr	4	4	0	4	4	4	0	4
Red Clr	2	1.5	0	2	2	1.5	0	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	32	0	28	0	23	0	31
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	45	80	0	0	0	80	0	0
Max Step	5	10	0	0	0	10	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	0	1	2	2	0	1
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																		
Cycle	110	0	130	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	36	0	74	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
seqnc	6	1	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	19	43	0	35	15	47	0	13
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MPX	NON	NON	NON	MAX	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 3								
Time	27	43	0	39	18	52	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MPX	NON	NON	NON	MAX	NON	NON
Table - 4								
Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 5								
Time	21	43	0	42	21	43	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MPX	NON	NON	NON	MAX	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	45	45	0	50	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 9								
Time	45	45	0	5	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 11								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 12								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 13								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 14								
Time	30	30	0	40	10	30	0	50
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 15								
Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 19								
Time	0	0	0	0	0	0	0	0

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	25	100	0	20	15	100	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	25	40	0	25	10	40	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	MAX	MAX	NON	MAX	MAX	MAX	NON	MAX
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	5	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	1	4	5	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	6	9	15	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	30	0	15	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																			
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33		
Aux 1	
Aux 2	
Aux 3	
Special 1	
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 3322 - Federal Way & Gigabit IP (Standard-3/19/2020 4:23:00 PM)

Type: NTCIP 61.x TS2 Ethernet

Firmware:

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aux 1
Aux 2
Aux 3
Special 1	
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Pattern Plus																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patterns																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Table - 1																																					
Cycle Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ped Clearance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Min Green	0	5	0	5	0	0	0	5	0	0	0	0	0	0	0	
Passage	0	2	0	2	0	0	0	2	0	0	0	0	0	0	0	
Max1	0	30	0	45	0	0	0	45	0	0	0	0	0	0	0	
Max2	0	45	0	60	0	0	0	60	0	0	0	0	0	0	0	
Yellow	0	4	0	4	0	0	0	4	0	0	0	0	0	0	0	
Red	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	60	0	80	0	0	0	80	0	0	0	0	0	0	0	0
Dynamic Max Step	0	15	0	20	0	0	0	20	0	0	0	0	0	0	0	0
Startup	RED	RED	RED	GREEN	RED	RED	RED	GREEN	RED	RED	RED	RED	RED	RED	RED	RED
Enable	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Controller Database Timing Sheet



Station: 273 - Federal Way & Gowen-Scout 85.3 980 ATC (Standard-9/27/2022 11:08:39 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	6	8	5	5	8	8	5	10
Gap Ext	2	2	2	2	2	2	2	2
MAX 1	60	60	40	60	35	60	40	60
Max 2	80	100	80	100	80	100	80	100
Yel Clr	4	4	4	4	4	4	4	4
Red Clr	2	2	2	2	2	2	2	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	31	0	34	0	29	0	27
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	20	0	20	0	20
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	10	0	10	0	10
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.4	0	1.2	0	1.4	0	1.2
DyMaxLim	0	0	0	0	0	0	0	0
Max Step	0	0	0	0	0	0	0	0
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	.	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	X	.	X	.	X
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarant'd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	7	7	1	1	3	3
C 2	6	6	8	8	2	2	4	4
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Table - 1																																
Cycle	90	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0
Offset	24	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	1	1	1	1

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	16	31	17	26	14	33	15	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 3								
Time	39	30	50	31	17	52	25	56
Coord Phase	.	.	X	.	.	.	.	.
Mode	NON	NON	MAX	NON	NON	NON	NON	MIN
Table - 4								
Time	20	25	20	20	15	25	15	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	25	30	100	30	15	30	25	100
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 11								
Time	80	40	25	35	15	110	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 12								
Time	65	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 13								
Time	50	50	65	45	15	60	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 14								
Time	40	30	30	50	15	50	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 15								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 19								
Time	10	10	10	100	20	10	20	100

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	NON	OMT	MIN	NON	OMT	NON	MIN
Table - 20								
Time	25	70	35	40	45	25	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 25								
Time	30	40	40	30	20	40	20	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 28								
Time	41	44	18	47	15	70	18	47
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON

Table - 29

Time	0	70	40	30	15	70	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	NON	NON	NON	NON	MIN	OMT	NON

Table - 30

Time	40	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 31

Time	55	45	35	40	25	110	25	35
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 32

Time	65	55	65	70	15	70	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	10	10	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	8	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	29	32	29	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 275 - GOWEN & I-84 EB OFF RAMP-Scout 85.3 980 ATC (Standard-9/27/2022 11:11:23 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	0	5	0	6	5	10	0	0
Gap Ext	0	3	0	2.5	2	3	0	0
MAX 1	0	40	0	110	25	40	0	0
Max 2	0	20	0	100	20	20	0	0
Yel Clr	0	4	0	4	4	4	0	0
Red Clr	0	1.5	0	2	2	1.5	0	0
Walk	0	0	0	0	0	5	0	0
Ped Clr	0	0	0	0	0	17	0	0
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	60	0	20	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	15	0	10	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.5	0	1.8	0	2	0	0
DyMaxLim	0	70	0	140	35	70	0	0
Max Step	0	10	0	10	5	10	0	0
Enable P	.	X	.	X	X	X	.	.
Min Recall	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																
Cycle	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	90	0	0	120	150	0	0	0	0
Offset	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	89	0	0	116	35	0	0	0	0	
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	0	25	0	65	0	25	0	65
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON
Table - 2								
Time	0	36	0	44	0	36	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON
Table - 3								
Time	0	43	0	42	0	43	0	42
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON
Table - 4								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 11								
Time	0	70	0	130	20	70	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	MIN	NON	NON	NON	NON
Table - 12								
Time	0	80	0	60	20	80	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 13								
Time	0	100	0	70	20	100	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 14								
Time	0	60	0	40	20	60	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 15								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 19								
Time	0	0	0	0	0	0	0	0

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	80	0	40	11	69	0	40
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 24								
Time	0	53	0	37	11	42	0	37
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 25								
Time	0	70	0	30	15	45	0	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	0	60	0	60	15	250	0	45
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	0	90	0	30	15	75	0	30
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON
Table - 28								
Time	0	117	0	33	18	99	0	33
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	.	X
Mon	X	.	.	X
Tue	X	.	.	X
Wed	X	.	.	X
Thu	X	.	.	X
Fri	X	.	.	X
Sat	.	X	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X
Apr	X	X	X
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	13	14	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	11	11	13	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 444 - Gowen & I-84 WB Off Ramp (Standard-8/12/2021 9:56:14 AM)

Type: NTCIP 61.x TS2 Ethernet

Firmware: 61.04q

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aux 1
Aux 2
Aux 3
Special 1
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Coord Plus																
	Value															
Table - 1																
Mode	FRC															
Leave Before	TIMED															
Leave After	TIMED															
Recycle	NO_RECYCLE															
Stop In Walk	.															
External	.															
Auto Reset	.															
Latch Sec Foff	.															
Coord Easy Float	.															
Yield Value	0															
Coord NTCIP Yield Sign	+															
Closed Loop Active	.															
Shortway+	.															

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1																
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	15	15	0	0	0	0	0	0	0	0	0	0	0

Table - 2																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 4																
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	13	14	15	0	0	0	0	0	0	0	0	0	0

Table - 5																
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 6																
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																
Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0
Action	15	11	11	11	13	15	15	0	0	0	0	0	0	0	0	0
Table - 8																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flashing Yellow Arrow																
	Value															
Table - 1																
Channel 1	13															
Channel 2	0															
Channel 3	0															
Channel 4	0															
Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Included P1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	R-T/OTH	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	4	3.5	3.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.5	1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Overlap+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1

Conflict P1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conflict Ped 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LeadGreen	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA After Preempt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green Delay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	.	FL YEL4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA Delay	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
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Table - 1

Short	10	10	10	0	0	0	0	0	0	0	10	10	10	10	0	0	0	0	0	0	0	0	10	10	10	10	10	10	0	0	0	0	0	0	0	0
Long	25	25	25	17	17	17	17	17	17	17	25	25	25	25	17	17	17	17	17	17	17	24	24	24	24	24	24	17	17	17	17	17	17	17	17	
Dwell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	
No Short P 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Early Yield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Offset	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN		
CNA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Flt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Ped	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ret Hold	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CIC Plan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ph Opt Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ph Time Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Det Grp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Inh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patterns																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35

Table - 1																																				
Cycle Time	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	90	0	0	12 0	15 0	0	0	0	0	0	0	0	0
Offset Time	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	76	0	0	15	54	0	0	0	0	0	0	0	0
Split Number	1	2	3	0	0	0	0	0	0	0	11	12	13	14	15	0	0	0	0	0	0	0	23	24	25	26	27	28	0	0	31	32	0	0	0	
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1	1	1

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Table - 1																
Walk	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
Min Green	5	10	0	0	0	5	0	10	0	0	0	0	0	0	0	0
Passage	4	3	0	0	0	3	0	2.5	0	0	0	0	0	0	0	0
Max1	30	75	0	0	0	75	0	25	0	0	0	0	0	0	0	0
Max2	40	20	0	0	0	20	0	40	0	0	0	0	0	0	0	0
Yellow	4	4	0	0	0	4	0	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	0	0	0	1.5	0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Startup	RED	GREEN	RED	RED	RED	WALK	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
Enable	X	X	.	.	.	X	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Reservice	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Walk Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Skip Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Delay	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Conf Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Ped Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Omit Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inhibit P1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Call Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Table - 1

Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Scheduler																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Time	12	25	0	53	0	37	0	53	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 2

Time	12	24	0	44	0	36	0	44	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 3

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	12	31	0	42	0	43	0	42	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Table - 4																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 5																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 6																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 7																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 8																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 9																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 10																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 11																
Time	30	130	0	0	0	130	0	20	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 12																
Time	30	90	0	0	0	90	0	25	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 284 - Hwy 21 & Technology_Grand Forest-Scout 85.3 (Standard-9/27/2022 10:53:12 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	5	5	5	10	5	10
Gap Ext	2	5	2	2	2	5	2	2
MAX 1	20	45	20	30	20	45	20	30
Max 2	30	55	30	40	30	55	30	40
Yel Clr	4	5	4	4	4	5	4	4
Red Clr	1	1	1	1	1	1	1	1
Walk	0	5	0	0	0	5	0	5
Ped Clr	0	15	0	0	0	17	0	20
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	60	40	50	40	60	40	50
Max Step	5	5	5	5	5	5	5	5
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																	
Cycle	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	15	31	13	31	17	29	13	31
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 3								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 4								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20															
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0														
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
Actions(4.5)																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33		
Table - 1																																			
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	254		
Aux 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX F: SIGNAL TIMING PARAMETERS

TRAFFIC IMPACT STUDY FOR

FAB1 MANUFACTURING FACILITY

DATE:

January 18, 2023

LOCATION:

Boise, ID

PREPARED FOR:

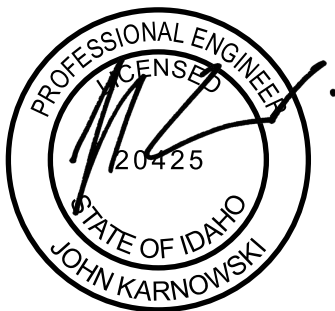
Micron

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1-18-2023

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EXECUTIVE SUMMARY

A new advanced memory fabrication facility, called FAB1, will be located on the Micron R&D campus along S. Federal Way in Boise, ID. FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot “clean” room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots.

The following study scenarios were included:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Project Build with Existing Roadway Conditions

FAB1 will include 2,750 employees of Micron and onsite vendors and, for the purposes of estimating number of trips, is considered a manufacturing land use. The new development will produce 6,174 trips per day with 11% occurring between 7:00 and 8:00 am and 10% occurring between 4:00 and 5:00 pm.

The traffic impact study was conducted in accordance with the approved scoping memorandum and the ACHD Policy Manual. The study network included 12 intersections and four (4) road segments. New traffic counts were collected to set a baseline for the analysis. Traffic growth was estimated using COMPASS’s model output. The expected distribution of auto traffic is approximately 25% to the south via I-84, 10% to the east on SH 21, 10% to the west on Gowen Road and the remaining 55% to the north and west via either Federal Way or I-84. FAB1’s parking lots will be close to the existing Gate C (aka Gigabit Lane). The intersection of Gigabit Lane and S Federal Way will be the primary employee access for the site. Secondary access and parking for utility areas is located on the north side of the campus. Construction traffic will access the site via an extension of Memory Road Rd and the Eisenman exit from I-84. All roads internal to the Micron campus are private roads.

For the **existing traffic conditions**, two (2) intersections were found to have capacity deficiencies.

- Federal Way at Amity Road
 - The typical commute pattern includes a heavy westbound right turn in the morning and a heavy southbound left turn in the evening. The high volume of traffic results in a level of service F in both the AM and PM for the westbound right and a level of service E in the PM for the southbound left. The traffic volume from the small business on the west side of the intersection is very low and should not be a factor in the mitigation. The recommended improvements include:
 - Add a right-turn overlap signal for the westbound right turns

- Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
- Reconfigure the southbound left turn traffic signal for protected-only operation
- Reconfigure the northbound left turn traffic signal for permitted operation
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be right-of-way along Amity Road to accomplish the improvements

- Federal Way at Bergeson Avenue

Similar commute patterns as Amity Road exist along Bergeson Avenue. The westbound right turn volume is high. There is a short acceleration lane but it does not allow for a free-flow movement and therefore long delays for right turning vehicles heading toward Boise. That movement experiences a level of service F in the both the morning and evening peak hours. The split-phased signal hinders efficient operations but it is necessary based on the lane assignments. While there is a delay for the southbound left turn (LOS E), the recommended improvements, combined with the necessary signal re-timing, will bring the intersection to acceptable levels of service. An illustration of the recommendation is below

- Add a channelizing island for the westbound right turn movement
- Add a right-turn overlap signal for the westbound right turn movement
- Extend the left turn lane on Bergeson to a total of 500 feet to allow for thru and right turning vehicles to bypass the queue
- Change the eastbound shared left-thru lane to an exclusive left turn lane
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be sufficient right-of-way to accomplish the improvements.



When general growth in traffic volume is added to the existing conditions (i.e., background growth), the aforementioned conditions will naturally worsen but no new intersections be negatively impacted. Federal Way at Bergeson Street will degrade to an overall v/c ratio of 0.94. Per ACHD policy, this would require additional improvements. There are no solutions other than adding more capacity on Federal Way (i.e., three thru lanes in each direction) that would improve the v/c to acceptable levels. However, this solution would require extensive construction and may not be feasible considering topography and right-of-way limitations. The overall level of service would be a D with the improvements recommended for the existing condition. No additional improvements are recommended.

For the build-out of the site, the new traffic will negatively impact the unsignalized Gate B at S Federal Way intersection. While a traffic signal is not likely to be justified with the new traffic, the delays for the left turning traffic leaving the Micron campus will be high. The following is options are recommended:

- Install traffic signal
- < OR >
- Eliminate left turns leaving Micron's Campus

Memory Road will be extended to the east through a temporary easement to provide construction access to the site. A detailed analysis of construction traffic is not a part of this study. However, since the road does not currently exist, the intersection with S Federal Way will need to be modified. The following is the recommended configuration to accommodate the construction traffic, subject to more detailed analysis:

- Re-configure the southbound approach to the intersection to include a left turn lane
 - Restripe the existing flush median
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane

Federal Way at Bergeson Street will degrade to an overall v/c ratio of 0.95. As discussed above, no additional improvements are recommended.

The recommendations for mitigation to the impacts identified above are summarized in the table that follows. In general, the impacts from the site are manageable by the roadway network. S Federal Way is primarily utilized by Micron's current operations with a few additional businesses nearby. The four-lane road has capacity to spare and can accommodate the additional load from FAB1. Similarly, the interchange of Eisenman Road and I-84 is underutilized and, based on the proximity of FAB1, should be the primary access point of choice for employees, delivery vehicles, and contractors.

Intersection Mitigation Summary

Int	Intersection	Control	Recommended Improvements		
			2022 Existing Traffic	2025 Traffic	2025 Traffic with Project
3	Memory Rd & Federal Way/I-84 WB Off-Ramp	Side Street Stop	None	None	- Re-configure the southbound approach to the intersection to include a left turn lane - Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
5	Federal Way at Gate B	Side Street Stop	None	None	Install traffic signal < OR > Eliminate left movement out of Micron's campus
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	None	None	None
8	Gowen Rd at Federal Way	Signal	None	None	None
10	Gowen Rd at I-84 EB Ramp	Signal	None	None	None
15	Federal Way at Amity Rd	Signal	- Add a right-turn overlap signal for the westbound right turns - Construct dual southbound left turn lanes - Add 1000 foot receiving lane east of the intersection - Reconfigure the southbound left turn signal for protected-only operation - Reconfigure the northbound left turn signal for permitted operation - Remove the split-phased operation and retime signal	No additional improvements	No additional improvements
16	Federal Way at Bergeson Ave	Signal	- Add a channelizing island for the westbound right turn movement - Add a right-turn overlap signal for the westbound right turn movement - Extend the left turn lane on Bergeson to a total of 500 feet - Change the eastbound left-thru lane to an exclusive left turn lane - Remove the split-phased operation and retime signal	No additional improvements	No additional improvements

The following table shows the new site traffic at each intersection as a percentage of total volume.

No.	Intersection	AM	PM
1	Eisenman Rd at I-84 EB Ramp	59.7%	45.1%
2	Eisenman Rd at I-84 WB On-Ramp	71.2%	57.2%
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	80.8%	63.3%
4	Federal Way at Gate C	77.3%	62.7%
5	Federal Way at Gate B	17.7%	15.2%
6	Federal Way at Silicon Ln	12.9%	9.9%
7	Gowen Rd at Technology Way/Grand Forest Dr	8.5%	6.0%
8	Gowen Rd at Federal Way	6.6%	4.6%
9	Gowen Rd at I-84 WB Ramp	6.1%	3.7%
10	Gowen Rd at I-84 EB Ramp	6.2%	3.5%
11	Technology Way at Circuit Ln	16.3%	15.6%
13	Federal Way at Gate A	28.6%	25.7%
14	Gowen Rd at Warm Springs Ave	11.4%	7.3%
15	Federal Way at Amity Rd	3.0%	2.0%
16	Federal Way at Bergeson Ave	1.1%	0.8%

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Proposed Development

The Micron R&D facility located along S. Federal Way in Boise, ID will be the site of a new Fab (an advanced memory fabrication facility). The facility, called FAB1, will utilize both undeveloped and developed area within Micron's larger campus. In conjunction with FAB1, a new childcare facility will be constructed along S. Federal Way, opposite Gate A. The childcare facility is not part of this study but is considered in the future build traffic volume and analysis. A separate, limited traffic study was conducted for the childcare facility.

FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot "clean" room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots. FAB1 will support approximately 2000 new Micron employees plus 750 new onsite vendor/contractor employees. For the purposes of this study, the entire FAB1 development will be considered a manufacturing facility with 2,750 employees.

FAB1 is expected to commence limited operation in the end of the second quarter of 2024, and be fully operational with the full complement of employees by 2025.

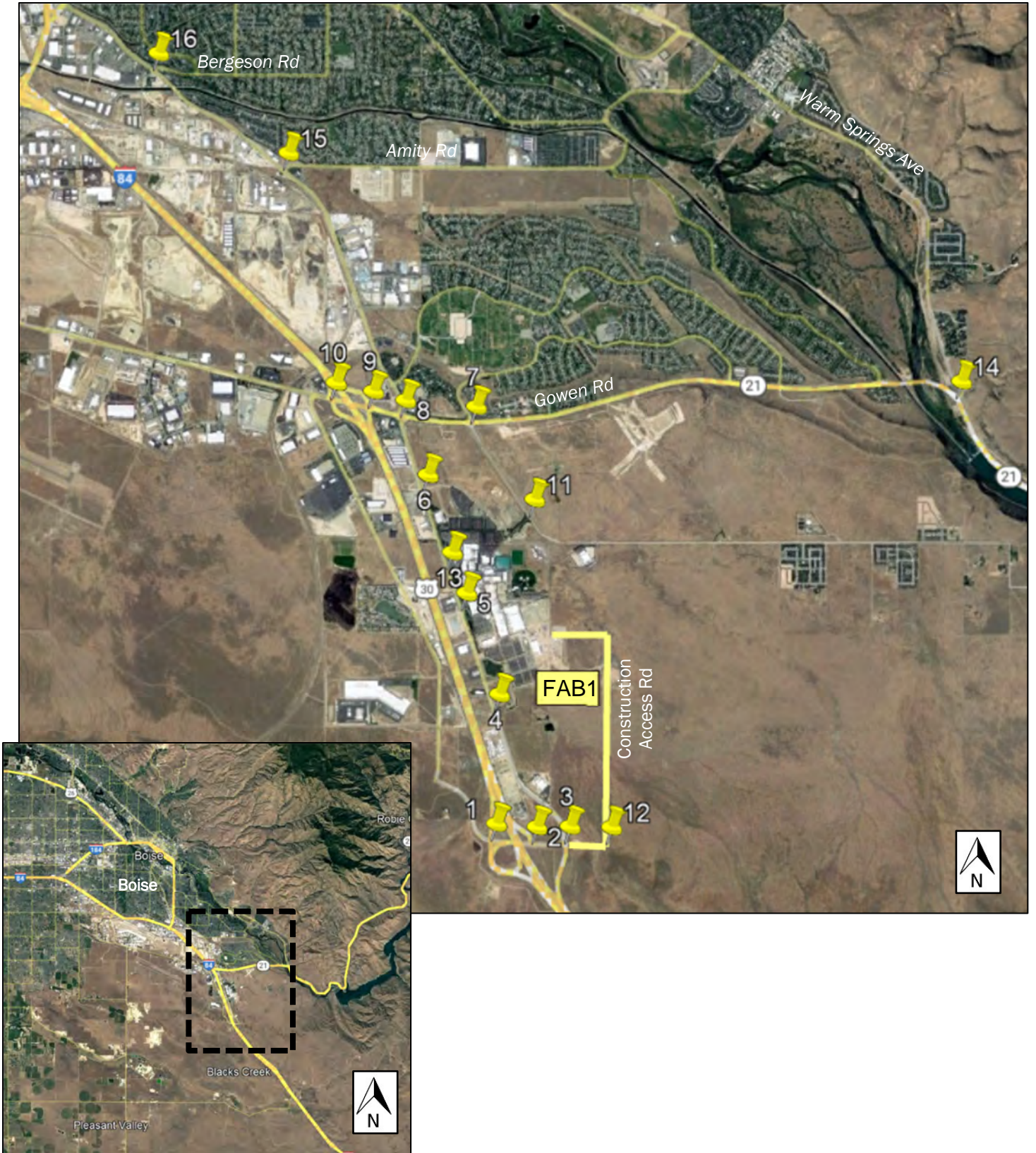
The following intersections and road segments (as illustrated in Figure 1) are included in this study:

- Intersections
 1. Eisenman Rd & I-84 EB Ramp
 2. Eisenman Rd & I-84 WB On-Ramp
 3. Memory Rd & S Federal Way/I-84 WB Off-Ramp
 4. S Federal Way & Gate C / Gigabit Ln (signal)
 5. S Federal Way & Gate B
 6. S Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & S Federal Way (signal)
 9. Gowen Road & I-84 WB Ramp (signal)
 10. Gowen Road & I-85 EB Ramp (signal)
 11. Technology Ln & Circuit Way
 12. ~~Memory Rd & Construction Access Road~~ (not studied)
 13. S Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)

- Segments
 - A. S Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn S Federal Way and Technology Way
 - C. Memory Road, Btwn I-84 WB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way

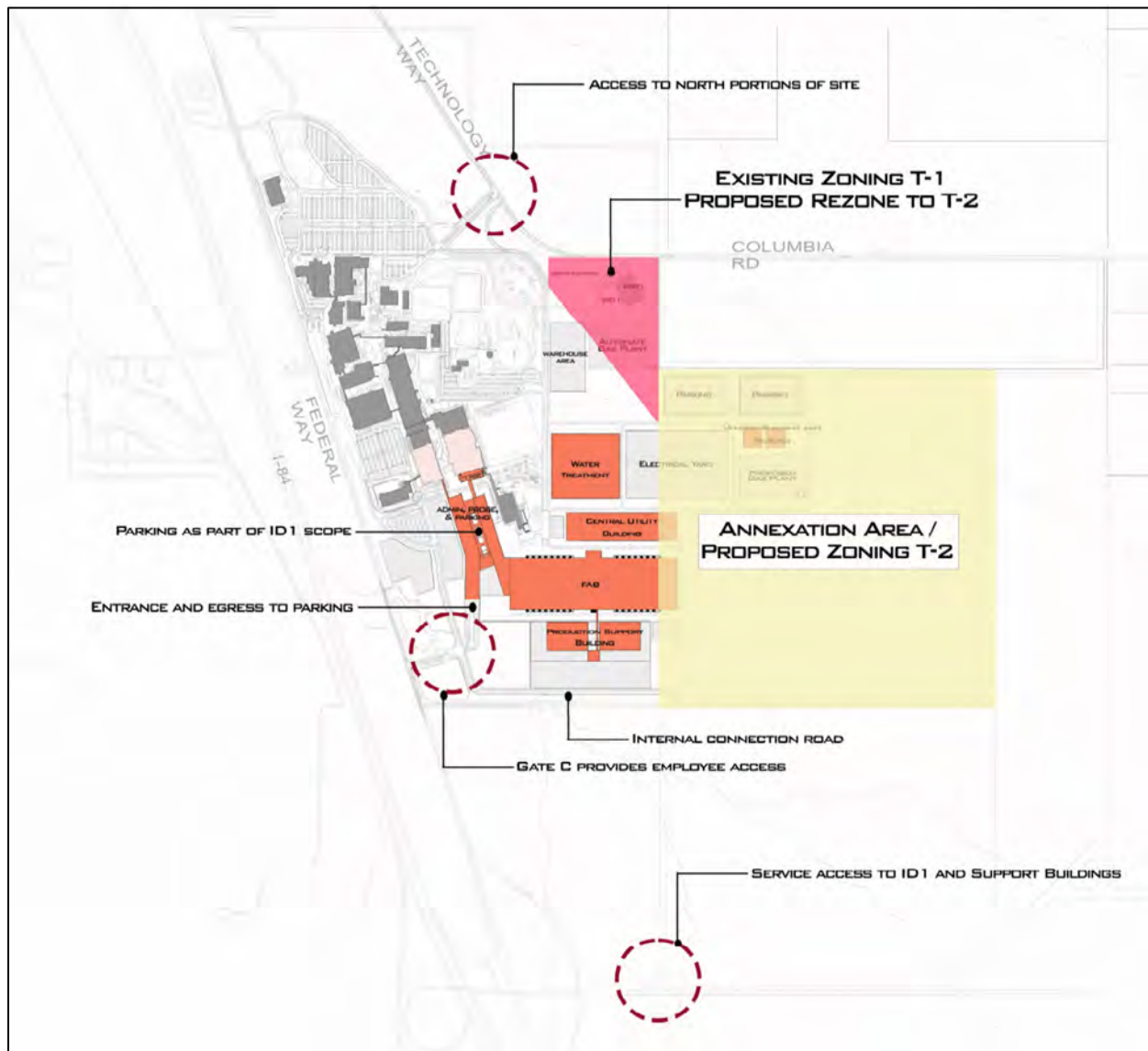
Figure 1 shows the general location of the Fab on Micron's campus. The site plan is shown in Figure 2.

Figure 1. Vicinity Map



Traffic Impact Study for
FAB1 - Micron
NV5-3122133.00

Figure 2. Site Plan



***See Appendix A for a more detailed site plan

Existing Conditions

A.1. Transportation Facilities

A.1.1. Roadways

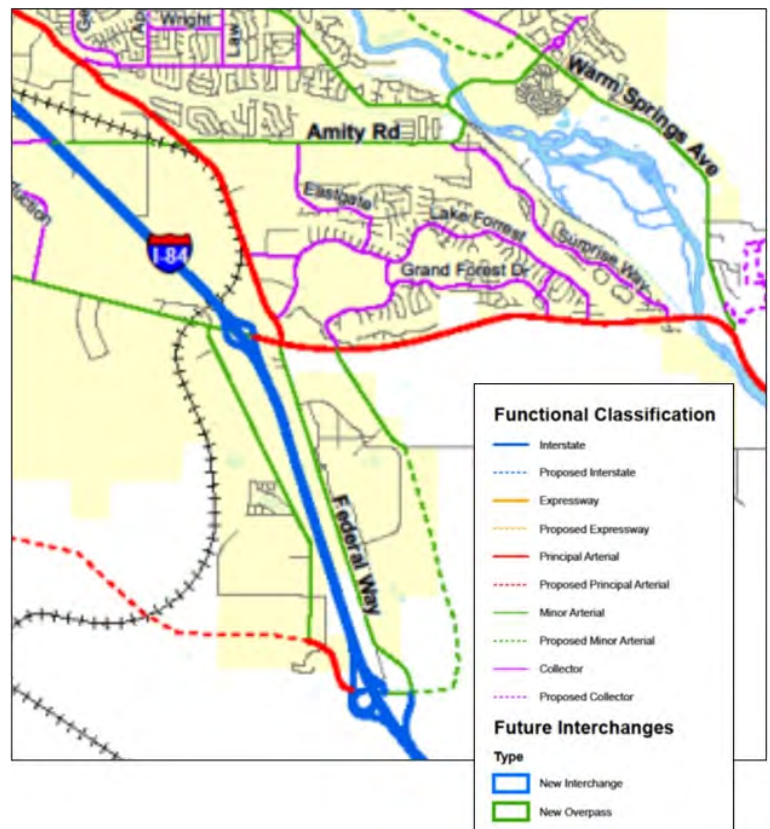
S. FEDERAL WAY is a four-lane arterial with a posted speed limit that varies between 35 and 45 MPH within the vicinity of the study area. The section of S. Federal Way that is south of Gate B is a two-lane divided roadway, and the section between Gate B and Technology Lane has a center two-way left-turn lane. S. Federal Way originates as the north leg of its intersection with Memory Road and the I-84 westbound exit ramp, and heads in a primarily northerly direction, before ending at US 20/26.

The speed limit of S. Federal Way changes to 40 MPH north of its intersection with E. Gowen Road. S. Federal Way is classified as a Minor Arterial roadway south of its intersection with E. Gowen Road. To the north, it is classified as a Principal Arterial roadway. Land uses within the study area are primarily industrial, with residential and commercial uses north of E. Gowen Road.

E. GOWEN ROAD (SH 21) is a four-lane undivided principal arterial with a posted speed limit of 35 MPH near the Micron Campus. The roadway narrows to a two-lane roadway east of its intersection with Technology Way / Grand Forest Drive and the speed limit eventually increases to 55 MPH. Land uses in the study area are industrial, commercial, residential, and undeveloped.

MEMORY ROAD / EISENMAN ROAD is a four-lane undivided Minor Arterial and has a posted speed limit of 35 MPH. Memory Road originates as the west leg of the intersection with S. Federal Way and the I-84 westbound exit ramp and runs west to its intersection with the I-84 westbound ramp where it becomes S. Eisenman Road. There are no developed uses along Memory Road but there is a new convenience store at the corner in the northwest corner of Eisenman Road and the I-84 EB off ramp.

AMITY ROAD is a two-lane undivided Minor Arterial with a posted speed limit of 45 MPH. The road runs east from its intersection with S. Federal Way towards Warm Springs Avenue. Land uses along its length are residential and industrial.



E. WARM SPRINGS AVENUE is a two-lane undivided Minor Arterial roadway with a posted speed limit of 45 MPH. The road runs north from its intersection with SR 21 to the Riverland East and Barber Valley neighborhoods. At the intersection with SH 21, there is a fourth leg that is a maintenance access driveway to a water pump station. This driveway, which has little or no volume, was not factored into the analysis.

E. GRAND FOREST DRIVE AND E. BERGESON STREET are collector roads that lead to several residential developments. They both have a posted speed limit of 30 MPH.

S. GIGABIT LANE (AKA GATE C), TECHNOLOGY LANE (AKA GATE A), SILICON LANE, AND CIRCUIT LANE are private roadways accessing the Micron Facilities.

Table 1: Roadway Classification

Roadway	Segment	Functional Classification
Gowen Rd (SH 21)	I-84 to Warm Springs Rd	Principal Arterial
S. Federal Way	Bergeson Rd to Gowen Rd	Principal Arterial
S. Federal Way	Gowen Rd to Memory Rd	Minor Arterial
Technology Way	Gowen Rd to Circuit Ln	Minor Arterial
Amity Rd	S. Federal Way to Surprise Way	Minor Arterial
Bergeson Rd	S. Federal Way to Apple St	Collector
Grand Forest Dr	Gowen Rd to Gowen Rd	Collector
Warm Springs Rd	Gowen Rd to Eckert Rd	Minor Arterial
Eisenman Rd / Memory Rd	I-84 to S. Federal Way	Minor Arterial
Columbia Rd	Circuit Ln to End	Unclassified / Local Road

A.1.2. Transit Service

There are no fixed-route transit services in the study area that would serve the Micron campus.

A.1.3. Bicycle and Pedestrian Facilities

There are sidewalks/multi-use paths on the south side of Gowen Road (SH 21), west of S. Federal Way; on the north side of Gowen Road between S. Federal Way and Technology Way; on both sides of Federal Way, north of Gowen Road; and, on the east side of S. Federal Way, south of Gowen Road for 1.25 miles.

Gowen Road has bike lanes west of S. Federal Way. S. Federal Way has bike lanes north of Gowen Road and for a few hundred feet south of Gowen Road. Technology Way features a southbound bike lane between Gowen Road and Circuit Lane.

A.1.1. Geometrics

The specific roadway lanes, traffic control, and turn bay lengths are shown in Figure 3. The future extension of Memory Road and the Fab construction access road are shown on the plan for context. Similarly, the access point to the new childcare center opposite Gate A is shown.

A.2. Traffic Volume

Daily (24-hour) counts, and intersection turning movement counts were recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Counts were taken on September 22, 2022 for all locations except at intersection 13. Those counts were taken April 26, 2022 as part of the aforementioned childcare center traffic study. **A single common peak hour was determined for all intersections; the AM Peak Hour is 7:00 to 8:00 am and the PM Peak Hour is between 4:00 and 5:00p.** There are small deviations in the peak hour times from the chosen peak hour along S Federal Way in the vicinity of the Micron campus but the differences are not significant.

There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low. For the purposes of this study, and to be conservative in the results, the site traffic for the new Fab is assumed to be concentrated in the typical AM and PM peak hours.

Existing traffic volumes are shown in Figure 4. The peak hour volumes are shown in Table 2 and the segment volumes are shown in Table 3.

Table 2: Existing Peak Hour Turning Movement Volume

DIR	Intersection Number															
	1		2		3		4		5		6		7		8	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	27	5	0	0	0	1	50	6	596	93	0	0	4	6	110	251
SBT	0	0	0	0	0	0	21	36	108	34	778	153	38	13	284	62
SBR	50	71	0	0	16	128	0	0	4	0	3	1	126	117	306	385
NBL	0	0	0	0	11	25	0	0	0	0	0	0	142	167	43	515
NBT	0	0	0	0	16	15	18	26	20	144	60	742	33	30	51	326
NBR	0	0	0	0	0	0	32	4	2	3	0	0	11	30	10	60
EBL	0	0	32	30	39	12	0	0	0	2	2	1	51	212	270	521
EBT	39	32	41	13	1	0	0	0	0	0	0	0	187	484	284	593
EBR	34	43	0	0	0	0	0	0	0	0	1	0	166	174	483	111
WBL	7	50	0	0	0	0	4	67	1	6	3	1	29	13	60	9
WBT	17	35	23	83	1	1	0	0	0	0	0	0	384	286	413	423
WBR	0	0	4	72	0	0	7	101	31	538	20	145	9	8	113	85

DIR	Intersection Number													
	9		10		11		13		14		15		16	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	0	0	765	923	0	0	103	11	10	44	240	461	208	468
SBT	0	0	0	0	93	174	445	69	0	1	430	628	486	857
SBR	0	0	295	211	141	29	0	0	111	112	0	0	46	8
NBL	26	36	0	0	12	1	0	0	0	0	0	1	27	43
NBT	0	0	0	0	169	147	35	649	1	1	406	577	581	707
NBR	25	61	0	0	0	0	3	0	0	1	40	150	223	258
EBL	165	349	0	0	21	73	0	0	74	131	0	1	41	26
EBT	1005	1156	375	604	0	0	0	0	95	246	0	0	11	57
EBR	0	0	28	49	3	11	0	0	2	4	0	1	17	32
WBL	0	0	35	67	0	0	2	9	0	1	114	90	230	229
WBT	198	335	200	300	0	0	0	0	153	142	0	0	27	40
WBR	555	1009	0	0	0	0	3	38	22	18	380	368	346	338

Table 3: Segment ADTs

Road Segment	ADT*	%HV
Federal Way, South of Silicon Way	8,000	4.2%
Gowen Road, Btwn Federal Way and Technology Way	6,800	7.6%
Memory Rd, Btwn I-84 NB On-Ramp and Federal Way	1,000	unk
Technology Way, Btwn Gowen Road and Circuit Way	2,900	4.8%
Columbia Road, east of Circuit Way	3,350	0.4%

*Values rounded to nearest significant digit

Figure 3. Roadway Geometrics

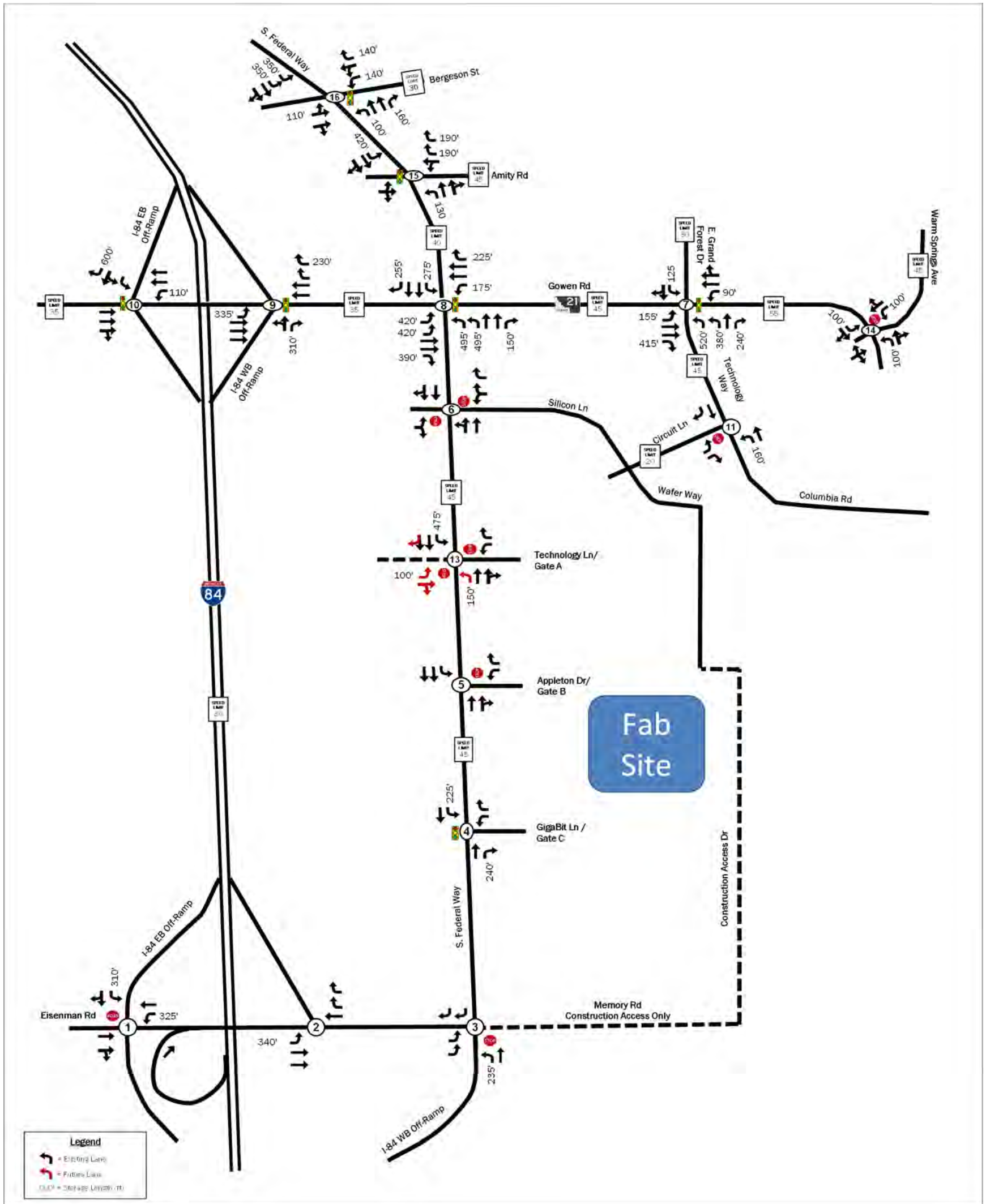
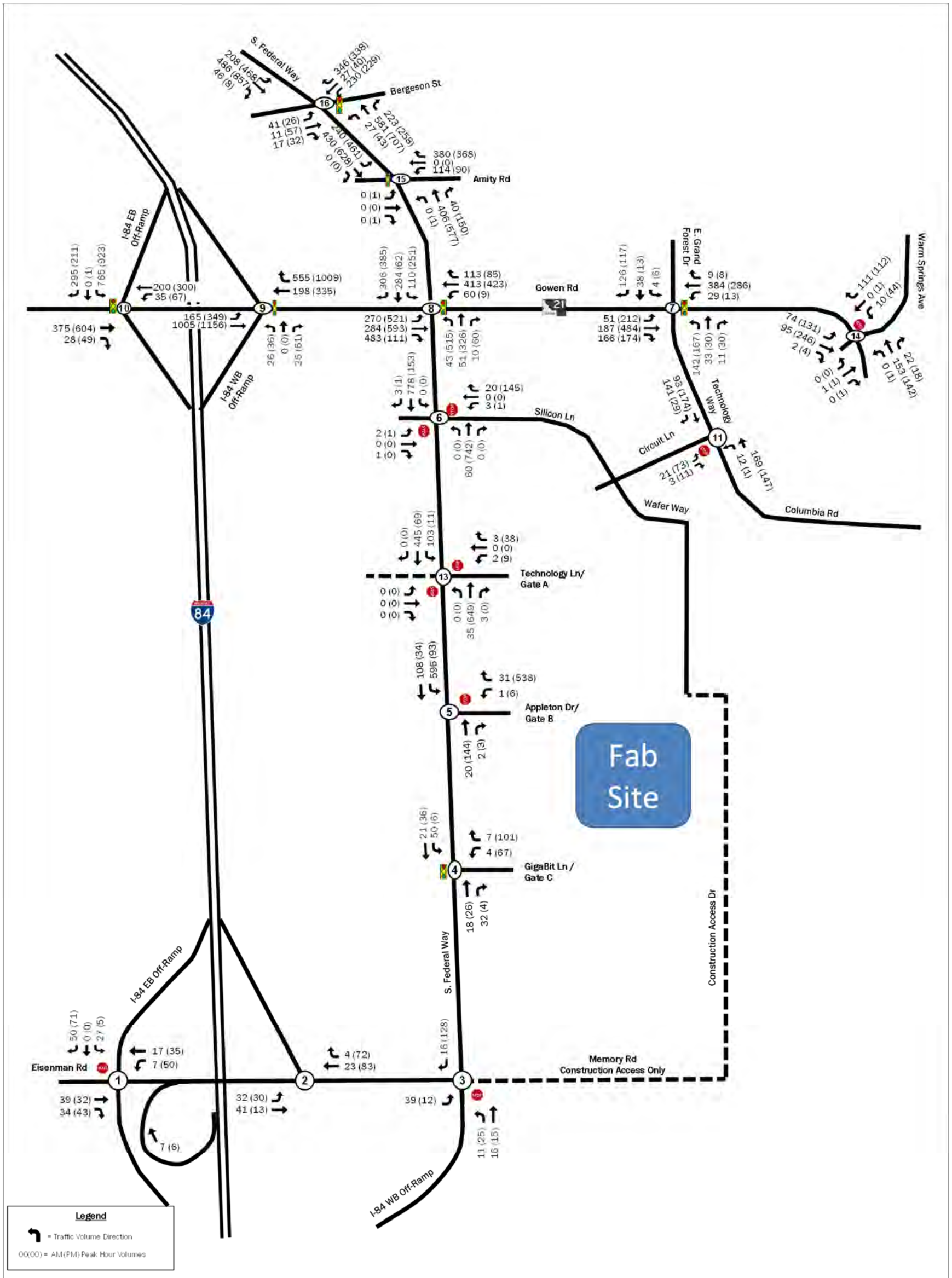


Figure 4. Existing Traffic Volumes (2022)



A.3. Existing Levels of Service

The LOS is based on the Highway Capacity Manual (6th Ed.), as calculated in the software Synchro® 11. Table 4 shows the criteria used to determine level of service for signalized, unsignalized, and roundabout intersections. Table 5 shows the level of service criteria for segments as outlined in ACHD standard 7106.4. The values shown are one-way, peak hour volumes.

Table 4: Level of Service Criteria

Level of Service	Average Control Delay		
	Signal	Stop Control	Roundabout
A	0 - 10	0 - 10	0 - 10
B	>10 - 20	>10 - 15	>10 - 15
C	>20 - 35	>15 - 25	>15 - 25
D	>35 - 55	>25 - 35	>25 - 35
E	>55 - 80	>35 - 50	>35 - 50
F	>80	>50	>50

Table 5: ACHD Segment Capacity Guidelines

Functional Classification		Lanes	Volume Thresholds	
			D	E
Princ. Arterials	No Left-turn Lane	1	600	690
	Continuous TWTL	1	770	880
		2	1,680	1,780
		3	2,560	2,720
	Median Control, Channelized Left-turn Lanes	1	850	920
		2	1,860	1,960
3		2,800	3,000	
Minor Arterials	No Left-turn Lane	1	540	575
	Continuous TWTL	1	675	720
		2	1,395	1,540
		3	2,155	2,370
	Median Control, Channelized Left-turn Lanes	1	710	770
		2	1,465	1,670
3		2,270	2,530	
Coltrs.	No Left-turn Lane	1	425	525
	Continuous TWTL	1	530	660
		2	1,080	1,250

Many of the analysis parameters are established by ACHD. These are shown in Appendix D. The results of the existing conditions analysis are shown in Table 6. Movements that appear highlighted in red are LOS F and those in orange are LOS E. Table 7 shows the segment analysis for the roadways that are proximate to the development.

Table 6: Intersection Level of Service Results – Existing Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.05	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	A	9.9	0
			SBR	-	0.07	A	9.1	4	0.11	A	9.4	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.03	A	8.0	2	0.04	A	8.6	2
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	0.10	A	5.3	-	0.16	A	7.8	-
			WBL	-	0.16	A	9.3	5	0.28	A	7.4	18
			WBR	-	0.32	B	11.8	4	0.48	A	8.5	11
			NBT	-	0.04	A	4.1	7	0.09	A	5.6	9
			NBR	240	-	A	0.0	7	-	A	0.0	2
			SBL	225	0.09	A	4.4	13	0.01	A	5.7	3
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	26.4	0
			WBL	-	0.02	F	57.4	2	0.02	B	12.5	0
			WBT	-	0.04	A	8.5	2	0.69	C	16.9	116
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.08	A	7.8	6
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.03	C	22.9	2	0.01	C	20.4	0
			EBR	-	0.01	B	14.9	0	-	A	0.0	-
			WBL	-	0.01	B	12.2	0	0.01	C	18.1	0
			WBR	-	0.02	A	8.7	2	0.40	C	16.0	38
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.35	C	22.3	-	0.42	B	17.9	-
			EBL	155	0.11	A	5.1	38	0.34	A	5.6	116
			EBT	-	0.11	A	6.2	73	0.23	A	6.7	156
			EBR	415	-	A	0.0	23	-	A	0.0	34
			WBL	90	0.04	A	5.0	24	0.02	A	6.7	11
			WBTR	-	0.21	A	7.1	152	0.17	A	8.4	116
			NBL	520	0.78	E	73.1	111	0.80	E	69.0	119
			NBT	-	0.22	E	60.4	59	0.20	E	56.3	55
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.06	E	62.5	16
8	Gowen Rd at Federal Way	Signal	Overall	-	0.49	C	30.5	-	0.79	E	62.9	-
			EBL	420	0.27	C	29.1	159	0.95	F	92.3	443
			EBT	-	0.21	C	23.8	80	0.51	D	37.6	383

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			EBR	390	-	A	0.0	63	-	A	0.0	42
			WBL	175	0.55	D	44.0	78	0.35	F	93.3	34
			WBT	-	0.78	D	44.4	162	0.63	E	64.6	335
			WBR	225	-	A	0.0	14	-	A	0.0	43
			NBL	495	0.41	D	44.2	29	0.93	F	88.4	406
			NBT	-	0.18	D	36.6	27	0.46	D	53.7	248
			NBR	150	0.07	D	36.0	0	0.17	D	48.9	9
			SBL	275	0.35	C	32.4	77	0.65	D	45.4	285
			SBT	-	0.59	D	36.8	111	0.09	E	55.7	59
			SBR	255	0.47	A	4.9	43	0.74	D	47.1	479
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.34	A	5.4	-	0.54	A	7.8	-
			EBL	335	0.23	A	3.3	36	0.49	A	3.9	97
			EBT	-	0.32	A	2.6	67	0.34	A	2.7	100
			WBT	-	0.10	B	13.0	22	0.18	A	6.6	88
			WBR	230	-	A	0.0	0	-	A	0.0	18
			NBLT	-	0.26	D	39.1	39	0.40	E	57.6	64
			NBR	310	0.29	D	39.9	0	0.83	E	72.9	20
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.42	D	54.8	-	0.58	D	47.6	-
			EBTR	-	0.18	B	17.5	157	0.35	C	23.4	217
			WBL	110	0.07	B	13.7	45	0.21	B	17.7	64
			WBT	-	0.11	B	13.0	100	0.18	B	15.9	121
			SBL	-	0.92	F	80.9	598	0.96	E	79.9	761
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	11.3	2	0.16	B	12.6	12
			EBR	-	-	A	0.0	0	-	A	0.0	-
13	Federal Way at Gate A	Side Street Stop	NBL	160	0.01	A	7.4	0	0.00	A	7.7	0
			WBL	-	0.01	C	16.4	0	0.08	C	23.9	6
			WBR	-	0.01	A	8.5	0	0.13	B	12.4	8
			NBL	150	-	A	0.0	0	-	A	0.0	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	SBL	475	0.10	A	7.5	6	0.02	A	9.8	2
			EBL	100	0.07	A	7.9	4	0.11	A	7.9	8
			SBL	100	0.02	B	12.6	2	0.21	C	20.9	16
15	Federal Way at Amity Rd	Signal	SBR	-	0.15	B	10.1	10	0.18	B	10.1	12
			Overall	-	0.50	D	53.8	-	0.76	D	47.4	-
			EBLTR	-	0.00	A	0.0	-	0.46	F	126.3	-
			WBLT	-	0.57	D	46.8	143	0.53	D	54.7	141
			WBR	190	1.25	F	177.7	24	1.27	F	199.6	52
			NBL	130	0.00	A	0.0	0	0.00	A	10.4	3
			NBTR	-	0.27	A	9.5	196	0.49	B	19.1	486
16	Federal Way at	Signal	SBL	420	0.40	A	5.8	140	0.95	B	20.4	537
			SBTR	-	0.18	A	3.9	117	0.30	A	8.7	188
			Overall	-	1.28	D	37.3	-	1.57	D	46.9	-
			EBLTR	-	0.68	E	62.5	45	0.71	E	69.4	71

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
	Bergeson Ave		WBL	140	0.30	C	31.9	265	0.68	D	39.1	325
		WBT	-	0.00	A	0.0	283	0.00	A	0.0	348	
		WBR	140	0.96	E	73.1	72	0.95	F	80.5	82	
		NBL	100	0.15	C	27.7	16	0.19	C	25.4	12	
		NBT	-	0.59	C	31.5	128	0.64	D	35.3	133	
		NBR	160	0.52	C	32.1	7	0.54	D	34.0	5	
		SBL	350	0.50	D	43.4	121	0.97	F	85.3	335	
		SBTR	-	0.42	C	20.7	216	0.59	C	26.7	451	

Table 7: Segment Level of Service Results – Existing Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Pk Hr (Dir)*	Pk Dir Vol	Threshold		LOS
							LOS D	LOS E	
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	AM (SB)	782	1,395	1,540	>D
B	Gowen Road, West of Technology Way	Principal Arterial	2	Continuous LT Lane	PM (EB)	870	1,680	1,780	>D
C	Memory Road, West of Federal Way	Minor Arterial	2	Continuous LT Lane	PM (WB)	153	1,395	1,540	>D
D	Technology Way, South of Gowen Road	Minor Arterial	1 NB 2 SB	No LT Lane	PM (NB)	233	540	575	>D

*Highest peak hour volume in one direction

A.4. Existing Conditions Mitigation

Federal Way & Amity Road (signal)

Amity Road is uniquely situated in an area that funnels traffic from the east towards Federal Way. There is a large volume of traffic in the AM Peak hour that turns right onto Federal Way towards Boise and the surrounding communities and performs the reverse pattern in the PM Peak hour.

To resolve the PM Peak hour deficiency, adding a southbound left turn lane in the existing gore area is feasible. However, while there are two receiving lanes on Amity Road, one lane is not very long short. This will have the effect of creating an uneven distribution of traffic in the dual left turn lanes. There should be a minimum of 1000 feet of two lanes heading east on Amity Road to make the dual left turns effective.

One possible geometric improvement is to create a free-flow right turn lane in the westbound direction. This would mean adding a receiving lane on Federal Way, north of the intersection for at least 1000 feet. The improvement would require significant work since there is a sidewalk along the east side of Federal Way and a business with limited offset space from the sidewalk. The road would need to be widened on the west side, which would extend the construction limits. While adding a free-flow right turn would allow for acceptable levels of service in the AM Peak Hour, it is a departure

from recent ACHD practice regarding pedestrian safety. Another solution would be to use the time allocated for the southbound left turn and give the westbound right turns an overlap signal.

The greatest inefficiency in the traffic signal is the split-phased operation. Because the west side of the intersection is a very low volume private driveway, it isn't necessary to operate the intersection as split phased. The westbound left turn phase can be eliminated in favor a permissive movement – shared with the westbound thru.

Recommendation(s):

- Add a right-turn overlap signal for the westbound right turns
- Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
- Reconfigure the southbound left turn traffic signal for protected-only operation
- Reconfigure the northbound left turn traffic signal for permitted operation
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be right-of-way along Amity Road to accomplish the improvements

Federal Way and Bergeson Street (signal)

Similar to Amity Road, Bergeson Street serves a residential area of south Boise with commuter traffic heading towards Federal Way and then north. Unlike the Amity Road intersection, the Bergeson Street intersection already features dual southbound left turn lanes. There is no more room to add additional lanes. In the westbound direction, the right turn lane has a short receiving lane / merge area on Federal Way but the effect on LOS is minimal. Channelizing the right turn with a yield sign would improve the flow of traffic without necessarily affecting pedestrian safety.

Similar to Amity Road, one improvement may be to extend the westbound left to northbound Federal Way acceleration lane and provide a free-flow right turn lane. While this would provide acceptable levels of service for most of movements, it would impact pedestrian safety.

The split-phased signal hinders efficient operations but it is necessary based on the available storage area for westbound left turning traffic. The westbound left turn movement could be separated from the thru movement by extending the storage length on Bergeson to 500 feet. This would allow the right turning traffic to slip by when the left turn lane is backed up. The left turn lane should be the terminus of the westbound Bergeson Street traffic (i.e., the main flow lane) and the through lane and right turn lane would be created to the side. While there is a delay for the southbound left turn (LOS E), the recommended improvements, combined with the necessary signal re-timing, will bring the intersection to acceptable levels of service.

- Add a channelizing island for the westbound right turn movement
- Add a right-turn overlap signal for the westbound right turn movement

- Extend the left turn lane on Bergeson by 250 feet to a total of 500 feet to allow for thru and right turning vehicles to bypass the queue
- Change the eastbound shared left-thru lane to an exclusive left turn lane
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be sufficient right-of-way to accomplish the improvements

Table 8: Intersection Level of Service Results – Mitigation for Existing Conditions

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
15	Federal Way at Amity Rd	- Right-turn overlap - Dual SB left turns - Remove the split-phase	Overall	-	0.43	C	24.2	-	0.62	C	23.7	-
			EBLTR	-	0.00	A	0.0	6	0.01	D	39.5	0
			WBLT	-	0.41	D	40.5	125	0.39	D	44.1	104
			WBR	190	0.61	C	33.8	57	0.45	C	28.2	91
			NBL	130	0.00	A	0.0	0	0.00	B	13.3	4
			NBTR	-	0.30	B	13.9	168	0.54	C	21.0	377
			SBL	420	0.79	D	52.0	127	0.86	D	46.4	215
			SBTR	-	0.19	A	5.6	110	0.27	A	4.7	174
16	Federal Way at Bergeson Ave	- Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase	Overall	-	0.57	C	23.0	-	0.70	C	29.6	-
			EBL	-	0.23	D	37.5	52	0.13	C	33.5	40
			EBTR	-	0.10	C	33.9	27	0.24	C	32.5	83
			WBL	-	0.73	D	45.7	237	0.74	D	49.2	253
			WBT	200	0.08	C	33.7	36	0.10	C	31.0	50
			WBR	500	-	A	0.0	186	-	A	0.0	182
			NBL	100	0.07	B	10.5	21	0.15	B	17.3	26
			NBT	-	0.38	B	15.1	234	0.56	C	25.6	356
			NBR	160	0.33	B	15.3	86	0.47	C	25.4	143
			SBL	350	0.80	D	54.6	117	0.87	D	52.4	225
SBTR	-	0.32	B	11.3	183	0.52	B	16.7	295			

A.5. Safety Analysis

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) was reviewed and is summarized at each of the study intersections and road segments. (See Table 9.) Appendix F includes a more detailed account of crash types at each intersection and road segment. None of the study intersections have crash rates higher than 1.0. No mitigation has been identified.

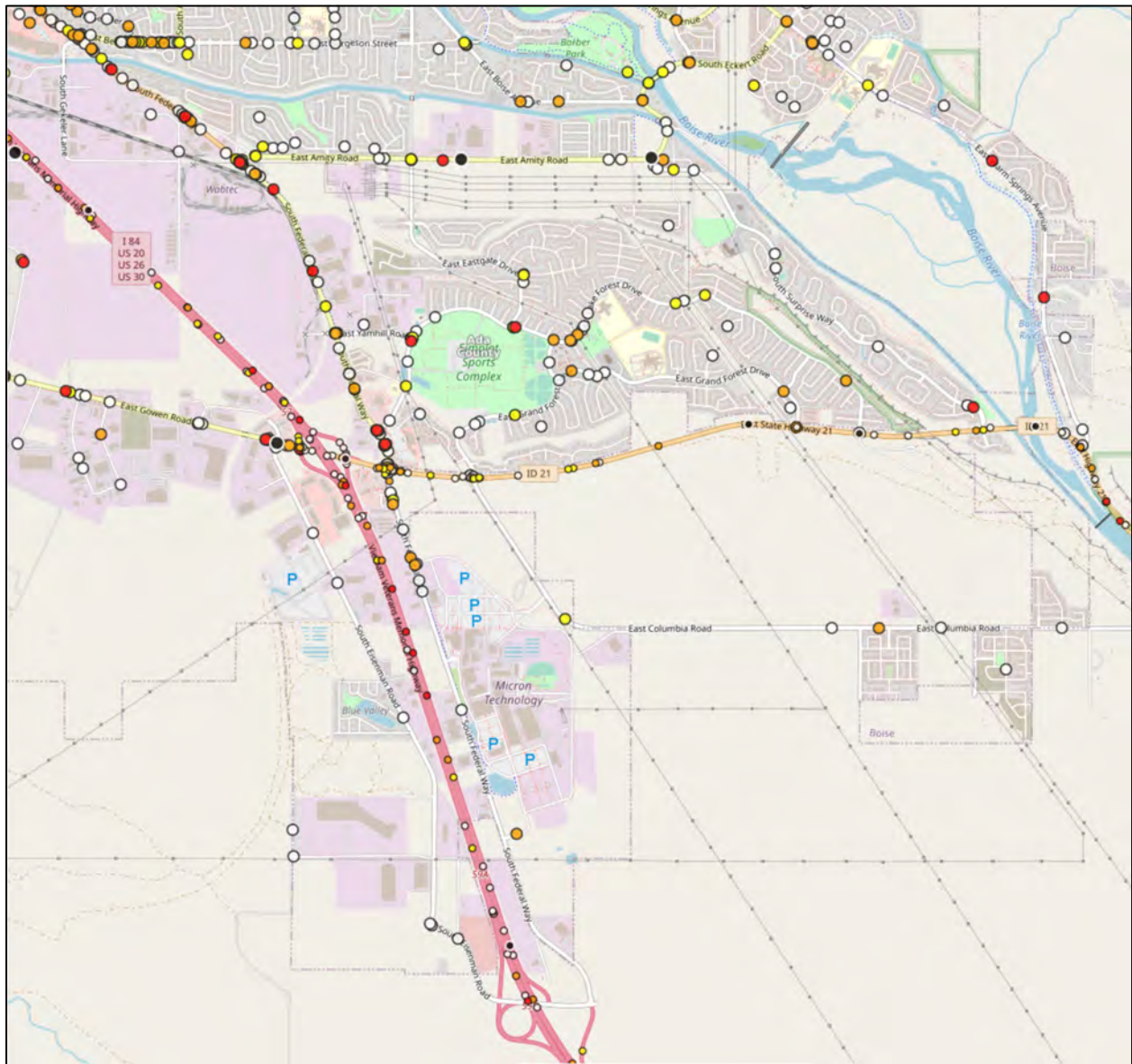
Table 9: Accident Summary

Int No.	Intersection	Total* Crashes	PDO/Inj/Fatal	Crash Rates
1	Eisenman Rd at I-84 EB Ramp	0	0/0/0	0.00
2	Eisenman Rd at I-84 WB On-Ramp	0	0/0/0	0.00
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	1	0/1/0	0.36
4	Federal Way at Gate C	1	0/1/0	0.27
5	Federal Way at Gate B	2	2/0/0	0.16
6	Federal Way at Silicon Ln	3	1/2/0	0.19
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	0.50
8	Gowen Rd at Federal Way	33	22/11/0	0.54
9	Gowen Rd at I-84 WB Ramp	16	5/10/1	0.30
10	Gowen Rd at I-84 EB Ramp	15	12/3/0	0.38
11	Technology Way at Circuit Ln	0	0/0/0	0.00
13	Federal Way at Gate A	0	0/0/0	0.00
14	Gowen Rd at Warm Springs Ave	6	4/2/0	0.88
15	Federal Way at Amity Rd	29	18/11/0	0.70
16	Federal Way at Bergeson Ave	13	9/4/0	0.23

Seg.	Segment	Total* Crashes	PDO/Inj/Fatal	Crash Rates
A	S Federal Way, btwn Gowen Rd and Memory Rd	11	9/2/0	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	44.93
E	Memory Rd, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	13.31

*Total number of crashes between 2017 and 2021

Figure 5. Illustration of Crashes within Study Area



A.6. Data Sources

Traffic counts were collected by Quality Counts, Inc. under contract to NV5. Roadway geometrics were observed by a site visit and field measurements. Level of Service criteria is from in the Highway Capacity Manual, 6th Ed, as shown in Table 4. Segment LOS is from ACHD 7106.4.1 Table 2. Crash data is reported by the Idaho Local Highway Technical Assistance Council. Annual average daily volume used in the calculation of crash rates are provided by ITD AADT on-line reference.

Background Conditions

B.1. Planned Roadway and Approved Development Projects

There is a planned connector road in the Capital Improvement Plan (CIP). The road would go between Memory Road and Columbia Road with a traffic signal on Columbia Road. The alignment of the road has not been determined and no plans currently exist. The road was not considered for this traffic study since the CIP indicates the project will be built in the 2036 to 2040 timeframe.

B.2. Background Data

Future 2025 turning movement conditions were forecast utilizing localized growth rates as provided by COMPASS. Table 10 shows the growth changes from the COMPASS model. Figure 6 shows the recommended annual growth rates for each corridor. These annual rates were applied to existing traffic counts for three years to determine future year background traffic conditions. No other background projects were considered.

Table 10: Growth Rates

Location	2025	2030	Calculated Growth	COMPASS Rate*	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	826	859	0.79%	2.5%	1.08
SH 21 w/o Federal Way	3535	3674	0.77%	1.6%	1.05
SH 21 e/o Federal Way	1747	2332	5.95%	8.0%	1.26
SH 21 e/o Technology Way	1095	1379	4.72%	5.4%	1.17
SH 21 w/o Warm Springs	666	697	0.91%	2.9%	1.09
Federal Way s/o SH 21	1582	1579	-0.04%	1.0%	1.03
Federal Way n/o Yamhill Rd	1011	1403	6.77%	9.6%	1.32
Technology Way, s/o SH 21	824	1314	9.78%	15.1%	1.52
Columbia Rd e/o Circuit Way	593	1023	11.52%	19.7%	1.72
Eisenman Rd/Memory Rd	-	-	-	6.1%	1.19

*This is the rate used in the study

Figure 6. Annual Growth Rates

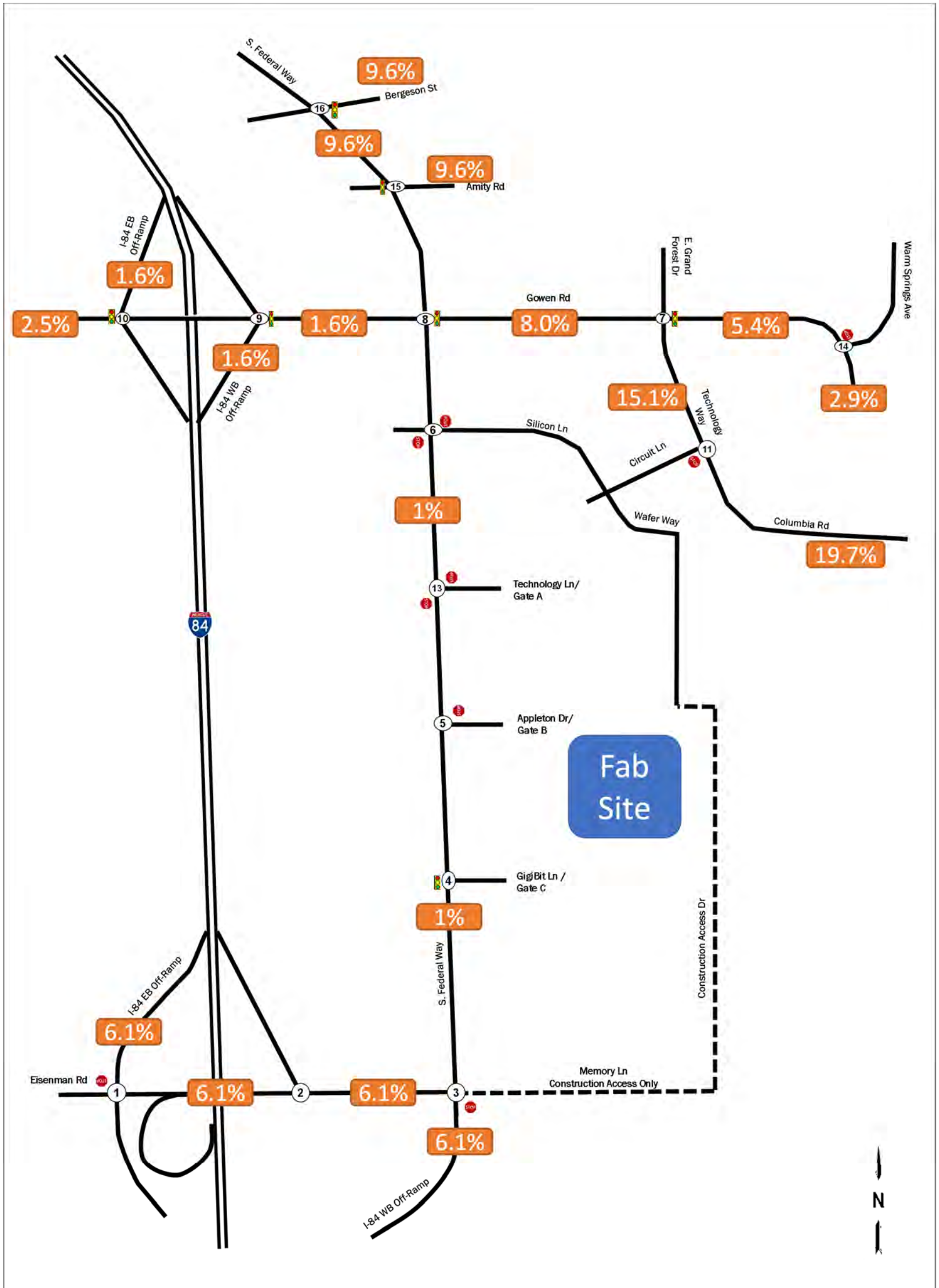
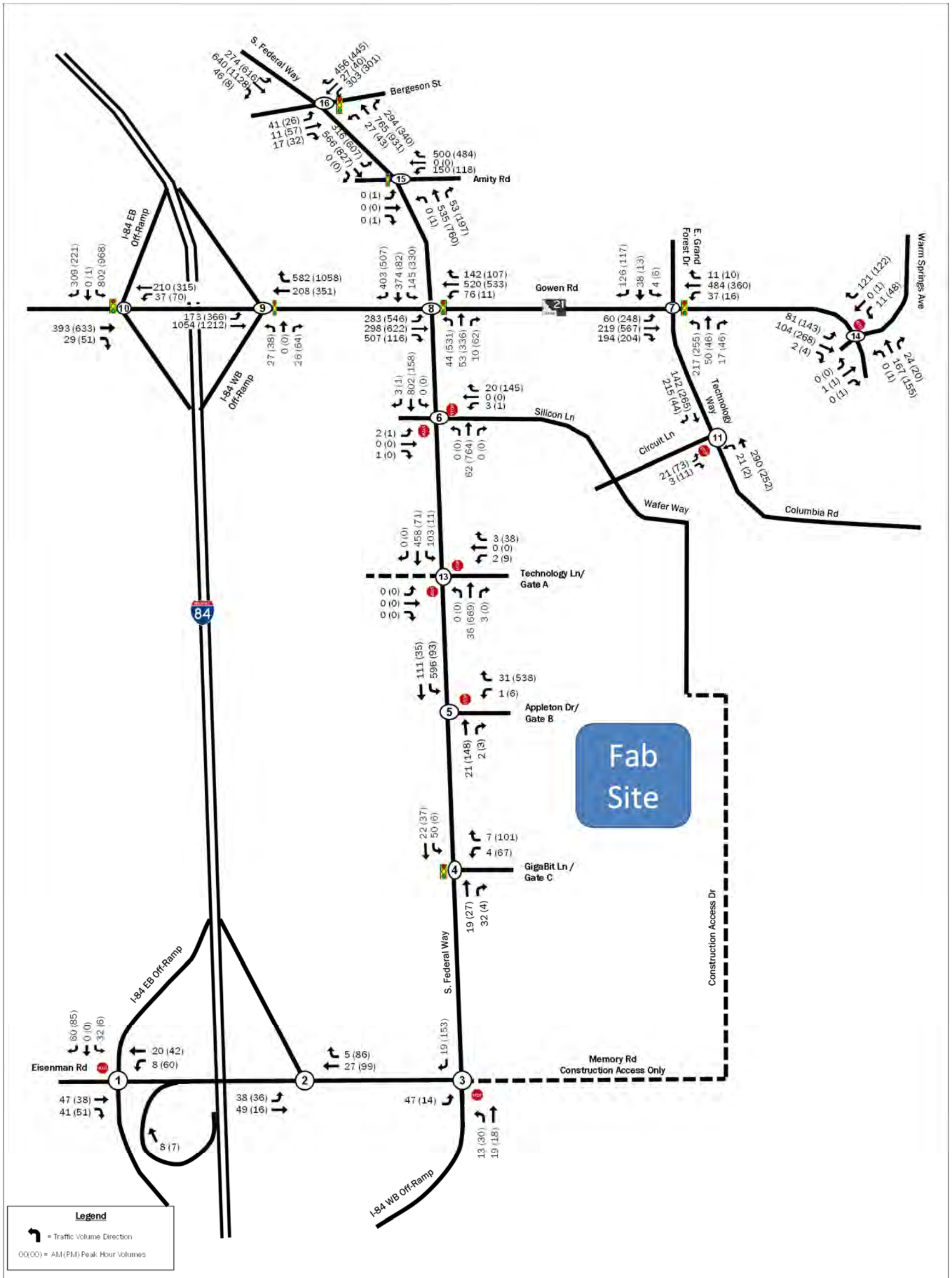


Figure 7. Existing + Background Growth Traffic Volumes (2025)



B.3. Background Levels of Service

The existing plus background growth levels of services for intersections are shown in Table 11. The segment analysis is shown in Table 12.

Table 11: Intersection Level of Service Results – Background Growth Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.05	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	B	10.0	0
			SBR	-	0.07	A	9.1	4	0.10	A	9.4	6
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.03	A	8.0	2	0.03	A	8.6	2
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	0.07	A	5.1	-	0.12	A	7.3	-
			WBL	-	0.14	B	10.2	6	0.26	A	7.5	18
			WBR	-	0.32	B	15.2	8	0.45	A	8.5	13
			NBT	-	0.04	A	4.0	7	0.07	A	5.4	10
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.07	A	4.2	14	0.01	A	5.5	4
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	-	D	25.6	0
			WBL	-	0.02	F	57.3	0	0.01	B	12.0	0
			WBT	-	0.03	A	8.5	2	0.70	C	16.7	118
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Sillcon Ln	Side Street Stop	EBL	-	0.01	C	23.5	0	0.01	C	21.8	0
			EBR	-	0.00	C	15.1	0	-	A	0.0	-
			WBL	-	0.01	B	12.3	0	0.01	C	21.4	0
			WBR	-	0.02	A	8.7	2	0.27	B	13.9	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.36	C	26.9	-	0.51	C	23.0	-
			EBL	155	0.12	A	6.0	43	0.41	A	7.2	137
			EBT	-	0.11	A	7.2	83	0.29	A	8.4	187
			EBR	415	-	A	0.0	39	-	A	0.0	36
			WBL	90	0.05	A	5.7	29	0.03	A	8.7	14
			WBTR	-	0.23	A	8.2	192	0.19	B	10.9	157
			NBL	520	0.84	F	81.1	166	0.86	E	77.5	194
			NBT	-	0.26	E	58.5	84	0.23	D	53.2	77
NBR	240	-	A	0.0	0	-	A	0.0	0			

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	SBL	125	0.04	E	66.8	12	0.06	E	62.3	17
			SBTR	-	0.63	E	78.3	156	0.23	E	65.2	77
			Overall	-	0.61	C	31.1	-	0.88	E	66.9	-
			EBL	420	0.34	C	32.1	191	0.95	F	93.0	482
			EBT	-	0.24	C	25.2	90	0.51	D	37.4	408
			EBR	390	-	A	0.0	203	-	A	0.0	47
			WBL	175	0.64	D	46.8	103	0.35	F	92.5	39
			WBT	-	0.82	D	43.0	208	0.74	E	67.8	436
			WBR	225	-	A	0.0	34	-	A	0.0	76
			NBL	495	0.40	D	44.3	30	0.93	F	87.8	424
			NBT	-	0.18	D	36.5	29	0.52	E	59.8	265
			NBR	150	0.06	D	36.0	0	0.19	D	54.5	13
			SBL	275	0.42	C	30.6	98	0.78	D	49.2	391
			SBT	-	0.69	D	36.8	144	0.12	E	56.0	74
SBR	255	0.65	A	7.8	101	0.94	E	71.1	794			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.34	A	5.4	-	0.55	A	6.4	-
			EBL	335	0.23	A	3.2	37	0.50	A	3.4	95
			EBT	-	0.32	A	2.5	70	0.35	A	2.3	97
			WBT	-	0.11	B	12.8	25	0.18	A	5.8	87
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
			NBR	310	0.28	D	40.1	0	0.79	E	73.0	48
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.42	E	55.2	-	0.57	D	50.6	-
			EBTR	-	0.17	B	18.6	234	0.31	C	23.9	235
			WBL	110	0.07	B	14.8	69	0.20	B	18.2	66
			WBT	-	0.11	B	14.1	150	0.19	B	16.9	127
			SBL	-	0.92	E	79.2	442	0.97	F	83.2	826
			SBTR	600	0.82	E	75.6	50	0.51	D	50.9	69
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	13.1	4	0.18	C	15.0	14
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	B	13.7	0	0.04	C	18.7	2
			WBR	-	0.00	A	8.4	0	0.07	B	11.1	4
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.07	A	7.5	4	0.01	A	9.2	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.07	A	7.8	4	0.11	A	7.9	8
			SBL	100	0.02	B	12.4	2	0.17	C	18.7	12
			SBR	-	0.16	B	10.1	12	0.16	A	9.9	12
15	Federal Way at Amity Rd	Signal	Overall	-	0.72	E	62.5	-	0.99	F	106.4	-
			EBLTR	-	0.00	A	0.0	-	0.46	F	126.3	-
			WBLT	-	0.67	D	51.3	209	0.62	E	59.6	187
			WBR	190	1.46	F	267.1	52	1.67	F	370.6	56
			NBL	130	0.00	A	0.0	0	0.00	B	14.0	3

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
16	Federal Way at Bergeson Ave	Signal	NBTR	-	0.33	B	11.7	273	0.67	C	29.2	740
			SBL	420	0.61	A	7.0	183	1.27	F	153.3	647
			SBTR	-	0.26	A	4.1	159	0.39	A	9.4	222
			Overall	-	1.58	D	54.8	-	1.95	E	77.9	-
			EBLTR	-	0.67	E	62.9	46	0.71	E	69.4	71
			WBL	140	0.39	C	32.8	347	0.41	D	40.0	412
			WBT	-	0.00	A	0.0	361	0.00	A	0.0	434
			WBR	140	1.25	F	170.6	223	1.24	F	177.0	137
			NBL	100	0.18	C	28.5	13	0.28	C	27.6	11
			NBT	-	0.74	C	35.0	246	0.86	D	39.5	258
			NBR	160	0.66	D	35.7	14	0.72	D	37.1	10
			SBL	350	0.63	D	46.0	173	1.28	F	192.5	489
SBTR	-	0.51	C	22.6	296	0.78	D	35.0	731			

Table 12: Segment Level of Service Results – Background Growth Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Pk Hr (Dir)*	Pk Dir Vol	Threshold		LOS
							LOS D	LOS E	
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	AM (SB)	806	1,395	1,540	>D
B	Gowen Road, West of Technology Way	Principal Arterial	2	Continuous LT Lane	PM (EB)	1019	1,680	1,780	>D
C	Memory Road, West of Federal Way	Minor Arterial	2	Continuous LT Lane	PM (WB)	183	1,395	1,540	>D
D	Technology Way, South of Gowen Road	Minor Arterial	1 NB 2 SB	No LT Lane	PM (NB)	347	540	575	>D

*Highest peak hour volume in one direction

B.4. Background Growth Conditions Mitigation

Federal Way and Bergeson Street (signal)

With the improvements identified for the existing conditions deficiency, the overall volume to capacity will still degrade to 0.94 in the future condition with the project background growth. Per ACHD policy, any value 0.90 or greater must be mitigated even though the overall level of service is a D.

A multi-lane roundabout at this location would not work. Besides being very large and requiring more right-of-way than is available, the amount of traffic would exceed the capacity of a two-lane roundabout with right turn by-pass lanes. While dual westbound left turn lanes might be constructable, the v/c ratio would be unchanged.

The high volume of traffic necessitates three thru lanes in each direction on Federal Way to obtain. The v/c ratio could be reduce to 0.88 but the alternative is not a feasible alternative since there is limited right of way available and a large grade difference in the northeast quadrant of the intersection.

Recommendation(s):

- o Same configuration as in Existing Conditions mitigation

Table 13 shows the results of mitigation from both the existing conditions improvements (see Section A.4) and the background growth conditions.

Table 13: Intersection Level of Service Results – Mitigation for Background Conditions

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
15	Federal Way at Amity Rd	- Right-turn overlap - Dual SB left turns - Remove the split-phase	Overall	-	0.54	C	24.3	-	0.78	C	28.1	-
			EBLTR	-	0.00	A	0.0	0	0.01	D	37.1	0
			WBLT	-	0.45	D	39.3	167	0.48	D	43.3	132
			WBR	190	0.59	C	29.5	115	0.48	C	22.8	113
			NBL	130	0.00	A	0.0	0	0.79	B	18.2	5
			NBTR	-	0.41	B	18.9	254	0.78	D	36.3	646
			SBL	420	0.84	D	50.1	162	0.89	D	45.0	218
			SBTR	-	0.28	A	7.0	166	0.37	A	6.4	175
16	Federal Way at Bergeson Ave	- Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase	Overall	-	0.73	C	27.8	-	0.92	D	39.3	-
			EBL	-	0.19	C	32.3	53	0.12	C	30.7	40
			EBTR	-	0.07	C	29.3	27	0.22	C	29.8	83
			WBL	-	0.79	D	46.3	354	0.86	E	59.7	396
			WBT	200	0.06	C	29.2	36	0.09	C	28.4	50
			WBR	500	-	A	0.0	331	-	A	0.0	286
			NBL	100	0.08	B	14.6	13	0.22	C	23.1	25
			NBT	-	0.55	C	22.3	349	0.90	D	41.2	424
			NBR	160	0.49	C	22.5	122	0.76	D	38.3	160
			SBL	350	0.84	E	58.7	154	0.92	E	57.7	337
SBTR	-	0.44	B	15.8	251	0.72	C	24.6	445			

B.5. Data Sources

COMPASS supplied the forecasts for 2025 and 2030 PM peak hour traffic. No other approved developments were provided or incorporated into the projections for 2025 'no-build' analysis.

Projected Traffic

C.1. Project Trip Generation

The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” using an independent variable of number of employees is the appropriate land-use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions. The land-use does not include separate values for pass-by traffic or internal trips and was not accounted for in this study.

Table 14: Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

C.2. Trip Distribution and Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home cities of current employees are shown in Figure 8. Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 10 through 13.

Figure 8. Existing Employee Home Origins

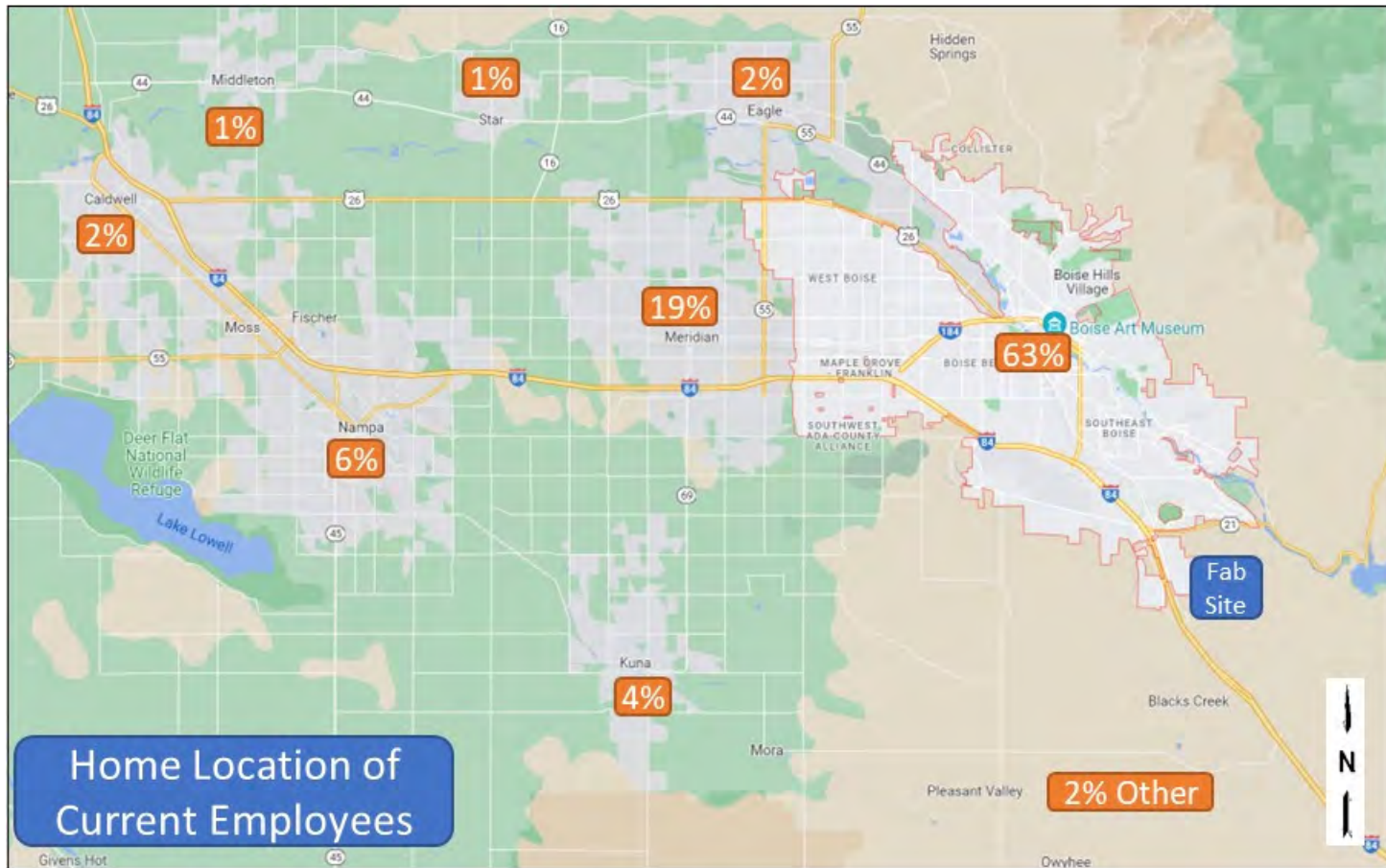


Figure 9. Macro Area Trip Distribution – Autos and Trucks



Figure 10. Auto Trip Distribution

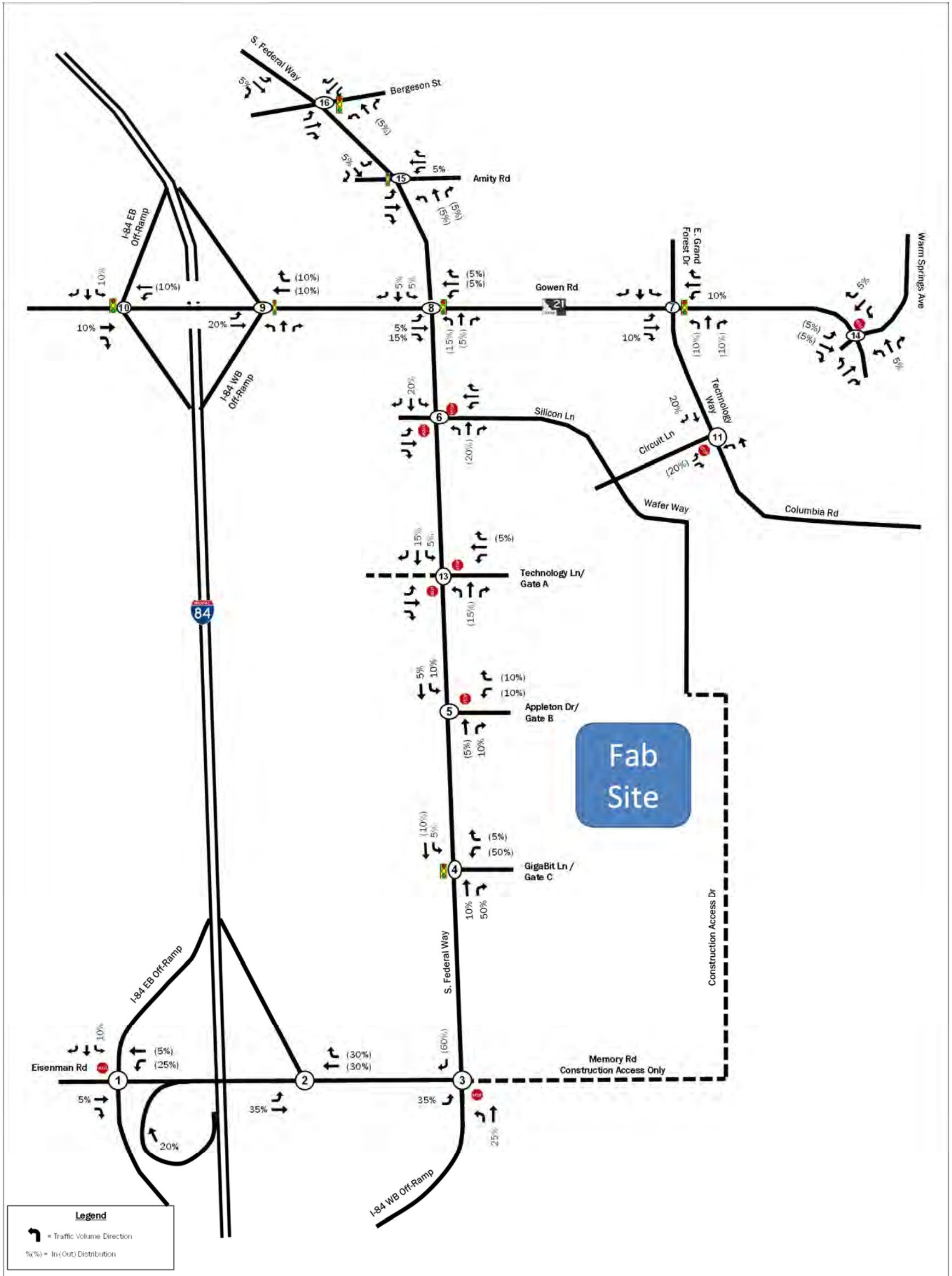


Figure 11. Truck Trip Distribution

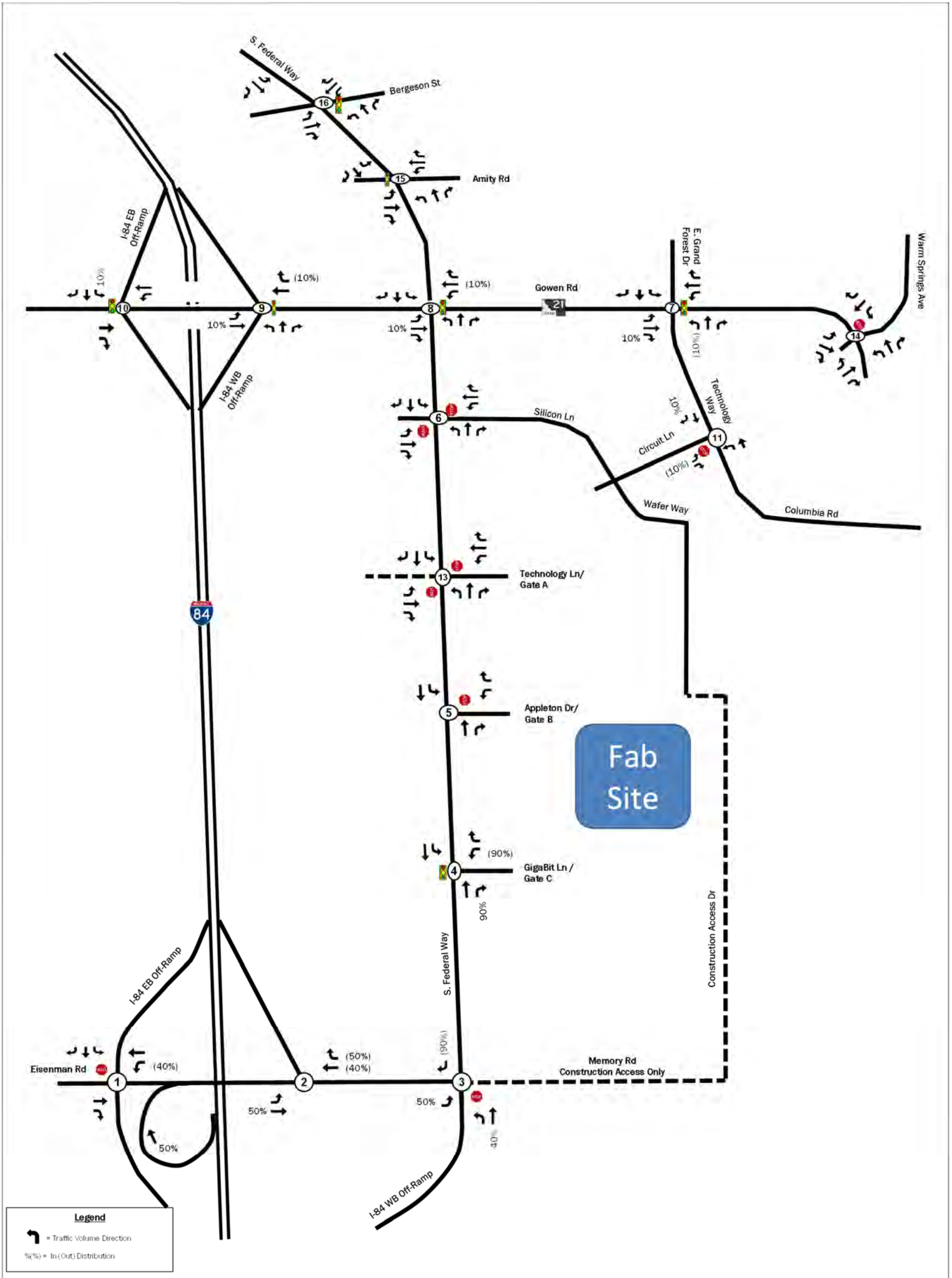


Figure 12. Site Trips

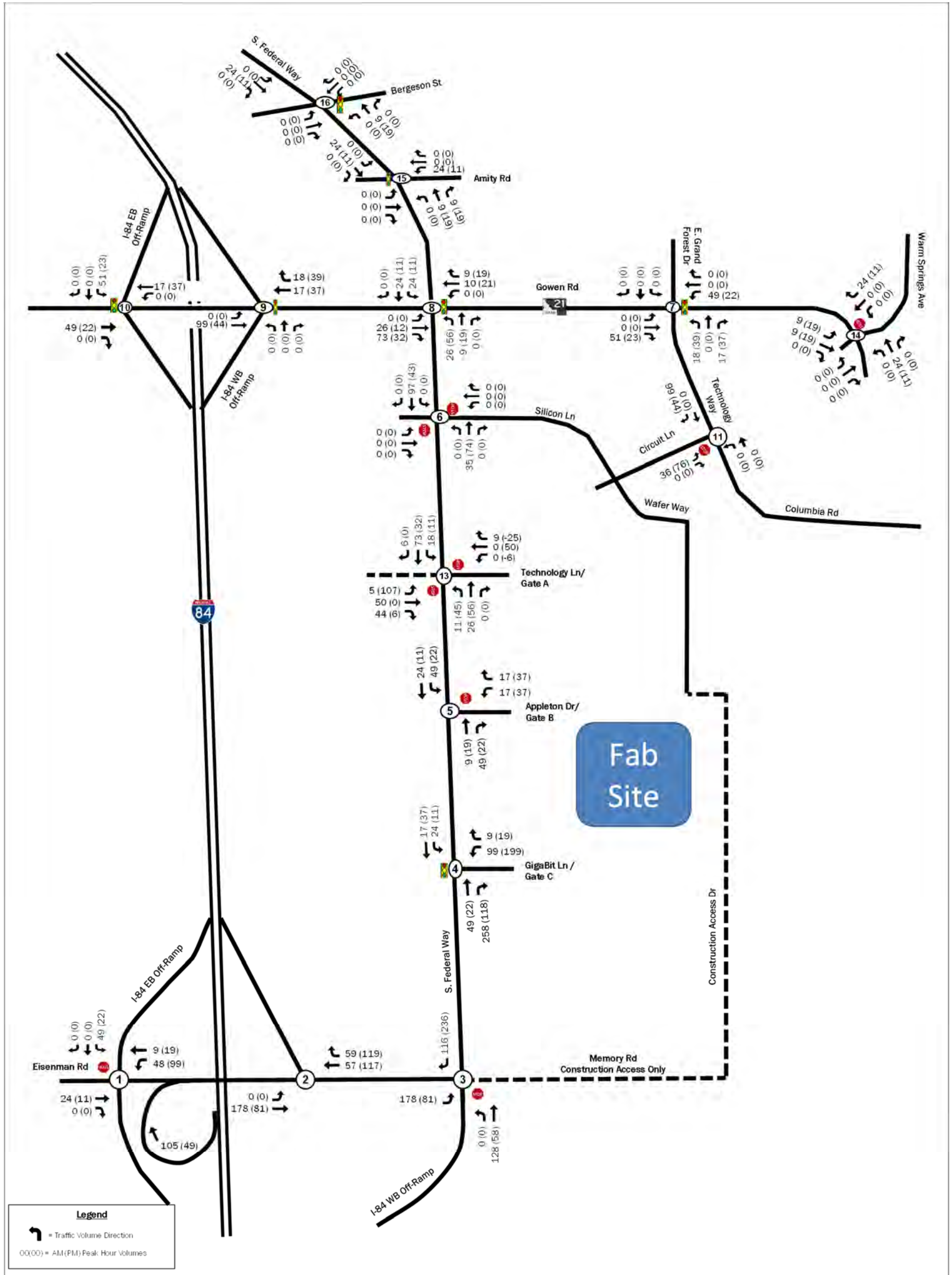
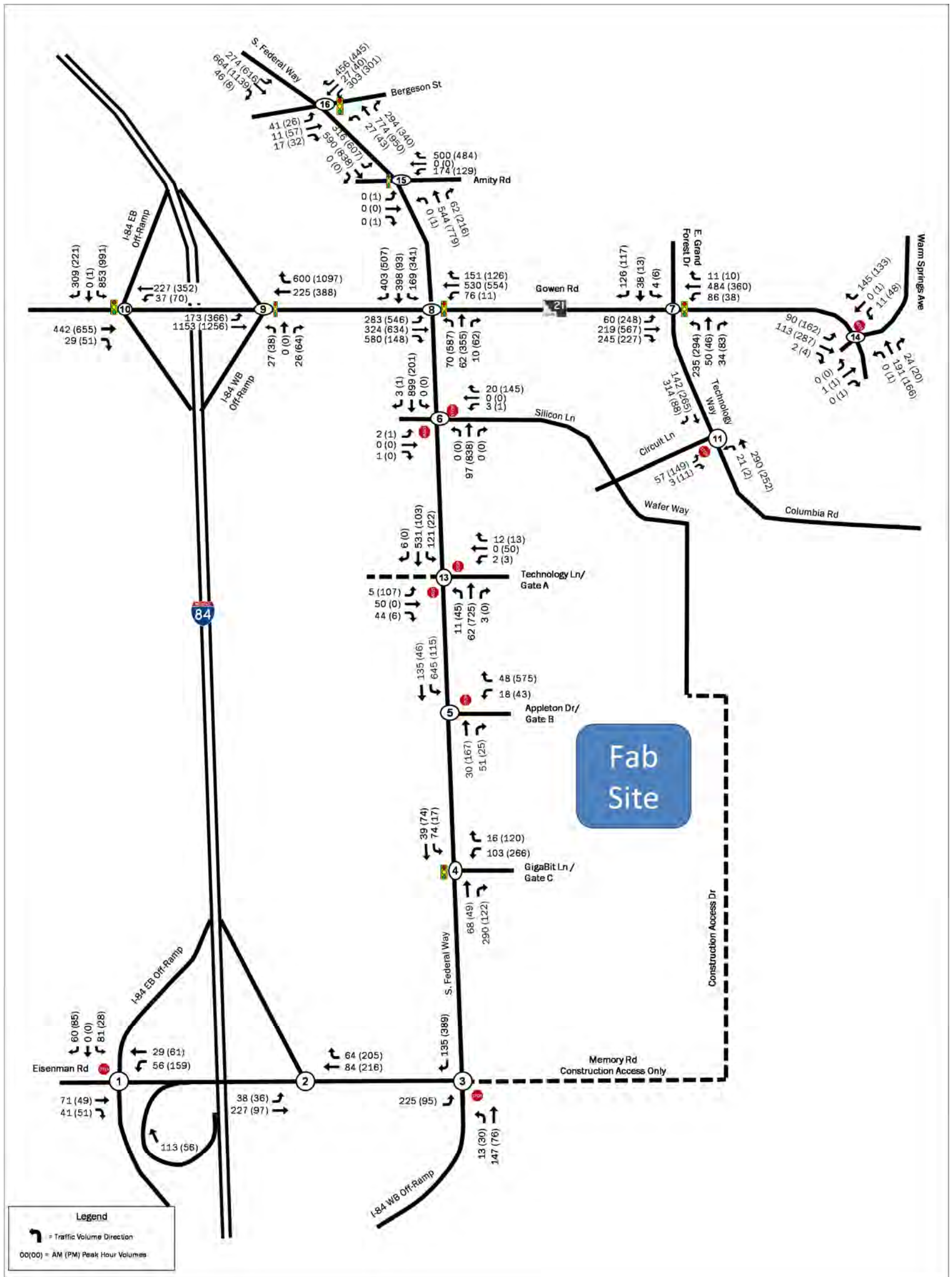


Figure 13. Existing + Background + Site Traffic (2025)



Traffic Analyses

D.1. Build Condition Capacity Analysis

The results of build conditions capacity for intersection (2022 volumes plus background growth plus site traffic) are shown in Table 15 and include the analysis of the volumes shown in Figure 13.

Table 15: Intersection Level of Service Results – Full Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.05	A	8.1	4	0.14	A	8.4	10
			SBL	310	0.12	B	10.6	8	0.07	B	13.2	4
			SBR	-	0.07	A	9.1	4	0.11	A	9.5	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.04	A	8.4	2	0.05	A	9.8	4
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.9	14	0.09	A	9.4	6
4	Federal Way at Gate C	Signal	Overall	-	0.26	A	6.9	-	0.36	A	7.7	-
			WBL	-	0.50	A	9.1	33	0.62	A	8.3	77
			WBR	-	0.09	A	7.2	7	0.32	A	6.8	18
			NBT	-	0.18	A	5.4	22	0.15	A	7.1	24
			NBR	240	-	A	0.0	26	-	A	0.0	24
			SBL	225	0.12	A	5.9	24	0.03	A	7.2	12
			SBT	-	0.11	A	5.2	14	0.26	A	7.5	33
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	0.41	F	122.0	30	0.11	B	14.1	8
			WBT	-	0.05	A	8.7	4	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	D	27.3	0	0.00	C	19.1	0
			EBR	-	0.00	C	16.2	0	-	A	0.0	0
			WBL	-	0.01	B	13.0	0	0.00	C	19.3	0
			WBR	-	0.02	A	8.8	2	0.29	B	14.7	24
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.37	C	27.5	-	0.53	C	31.0	-
			EBL	155	0.12	A	6.3	43	0.41	A	7.1	136
			EBT	-	0.12	A	7.7	86	0.29	A	8.9	189
			EBR	415	-	A	0.0	44	-	A	0.0	37
			WBL	90	0.11	A	6.0	56	0.07	A	8.4	26
			WBTR	-	0.23	A	8.5	192	0.19	B	11.0	155
			NBL	520	0.86	F	83.3	192	0.99	F	111.3	267

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			NBT	-	0.25	E	57.7	84	0.23	E	57.3	83
			NBR	240	-	A	0.0	0	-	A	0.0	15
			SBL	125	0.04	E	66.8	12	0.06	E	67.2	19
			SBTR	-	0.63	E	77.3	156	0.24	E	70.5	82
8	Gowen Rd at Federal Way	Signal	Overall	-	0.69	C	31.8	-	0.91	E	68.6	-
			EBL	420	0.35	C	32.7	171	0.96	F	93.0	482
			EBT	-	0.26	C	26.0	98	0.54	D	39.9	414
			EBR	390	-	A	0.0	348	-	A	0.0	50
			WBL	175	0.64	D	46.7	103	0.35	E	88.9	39
			WBT	-	0.82	D	42.8	213	0.82	E	73.7	475
			WBR	225	-	A	0.0	40	-	A	0.0	97
			NBL	495	0.52	D	44.6	42	0.95	F	91.1	507
			NBT	-	0.20	D	36.2	33	0.52	E	58.2	280
			NBR	150	0.06	D	35.5	0	0.18	D	52.7	13
			SBL	275	0.48	C	31.3	113	0.79	D	48.4	407
			SBT	-	0.74	D	38.2	157	0.14	E	56.2	83
			SBR	255	0.67	A	8.3	134	0.94	E	71.1	794
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.37	A	5.4	-	0.56	A	6.4	-
			EBL	335	0.23	A	3.3	37	0.51	A	3.5	95
			EBT	-	0.35	A	2.6	78	0.36	A	2.3	102
			WBT	-	0.12	B	13.0	26	0.20	A	5.9	97
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.46	D	53.8	-	0.59	D	52.2	-
			EBTR	-	0.20	C	20.6	262	0.32	C	24.2	241
			WBL	110	0.08	B	16.4	69	0.21	C	18.2	66
			WBT	-	0.13	B	15.7	162	0.22	C	17.3	143
			SBL	-	0.93	E	77.5	479	0.99	F	87.8	859
			SBTR	600	0.77	E	70.9	50	0.51	D	50.1	69
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.14	B	13.9	10	0.38	C	17.9	34
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	EBL	100	0.03	C	22.7	2	0.48	D	32.4	48
			EBTR	-	0.31	C	20.2	26	0.01	A	8.6	0
			WBL	-	0.01	C	20.3	0	0.02	C	24.6	2
			WBTR	-	0.01	A	8.5	0	0.29	D	25.8	24
			NBL	150	0.01	A	8.7	0	0.03	A	7.5	2
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.08	A	7.9	4	0.13	A	8.0	10
			SBL	100	0.03	B	13.0	2	0.19	C	20.8	14
			SBR	-	0.20	B	10.5	14	0.17	B	10.1	12
15		Signal	Overall	-	0.74	E	71.3	-	1.24	F	107.5	-

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM				
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)	
16	Federal Way at Amity Rd		EBLTR	-	0.00	A	0.0	0	0.46	F	115.6	0	
			WBLT	-	0.77	E	59.3	256	0.57	E	47.0	164	
			WBR	190	1.46	F	267.1	52	1.41	F	246.8	52	
			NBL	130	0.00	A	0.0	0	0.00	B	10.7	3	
			NBTR	-	0.34	B	11.9	283	0.68	C	24.3	614	
			SBL	420	0.62	A	7.2	202	1.57	F	281.3	916	
			SBTR	-	0.27	A	4.2	168	0.44	A	11.2	333	
			Overall	-	1.59	D	54.7	-	1.95	E	77.7	-	
		Federal Way at Bergeson Ave	Signal	EBLTR	-	0.56	E	62.9	46	0.72	E	64.0	71
				WBL	140	0.38	C	32.8	347	0.41	D	39.8	412
				WBT	-	0.00	A	0.0	361	0.00	A	0.0	434
				WBR	140	1.21	F	170.6	244	1.24	F	177.0	137
				NBL	100	0.17	C	28.7	13	0.28	C	27.7	42
				NBT	-	0.74	D	35.2	246	0.87	D	39.9	644
	NBR			160	0.65	D	35.6	14	0.72	D	37.1	247	
		SBL	350	0.60	D	46.0	173	1.28	F	192.5	489		
		SBTR	-	0.53	C	23.0	310	0.79	D	35.4	731		

Table 16: Segment Level of Service Results – Full Build Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Pk Hr (Dir)*	Pk Dir Vol	Threshold		LOS
							LOS D	LOS E	
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	AM (SB)	903	1,395	1,540	>D
B	Gowen Road, West of Technology Way	Principal Arterial	2	Continuous LT Lane	PM (EB)	1042	1,680	1,780	>D
C	Memory Road, West of Federal Way	Minor Arterial	2	Continuous LT Lane	PM (WB)	419	1,395	1,540	>D
D	Technology Way, South of Gowen Road	Minor Arterial	1 NB 2 SB	No LT Lane	PM (SB)	423	1,080	1,150	>D

*Highest peak hour volume in one direction

D.2. Build Conditions Mitigation

Memory Rd at I-84 WB Off-Ramp

The intersection geometry is unique to the traffic conditions. There is currently no east side of the intersection so the eastbound left turning traffic (i.e., traffic heading north on S Federal Way) can move unimpeded. Only the northbound traffic coming from I-84 is stopped and that volume is projected to be manageable. HCM 6th Ed. does not include the ability to analyze the intersection in its current form but can if a dummy link is added to the east side of the intersection.

If Memory Road is to be used as a construction traffic route for FAB1, the intersection at S Federal Way will need to be reconfigured. At a minimum, the southbound movement on S Federal Way will need a left turn lane. Memory Road Ext will need one lane leaving and one lane entering the construction area. The analysis of construction period traffic is not included in this study but will be a separate effort. The intersection may need to be signalized if the construction traffic analysis shows a significant and sustained volume of traffic to/from the construction site.

Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

S Federal Way & Gate B

Gate B is the next closest access point for the parking lots on the southern end of the Micron campus. Currently, during shift change, there is a large volume of traffic leaving Gate B but almost all of it makes a right turn and heads north on S Federal Way. Conversely, in the AM peak hour, there is a large volume of southbound left turning vehicles entering the site. The intersection is stop controlled and already experiences some delays for left-out traffic. The additional load from FAB1 traffic will overburden the intersection. A traffic signal may be needed but does not meet the required MUTCD volume criteria. (See Section D.3. for a signal warrant discussion.)

Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

Federal Way and Bergeson Street (signal)

With additional project traffic, the v/c ratios will worsen slightly. The solutions discussed and discarded for existing and for background conditions were analyzed but with additional traffic, there

were found to be unacceptable. Given the adequate levels of service with the recommended mitigation from the existing conditions, those are the best solutions for the build traffic conditions.

Recommendation(s):

- o Same configuration as in Existing Conditions mitigation

Table 17 shows the results of mitigation from the existing conditions improvements (see Section A.4) the background growth conditions improvements (see Section B.4) and the build conditions improvements.

Table 17: Intersection Level of Service Results – Mitigation for Build Conditions

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
4	Federal Way at Gate C	No WBL at Gate 5	Overall	-	-	A	6.9	-	-	A	7.8	-
			WBL	-	0.54	A	9.2	38	0.65	A	8.3	91
			WBR	-	0.08	A	7.1	7	0.29	A	6.8	18
			NBT	-	0.18	A	5.5	23	0.16	A	7.1	26
			NBR	240	-	A	0.0	27	-	A	0.0	26
			SBL	225	0.12	A	6.0	25	0.03	A	7.2	13
			SBT	-	0.12	A	5.3	15	0.27	A	7.5	36
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	-	-	-	-	-	-	-	-
			WBR	-	0.52	A	8.7	30	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
15	Federal Way at Amity Rd	- Right-turn overlap - Dual SB left turns - Remove the split-phase	Overall	-	0.57	C	24.6	-	0.81	C	29.1	-
			EBLTR	-	0.00	A	0.0	0	0.02	D	37.3	0
			WBLT	-	0.52	D	40.4	194	0.54	D	44.5	144
			WBR	190	0.60	C	29.6	110	0.48	C	22.8	117
			NBL	130	0.00	A	0.0	0	0.82	B	18.2	5
			NBTR	-	0.42	B	19.0	258	0.82	D	38.6	670
			SBL	420	0.84	D	51.4	159	0.89	D	45.2	211
			SBTR	-	0.29	A	7.0	164	0.38	A	6.5	161
16	Federal Way at Bergeson Ave	- Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase	Overall	-	0.73	C	27.8	-	0.93	D	38.6	-
			EBL	-	0.19	C	32.2	51	0.12	C	31.5	40
			EBTR	-	0.07	C	29.3	26	0.22	C	30.5	84
			WBL	-	0.78	D	45.5	321	0.89	E	65.4	405
			WBT	200	0.06	C	29.1	35	0.09	C	29.2	51
			WBR	500	-	A	0.0	232	-	A	0.0	133
			NBL	100	0.09	B	14.7	12	0.22	C	22.5	22
			NBT	-	0.56	C	22.5	341	0.90	D	40.0	421
			NBR	160	0.49	C	22.6	127	0.75	D	36.5	153
			SBL	350	0.84	E	57.7	154	0.92	E	55.8	326
SBTR	-	0.45	B	16.2	283	0.74	C	23.7	467			

Conclusions and Recommendations

E.1. Capacity Analysis Conclusions

An analysis of the v/c ratios, LOS, delay, and expected queuing results in a series of conclusions for each intersection. These are described in detail below.

E.1.1. Eisenman Road & I-84 EB Ramp

The intersection has ample capacity to accommodate the future traffic.

E.1.2. Eisenman Road & I-84 WB On-Ramp

While HCM 6th Ed. lacks the research to make the capacity calculations, an evaluation of the volume of traffic shows that the intersection can accommodate future traffic. The additional westbound traffic on Eisenman Road should pose no significant delay for eastbound left turning traffic.

E.1.3. Memory Road & S Federal Way/I-84 WB Off-Ramp

Build Conditions Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

E.1.4. S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

E.1.5. S Federal Way & Gate B

Build Conditions Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

E.1.6. S Federal Way & Silicon Way

The intersection has ample capacity to accommodate the future traffic.

E.1.7. Gowen Road & Technology Way (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.8. Gowen Road & Federal Way (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.9. Gowen Road & I-84 WB Ramp (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.10. Gowen Road & I-85 EB Ramp (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.11. Technology Lane & Circuit Way

The intersection has ample capacity to accommodate future traffic.

~~E.1.12. Memory Road Ext & Construction Access Road (not studied)~~

E.1.13. Federal Way & Gate A / Childcare Center

This intersection was studied in detail in a separate report for the childcare center development. While the new Fab traffic will contribute more traffic on S Federal Way, it will not be enough to justify a traffic signal once the new childcare center is operational. There is additional land yet to be developed on the west side of S Federal Way that will share the access point. This intersection should be monitored for the need for a traffic signal as more development occurs. **No improvements are recommended.**

E.1.14. Gowen Road & Warm Springs Avenue

The intersection has ample capacity to accommodate future traffic.

E.1.15. Federal Way & Amity Road (signal)

Existing Conditions Recommendation(s):

- Add a right-turn overlap signal for the westbound right turns
- Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
- Reconfigure the southbound left turn traffic signal for protected-only operation
- Reconfigure the northbound left turn traffic signal for permitted operation
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

E.1.16. Federal Way and Bergeson Street (signal)

Existing Conditions Recommendation(s):

- Add a channelizing island for the westbound right turn movement
- Add a right-turn overlap signal for the westbound right turn movement
- Extend the left turn lane on Bergeson to a total of 500 feet to allow for thru and right turning vehicles to bypass the queue
- Change the eastbound shared left-thru lane to an exclusive left turn lane
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

Background Traffic Conditions Recommendation(s):

- Same as Existing Conditions

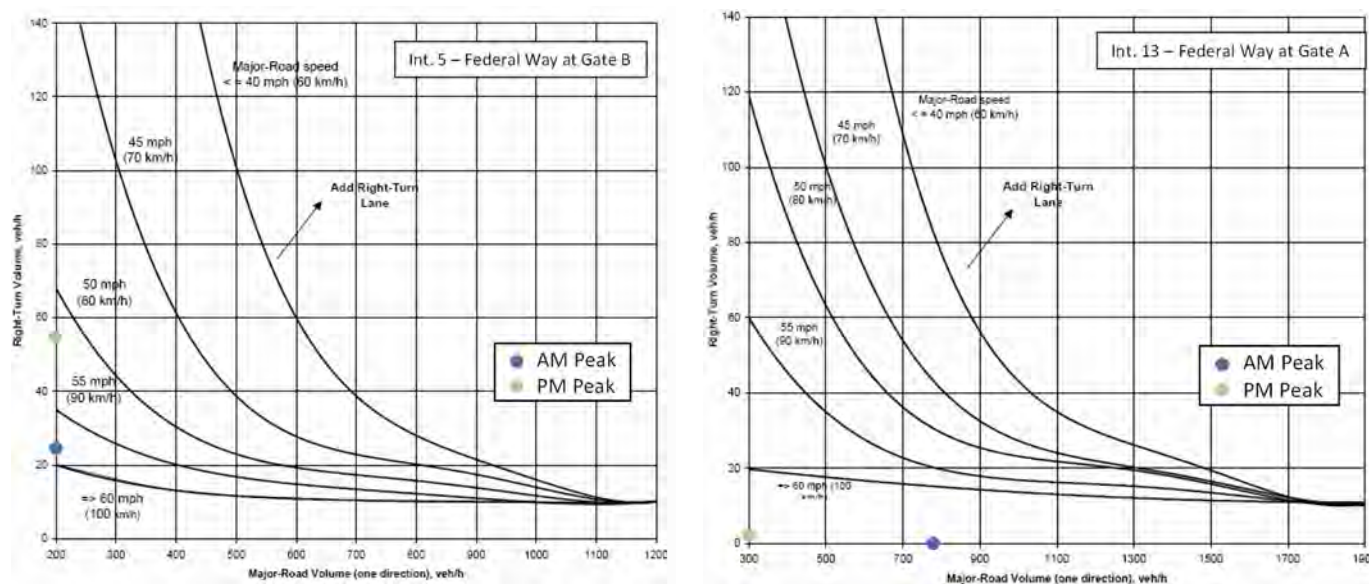
Build Traffic Conditions Recommendation(s):

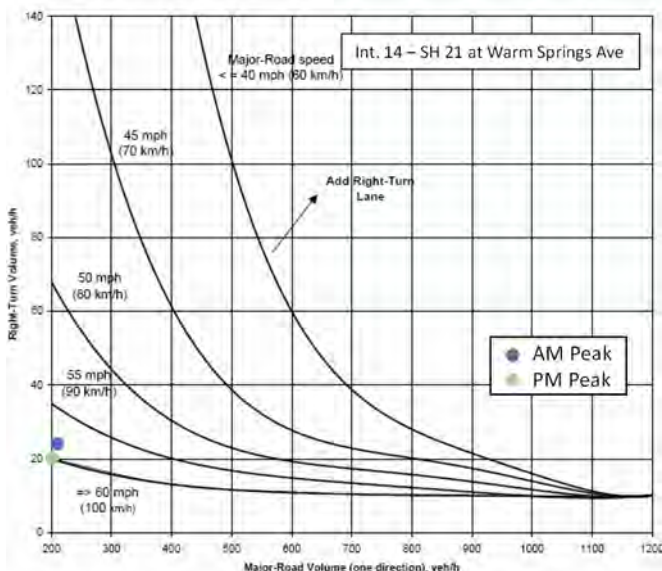
- Same as Existing Conditions

E.2. Driveway Analysis

There are four access points to the Micron study within the study area: Federal Way at Gate A, Gate B, and Gate C and Technology Way at Circuit Lane (aka Gate D). All of these access points have left turn lanes. Gates A and B do not have right turn deceleration lanes, however the northbound left turn volume into these driveways is very low. The only other unsignalized study intersection where a turn lane does not exist is SH 21 at Warm Spring Ave. The charts from ACHD Guideline 7106 (Figures 6 and 7) are shown in Figure 14. None of the analyzed movements meet the requirements for a right turn lane.

Figure 14. Turn Lane Analysis Figures





E.3. Parking Requirements

In order to construct the new Fab and associated office, utility, warehouses, and other ancillary building, the existing parking lot on the south side of the campus will be removed. New parking structures and surface parking lots are planned to be built and have been identified on the site plan. Approximately 3,800 parking spaces will be removed and approximately 7,100 parking spaces will be added with the project (a net change of about 3,300), which will sufficiently serve the new 2,750 employees.

E.4. Signal Warrant Analysis

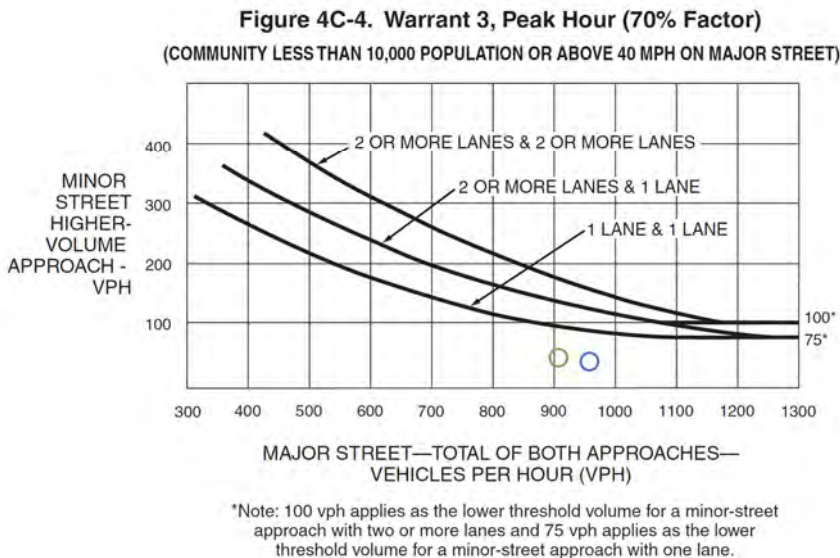
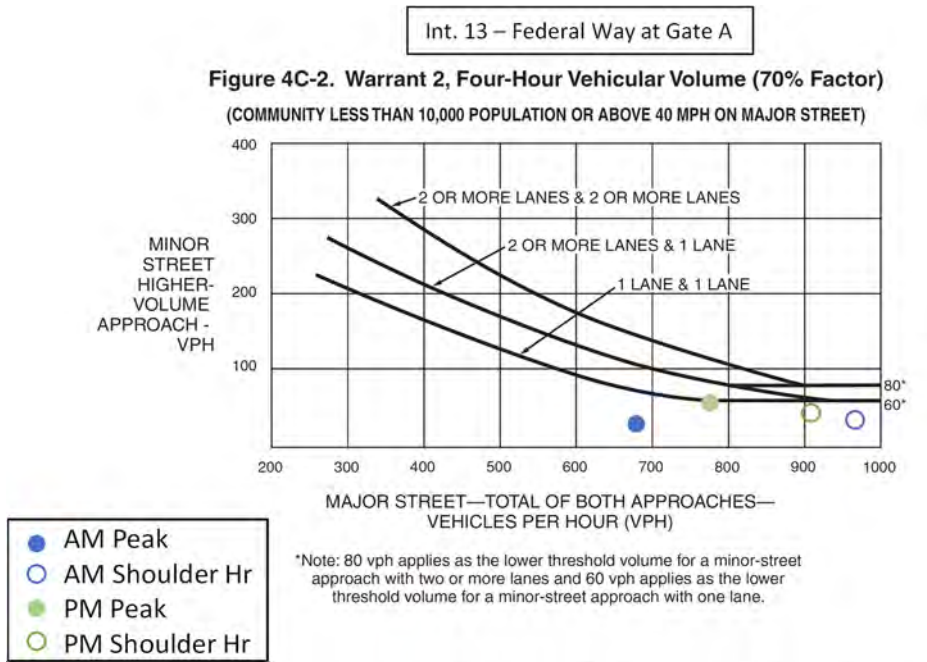
The unsignalized intersection of **S Federal Way and Silicon Lane** has one movement that will experience an LOS D. In the AM Peak hour, the westbound left turn has LOS D. Per ACHD guidelines, a signal warrant study is required. The 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD, 2009) were consulted to determine if the intersection would meet the criteria. The side street movements are very low during the peak hours (less than 10 vehicles) and would therefore not meet the standards.

The intersection of **S Federal Way and Gate A** was previously studied for a traffic signal and was denied by ACHD. The warrant study was revisited using additional project volume and a growth rate of 1% per year. Counts were collected for an extended day so new project traffic on the minor streets was estimated based on the daily volume of traffic expected at the intersection times the ratio of existing traffic over the existing daily traffic. In this way, the new daily site volume (accounting for the distribution percentages seen in Figure 10) could be factored into the warrant analysis along with the childcare center traffic. The results of the warrant analysis is shown in Table 18 and in Figure 15. A traffic signal is not warranted at this location.

Table 18: Signal Warrant Analysis Summary – S Federal Way at Gate A / Childcare Center

Hour Beginning			100% Criteria		70% Criteria	
	S Federal Way	Gate A/Childcare Center	Warrant 1		Warrant 1	
	Combined Volume	Approach Volume w/ Right Turns	Major Street Condition Met? (Major>600)	Minor Street Condition Met? (Minor>150)	Major Street Condition Met? (Major>420)	Minor Street Condition Met? (Minor>140)
5:00 AM	773	39	YES	NO	YES	NO
6:00 AM	561	32	NO	NO	YES	NO
7:00 AM	734	99	YES	NO	YES	NO
8:00 AM	966	46	YES	NO	YES	NO
9:00 AM	536	24	NO	NO	YES	NO
10:00 AM	286	21	NO	NO	NO	NO
11:00 AM	383	23	NO	NO	NO	NO
12:00 PM	425	27	NO	NO	YES	NO
1:00 PM	331	25	NO	NO	NO	NO
2:00 PM	341	22	NO	NO	NO	NO
3:00 PM	475	45	NO	NO	YES	NO
4:00 PM	895	113	YES	NO	YES	NO
5:00 PM	789	60	YES	NO	YES	NO
6:00 PM	499	30	NO	NO	YES	NO
7:00 PM	196	11	NO	NO	NO	NO
Number of Hours Needed			8	8	8	8
Number of Hours Met			5	0	10	0
Warrant Satisfied?			NO		NO	

Figure 15. Warrant 2 and 3 Figures – S Federal Way at Gate A / Childcare Center



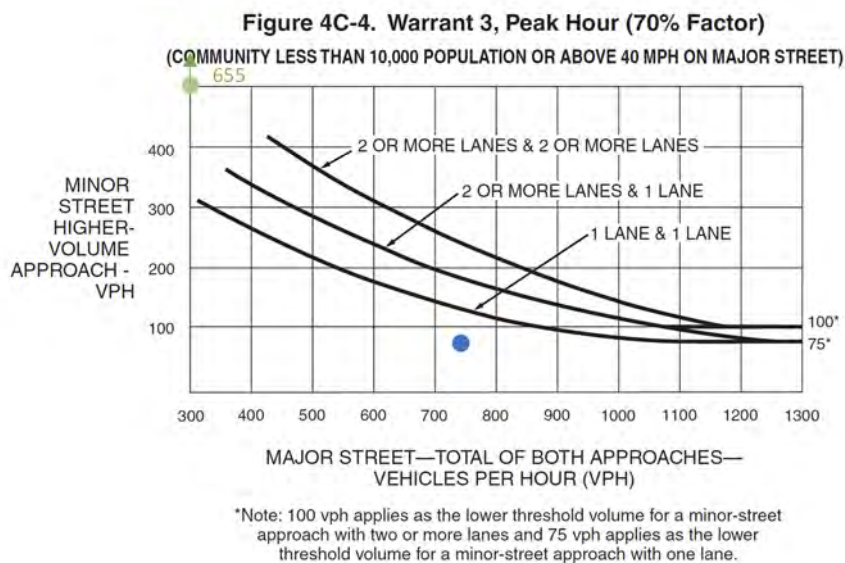
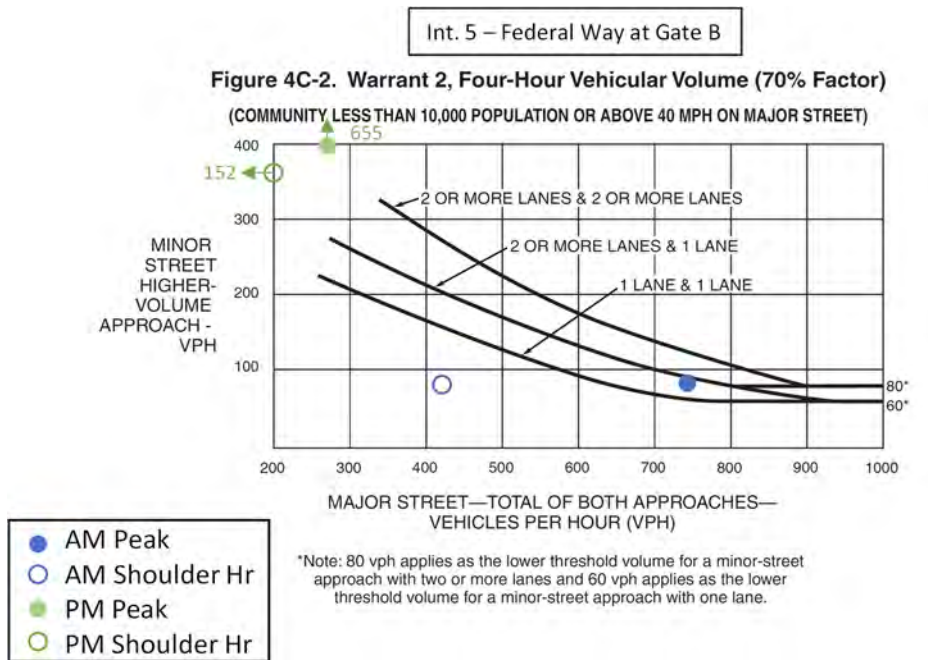
S Federal Way at Gate B may benefit from a traffic signal. It would reduce the delay for traffic turning left out of the site. Eight hours of traffic volume on the minor street side are not available; however, an analysis of the major street traffic shows that there is not enough traffic to meet the minimum criteria in the MUTCD. Even if the site traffic met the minimum threshold for eight hours of the day, the combination of the main street and minor street traffic would not trigger a need.

The base volume for the north and southbound movements on S Federal Way base volume is from data collected for the signal warrant study for the Gate A intersection and the proposed childcare center. The base volume was multiplied by the growth factor for S Federal Way as shown in Table 7. The 7-9a and 4-6p volumes are from the turning movement traffic counts with the growth factor applied. Future peak hour volumes are from Figure 13 and estimated for shoulder hours. Figure 15 shows the Warrant 2 (four-hour) and Warrant 3 (peak hour) warrant. While the peak hour volume may appear to meet the criteria, it is based primarily on side street right turning traffic which is not a strong justification for a traffic signal.

Table 19: Signal Warrant Analysis Summary – S Federal Way at Gate B

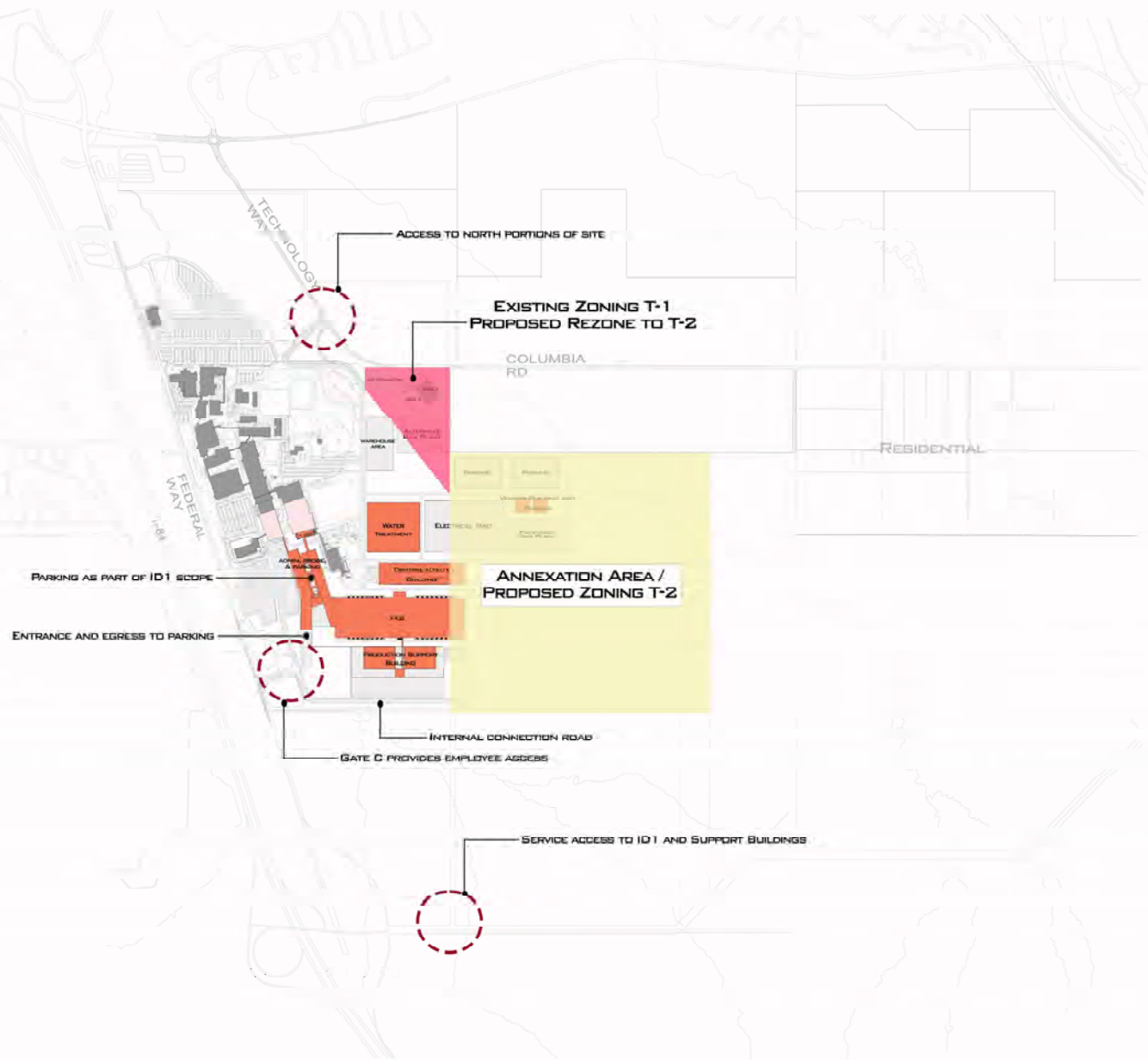
Hour Beginning	S Federal Way Combined Volume	Gate B Approach Volume w/ Right Turns	100% Criteria		70% Criteria	
			Warrant 1		Warrant 1	
			Major Street Condition Met? (Major>600)	Minor Street Condition Met? (Minor>150)	Major Street Condition Met? (Major>420)	Minor Street Condition Met? (Minor>140)
5:00 AM	490		NO		YES	
6:00 AM	385		NO		NO	
7:00 AM	861	66	YES	NO	YES	NO
8:00 AM	415	89	NO	NO	NO	NO
9:00 AM	407		NO		NO	
10:00 AM	221		NO		NO	
11:00 AM	313		NO		NO	
12:00 PM	337		NO		NO	
1:00 PM	271		NO		NO	
2:00 PM	279		NO		NO	
3:00 PM	404		NO		NO	
4:00 PM	353	618	NO	YES	NO	YES
5:00 PM	151	377	NO	YES	NO	YES
6:00 PM	440		NO		YES	
7:00 PM	173		NO		NO	
Number of Hours Needed			8	8	8	8
Number of Hours Met			1	2	3	2
Warrant Satisfied?			NO		NO	

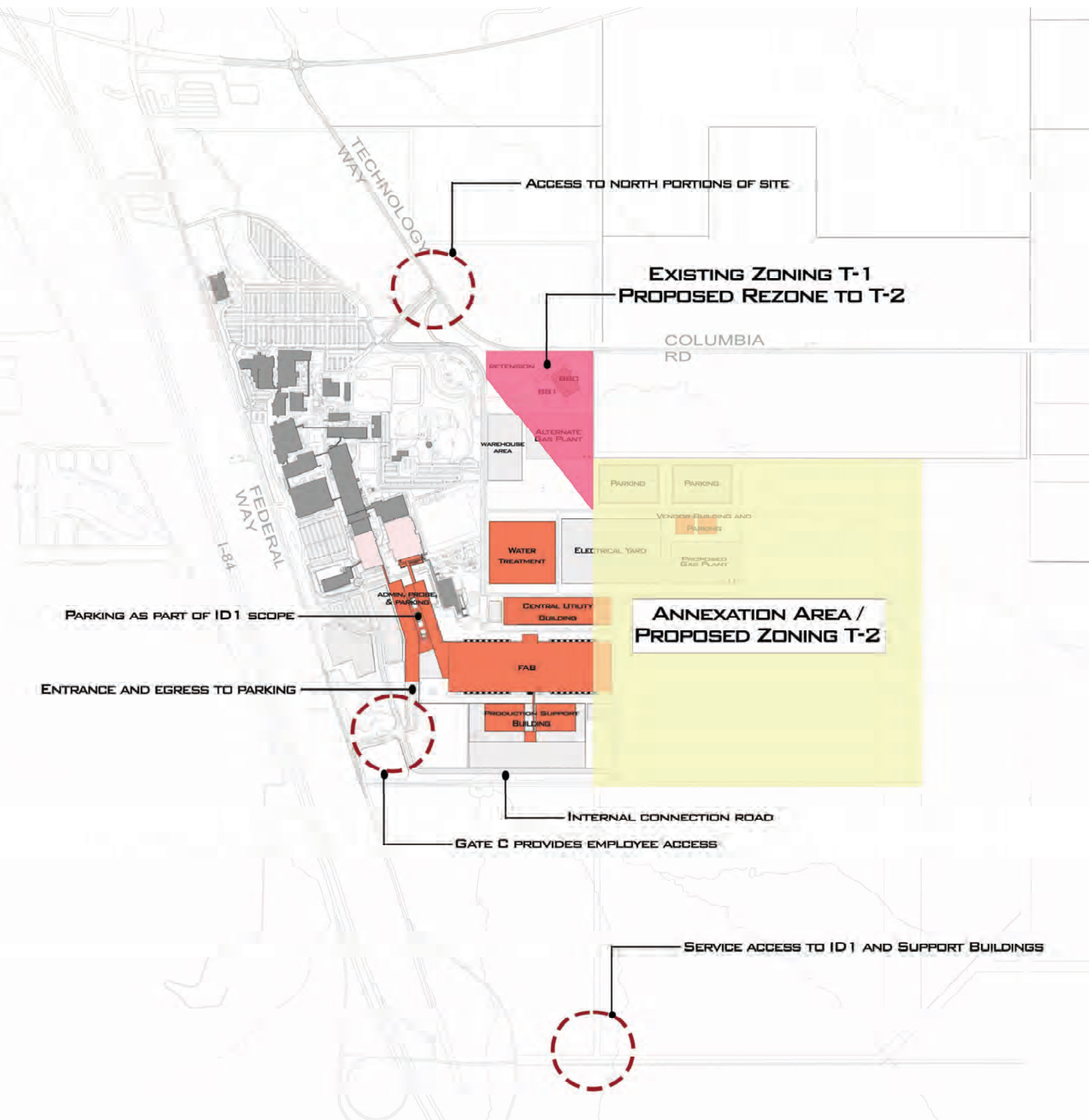
Figure 16. Warrant 2 and 3 Figures – S Federal Way at Gate B



APPENDIX

APPENDIX A: Site Plan





ACCESS TO NORTH PORTIONS OF SITE

EXISTING ZONING T-1
PROPOSED REZONE TO T-2

COLUMBIA
RD

RETENSION
SSIC
SS1
WAREHOUSE
AREA
ALTERNATE
GAS PLANT

PARKING
PARKING
VENDOR BUILDINGS AND
PARKINGS
ELECTRICAL YARD
PROPOSED
GAS PLANT

ANNEXATION AREA /
PROPOSED ZONING T-2

PARKING AS PART OF ID1 SCOPE

ADMIN, PROBE
& PARKING

WATER
TREATMENT

CENTRAL UTILITY
BUILDING

FAB

PRODUCTION SUPPORT
BUILDING

ENTRANCE AND EGRESS TO PARKING

INTERNAL CONNECTION ROAD

GATE C PROVIDES EMPLOYEE ACCESS

SERVICE ACCESS TO ID1 AND SUPPORT BUILDINGS

FEDERAL
WAY
1-84

TECHNOLOGY
WAY

APPENDIX B: Traffic Counts

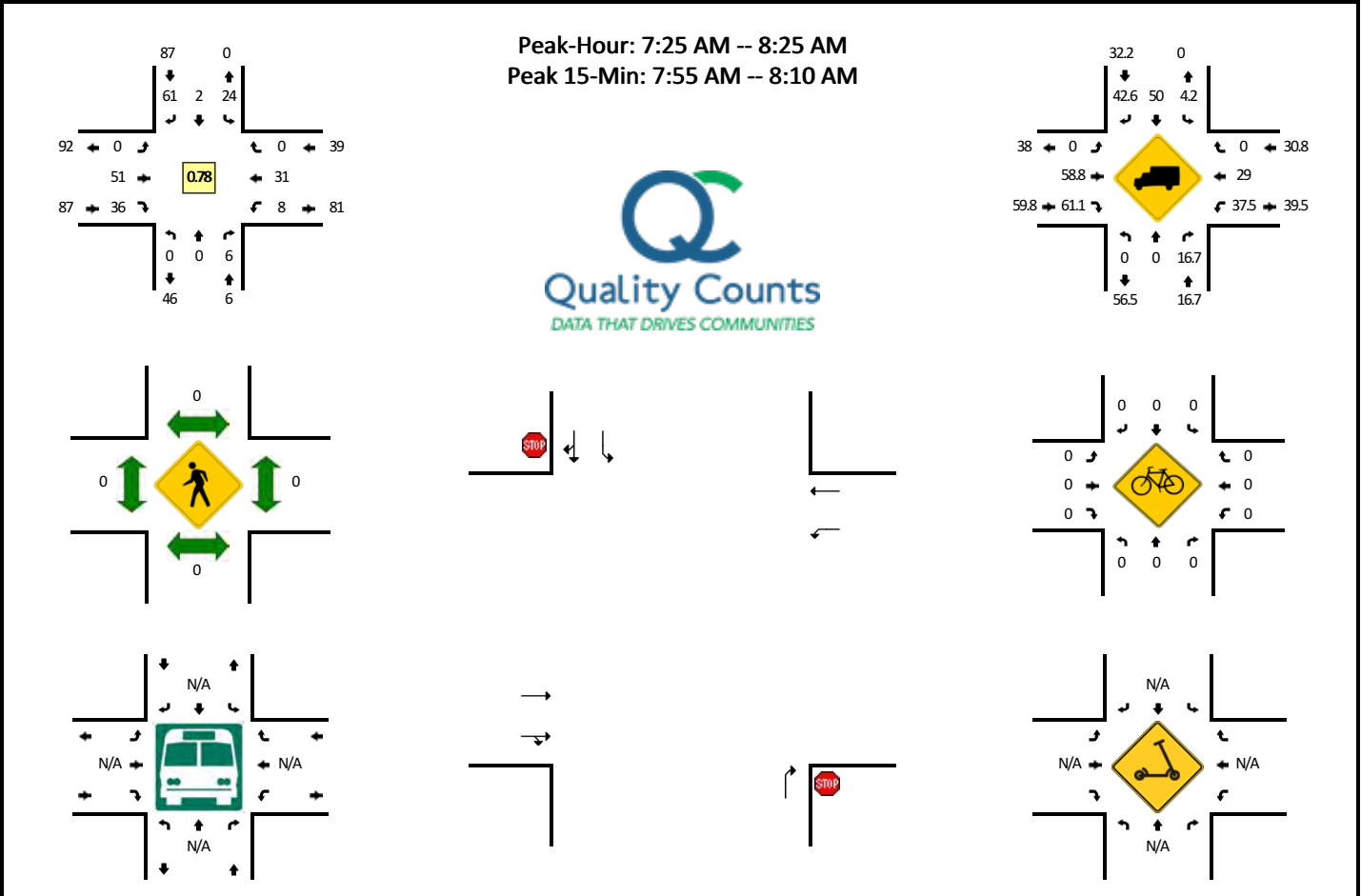
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952601
DATE: Thu, Sep 22 2022

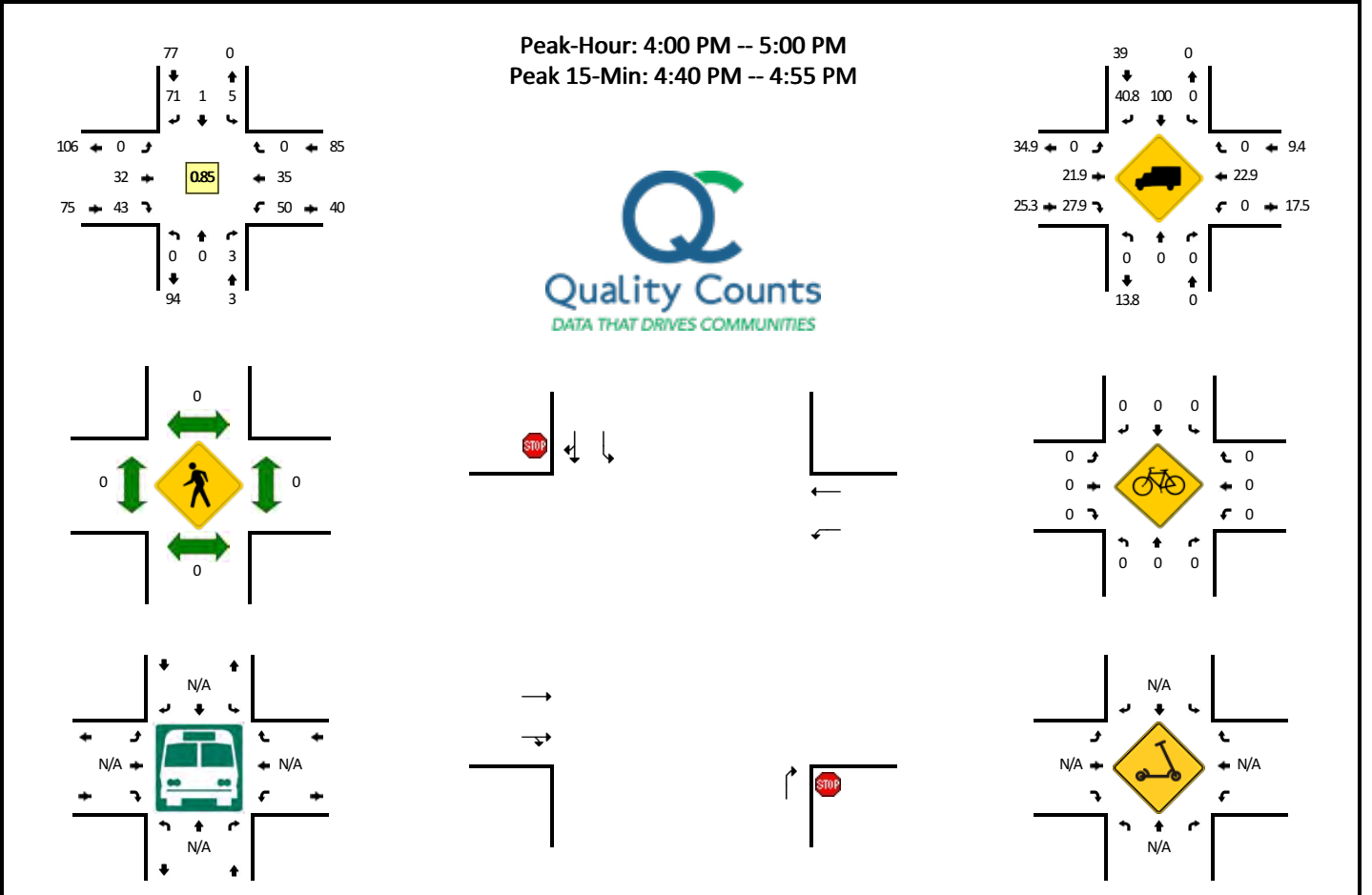


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	1	0	0	4	4	0	1	2	0	0	16	
7:05 AM	0	0	0	0	0	0	4	0	0	2	3	0	1	0	0	0	10	
7:10 AM	0	0	0	0	2	0	2	0	0	5	1	0	0	0	0	0	10	
7:15 AM	0	0	1	0	4	0	6	0	0	1	3	0	1	0	0	0	16	
7:20 AM	0	0	1	0	4	0	1	0	0	1	3	0	1	1	0	0	12	
7:25 AM	0	0	0	0	1	0	5	0	0	3	2	0	0	1	0	0	12	
7:30 AM	0	0	0	0	2	0	3	0	0	4	1	0	0	7	0	0	17	
7:35 AM	0	0	0	0	3	0	11	0	0	6	1	0	0	0	0	0	21	
7:40 AM	0	0	2	0	3	2	3	0	0	1	5	0	1	1	0	0	18	
7:45 AM	0	0	0	0	2	0	4	0	0	5	3	0	1	1	0	0	16	
7:50 AM	0	0	1	0	0	0	2	0	0	2	1	0	0	3	0	0	9	
7:55 AM	0	0	1	0	2	0	8	0	0	5	7	0	1	1	0	0	25	182
8:00 AM	0	0	0	0	3	0	12	0	0	2	1	0	1	2	0	0	21	187
8:05 AM	0	0	0	0	2	0	4	0	0	5	4	0	3	6	0	0	24	201
8:10 AM	0	0	2	0	3	0	0	0	0	6	5	0	0	3	0	0	19	210
8:15 AM	0	0	0	0	2	0	1	0	0	5	3	0	0	3	0	0	14	208
8:20 AM	0	0	0	0	1	0	8	0	0	7	3	0	1	3	0	0	23	219
8:25 AM	0	0	0	0	0	0	4	0	0	2	3	0	0	1	0	0	10	217
8:30 AM	0	0	0	0	1	0	5	0	0	0	5	0	1	1	0	0	13	213
8:35 AM	0	0	0	0	1	1	2	0	0	3	2	0	0	3	0	0	12	204
8:40 AM	0	0	0	0	2	0	2	0	0	4	6	0	0	4	0	0	18	204
8:45 AM	0	0	1	0	1	0	3	0	0	1	5	0	1	1	0	0	13	201
8:50 AM	0	0	0	0	1	0	8	0	0	5	3	0	1	3	0	0	21	213
8:55 AM	0	0	0	0	0	0	2	0	0	3	5	0	0	4	0	0	14	202
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	28	0	96	0	0	48	48	0	20	36	0	0	280	
Heavy Trucks	0	0	0	0	0	0	52	0	0	24	32	0	4	12	0	0	124	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952602
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	8	0	0	1	5	0	4	5	0	0	23	
4:05 PM	0	0	0	0	0	0	4	0	0	3	3	0	6	2	0	0	18	
4:10 PM	0	0	0	0	1	0	6	0	0	4	1	0	5	6	0	0	23	
4:15 PM	0	0	0	0	1	0	5	0	0	3	2	0	5	1	0	0	17	
4:20 PM	0	0	0	0	1	0	3	0	0	1	10	0	8	1	0	0	24	
4:25 PM	0	0	0	0	1	0	2	0	0	3	2	0	3	2	0	0	13	
4:30 PM	0	0	0	0	0	0	4	0	0	2	3	0	4	1	0	0	14	
4:35 PM	0	0	0	0	1	1	2	0	0	4	3	0	2	5	0	0	18	
4:40 PM	0	0	0	0	0	0	10	0	0	1	4	0	3	3	0	0	21	
4:45 PM	0	0	1	0	0	0	8	0	0	3	2	0	6	3	0	0	23	
4:50 PM	0	0	1	0	0	0	10	0	0	4	5	0	2	5	0	0	27	
4:55 PM	0	0	1	0	0	0	9	0	0	3	3	0	2	1	0	0	19	240
5:00 PM	0	0	0	0	3	0	1	0	0	4	9	0	1	2	0	0	20	237
5:05 PM	0	0	0	0	1	0	7	0	0	1	4	0	2	3	0	0	18	237
5:10 PM	0	0	0	0	0	1	8	0	0	5	2	0	0	3	0	0	19	233
5:15 PM	0	0	0	0	0	0	3	0	0	7	1	0	1	1	0	0	13	229
5:20 PM	0	0	0	0	0	0	3	0	0	5	5	0	2	4	0	0	19	224
5:25 PM	0	0	0	0	0	1	7	0	0	3	2	0	2	1	0	0	16	227
5:30 PM	0	0	0	0	1	0	8	0	0	2	4	0	1	4	0	0	20	233
5:35 PM	0	0	0	0	0	0	3	0	0	2	1	0	0	2	0	0	8	223
5:40 PM	0	0	0	0	0	0	2	0	0	4	7	0	0	2	0	0	15	217
5:45 PM	0	0	0	0	0	0	6	0	0	2	2	0	1	2	0	0	13	207
5:50 PM	0	0	0	0	0	0	4	0	0	2	4	0	1	4	0	0	15	195
5:55 PM	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	5	181
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	8	0	0	0	112	0	0	32	44	0	44	44	0	0	284	
Heavy Trucks	0	0	0	0	0	0	48	0	0	0	8	0	0	4	0	0	60	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

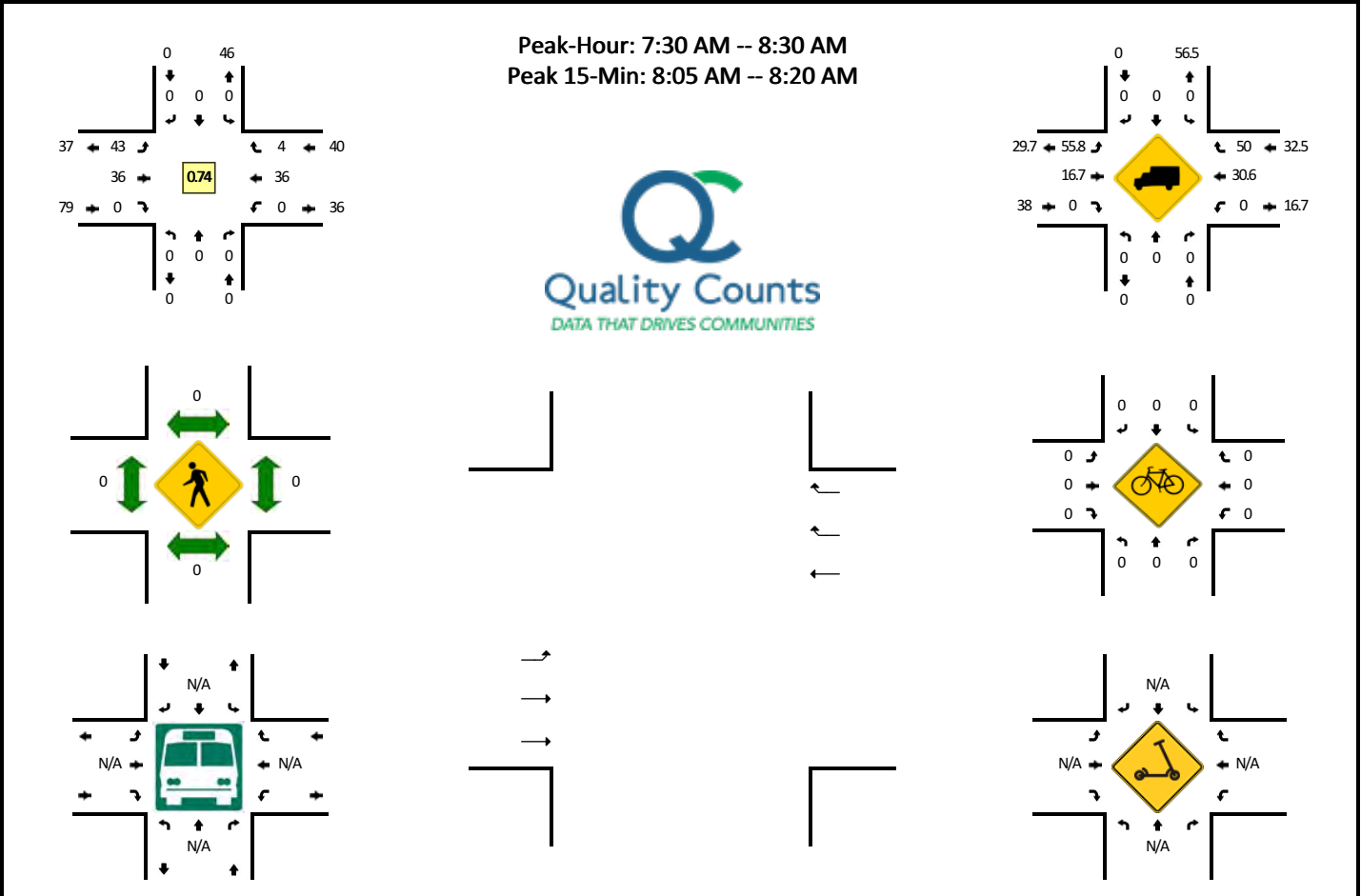
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952603
DATE: Thu, Sep 22 2022

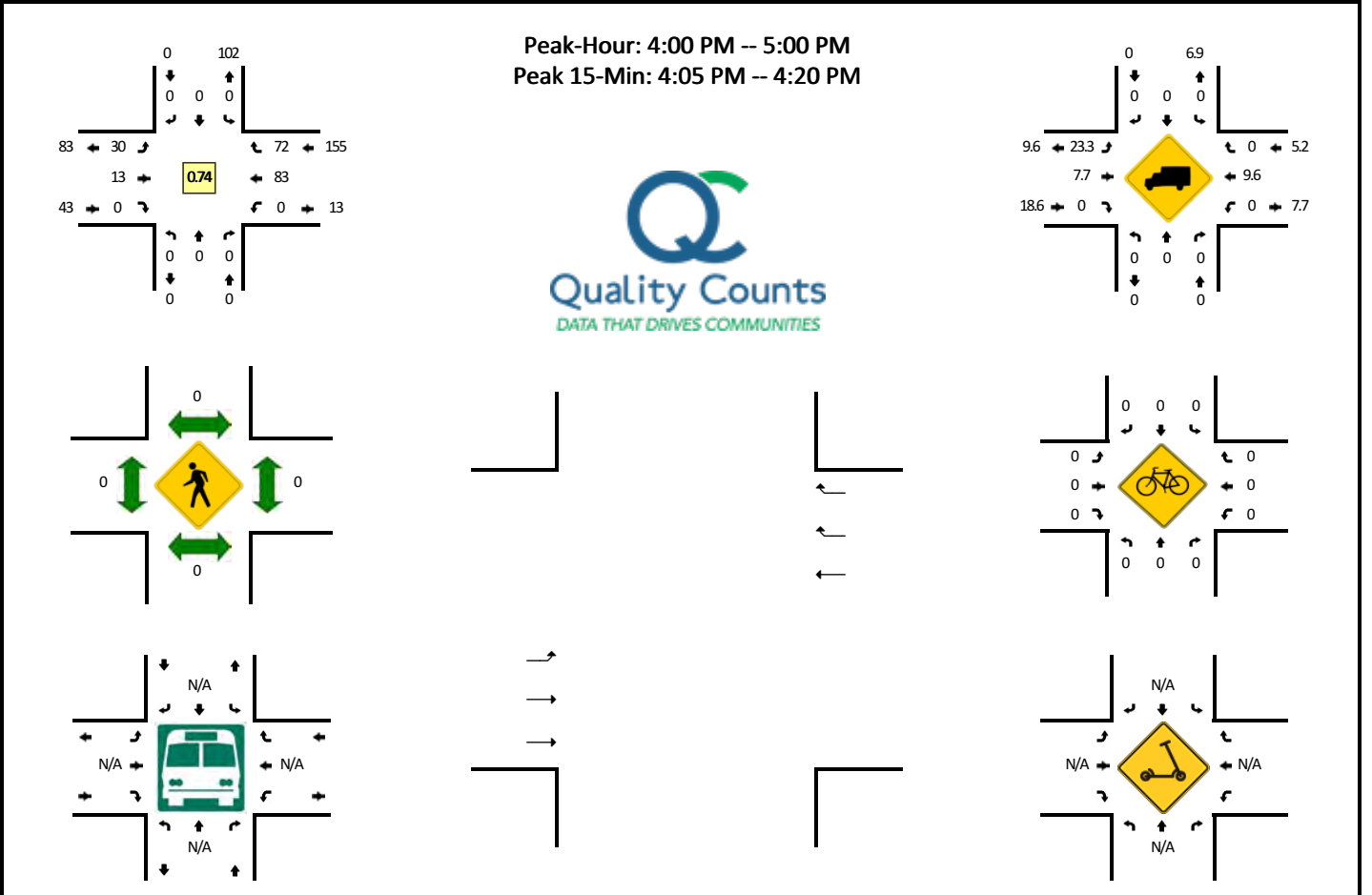


5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	0	0	0	0	0	0	2	5	0	0	0	3	1	0	0	11	
7:05 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4	
7:10 AM	0	0	0	0	0	0	0	0	1	5	0	0	0	0	1	2	0	9	
7:15 AM	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	6	
7:20 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	0	2	1	0	10	
7:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	0	5	
7:30 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	7	0	0	12	
7:35 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	8	
7:40 AM	0	0	0	0	0	0	0	0	2	6	0	0	0	0	2	0	0	10	
7:45 AM	0	0	0	0	0	0	0	0	4	2	0	0	0	0	1	0	0	7	
7:50 AM	0	0	0	0	0	0	0	0	4	1	0	0	0	0	4	0	0	9	
7:55 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	1	0	0	9	100
8:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	1	0	6	95
8:05 AM	0	0	0	0	0	0	0	0	3	4	0	0	0	0	9	0	0	16	107
8:10 AM	0	0	0	0	0	0	0	0	6	5	0	0	0	0	3	1	0	15	113
8:15 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	3	0	0	9	116
8:20 AM	0	0	0	0	0	0	0	0	4	3	0	1	0	0	3	1	0	12	118
8:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	1	0	6	119
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	4	111
8:35 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	0	0	7	110
8:40 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4	0	0	8	108
8:45 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	3	1	0	9	110
8:50 AM	0	0	0	0	0	0	0	0	1	1	0	1	0	0	2	1	0	6	107
8:55 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	4	1	0	11	109
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	0	0	0	0	0	0	56	40	0	0	0	60	4	0	160		
Heavy Trucks	0	0	0	0	0	0	0	0	40	8	0	0	0	20	0	68			
Buses																			
Pedestrians		0				0				0				0		0			
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0	0			
Scoters																			

Comments:

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952604
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	10	4	0	17	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	9	0	17	
4:10 PM	0	0	0	0	0	0	0	0	6	2	0	0	0	10	14	0	32	
4:15 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	6	8	0	18	
4:20 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	9	5	0	16	
4:25 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	3	5	0	12	
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	7	2	0	10	
4:35 PM	0	0	0	0	0	0	0	0	5	1	0	0	0	5	4	0	15	
4:40 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	7	5	0	14	
4:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	8	9	0	20	
4:50 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	7	2	0	15	
4:55 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	3	5	0	12	198
5:00 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	3	2	0	12	193
5:05 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	6	4	0	12	188
5:10 PM	0	0	0	0	0	0	0	0	4	1	0	0	0	2	3	0	10	166
5:15 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	1	3	0	10	158
5:20 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	7	1	0	13	155
5:25 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	147
5:30 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	5	2	0	11	148
5:35 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	3	0	7	140
5:40 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	2	2	0	8	134
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	3	0	7	121
5:50 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	5	0	0	8	114
5:55 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3	105
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	0	0	32	16	0	0	0	96	124	0	268	
Heavy Trucks	0	0	0	0	0	0	0	0	8	4	0	0	0	12	0	0	24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

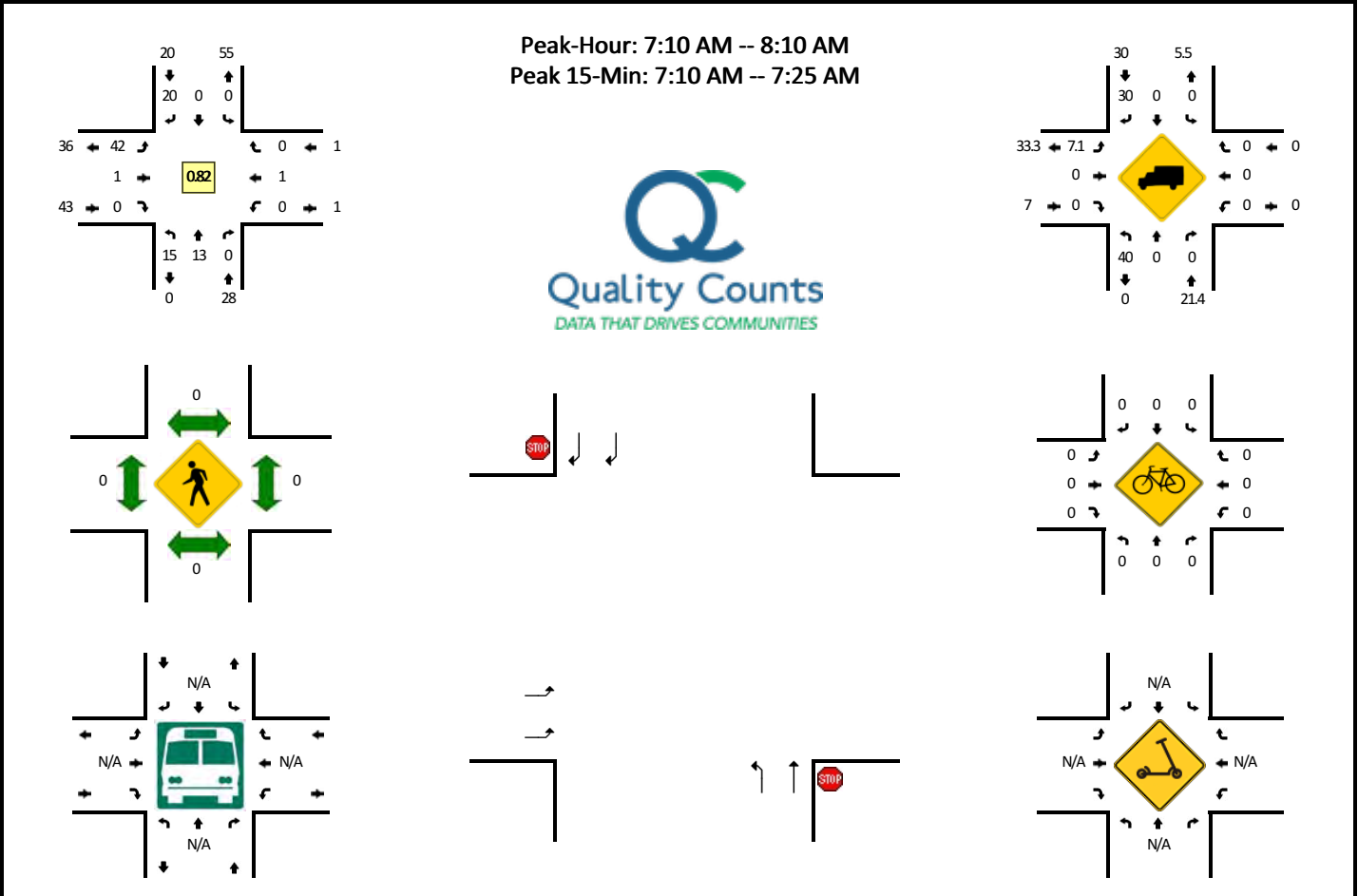
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
 CITY/STATE: Ada, ID

QC JOB #: 15952605
 DATE: Thu, Sep 22 2022

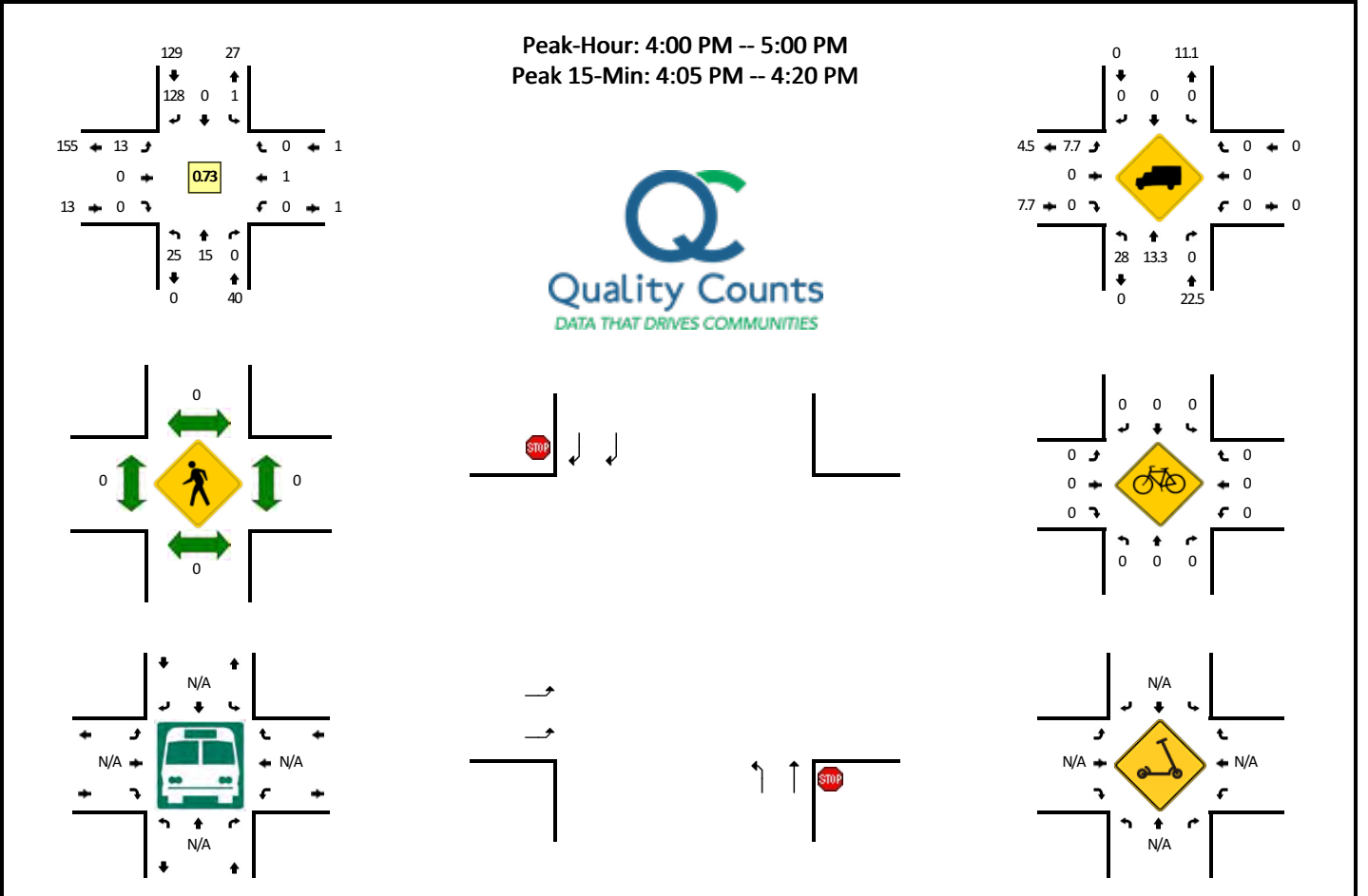


5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	2	0	0	0	0	3	0	5	0	0	0	0	0	0	0	11	
7:05 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	
7:10 AM	0	0	0	0	0	0	2	0	3	1	0	0	0	1	0	0	7	
7:15 AM	0	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	10	
7:20 AM	1	2	0	0	0	0	2	0	6	0	0	0	0	0	0	0	11	
7:25 AM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	
7:30 AM	3	2	0	0	0	0	4	0	1	0	0	0	0	0	0	0	10	
7:35 AM	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	
7:40 AM	1	1	0	0	0	0	1	0	6	0	0	0	0	0	0	0	9	
7:45 AM	1	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	5	
7:50 AM	2	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	8	
7:55 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	84
8:00 AM	1	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	7	80
8:05 AM	4	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	14	92
8:10 AM	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	6	91
8:15 AM	2	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	8	89
8:20 AM	2	1	0	0	0	0	2	0	3	0	0	0	0	0	0	0	8	86
8:25 AM	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	86
8:30 AM	1	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
8:35 AM	2	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	81
8:40 AM	2	1	0	0	0	0	2	0	2	0	0	0	0	0	0	0	7	79
8:45 AM	2	2	0	0	0	0	2	0	3	0	0	0	0	0	0	0	9	83
8:50 AM	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4	79
8:55 AM	1	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	6	82
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	28	0	0	0	0	16	0	56	4	0	0	0	4	0	0	112	
Heavy Trucks	4	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952606
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	1	0	0	1	0	8	0	1	0	0	0	0	0	0	0	16	
4:05 PM	2	4	0	0	0	0	15	0	0	0	0	0	0	0	0	0	21	
4:10 PM	3	0	0	0	0	0	20	0	1	0	0	0	0	1	0	0	25	
4:15 PM	1	0	0	0	0	0	13	0	3	0	0	0	0	0	0	0	17	
4:20 PM	2	0	0	0	0	0	12	0	1	0	0	0	0	0	0	0	15	
4:25 PM	0	1	0	0	0	0	8	0	1	0	0	0	0	0	0	0	10	
4:30 PM	0	2	0	0	0	0	9	0	0	0	0	0	0	0	0	0	11	
4:35 PM	4	3	0	0	0	0	5	0	1	0	0	0	0	0	0	0	13	
4:40 PM	2	1	0	0	0	0	10	0	1	0	0	0	0	0	0	0	14	
4:45 PM	2	1	0	0	0	0	15	0	0	0	0	0	0	0	0	0	18	
4:50 PM	2	1	0	0	0	0	7	0	1	0	0	1	0	0	0	0	12	
4:55 PM	2	1	0	0	0	0	6	0	2	0	0	0	0	0	0	0	11	183
5:00 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	172
5:05 PM	2	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0	11	162
5:10 PM	2	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	7	144
5:15 PM	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	132
5:20 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	124
5:25 PM	1	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	119
5:30 PM	3	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	8	116
5:35 PM	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	108
5:40 PM	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	99
5:45 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	88
5:50 PM	2	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
5:55 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	72
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	16	0	0	0	0	192	0	16	0	0	0	0	4	0	0	252	
Heavy Trucks	12	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	16	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

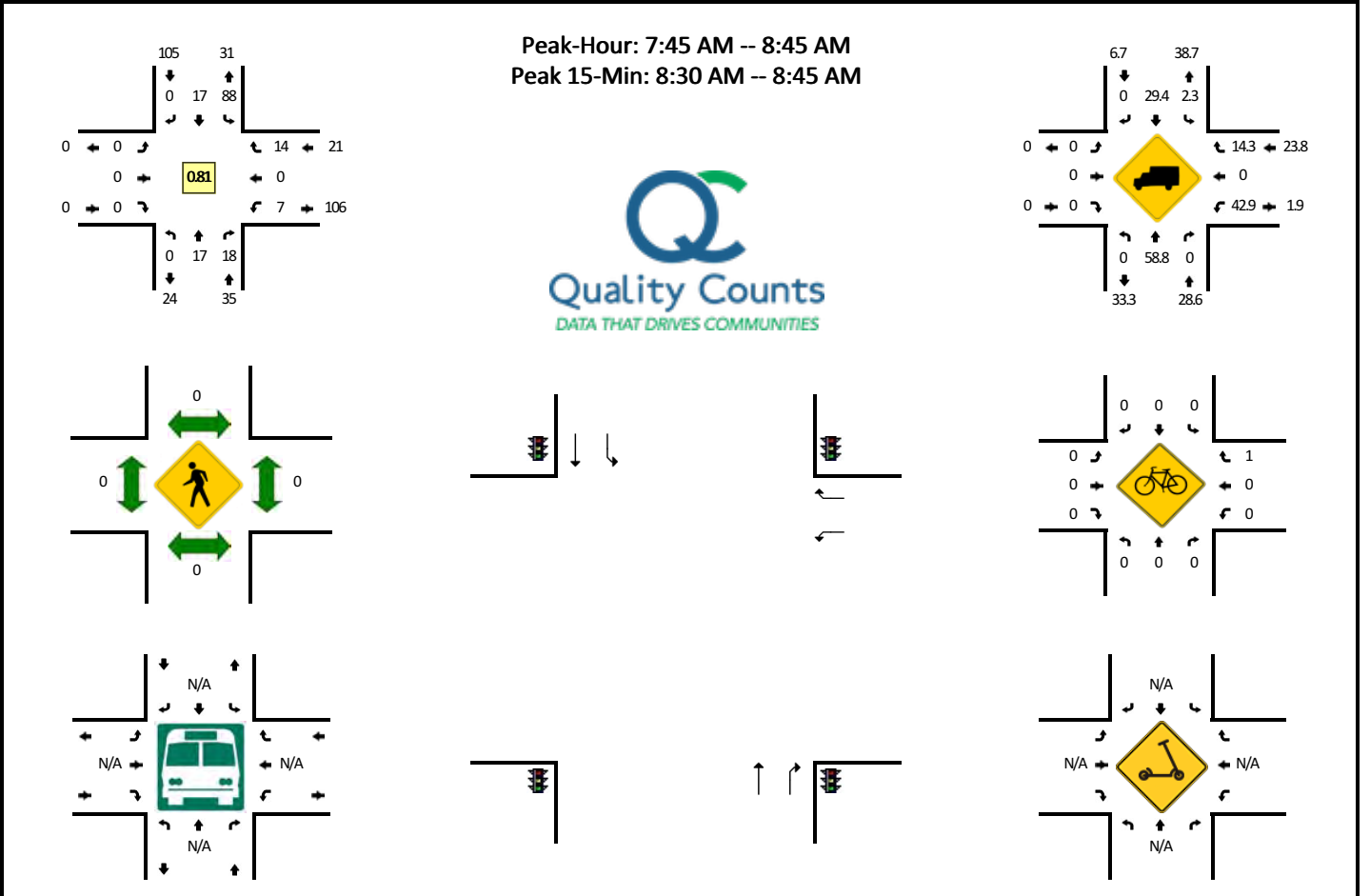
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952607
DATE: Thu, Sep 22 2022

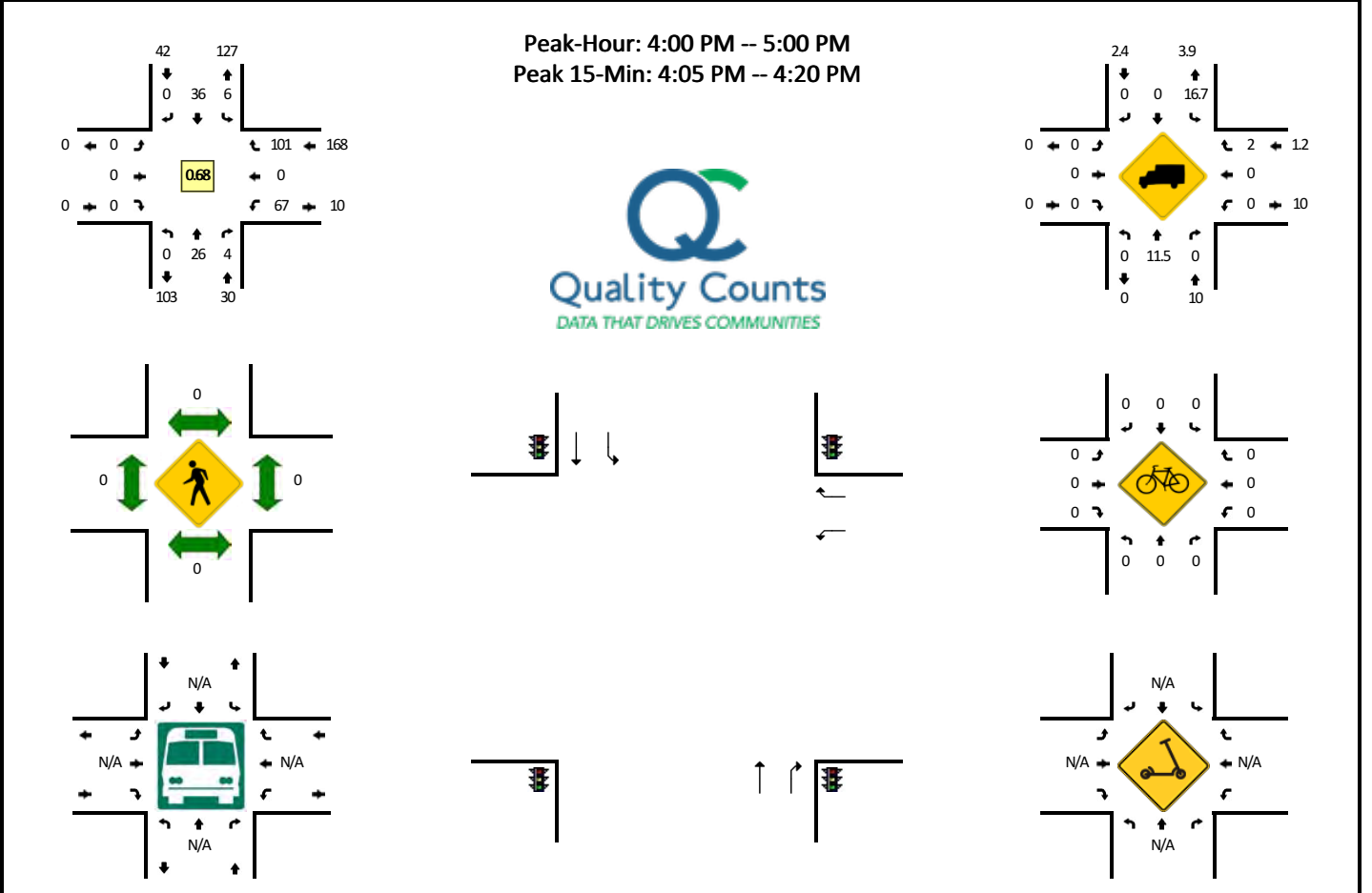


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	7	0	6	1	0	0	0	0	0	0	2	0	1	0	18	
7:05 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	4	
7:10 AM	0	1	2	0	2	1	0	0	0	0	0	0	0	0	2	0	8	
7:15 AM	0	4	2	0	4	1	0	0	0	0	0	0	0	0	0	0	11	
7:20 AM	0	3	4	0	5	2	0	0	0	0	0	0	0	0	0	0	14	
7:25 AM	0	1	0	0	4	2	0	0	0	0	0	0	0	0	0	0	7	
7:30 AM	0	3	1	0	4	5	0	0	0	0	0	0	1	0	0	0	14	
7:35 AM	0	1	2	0	3	1	0	0	0	0	0	0	0	0	0	0	7	
7:40 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
7:45 AM	0	2	4	0	6	2	0	0	0	0	0	0	0	0	2	0	16	
7:50 AM	0	1	1	0	5	2	0	0	0	0	0	0	0	0	1	0	10	
7:55 AM	0	1	4	0	11	0	0	0	0	0	0	0	1	0	1	0	18	133
8:00 AM	0	2	0	0	5	1	0	0	0	0	0	0	0	0	0	0	8	123
8:05 AM	0	1	4	0	8	3	0	0	0	0	0	0	0	0	4	0	20	139
8:10 AM	0	0	2	0	10	2	0	0	0	0	0	0	0	0	0	0	14	145
8:15 AM	0	1	1	0	4	1	0	0	0	0	0	0	1	0	0	0	8	142
8:20 AM	0	3	1	0	6	1	0	0	0	0	0	0	0	0	1	0	11	139
8:25 AM	0	1	0	0	4	0	0	0	0	0	0	0	0	0	1	0	6	138
8:30 AM	0	2	0	0	8	1	0	0	0	0	0	0	1	0	1	0	13	137
8:35 AM	0	1	1	0	9	3	0	0	0	0	0	0	1	0	4	0	19	149
8:40 AM	0	2	0	0	12	1	0	0	0	0	0	0	3	0	0	0	18	161
8:45 AM	0	4	3	0	5	1	0	0	0	0	0	0	1	0	0	0	14	159
8:50 AM	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	3	152
8:55 AM	0	0	1	0	3	1	0	0	0	0	0	0	1	0	2	0	8	142
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	20	4	0	116	20	0	0	0	0	0	0	20	0	20	0	200	
Heavy Trucks	0	12	0	0	0	12	0	0	0	0	0	0	8	0	0	0	32	
Buses																	0	
Pedestrians		0				0					0			0			0	
Bicycles	0	0	0		0	0	0			0	0	0	0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952608
DATE: Thu, Sep 22 2022

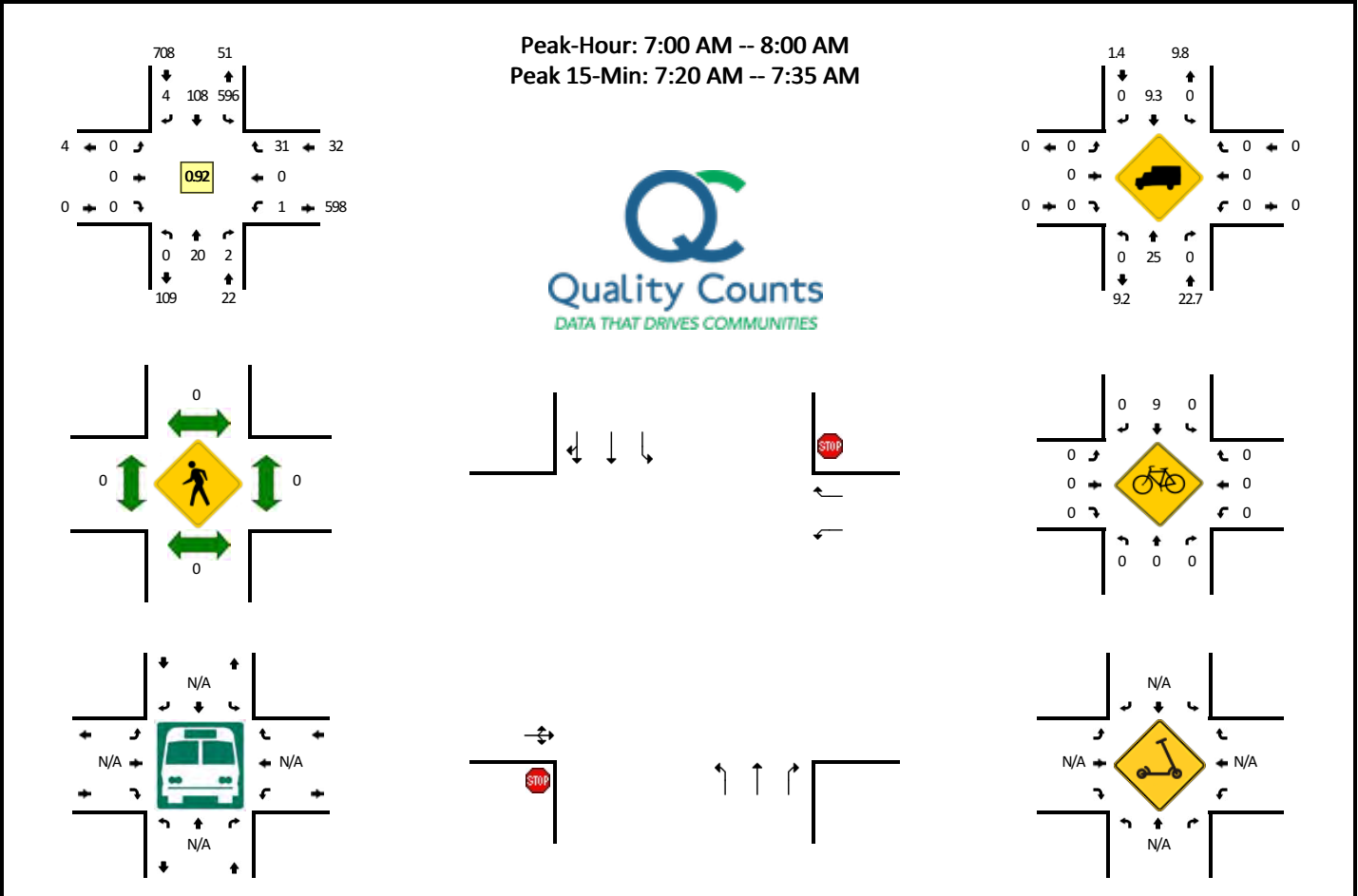


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	1	0	0	4	0	0	0	0	0	0	6	0	9	0	21	
4:05 PM	0	5	0	0	0	8	0	0	0	0	0	0	7	0	13	0	33	
4:10 PM	0	3	0	0	1	5	0	0	0	0	0	0	7	0	12	0	28	
4:15 PM	0	3	0	0	1	3	0	0	0	0	0	0	11	0	9	0	27	
4:20 PM	0	0	0	0	0	2	0	0	0	0	0	0	7	0	8	0	17	
4:25 PM	0	1	0	0	0	2	0	0	0	0	0	0	5	0	11	0	19	
4:30 PM	0	3	1	0	1	3	0	0	0	0	0	0	5	0	2	0	15	
4:35 PM	0	2	2	0	1	0	0	0	0	0	0	0	3	0	7	0	15	
4:40 PM	0	1	0	0	0	5	0	0	0	0	0	0	4	0	10	0	20	
4:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	7	0	7	0	17	
4:50 PM	0	0	0	0	0	2	0	0	0	0	0	0	3	0	9	0	14	
4:55 PM	0	6	0	0	2	0	0	0	0	0	0	0	2	0	4	0	14	240
5:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	4	0	4	0	11	230
5:05 PM	0	1	1	0	1	2	0	0	0	0	0	0	1	0	7	0	13	210
5:10 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	7	189
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	4	0	9	171
5:20 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	6	0	9	163
5:25 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	9	0	14	158
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	6	0	9	152
5:35 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	5	0	10	147
5:40 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	0	1	0	5	132
5:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	2	0	6	121
5:50 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	0	5	112
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	100
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	44	0	0	8	64	0	0	0	0	0	0	100	0	136	0	352	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																	0	

Comments:

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952609
DATE: Thu, Sep 22 2022

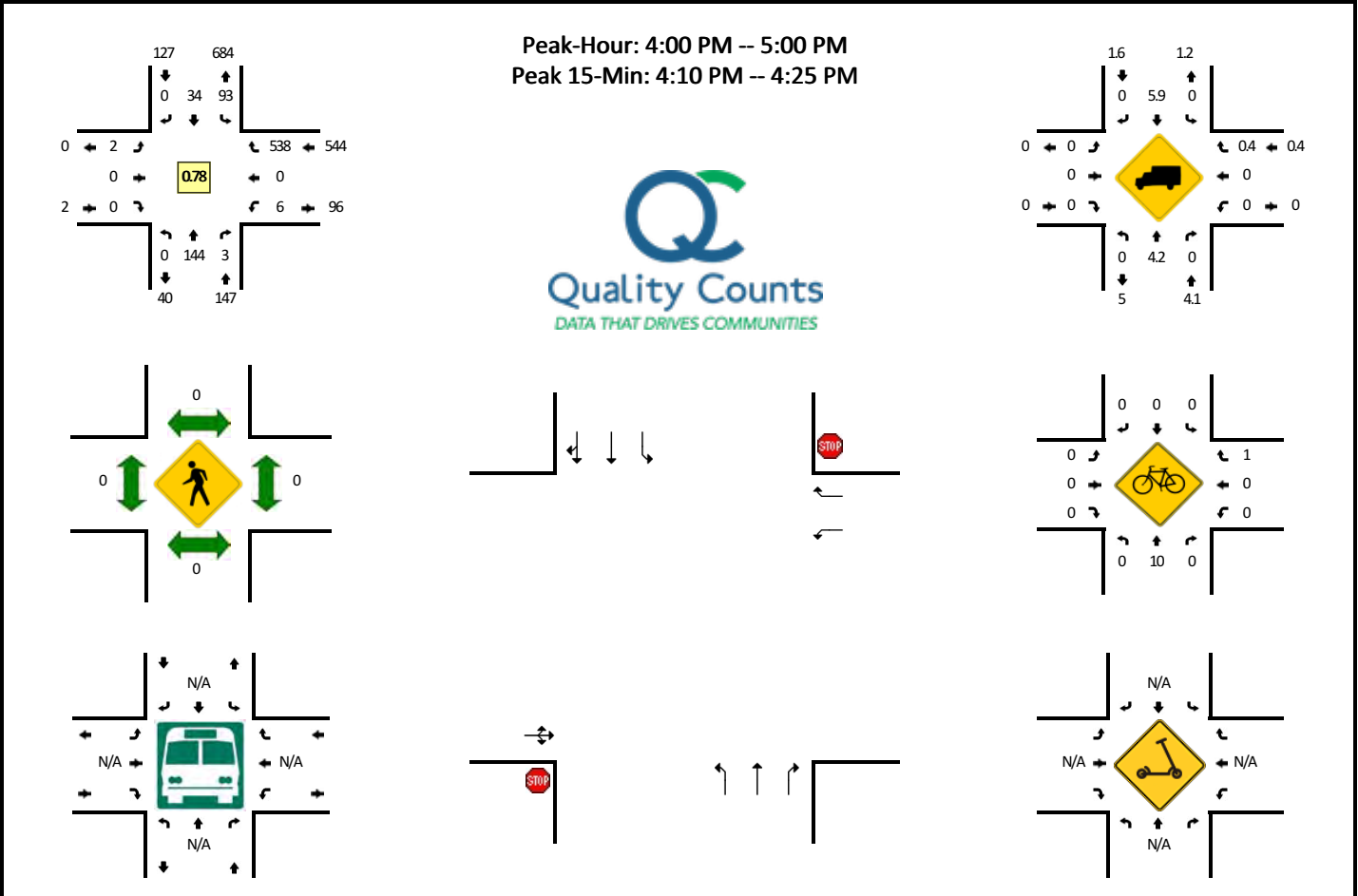


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	2	0	0	61	11	0	0	0	0	0	0	0	0	3	0	77	
7:05 AM	0	3	0	0	58	6	1	0	0	0	0	0	0	0	1	0	69	
7:10 AM	0	1	0	0	50	8	0	0	0	0	0	0	0	0	1	0	60	
7:15 AM	0	2	1	0	42	6	0	0	0	0	0	0	0	0	2	0	53	
7:20 AM	0	2	0	0	62	9	0	0	0	0	0	0	0	0	5	0	78	
7:25 AM	0	0	0	0	57	13	0	0	0	0	0	0	0	0	3	0	73	
7:30 AM	0	1	0	0	42	11	0	0	0	0	0	0	0	0	2	0	56	
7:35 AM	0	3	0	0	42	9	0	0	0	0	0	0	0	0	4	0	58	
7:40 AM	0	1	0	0	50	4	1	0	0	0	0	0	0	0	1	0	57	
7:45 AM	0	3	0	0	49	9	1	0	0	0	0	0	1	0	3	0	66	
7:50 AM	0	1	1	0	41	9	0	0	0	0	0	0	0	0	3	0	55	
7:55 AM	0	1	0	0	42	13	1	0	0	0	0	0	0	0	3	0	60	762
8:00 AM	0	5	0	0	42	9	0	0	0	0	0	0	0	0	6	0	62	747
8:05 AM	0	2	0	0	36	14	0	0	0	0	0	0	0	0	4	0	56	734
8:10 AM	0	3	0	0	33	5	0	0	0	0	0	0	1	0	1	0	43	717
8:15 AM	0	2	0	0	25	7	0	0	1	0	0	0	0	0	3	0	38	702
8:20 AM	0	2	0	0	29	7	0	0	0	0	0	0	0	0	0	0	38	662
8:25 AM	0	2	0	0	18	1	0	0	0	0	0	0	0	0	4	0	25	614
8:30 AM	0	2	0	0	29	10	0	0	0	0	0	0	0	0	4	0	45	603
8:35 AM	0	7	0	0	20	6	0	0	0	0	0	0	0	0	3	0	36	581
8:40 AM	0	3	0	0	21	11	0	0	0	0	0	0	0	0	2	0	37	561
8:45 AM	0	6	0	0	9	3	0	0	0	0	0	0	0	0	3	0	21	516
8:50 AM	0	0	0	0	6	3	0	0	0	0	1	0	0	0	0	0	10	471
8:55 AM	0	1	0	0	18	6	0	0	0	0	0	0	0	0	3	0	28	439
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	12	0	0	644	132	0	0	0	0	0	0	0	0	40	0	828	
Heavy Trucks	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952610
DATE: Thu, Sep 22 2022

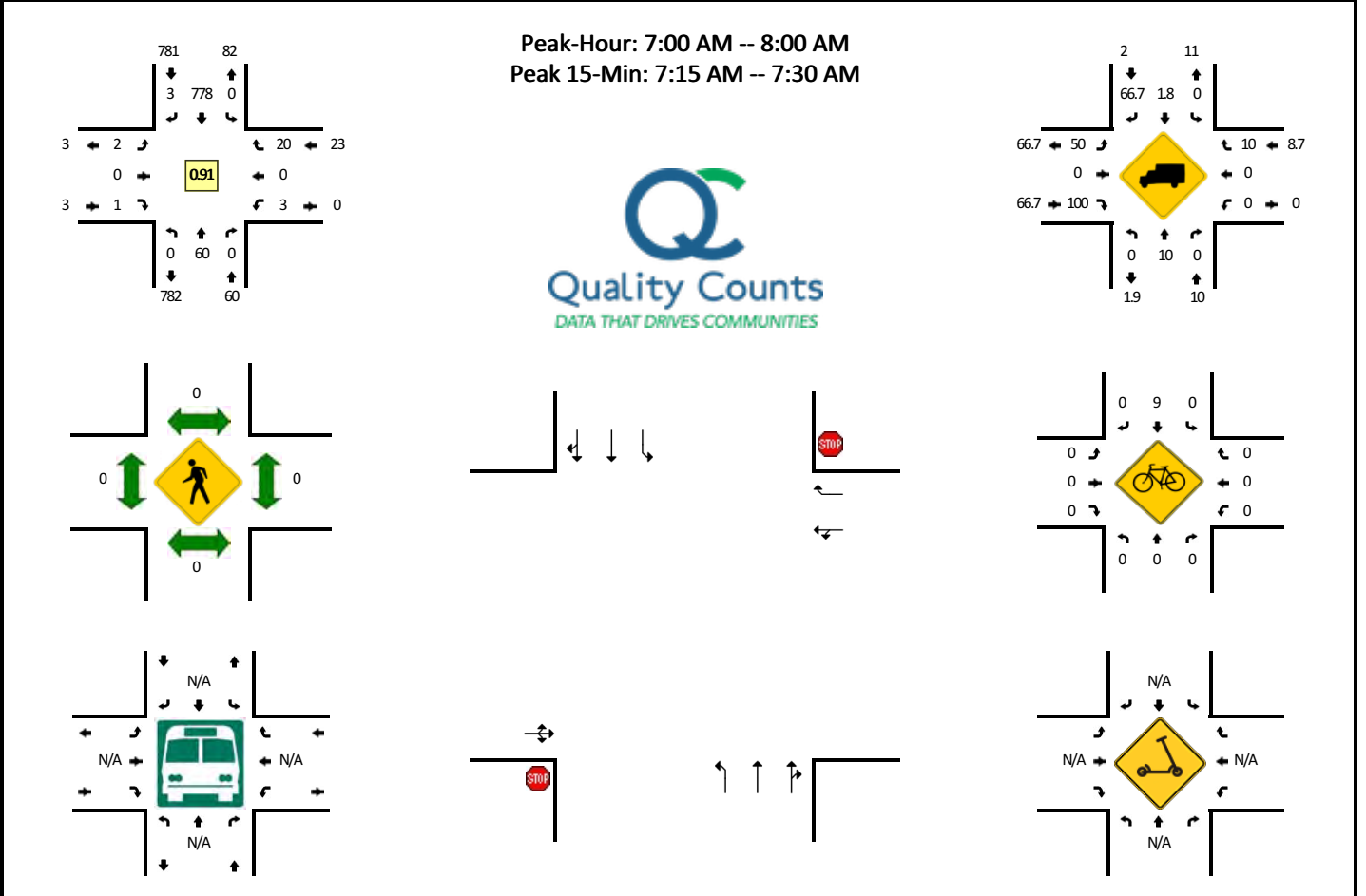


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	11	0	0	10	3	0	0	1	0	0	0	1	0	39	0	65	
4:05 PM	0	15	0	0	4	5	0	0	0	0	0	0	1	0	51	0	76	
4:10 PM	0	22	0	0	5	4	0	0	1	0	0	0	2	0	60	0	94	
4:15 PM	0	16	0	0	6	4	0	0	0	0	0	0	1	0	62	0	89	
4:20 PM	0	12	0	0	3	2	0	0	0	0	0	0	0	0	64	0	81	
4:25 PM	0	14	0	0	8	3	0	0	0	0	0	0	0	0	39	0	64	
4:30 PM	0	7	0	0	9	3	0	0	0	0	0	0	0	0	42	0	61	
4:35 PM	0	6	1	0	9	1	0	0	0	0	0	0	0	0	42	0	59	
4:40 PM	0	9	1	0	7	4	0	0	0	0	0	0	1	0	31	0	53	
4:45 PM	0	9	0	0	15	1	0	0	0	0	0	0	0	0	32	0	57	
4:50 PM	0	8	0	0	9	2	0	0	0	0	0	0	0	0	34	0	53	
4:55 PM	0	15	1	0	8	2	0	0	0	0	0	0	0	0	42	0	68	820
5:00 PM	0	3	0	0	6	3	0	0	0	0	0	0	0	0	33	0	45	800
5:05 PM	0	13	0	0	7	2	0	0	0	0	0	0	0	0	35	0	57	781
5:10 PM	0	12	0	0	7	0	0	0	0	0	0	0	0	0	36	0	55	742
5:15 PM	0	4	0	0	6	1	0	0	0	0	0	0	0	0	24	0	35	688
5:20 PM	0	9	0	0	5	3	0	0	0	0	0	0	0	0	25	0	42	649
5:25 PM	0	10	0	0	3	0	0	0	0	0	0	0	1	0	26	0	40	625
5:30 PM	0	10	0	0	0	1	0	0	0	0	0	0	0	0	23	0	34	598
5:35 PM	0	8	0	0	3	1	0	0	0	0	0	0	0	0	21	0	33	572
5:40 PM	0	4	0	0	2	1	0	0	0	0	0	0	0	0	23	0	30	549
5:45 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	0	20	0	27	519
5:50 PM	0	2	0	0	4	1	0	0	0	0	0	0	0	0	23	0	30	496
5:55 PM	0	4	0	0	5	0	0	0	0	0	0	0	0	0	23	0	32	460
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	200	0	0	56	40	0	0	4	0	0	0	12	0	744	0	1056	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	4	0	12	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	8	0		0	0	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952611
DATE: Thu, Sep 22 2022

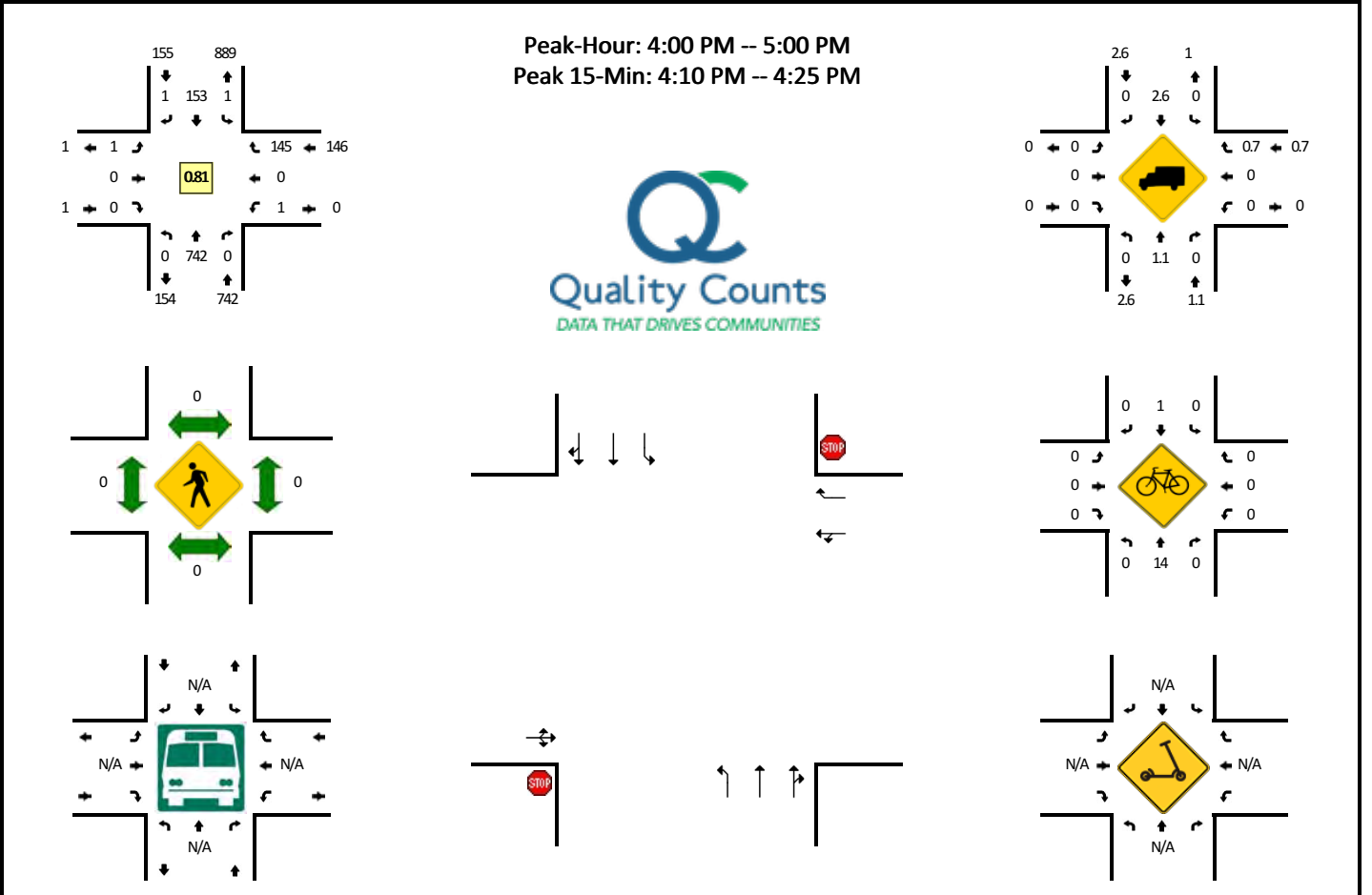


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	0	0	0	79	0	0	0	0	0	0	0	0	2	0	86	
7:05 AM	0	6	0	0	0	61	0	0	0	0	0	0	0	1	0	0	68	
7:10 AM	0	3	0	0	0	58	0	0	0	0	0	0	0	2	0	1	64	
7:15 AM	0	5	0	0	0	64	0	0	0	0	0	0	0	0	0	1	70	
7:20 AM	0	4	0	0	0	74	1	0	0	0	0	0	0	0	0	2	81	
7:25 AM	0	6	0	0	0	77	0	0	0	1	0	1	0	0	0	2	87	
7:30 AM	0	2	0	0	0	62	1	0	0	0	0	0	0	0	0	2	67	
7:35 AM	0	12	0	0	0	56	1	0	0	0	0	0	0	0	0	3	72	
7:40 AM	0	3	0	0	0	75	0	0	0	1	0	0	0	0	0	1	80	
7:45 AM	0	4	0	0	0	51	0	0	0	0	0	0	0	0	0	2	57	
7:50 AM	0	7	0	0	0	56	0	0	0	0	0	0	0	0	0	4	67	
7:55 AM	0	3	0	0	0	65	0	0	0	0	0	0	0	0	0	0	68	867
8:00 AM	0	9	0	0	0	48	0	0	0	0	0	0	0	1	0	1	59	840
8:05 AM	0	11	0	0	0	40	0	0	0	0	0	0	0	1	0	1	53	825
8:10 AM	0	6	0	0	0	45	0	0	0	0	0	0	0	0	0	1	52	813
8:15 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	782
8:20 AM	0	5	0	0	0	43	0	0	0	0	0	0	0	0	0	0	48	749
8:25 AM	0	7	0	0	0	20	1	0	0	1	0	0	0	0	0	3	32	694
8:30 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	666
8:35 AM	0	11	0	0	0	41	0	0	0	0	0	0	0	1	0	2	55	649
8:40 AM	0	5	0	0	0	23	0	0	0	2	0	0	0	0	0	1	31	600
8:45 AM	0	10	0	0	0	17	2	0	0	0	0	0	0	0	0	2	31	574
8:50 AM	0	4	0	0	0	23	0	0	0	0	0	0	0	0	0	3	30	537
8:55 AM	0	2	0	0	0	16	0	0	0	0	0	0	0	0	0	1	19	488
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	60	0	0	0	860	4	0	4	4	0	4	0	0	20	0	952	
Heavy Trucks	0	0	0	0	0	16	4	0	4	0	4	0	0	0	4	0	32	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952612
DATE: Thu, Sep 22 2022

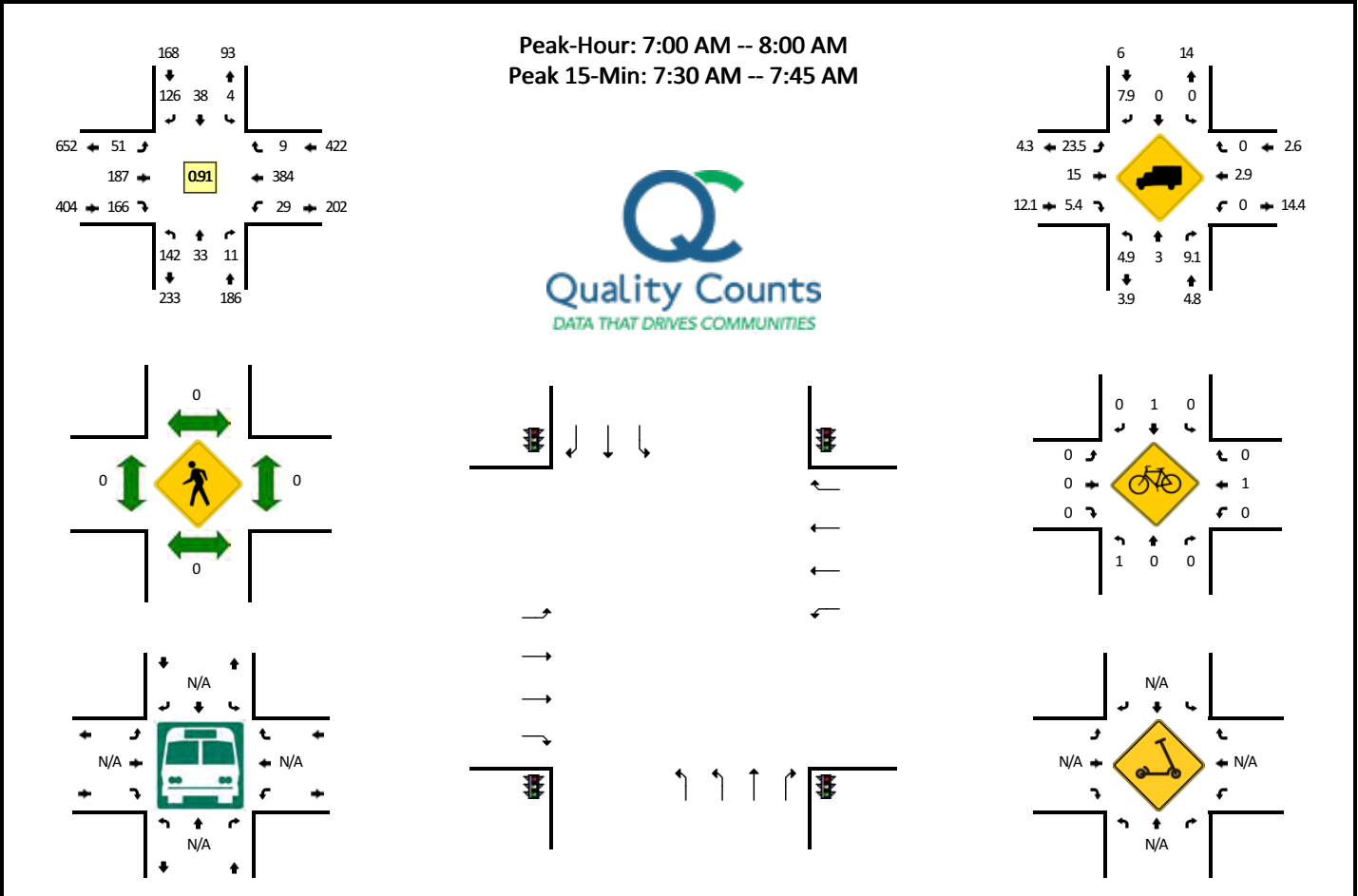


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	50	0	0	0	17	0	0	0	0	0	0	0	0	19	0	86	
4:05 PM	0	69	0	0	0	5	0	0	0	0	0	0	1	0	18	0	93	
4:10 PM	0	85	0	0	0	11	0	0	0	0	0	0	0	0	17	0	113	
4:15 PM	0	84	0	0	0	12	0	0	0	0	0	0	0	0	11	0	107	
4:20 PM	0	77	0	0	0	13	0	0	0	0	0	0	0	0	14	0	104	
4:25 PM	0	58	0	0	0	10	0	0	0	0	0	0	0	0	10	0	78	
4:30 PM	0	60	0	0	0	13	0	1	0	0	0	0	0	0	25	0	99	
4:35 PM	0	75	0	0	0	18	1	0	0	1	0	0	0	0	8	0	103	
4:40 PM	0	41	0	0	0	10	0	0	0	0	0	0	0	0	9	0	60	
4:45 PM	0	38	0	0	0	18	0	0	0	0	0	0	0	0	7	0	63	
4:50 PM	0	45	0	0	0	13	0	0	0	0	0	0	0	0	3	0	61	
4:55 PM	0	60	0	0	0	13	0	0	0	0	0	0	0	0	4	0	77	1044
5:00 PM	0	41	0	0	0	6	0	0	0	0	0	0	0	0	7	0	54	1012
5:05 PM	0	47	0	0	0	11	0	0	0	0	0	0	0	0	5	0	63	982
5:10 PM	0	51	0	0	0	8	0	0	0	0	0	0	0	0	11	0	70	939
5:15 PM	0	31	0	0	0	5	0	0	0	0	0	0	0	0	12	0	48	880
5:20 PM	0	33	0	0	0	9	0	0	0	1	0	0	0	0	5	0	48	824
5:25 PM	0	43	0	0	0	3	0	0	0	0	0	0	0	0	5	0	51	797
5:30 PM	0	30	0	0	0	4	0	0	0	0	0	0	0	0	5	0	39	737
5:35 PM	0	29	0	0	0	4	0	0	0	0	0	0	0	0	8	0	41	675
5:40 PM	0	33	0	0	0	4	0	0	0	0	0	0	0	0	5	0	42	657
5:45 PM	0	19	0	0	0	3	0	0	0	0	0	0	0	0	4	0	26	620
5:50 PM	0	25	0	0	0	6	0	0	0	0	0	0	0	0	4	0	35	594
5:55 PM	0	26	0	0	0	6	0	0	0	0	0	0	0	0	1	0	33	550
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	984	0	0	0	144	0	0	0	0	0	0	0	0	168	0	1296	
Heavy Trucks	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians	0				0					0				0			0	
Bicycles	0	24	0		0	0	0			0	0	0		0	0		24	
Scooters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952613
DATE: Thu, Sep 22 2022

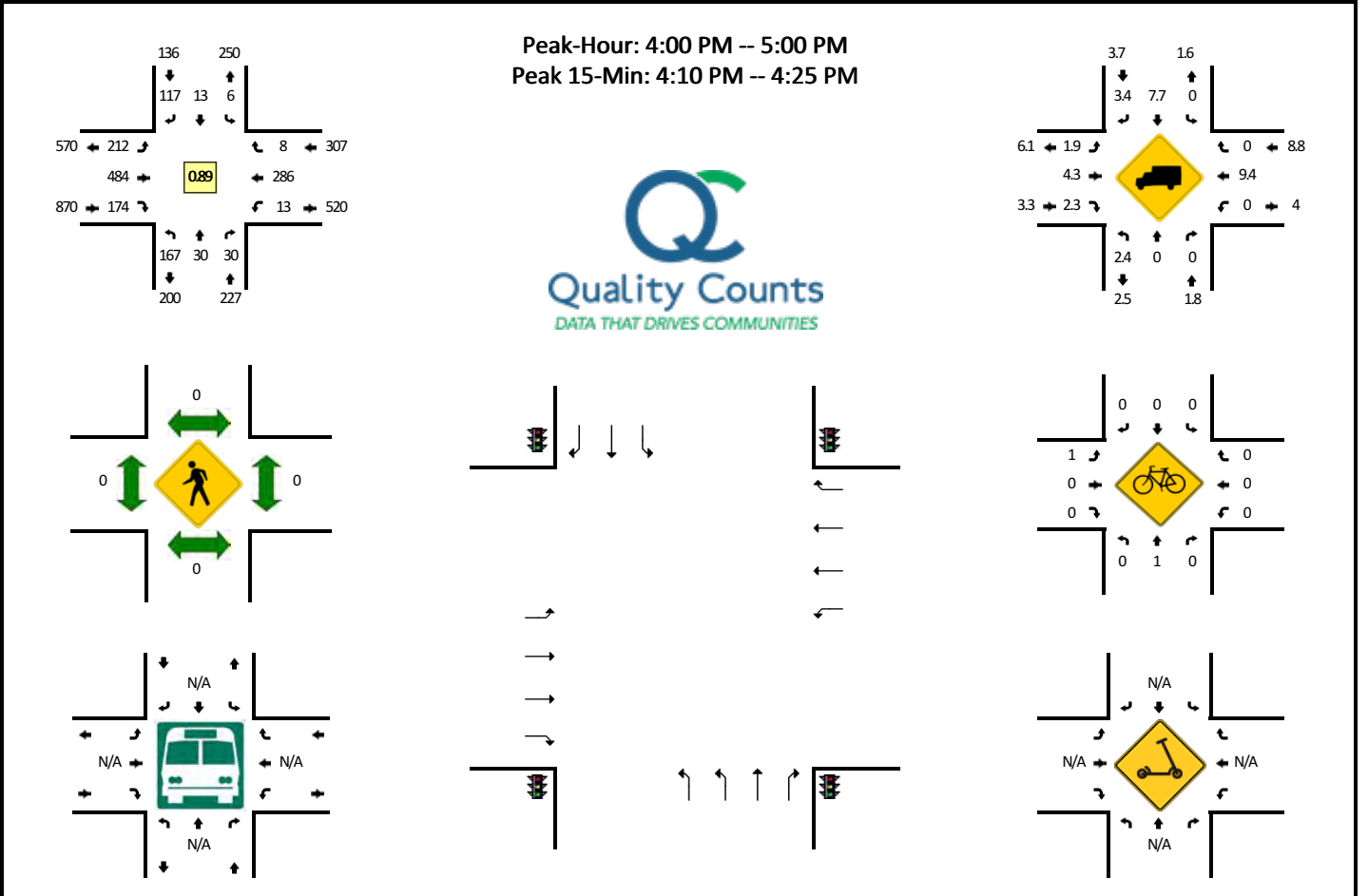


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	1	0	0	0	2	5	0	4	20	22	0	2	21	0	0	87	
7:05 AM	17	1	2	0	0	3	9	0	2	17	16	0	3	33	1	0	104	
7:10 AM	12	1	1	0	0	1	10	0	9	23	15	0	6	50	1	0	129	
7:15 AM	12	0	1	0	1	1	9	0	1	18	10	0	2	30	0	0	85	
7:20 AM	17	3	1	0	0	2	7	0	6	16	10	0	2	28	0	0	92	
7:25 AM	11	7	3	0	1	4	12	0	3	10	12	0	4	20	1	0	88	
7:30 AM	9	8	0	0	0	2	8	0	5	11	10	0	2	48	1	0	104	
7:35 AM	15	8	0	0	0	4	18	0	3	17	15	0	3	43	2	0	128	
7:40 AM	5	3	1	0	1	10	12	0	2	11	11	0	1	35	1	0	93	
7:45 AM	13	0	0	0	1	5	9	0	3	13	19	0	1	27	1	0	92	
7:50 AM	8	0	0	0	0	1	13	0	8	17	16	0	2	26	0	0	91	
7:55 AM	13	1	2	0	0	3	14	0	5	14	10	0	1	23	1	0	87	1180
8:00 AM	12	0	0	0	0	1	4	0	3	22	14	0	0	28	0	0	84	1177
8:05 AM	8	0	1	0	0	2	10	0	10	21	21	0	2	24	2	0	101	1174
8:10 AM	7	0	0	0	0	1	11	0	2	18	15	0	4	20	0	0	78	1123
8:15 AM	2	1	1	0	1	1	7	0	5	11	19	0	4	30	0	0	82	1120
8:20 AM	3	0	0	0	0	2	9	0	6	18	19	0	3	27	0	0	87	1115
8:25 AM	13	1	1	0	0	1	7	0	9	26	7	0	1	17	0	0	83	1110
8:30 AM	3	0	2	0	0	0	6	0	1	11	11	0	1	24	0	0	59	1065
8:35 AM	10	0	1	0	0	2	9	0	5	13	19	0	1	20	0	0	80	1017
8:40 AM	6	2	0	0	0	0	8	0	6	21	7	0	0	22	0	0	72	996
8:45 AM	4	0	0	0	0	1	7	0	4	11	7	0	1	34	0	0	69	973
8:50 AM	6	0	1	0	0	1	12	0	5	10	12	0	2	23	0	0	72	954
8:55 AM	5	0	1	0	0	2	7	0	6	12	13	0	1	14	0	0	61	928
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	116	76	4	0	4	64	152	0	40	156	144	0	24	504	16	0	1300	
Heavy Trucks	8	0	0		0	0	16		8	28	8		0	4	0		72	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952614
DATE: Thu, Sep 22 2022

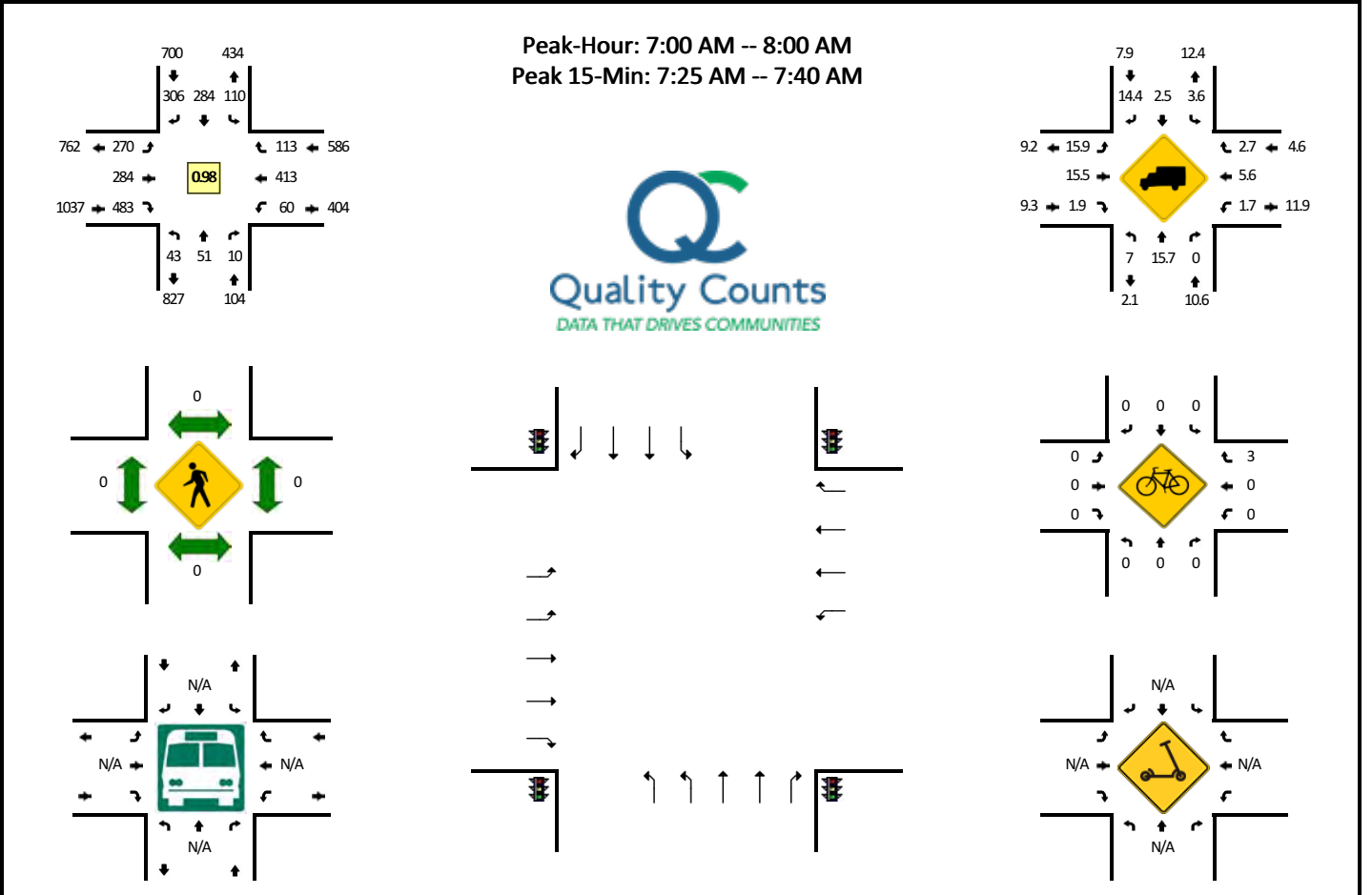


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	4	3	0	0	1	12	0	8	38	8	0	0	20	0	0	115	
4:05 PM	15	1	3	0	1	0	12	0	25	36	11	0	2	29	0	0	135	
4:10 PM	14	3	2	0	0	1	13	0	27	38	21	0	0	22	3	0	144	
4:15 PM	13	3	5	0	0	3	6	0	17	46	11	0	0	32	0	0	136	
4:20 PM	15	1	4	0	0	2	11	0	18	55	8	0	4	31	2	0	151	
4:25 PM	16	1	1	0	1	1	11	0	18	37	20	0	0	34	0	0	140	
4:30 PM	12	2	2	0	0	0	9	0	22	42	20	0	1	20	0	0	130	
4:35 PM	18	2	2	0	0	2	13	0	17	29	10	0	2	20	0	0	115	
4:40 PM	13	1	3	0	3	0	8	0	15	37	21	0	1	16	0	0	118	
4:45 PM	12	4	3	0	1	0	9	0	20	32	23	0	0	18	1	0	123	
4:50 PM	10	5	1	0	0	1	8	0	7	37	14	0	1	30	2	0	116	
4:55 PM	8	3	1	0	0	2	5	0	18	57	7	0	2	14	0	0	117	1540
5:00 PM	10	3	3	0	2	0	11	0	19	23	11	0	2	18	1	0	103	1528
5:05 PM	13	1	5	0	2	1	10	0	14	28	19	0	1	35	0	0	129	1522
5:10 PM	6	2	3	0	1	2	16	0	6	44	10	0	1	17	0	0	108	1486
5:15 PM	11	2	1	0	0	1	5	0	5	41	13	0	2	26	1	0	108	1458
5:20 PM	8	3	2	0	0	3	7	0	15	36	11	0	1	11	0	0	97	1404
5:25 PM	7	2	1	0	0	2	9	0	9	27	8	0	0	14	0	0	79	1343
5:30 PM	2	4	3	0	4	3	13	0	10	31	12	0	2	18	0	0	102	1315
5:35 PM	5	0	1	0	0	5	8	0	12	41	12	0	2	20	1	0	107	1307
5:40 PM	5	1	3	0	0	1	4	0	8	36	7	0	1	7	0	0	73	1262
5:45 PM	3	2	1	0	0	2	13	0	9	35	9	0	1	15	1	0	91	1230
5:50 PM	8	0	0	0	0	0	12	0	17	37	6	0	1	24	1	0	106	1220
5:55 PM	6	1	1	0	1	0	9	0	12	25	5	0	1	22	1	0	84	1187
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	168	28	44	0	0	24	120	0	248	556	160	0	16	340	20	0	1724	
Heavy Trucks	4	0	0	0	0	4	0	0	4	28	4	0	0	36	0	0	80	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952615
DATE: Thu, Sep 22 2022

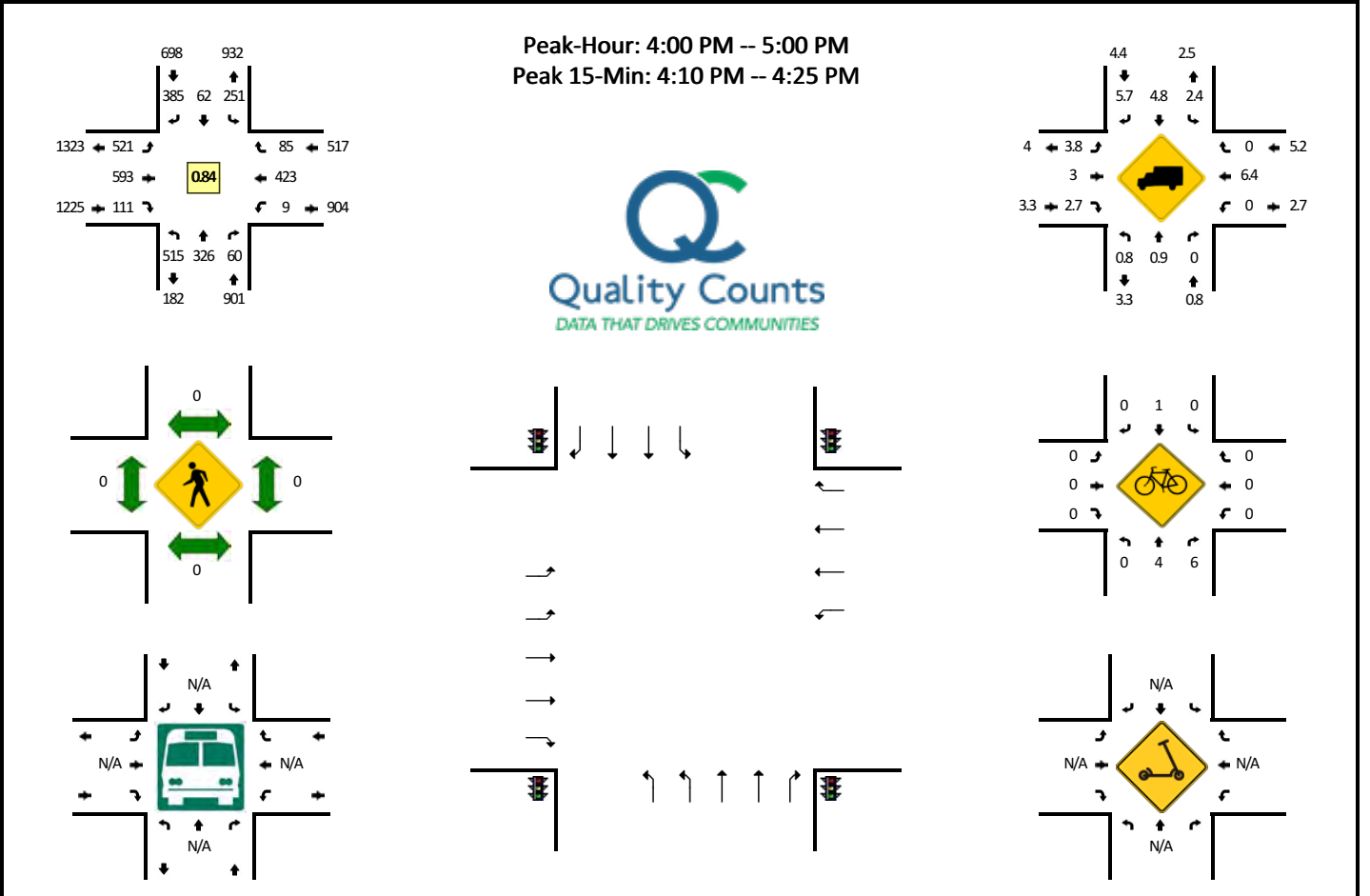


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	1	1	0	12	26	29	0	21	27	49	0	1	31	5	0	208	
7:05 AM	2	2	1	0	6	17	18	0	24	34	36	0	4	42	9	0	195	
7:10 AM	4	4	1	0	10	22	30	0	16	29	40	0	9	40	8	0	213	
7:15 AM	0	5	3	0	9	19	17	0	25	18	41	0	6	27	15	0	185	
7:20 AM	1	5	1	0	6	29	27	0	24	25	42	0	4	30	14	0	208	
7:25 AM	6	2	0	0	9	47	21	0	15	13	43	0	6	26	9	0	197	
7:30 AM	4	6	0	0	11	18	23	0	25	22	34	0	8	32	9	0	192	
7:35 AM	7	5	1	0	10	27	26	0	22	23	40	0	4	49	14	0	228	
7:40 AM	3	4	1	0	6	14	31	0	21	21	42	0	2	41	8	0	194	
7:45 AM	3	6	0	0	12	21	27	0	19	23	30	0	6	40	3	0	190	
7:50 AM	4	9	1	0	9	19	25	0	28	29	52	0	5	28	8	0	217	
7:55 AM	4	2	0	0	10	25	32	0	30	20	34	0	5	27	11	0	200	2427
8:00 AM	2	7	2	0	11	17	24	0	32	30	27	0	3	24	9	0	188	2407
8:05 AM	10	7	2	0	22	28	38	1	16	24	17	0	2	22	6	0	195	2407
8:10 AM	4	5	0	0	9	13	24	0	21	36	32	0	5	25	10	0	184	2378
8:15 AM	5	3	1	0	7	14	24	0	27	21	18	0	6	23	7	0	156	2349
8:20 AM	4	6	2	0	14	12	17	0	19	25	22	0	3	24	8	0	156	2297
8:25 AM	5	6	4	0	10	9	24	0	11	23	23	0	2	20	7	0	144	2244
8:30 AM	9	5	0	0	6	10	23	0	25	26	23	0	1	22	5	0	155	2207
8:35 AM	9	6	4	0	11	12	20	0	15	23	22	0	2	24	3	0	151	2130
8:40 AM	8	4	0	0	8	10	28	0	24	16	18	0	0	24	3	0	143	2079
8:45 AM	4	10	2	0	7	9	26	0	26	18	12	0	1	29	5	0	149	2038
8:50 AM	4	5	1	0	6	10	19	0	21	22	11	0	4	31	6	0	140	1961
8:55 AM	1	7	1	0	8	14	19	0	18	25	6	0	2	19	4	0	124	1885
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	68	52	4	0	120	368	280	0	248	232	468	0	72	428	128	0	2468	
Heavy Trucks	4	4	0		0	16	52		44	36	8		0	20	4		188	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952616
DATE: Thu, Sep 22 2022

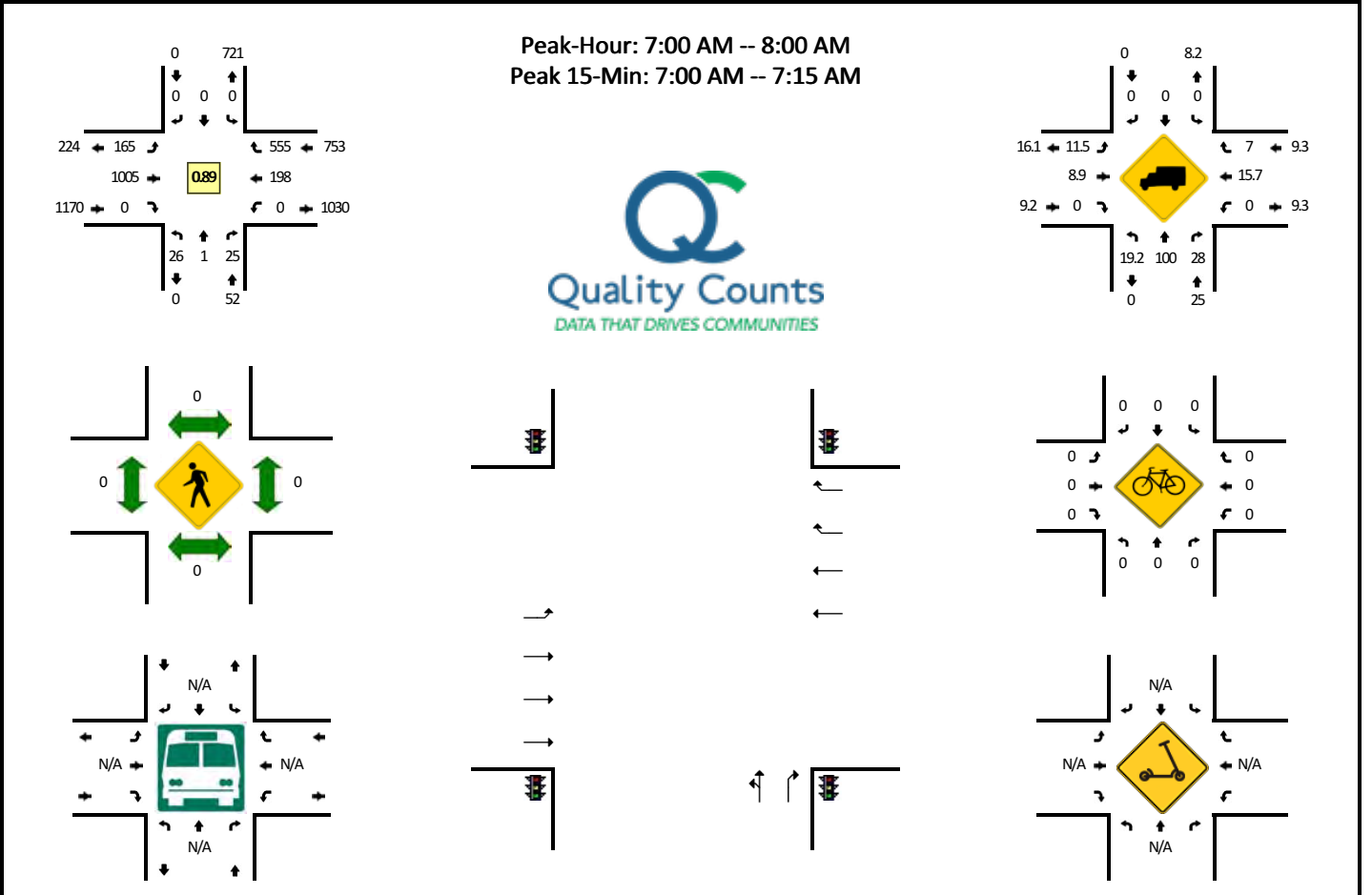


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	27	15	2	0	9	7	24	0	53	50	7	0	1	47	11	0	253	
4:05 PM	71	31	5	0	27	7	38	0	42	32	2	0	1	31	6	0	293	
4:10 PM	54	33	4	0	12	2	35	0	76	81	11	0	0	47	9	0	364	
4:15 PM	72	44	5	0	30	9	43	0	41	38	9	0	1	24	4	0	320	
4:20 PM	37	33	7	0	15	4	28	0	71	66	11	0	1	27	12	0	312	
4:25 PM	29	29	8	0	22	3	39	0	44	47	7	0	1	63	9	0	301	
4:30 PM	57	34	7	0	24	6	45	0	40	57	12	0	0	20	6	0	308	
4:35 PM	41	26	5	0	17	3	27	0	35	56	11	0	0	42	6	0	269	
4:40 PM	34	22	5	0	33	9	36	0	32	34	12	0	2	34	6	0	259	
4:45 PM	36	18	2	0	19	5	20	0	35	44	11	0	0	28	11	0	229	
4:50 PM	15	15	1	0	21	5	25	0	31	57	7	0	2	37	3	0	219	
4:55 PM	42	26	9	0	22	2	25	0	21	31	11	0	0	23	2	0	214	3341
5:00 PM	28	10	3	0	12	3	27	0	33	46	8	0	0	34	6	0	210	3298
5:05 PM	41	18	1	0	27	3	24	0	27	32	10	0	0	41	8	0	232	3237
5:10 PM	43	12	7	0	24	4	26	0	24	26	7	0	2	20	5	0	200	3073
5:15 PM	46	18	4	0	14	4	28	0	24	51	5	0	0	25	9	0	228	2981
5:20 PM	23	10	4	0	14	3	20	0	24	36	6	0	0	22	5	0	167	2836
5:25 PM	26	32	2	0	20	2	19	0	17	21	2	0	0	17	4	0	162	2697
5:30 PM	22	8	2	0	19	2	18	0	28	42	3	0	1	24	6	0	175	2564
5:35 PM	22	16	6	0	16	4	22	0	23	42	4	0	2	23	4	0	184	2479
5:40 PM	29	14	2	0	24	4	10	0	10	24	0	0	0	11	2	0	130	2350
5:45 PM	10	11	1	0	8	2	14	0	12	45	2	0	0	19	8	0	132	2253
5:50 PM	8	11	4	0	16	2	18	0	21	26	6	0	0	30	7	0	149	2183
5:55 PM	25	9	1	0	12	1	24	0	11	27	7	0	0	20	6	0	143	2112
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	652	440	64	0	228	60	424	0	752	740	124	0	8	392	100	0	3984	
Heavy Trucks	4	0	0		12	4	16		24	32	0		0	24	0		116	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	16	12		0	0	0		0	0	0		0	0	0		28	
Scoters																		

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952617
DATE: Thu, Sep 22 2022

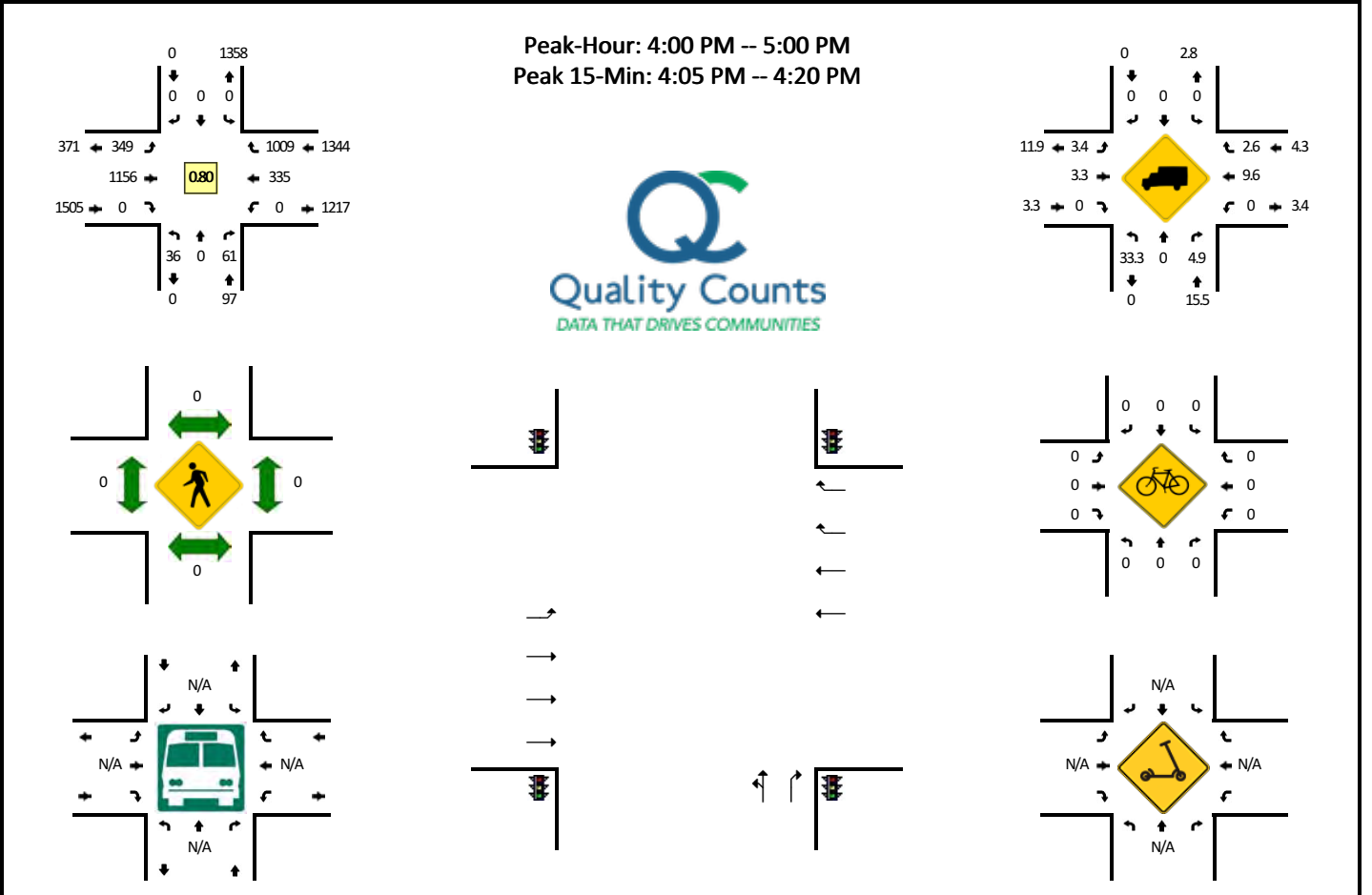


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	2	0	0	0	0	0	12	100	0	0	0	22	47	0	185	
7:05 AM	3	0	1	0	0	0	0	0	26	91	0	0	0	16	45	0	182	
7:10 AM	2	0	0	0	0	0	0	0	16	99	0	0	0	14	56	0	187	
7:15 AM	7	1	2	0	0	0	0	0	20	69	0	0	0	11	44	0	154	
7:20 AM	2	0	2	0	0	0	0	0	8	90	0	0	0	13	36	0	151	
7:25 AM	3	0	0	0	0	0	0	0	11	70	0	0	0	22	37	0	143	
7:30 AM	1	0	5	0	0	0	0	0	17	71	0	0	0	15	45	0	154	
7:35 AM	1	0	3	0	0	0	0	0	9	76	0	0	0	19	58	0	166	
7:40 AM	1	0	2	0	0	0	0	0	15	79	0	0	0	16	51	0	164	
7:45 AM	1	0	1	0	0	0	0	0	9	75	0	0	0	20	52	0	158	
7:50 AM	2	0	3	0	0	0	0	0	10	103	0	0	0	15	46	0	179	
7:55 AM	1	0	4	0	0	0	0	0	12	82	0	0	0	15	38	0	152	1975
8:00 AM	1	0	5	0	0	0	0	0	13	72	0	0	0	18	39	0	148	1938
8:05 AM	1	0	7	0	0	0	0	0	12	60	0	0	0	23	43	0	146	1902
8:10 AM	0	0	5	0	0	0	0	0	11	74	0	0	0	23	32	0	145	1860
8:15 AM	0	0	2	0	0	0	0	0	9	63	0	0	0	19	40	0	133	1839
8:20 AM	1	0	1	0	0	0	0	0	14	63	0	0	0	8	27	0	114	1802
8:25 AM	3	0	2	0	0	0	0	0	12	56	0	0	0	19	40	0	132	1791
8:30 AM	1	0	4	0	0	0	0	0	15	62	0	0	0	19	36	0	137	1774
8:35 AM	3	0	3	0	0	0	0	0	21	65	0	0	0	15	29	0	136	1744
8:40 AM	1	0	4	0	0	0	0	0	19	52	0	0	0	18	43	0	137	1717
8:45 AM	1	0	2	0	0	0	0	0	17	56	0	0	0	28	38	0	142	1701
8:50 AM	3	0	1	0	0	0	0	0	18	47	0	0	0	16	30	0	115	1637
8:55 AM	1	0	2	0	0	0	0	0	15	46	0	0	0	16	31	0	111	1596
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	28	0	12	0	0	0	0	0	216	1160	0	0	0	208	592	0	2216	
Heavy Trucks	8	0	0	0	0	0	0	0	16	72	0	0	0	32	36	0	164	
Buses																	0	
Pedestrians		0			0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952618
DATE: Thu, Sep 22 2022

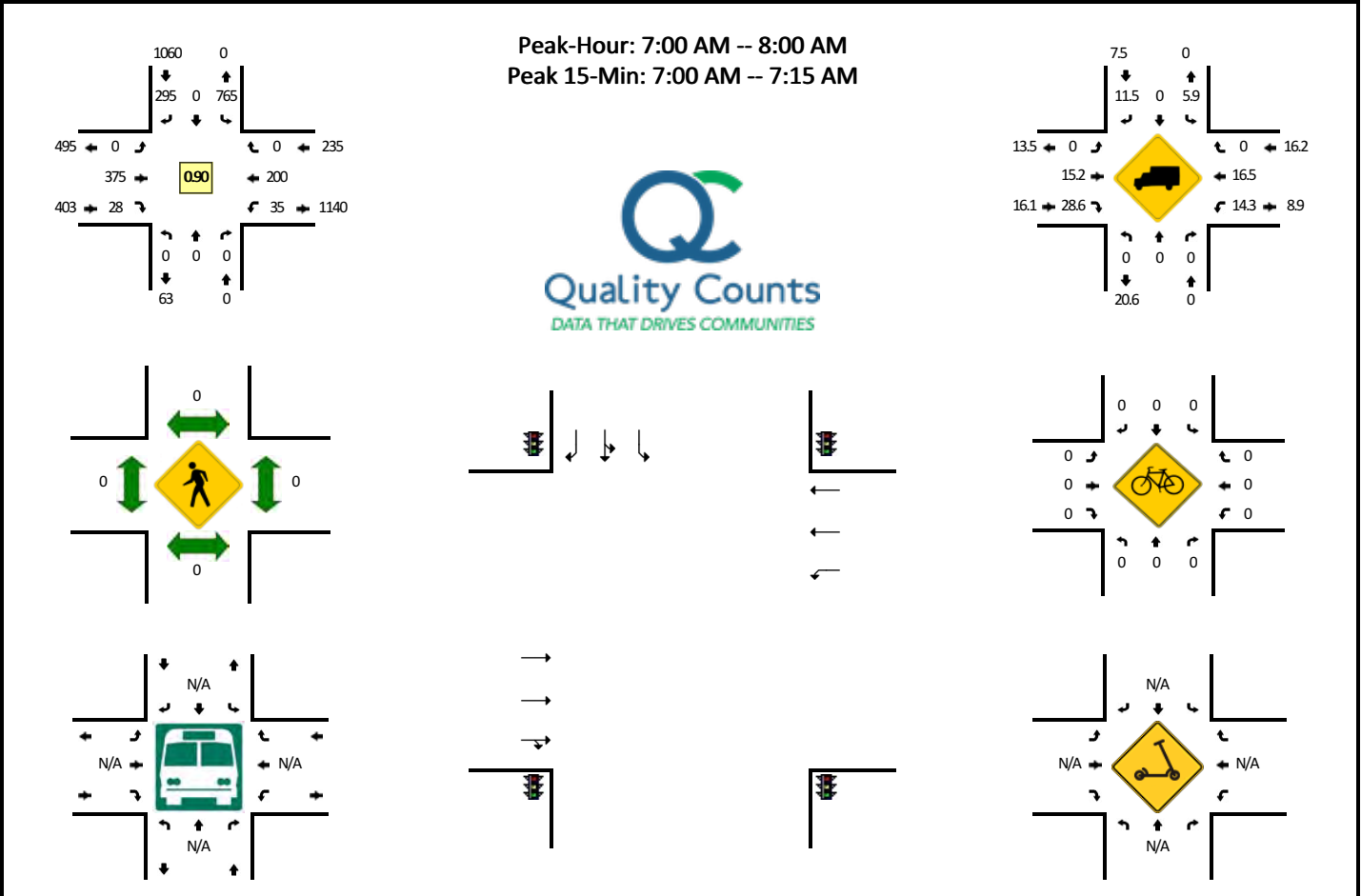


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	7	0	0	0	0	0	29	91	0	0	0	25	64	0	221	
4:05 PM	3	0	11	0	0	0	0	0	27	117	0	0	0	31	126	0	315	
4:10 PM	5	0	5	0	0	0	0	0	41	109	0	0	0	32	98	0	290	
4:15 PM	3	0	5	0	0	0	0	0	53	113	0	0	0	34	104	0	312	
4:20 PM	5	0	10	0	0	0	0	0	27	104	0	0	0	25	89	0	260	
4:25 PM	1	0	2	0	0	0	0	0	26	108	0	0	0	29	74	0	240	
4:30 PM	0	0	5	0	0	0	0	0	24	97	0	0	0	39	109	0	274	
4:35 PM	2	0	6	0	0	0	0	0	21	100	0	0	0	21	85	0	235	
4:40 PM	4	0	2	0	0	0	0	0	39	72	0	0	0	25	81	0	223	
4:45 PM	3	0	2	0	0	0	0	0	24	97	0	0	0	19	49	0	194	
4:50 PM	2	0	2	0	0	0	0	0	16	87	0	0	0	22	56	0	185	
4:55 PM	3	0	4	0	0	0	0	0	22	61	0	0	0	33	74	0	197	2946
5:00 PM	3	0	6	0	0	0	0	0	14	79	0	0	0	18	57	0	177	2902
5:05 PM	1	1	5	0	0	0	0	0	17	69	0	0	0	22	85	0	200	2787
5:10 PM	1	0	2	0	0	0	0	0	16	51	0	0	0	19	83	0	172	2669
5:15 PM	5	0	9	0	0	0	0	0	17	69	0	0	0	13	82	0	195	2552
5:20 PM	1	0	7	0	0	0	0	0	18	60	0	0	0	23	42	0	151	2443
5:25 PM	1	0	2	0	0	0	0	0	21	48	0	0	0	17	57	0	146	2349
5:30 PM	1	0	6	0	0	0	0	0	9	62	0	0	0	10	52	0	140	2215
5:35 PM	1	0	3	0	0	0	0	0	19	63	0	0	0	15	50	0	151	2131
5:40 PM	3	0	1	0	0	0	0	0	14	43	0	0	0	11	38	0	110	2018
5:45 PM	1	0	7	0	0	0	0	0	11	52	0	0	0	7	43	0	121	1945
5:50 PM	2	0	3	0	0	0	0	0	11	46	0	0	0	11	33	0	106	1866
5:55 PM	3	0	3	0	0	0	0	0	12	47	0	0	0	19	50	0	134	1803
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	0	84	0	0	0	0	0	484	1356	0	0	0	388	1312	0	3668	
Heavy Trucks	20	0	8	0	0	0	0	0	16	44	0	0	0	24	28	0	140	
Buses																	0	
Pedestrians		0			0				0	0			0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952619
DATE: Thu, Sep 22 2022

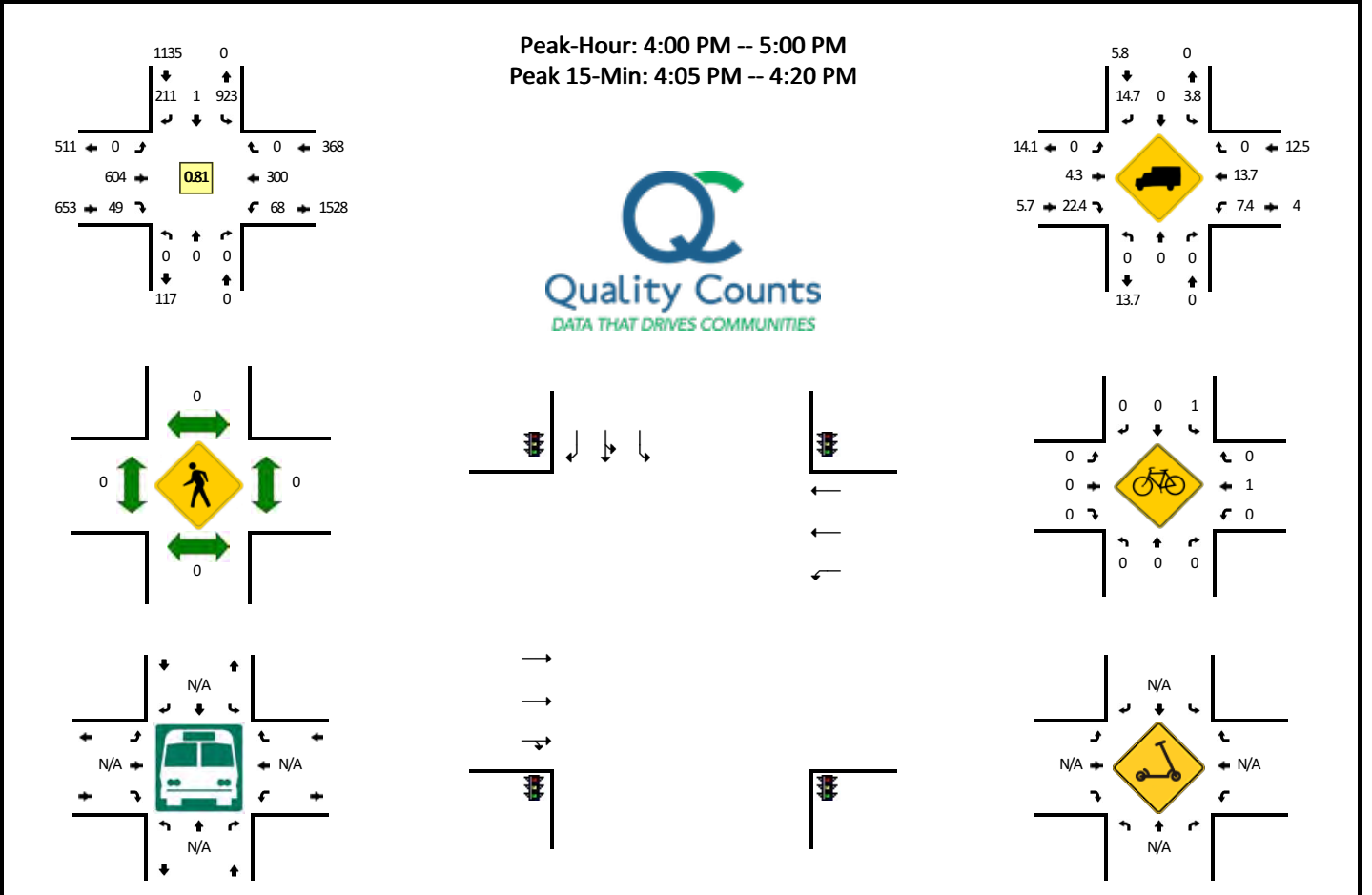


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	58	0	23	0	0	48	3	0	3	27	0	0	162	
7:05 AM	0	0	0	0	71	0	25	0	0	45	2	0	2	17	0	0	162	
7:10 AM	0	0	0	0	80	0	31	0	0	26	0	0	1	12	0	0	150	
7:15 AM	0	0	0	0	47	0	25	0	0	44	2	0	3	19	0	0	140	
7:20 AM	0	0	0	0	65	0	31	0	0	26	2	0	3	9	0	0	136	
7:25 AM	0	0	0	0	68	0	31	0	0	18	3	0	5	23	0	0	148	
7:30 AM	0	0	0	0	57	0	27	0	0	32	4	0	5	11	0	0	136	
7:35 AM	0	0	0	0	51	0	28	0	0	32	3	0	2	17	0	0	133	
7:40 AM	0	0	0	0	63	0	15	0	0	29	4	0	3	15	0	0	129	
7:45 AM	0	0	0	0	72	0	21	0	0	19	2	0	2	20	0	0	136	
7:50 AM	0	0	0	0	80	0	15	0	0	24	2	0	4	15	0	0	140	
7:55 AM	0	0	0	0	53	0	23	0	0	32	1	0	2	15	0	0	126	1698
8:00 AM	0	0	0	0	60	0	36	0	0	28	1	0	2	14	0	0	141	1677
8:05 AM	0	0	0	0	54	0	32	0	0	27	3	0	5	23	0	0	144	1659
8:10 AM	0	0	0	0	56	0	19	0	0	22	6	0	2	19	0	0	124	1633
8:15 AM	0	0	0	0	47	0	23	0	0	22	3	0	9	12	0	0	116	1609
8:20 AM	0	0	0	0	57	0	30	0	0	31	6	0	1	8	0	0	133	1606
8:25 AM	0	0	0	0	38	0	23	0	0	22	3	0	2	19	0	0	107	1565
8:30 AM	0	0	0	0	49	0	21	0	0	31	2	0	2	17	0	0	122	1551
8:35 AM	0	0	0	0	46	0	20	0	0	36	8	0	3	13	0	0	126	1544
8:40 AM	0	0	0	0	45	0	20	0	0	29	8	0	10	9	0	0	121	1536
8:45 AM	0	0	0	0	36	0	14	0	0	29	5	0	10	18	0	0	112	1512
8:50 AM	0	0	0	0	39	0	22	0	0	27	1	0	2	17	0	0	108	1480
8:55 AM	0	0	0	0	32	0	20	0	0	22	4	0	2	14	0	0	94	1448
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	836	0	316	0	0	476	20	0	24	224	0	0	1896	
Heavy Trucks	0	0	0	0	44	0	20	0	0	40	4	0	4	36	0	0	148	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952620
DATE: Thu, Sep 22 2022

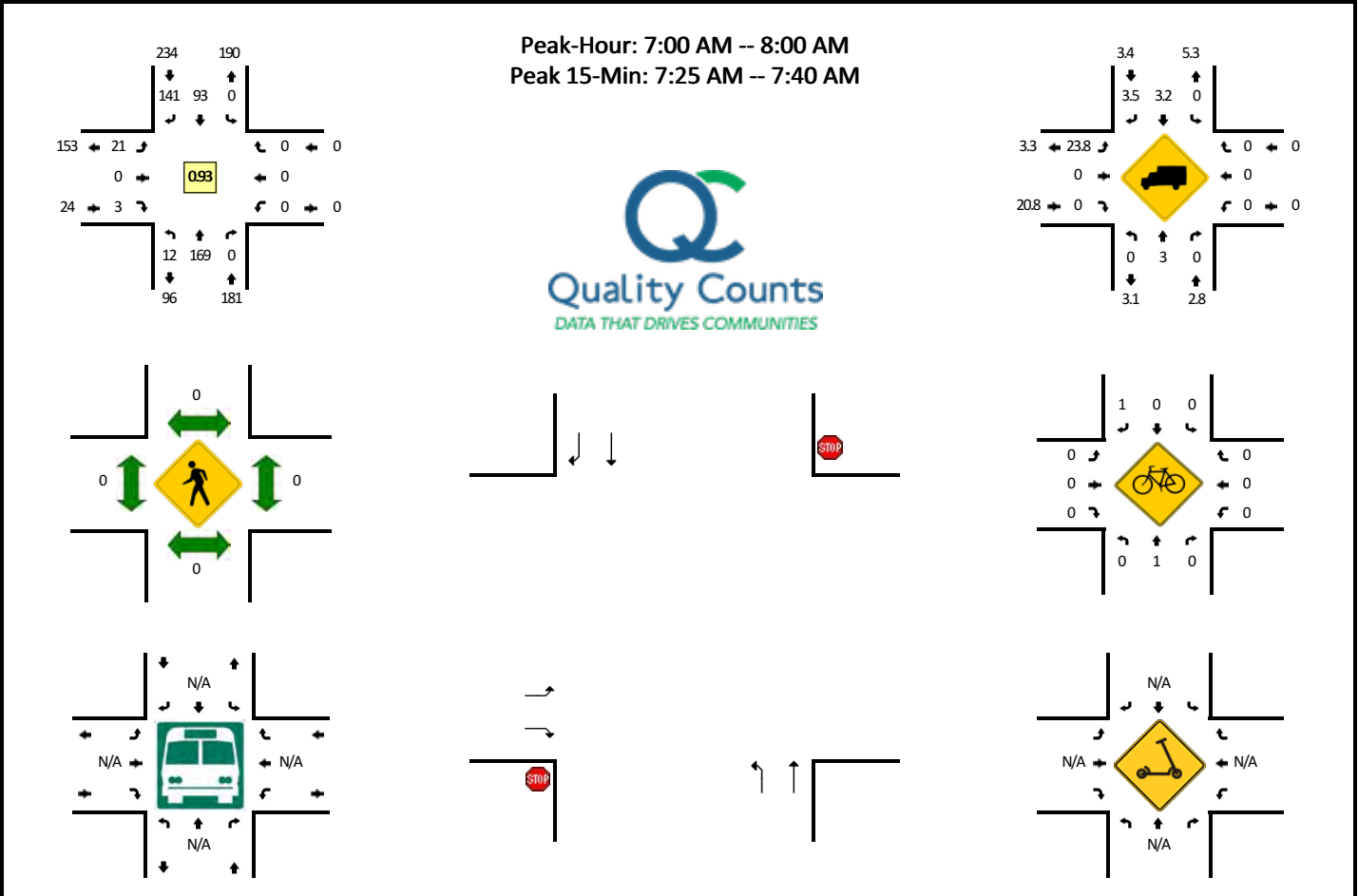


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	78	0	13	0	0	46	6	0	9	22	0	0	174	
4:05 PM	0	0	0	0	76	0	19	0	0	85	4	0	6	28	0	0	218	
4:10 PM	0	0	0	0	92	0	19	0	0	69	4	0	6	30	0	0	220	
4:15 PM	0	0	0	0	99	0	27	0	0	62	6	0	4	28	0	0	226	
4:20 PM	0	0	0	0	71	0	22	0	0	50	5	0	6	31	0	0	185	
4:25 PM	0	0	0	0	71	0	20	0	0	58	4	0	7	21	0	0	181	
4:30 PM	0	0	0	0	88	0	14	0	0	36	3	0	6	35	0	0	182	
4:35 PM	0	0	0	0	82	0	9	0	0	38	7	0	2	19	0	0	157	
4:40 PM	0	0	0	0	73	0	18	0	0	52	3	0	11	18	0	1	176	
4:45 PM	0	0	0	0	61	0	9	0	0	49	3	0	3	22	0	0	147	
4:50 PM	0	0	0	0	74	0	24	0	0	30	2	0	1	18	0	0	149	
4:55 PM	0	0	0	0	58	1	17	0	0	29	2	0	6	28	0	0	141	2156
5:00 PM	0	0	0	0	50	0	15	0	0	32	7	0	4	21	0	0	129	2111
5:05 PM	0	0	0	0	59	1	18	0	0	27	3	0	7	16	0	0	131	2024
5:10 PM	0	0	0	0	41	0	11	0	0	27	5	0	0	21	0	0	105	1909
5:15 PM	0	0	0	0	56	0	12	0	0	34	4	0	4	13	0	0	123	1806
5:20 PM	0	0	0	0	45	0	11	0	0	28	2	0	6	18	0	0	110	1731
5:25 PM	0	0	0	0	43	0	8	0	0	25	5	0	7	10	0	0	98	1648
5:30 PM	0	0	0	0	34	0	13	0	0	36	3	0	3	9	0	0	98	1564
5:35 PM	0	0	0	0	59	1	11	0	0	28	5	0	4	10	0	0	118	1525
5:40 PM	0	0	0	0	27	0	12	0	0	22	6	0	3	12	0	0	82	1431
5:45 PM	0	0	0	0	45	0	14	0	0	21	0	0	2	6	0	0	88	1372
5:50 PM	0	0	0	0	36	0	14	0	0	15	3	0	2	11	0	0	81	1304
5:55 PM	0	0	0	0	37	0	16	0	0	21	3	0	5	14	0	0	96	1259
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	1068	0	260	0	0	864	56	0	64	344	0	0	2656	
Heavy Trucks	0	0	0	0	28	0	44	0	0	44	8	0	0	44	0	0	168	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952621
DATE: Thu, Sep 22 2022

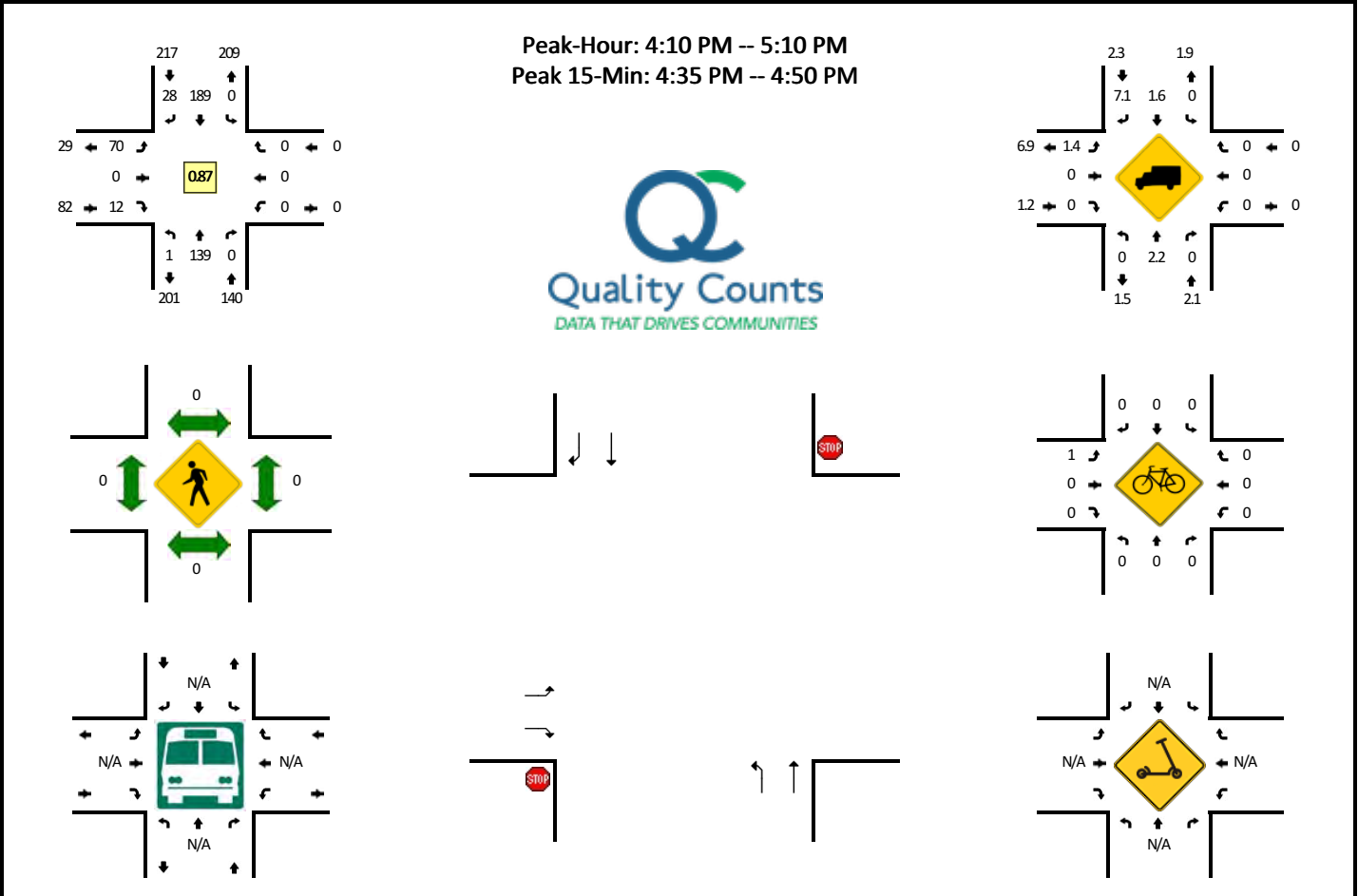


5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	0	0	0	8	16	0	0	0	0	0	0	0	0	0	38	
7:05 AM	2	15	0	0	0	7	12	0	3	0	1	0	0	0	0	0	40	
7:10 AM	0	10	0	0	0	15	10	0	2	0	0	0	0	0	0	0	37	
7:15 AM	1	15	0	0	0	6	9	0	1	0	0	0	0	0	0	0	32	
7:20 AM	2	23	0	0	0	3	9	0	2	0	0	0	0	0	0	0	39	
7:25 AM	2	15	0	0	0	2	19	0	2	0	0	0	0	0	0	0	40	
7:30 AM	0	20	0	0	0	4	11	0	2	0	0	0	0	0	0	0	37	
7:35 AM	0	17	0	0	0	9	14	0	1	0	0	0	0	0	0	0	41	
7:40 AM	2	6	0	0	0	11	11	0	1	0	1	0	0	0	0	0	32	
7:45 AM	2	11	0	0	0	10	12	0	2	0	0	0	0	0	0	0	37	
7:50 AM	1	11	0	0	0	9	11	0	2	0	1	0	0	0	0	0	35	
7:55 AM	0	12	0	0	0	9	7	0	3	0	0	0	0	0	0	0	31	439
8:00 AM	3	9	0	0	0	3	11	0	1	0	0	0	0	0	0	0	27	428
8:05 AM	1	6	0	0	0	5	20	0	0	0	1	0	0	0	0	0	33	421
8:10 AM	0	7	0	0	0	6	16	0	1	0	0	0	0	0	0	0	30	414
8:15 AM	0	3	0	0	0	10	15	0	0	0	0	0	0	0	0	0	28	410
8:20 AM	2	5	0	0	0	8	16	0	2	0	2	0	0	0	0	0	35	406
8:25 AM	2	9	0	0	0	3	7	0	2	0	1	0	0	0	0	0	24	390
8:30 AM	3	7	0	0	0	3	6	0	0	0	0	0	0	0	0	0	19	372
8:35 AM	0	9	0	0	0	4	18	0	0	0	0	0	0	0	0	0	31	362
8:40 AM	2	5	0	0	0	1	7	0	1	0	0	0	0	0	0	0	16	346
8:45 AM	1	5	0	0	0	5	5	0	0	0	0	0	0	0	0	0	16	325
8:50 AM	2	4	0	0	0	5	10	0	1	0	1	0	0	0	0	0	23	313
8:55 AM	0	5	0	0	0	6	6	0	2	0	1	0	0	0	0	0	20	302
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	208	0	0	0	60	176	0	20	0	0	0	0	0	0	0	472	
Heavy Trucks	0	4	0	0	0	4	12	0	4	0	0	0	0	0	0	0	24	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952622
DATE: Thu, Sep 22 2022

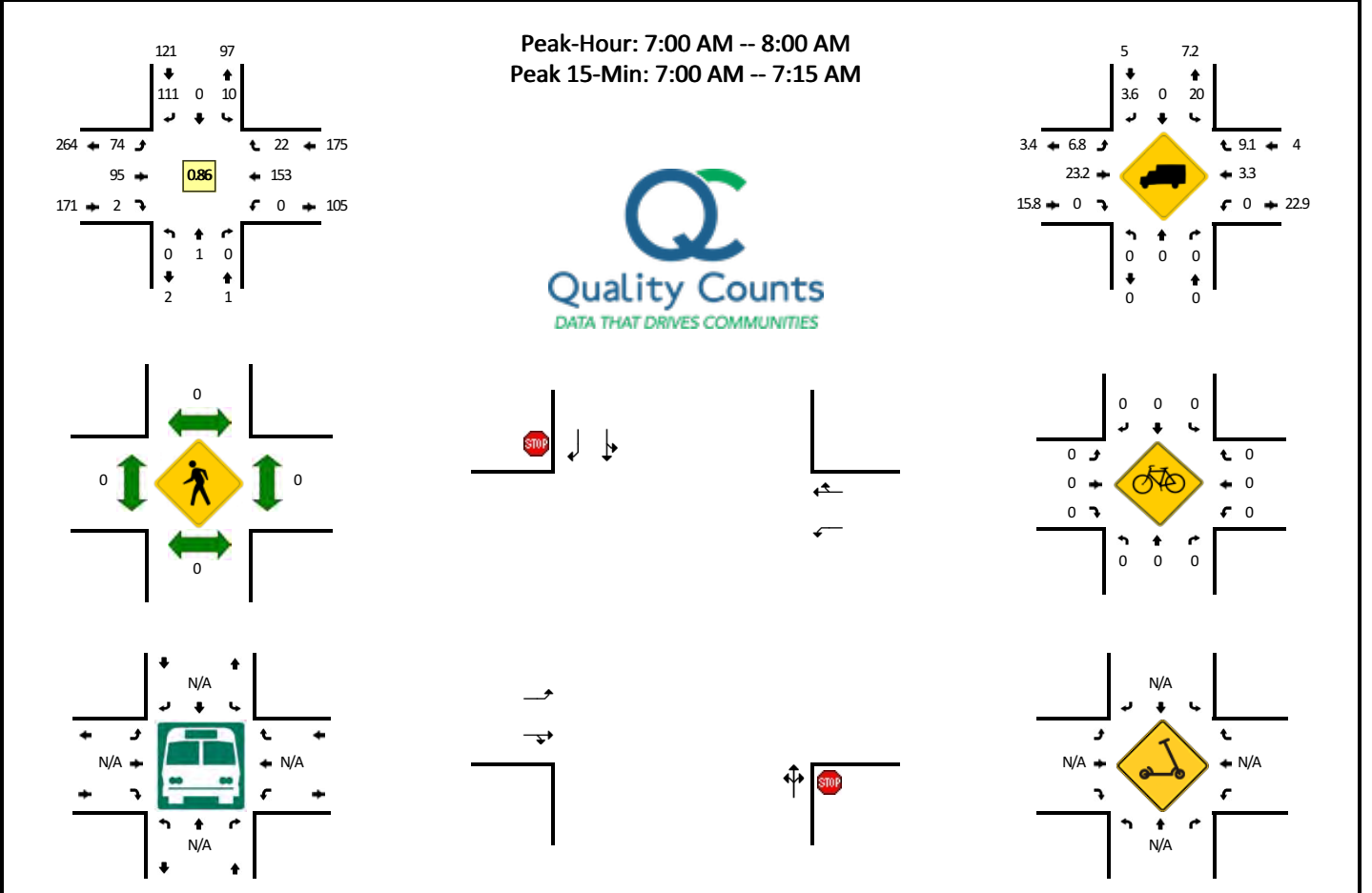


5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	13	0	0	0	7	2	0	11	0	0	0	0	0	0	0	33	
4:05 PM	0	16	0	0	0	11	2	0	7	0	1	0	0	0	0	0	37	
4:10 PM	0	15	0	0	0	19	0	0	6	0	0	0	0	0	0	0	40	
4:15 PM	0	11	0	0	0	13	2	0	4	0	0	0	0	0	0	0	30	
4:20 PM	0	12	0	0	0	17	0	0	8	0	1	0	0	0	0	0	38	
4:25 PM	0	14	0	0	0	12	3	0	5	0	1	0	0	0	0	0	35	
4:30 PM	0	10	0	0	0	20	6	0	6	0	0	0	0	0	0	0	42	
4:35 PM	0	17	0	0	0	15	4	0	7	0	0	0	0	0	0	0	43	
4:40 PM	0	8	0	0	0	16	5	0	4	0	2	0	0	0	0	0	35	
4:45 PM	0	16	0	0	0	24	0	0	7	0	1	0	0	0	0	0	48	
4:50 PM	0	6	0	0	0	12	4	0	4	0	2	0	0	0	0	0	28	
4:55 PM	1	9	0	0	0	8	1	0	4	0	3	0	0	0	0	0	26	435
5:00 PM	0	12	0	0	0	14	2	0	4	0	1	0	0	0	0	0	33	435
5:05 PM	0	9	0	0	0	19	1	0	11	0	1	0	0	0	0	0	41	439
5:10 PM	0	9	0	0	0	10	2	0	2	0	1	0	0	0	0	0	24	423
5:15 PM	0	13	0	0	0	16	1	0	6	0	1	0	0	0	0	0	37	430
5:20 PM	0	5	0	0	0	15	2	0	3	0	1	0	0	0	0	0	26	418
5:25 PM	0	11	0	0	0	8	2	0	3	0	1	0	0	0	0	0	25	408
5:30 PM	0	5	0	0	0	14	3	0	1	0	0	0	0	0	0	0	23	389
5:35 PM	1	3	0	0	0	16	1	0	1	0	2	0	0	0	0	0	24	370
5:40 PM	1	9	0	0	0	8	2	0	1	0	0	0	0	0	0	0	21	356
5:45 PM	0	9	0	0	0	10	1	0	1	0	1	0	0	0	0	0	22	330
5:50 PM	0	5	0	0	0	9	0	0	1	0	1	0	0	0	0	0	16	318
5:55 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	303
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	164	0	0	0	220	36	0	72	0	12	0	0	0	0	0	504	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952626
DATE: Thu, Sep 22 2022

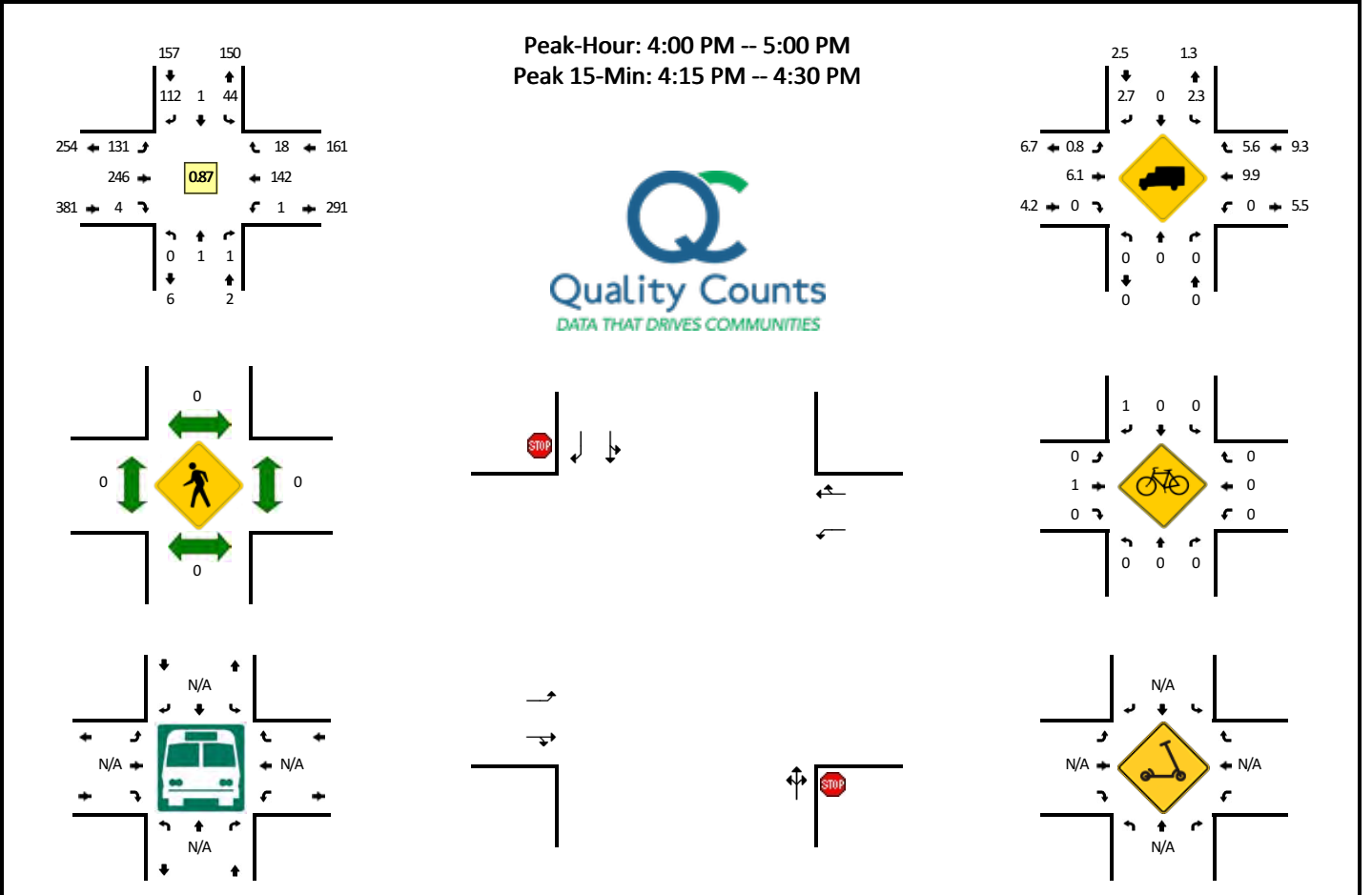


5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	9	0	9	9	0	0	0	18	2	0	48	
7:05 AM	0	1	0	0	0	0	12	0	12	5	0	0	0	12	2	0	44	
7:10 AM	0	0	0	0	0	0	12	0	9	10	0	0	0	12	1	0	44	
7:15 AM	0	0	0	0	2	0	10	0	5	10	1	0	0	8	3	0	39	
7:20 AM	0	0	0	0	1	0	11	0	9	7	0	0	0	10	1	0	39	
7:25 AM	0	0	0	0	1	0	9	0	6	9	0	0	0	15	3	0	43	
7:30 AM	0	0	0	0	0	0	11	0	6	6	0	0	0	20	4	0	47	
7:35 AM	0	0	0	0	0	0	11	0	2	8	0	0	0	21	3	0	45	
7:40 AM	0	0	0	0	0	0	7	0	2	10	1	0	0	9	0	0	29	
7:45 AM	0	0	0	0	1	0	7	0	2	7	0	0	0	10	0	0	27	
7:50 AM	0	0	0	0	1	0	6	0	6	6	0	0	0	12	2	0	33	
7:55 AM	0	0	0	0	3	0	6	0	6	8	0	0	0	6	1	0	30	468
8:00 AM	0	0	0	0	1	0	3	0	4	10	0	0	0	11	1	0	30	450
8:05 AM	1	0	0	0	3	1	13	0	5	15	0	0	0	11	2	0	51	457
8:10 AM	0	0	0	0	0	0	9	0	3	12	0	0	0	13	2	0	39	452
8:15 AM	0	0	0	0	1	0	10	0	4	12	1	0	0	12	2	0	42	455
8:20 AM	0	0	0	0	0	0	3	0	5	7	0	0	1	10	0	0	26	442
8:25 AM	0	0	0	0	3	0	7	0	7	10	1	0	2	15	3	0	48	447
8:30 AM	0	0	0	0	1	0	3	0	4	13	0	1	0	7	3	0	32	432
8:35 AM	0	0	0	0	2	0	9	0	4	11	0	0	0	10	3	0	39	426
8:40 AM	0	0	0	0	3	0	11	0	7	12	0	0	0	10	4	0	47	444
8:45 AM	0	0	0	0	2	0	9	0	3	11	0	0	0	16	4	0	45	462
8:50 AM	0	0	0	0	2	0	3	0	6	5	0	0	0	8	0	0	24	453
8:55 AM	0	0	0	0	1	0	7	0	2	8	0	0	0	9	4	0	31	454
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	4	0	0	4	0	132	0	120	96	0	0	0	168	20	0	544	
Heavy Trucks	0	0	0	0	0	0	4	0	4	12	0	0	0	4	0	0	24	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952627
DATE: Thu, Sep 22 2022

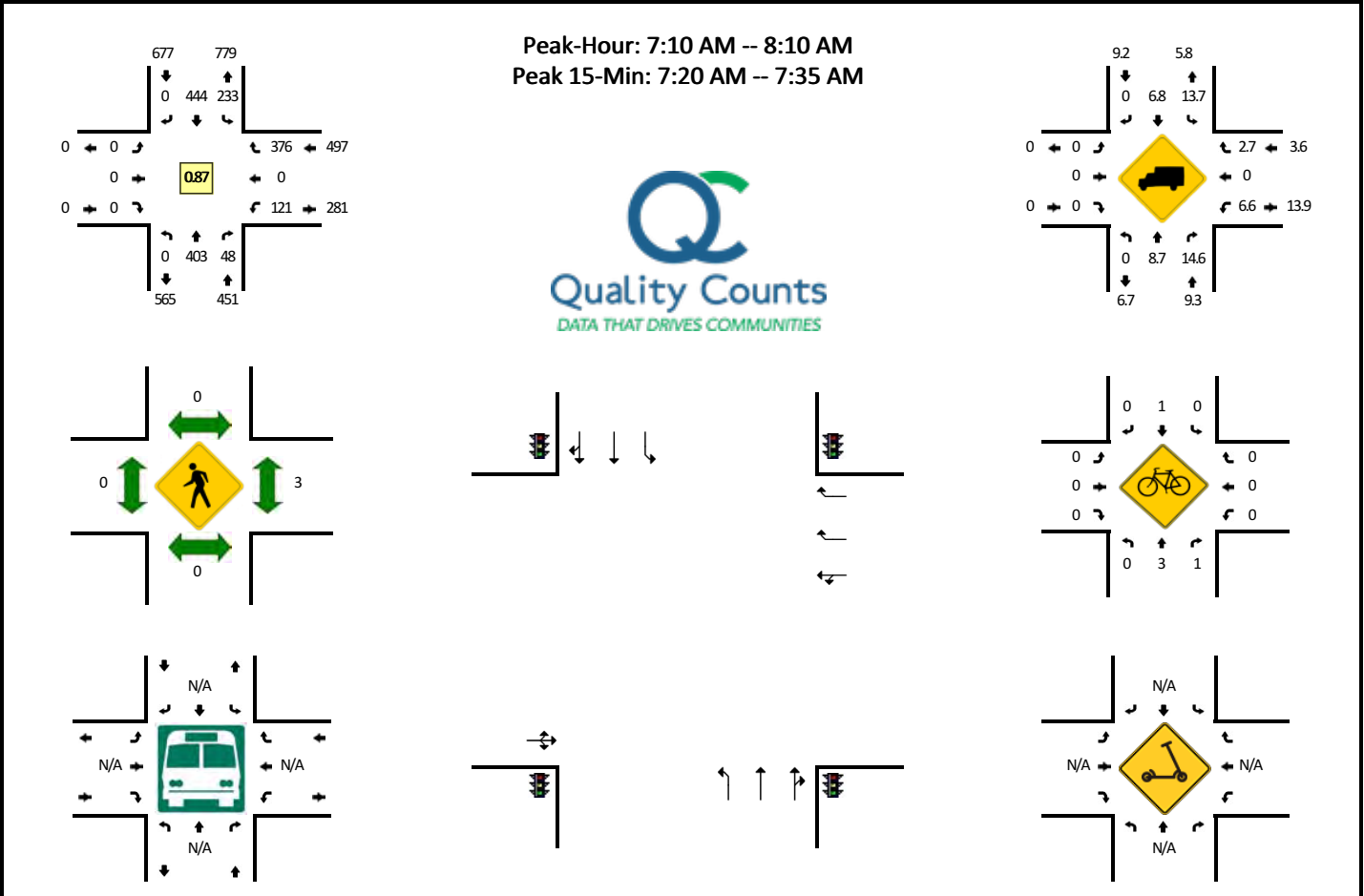


5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	0	0	0	0	1	0	10	0	11	16	0	0	0	15	1	0	54		
4:05 PM	0	0	0	0	3	0	9	0	12	12	1	0	0	0	15	3	0	55	
4:10 PM	0	0	0	0	1	0	12	0	8	16	1	0	0	0	10	2	0	50	
4:15 PM	0	0	0	0	5	0	12	0	15	21	0	0	0	0	16	1	0	70	
4:20 PM	0	0	0	0	4	1	10	0	19	24	0	0	0	0	9	4	0	71	
4:25 PM	0	0	1	0	5	0	16	0	11	23	0	0	0	0	5	0	0	61	
4:30 PM	0	0	0	0	2	0	9	0	8	22	0	0	0	0	12	2	0	55	
4:35 PM	0	0	0	0	4	0	3	0	9	28	0	0	0	0	12	2	0	58	
4:40 PM	0	0	0	0	3	0	6	0	5	23	1	0	1	6	2	0	47		
4:45 PM	0	1	0	0	4	0	9	0	6	21	0	0	0	17	0	0	58		
4:50 PM	0	0	0	0	3	0	15	0	9	16	0	0	0	13	0	0	56		
4:55 PM	0	0	0	0	9	0	1	0	18	24	1	0	0	12	1	0	66	701	
5:00 PM	0	0	1	0	3	0	12	0	12	13	0	0	0	10	1	0	52	699	
5:05 PM	0	0	0	0	2	0	7	0	10	11	0	0	0	8	3	0	41	685	
5:10 PM	0	0	0	0	1	0	4	0	18	18	0	0	0	14	1	0	56	691	
5:15 PM	0	0	0	0	2	0	6	0	15	19	0	0	0	4	3	0	49	670	
5:20 PM	0	0	0	0	3	0	12	0	12	20	0	0	0	1	1	0	49	648	
5:25 PM	0	0	0	0	3	0	7	0	9	17	0	0	0	6	3	0	45	632	
5:30 PM	2	0	0	0	0	0	9	0	12	13	0	0	0	7	0	0	43	620	
5:35 PM	0	0	0	0	0	0	2	0	13	24	0	0	0	4	1	0	44	606	
5:40 PM	0	0	0	0	2	1	4	0	12	21	0	0	0	2	1	0	43	602	
5:45 PM	0	0	0	0	4	0	6	0	16	18	0	0	0	12	1	0	57	601	
5:50 PM	0	0	0	0	2	0	6	0	11	17	0	0	0	3	2	0	41	586	
5:55 PM	0	0	0	0	2	0	7	0	14	7	0	0	0	8	1	0	39	559	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	4	0	56	4	152	0	180	272	0	0	0	120	20	0	808		
Heavy Trucks	0	0	0	0	0	4	4	0	4	24	0	0	0	28	0	0	60		
Buses																	0		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4		
Scoters																			

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952628
DATE: Thu, Sep 22 2022

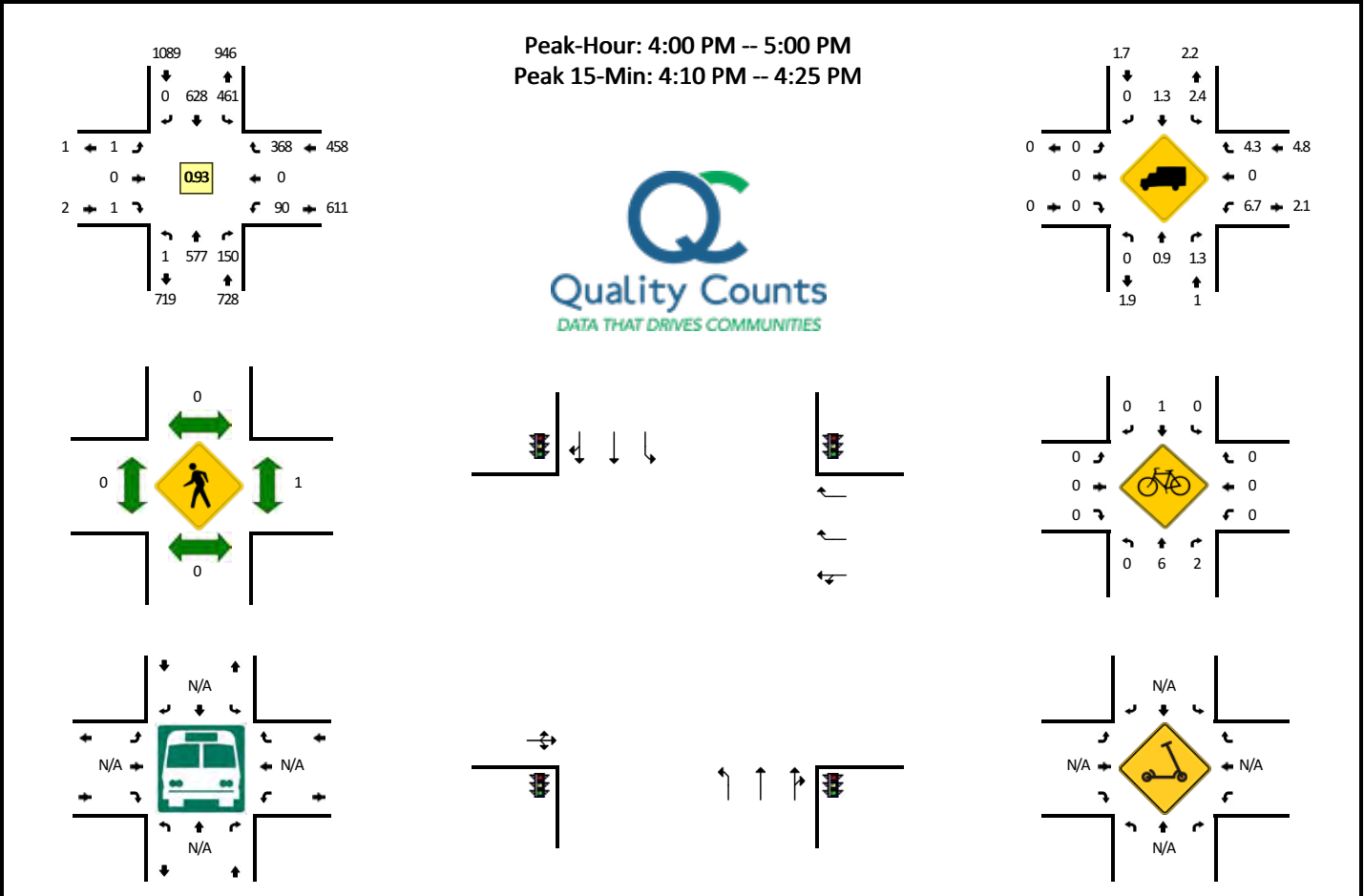


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	22	3	0	21	32	0	0	0	0	0	0	8	0	22	0	108	
7:05 AM	0	19	2	0	16	36	0	0	0	0	0	0	5	0	30	0	108	
7:10 AM	0	31	1	0	27	39	0	0	0	0	0	0	16	0	39	0	153	
7:15 AM	0	40	4	0	20	32	0	0	0	0	0	0	11	0	30	0	137	
7:20 AM	0	39	1	0	23	45	0	0	0	0	0	0	10	0	39	0	157	
7:25 AM	0	50	2	0	21	19	0	0	0	0	0	0	17	0	48	0	157	
7:30 AM	0	48	2	0	26	42	0	0	0	0	0	0	4	0	29	0	151	
7:35 AM	0	26	5	0	17	32	0	0	0	0	0	0	11	0	38	0	129	
7:40 AM	0	40	8	0	19	32	0	0	0	0	0	0	8	0	30	0	137	
7:45 AM	0	31	5	0	20	25	0	0	0	0	0	0	9	0	35	0	125	
7:50 AM	0	23	3	0	12	45	0	0	0	0	0	0	10	0	20	0	113	
7:55 AM	0	37	4	0	18	51	0	0	0	0	0	0	5	0	20	0	135	
8:00 AM	0	21	7	0	13	31	0	0	0	0	0	0	10	0	22	0	104	1610
8:05 AM	0	17	6	0	17	51	0	0	0	0	0	0	10	0	26	0	127	1606
8:10 AM	0	36	0	0	31	21	0	0	0	0	0	0	9	0	26	0	123	1595
8:15 AM	0	25	8	0	7	29	0	0	0	0	0	0	9	0	22	0	100	1558
8:20 AM	0	30	5	0	15	30	0	0	0	0	0	0	6	0	24	0	110	1511
8:25 AM	0	22	3	0	13	25	0	0	0	0	0	0	11	0	24	0	98	1452
8:30 AM	0	18	4	0	20	24	0	0	0	0	0	0	6	0	25	0	97	1398
8:35 AM	0	23	5	0	18	24	0	0	0	0	0	0	7	0	25	0	102	1371
8:40 AM	0	25	5	0	21	38	0	0	0	0	0	0	4	0	19	0	112	1346
8:45 AM	0	30	4	0	11	35	0	0	0	0	0	0	6	0	27	0	113	1334
8:50 AM	0	21	4	0	25	25	0	0	0	0	0	0	9	0	18	0	102	1323
8:55 AM	0	24	5	0	25	26	0	0	0	0	0	0	10	0	20	0	110	1298
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	548	20	0	280	424	0	0	0	0	0	0	124	0	464	0	1860	
Heavy Trucks	0	44	0	0	44	24	0	0	0	0	0	0	4	0	4	0	120	
Buses																		
Pedestrians		0				0					0			0			0	
Bicycles	0	0	4		0	0	0			0	0	0	0	0	0		4	
Scoters																		

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952629
DATE: Thu, Sep 22 2022

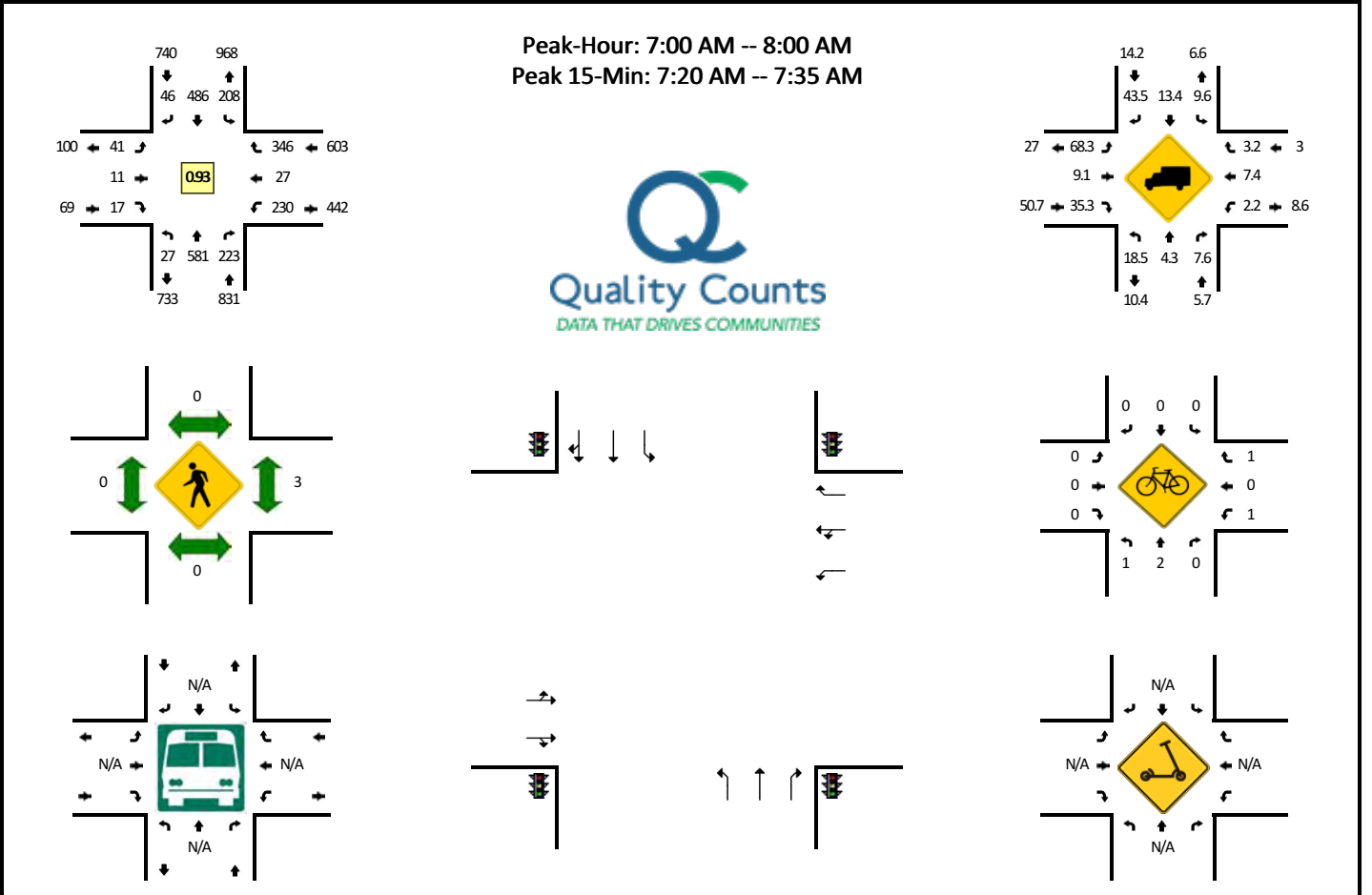


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	49	19	0	42	52	0	0	0	0	0	0	6	0	22	0	190	
4:05 PM	0	54	11	0	40	43	0	0	0	0	0	0	11	0	30	0	189	
4:10 PM	0	43	11	0	43	55	0	0	0	0	0	0	15	0	34	0	201	
4:15 PM	0	63	15	0	45	52	0	0	0	0	0	0	5	0	30	0	210	
4:20 PM	0	56	13	0	41	55	0	0	0	0	0	0	7	0	29	0	201	
4:25 PM	0	56	16	0	28	45	0	0	0	0	0	0	14	0	29	0	188	
4:30 PM	0	53	9	0	42	46	0	0	0	0	0	0	3	0	44	0	197	
4:35 PM	1	43	15	0	32	63	0	0	0	0	0	0	4	0	33	0	191	
4:40 PM	0	44	17	0	36	66	0	0	1	0	1	0	8	0	35	0	208	
4:45 PM	0	35	8	0	36	54	0	0	0	0	0	0	3	0	30	0	166	
4:50 PM	0	52	10	0	41	59	0	0	0	0	0	0	4	0	27	0	193	
4:55 PM	0	29	6	0	35	38	0	0	0	0	0	0	10	0	25	0	143	2277
5:00 PM	0	34	7	0	28	40	0	0	0	0	0	0	13	0	30	0	152	2239
5:05 PM	0	41	7	0	29	55	0	0	0	0	0	0	4	0	26	0	162	2212
5:10 PM	0	30	7	0	31	36	0	0	0	0	0	0	5	0	26	0	135	2146
5:15 PM	0	38	10	0	25	41	0	0	0	0	0	0	2	0	24	0	140	2076
5:20 PM	0	35	5	0	37	34	0	0	0	0	0	0	3	0	24	0	138	2013
5:25 PM	0	33	12	0	36	32	0	0	0	0	0	0	5	0	30	0	148	1973
5:30 PM	0	30	7	0	28	23	0	0	0	0	0	0	5	0	19	0	112	1888
5:35 PM	0	39	4	0	23	22	0	0	0	0	0	0	3	0	13	0	104	1801
5:40 PM	0	13	10	0	28	30	0	0	0	0	0	0	4	0	18	0	103	1696
5:45 PM	0	26	9	0	26	28	0	0	0	0	0	0	3	0	17	0	109	1639
5:50 PM	0	37	3	0	31	26	0	0	0	0	0	0	5	0	26	0	128	1574
5:55 PM	0	32	6	0	27	30	0	0	0	0	0	0	5	0	17	0	117	1548
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	648	156	0	516	648	0	0	0	0	0	0	108	0	372	0	2448	
Heavy Trucks	0	4	4	0	12	12	0	0	0	0	0	0	0	0	24	0	56	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	8		0	0	0		0	0	0		0	0	0		8	
Scooters																		

Comments:

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952630
DATE: Thu, Sep 22 2022

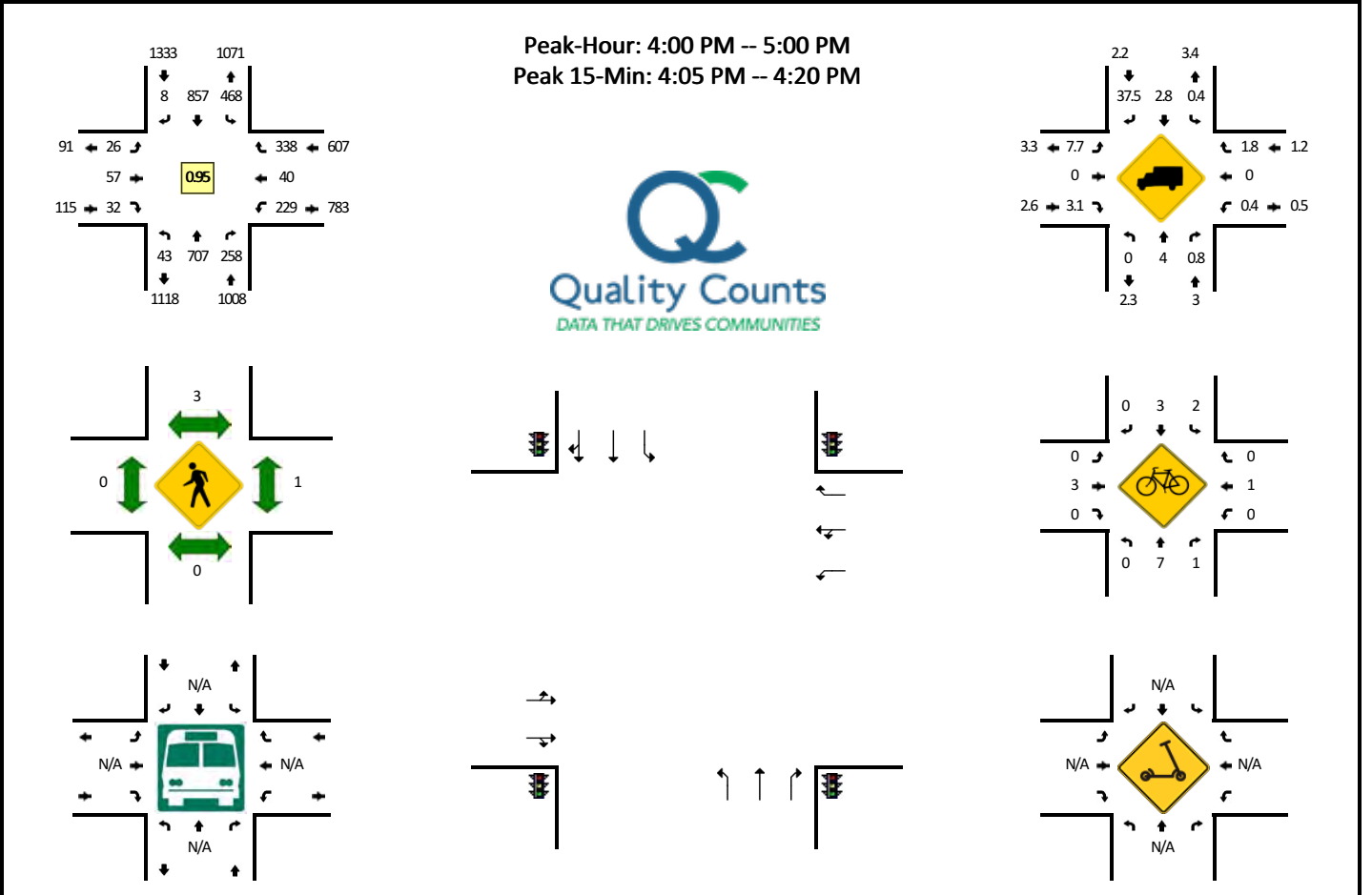


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	44	12	0	17	33	6	0	3	2	2	0	22	3	24	0	168	
7:05 AM	2	35	5	0	26	50	2	0	5	1	0	0	23	0	17	0	166	
7:10 AM	2	58	15	0	24	49	5	0	2	2	2	0	15	1	28	0	203	
7:15 AM	3	48	20	0	11	39	5	0	0	0	2	0	15	0	27	0	170	
7:20 AM	3	52	20	0	18	47	4	0	4	0	2	0	21	3	28	0	202	
7:25 AM	2	58	36	0	18	35	1	0	5	1	1	0	11	3	25	0	196	
7:30 AM	3	52	29	0	15	36	5	0	5	1	1	0	20	0	37	0	204	
7:35 AM	2	51	19	0	14	40	5	0	4	2	0	0	18	5	30	0	190	
7:40 AM	2	45	21	0	21	48	2	0	5	1	1	0	16	0	41	0	203	
7:45 AM	4	61	17	0	9	36	3	0	1	1	1	0	20	3	35	0	191	
7:50 AM	3	36	20	0	21	40	4	0	6	0	3	0	21	2	27	0	183	
7:55 AM	1	41	9	0	14	33	4	0	1	0	2	0	28	7	27	0	167	2243
8:00 AM	6	24	11	0	19	37	1	0	7	2	3	0	26	4	14	0	154	2229
8:05 AM	4	35	7	0	17	45	2	0	3	2	3	0	18	4	29	0	169	2232
8:10 AM	4	48	13	0	20	42	2	0	4	0	3	0	9	3	20	0	168	2197
8:15 AM	5	40	9	0	11	27	5	0	5	2	1	0	14	5	29	0	153	2180
8:20 AM	5	46	11	0	11	40	1	0	1	1	1	0	17	5	18	0	157	2135
8:25 AM	7	32	7	0	18	29	4	0	3	3	2	0	10	3	16	0	134	2073
8:30 AM	2	36	11	0	23	36	2	0	3	1	4	0	15	1	21	0	155	2024
8:35 AM	6	38	8	0	16	30	0	0	6	2	3	0	6	1	17	0	133	1967
8:40 AM	5	27	14	0	21	50	2	0	4	2	3	0	12	7	29	0	176	1940
8:45 AM	6	36	10	0	13	36	2	0	3	2	6	0	8	3	29	0	154	1903
8:50 AM	8	35	11	0	9	34	2	0	5	3	4	0	14	3	31	0	159	1879
8:55 AM	2	31	9	0	13	40	3	0	3	3	3	0	6	7	23	0	143	1855
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	648	340	0	204	472	40	0	56	8	16	0	208	24	360	0	2408	
Heavy Trucks	4	28	20		16	68	16		40	0	4		8	0	12		216	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4	
Scooters																		

Comments:

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952631
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	65	19	0	33	82	2	0	3	9	0	0	16	4	24	0	263	
4:05 PM	4	57	24	0	27	59	1	0	2	5	2	0	24	6	35	0	246	
4:10 PM	4	49	17	0	62	80	1	0	4	4	3	0	16	6	34	0	280	
4:15 PM	3	75	34	0	32	73	0	0	4	6	3	0	19	2	33	0	284	
4:20 PM	3	54	27	0	36	69	1	0	0	3	0	0	20	4	21	0	238	
4:25 PM	3	52	16	0	62	66	0	0	2	2	2	0	19	4	21	0	249	
4:30 PM	5	77	26	0	44	75	0	0	1	6	1	0	12	4	24	0	275	
4:35 PM	6	59	21	0	34	72	1	0	3	8	8	0	24	0	31	0	267	
4:40 PM	5	54	20	0	48	81	2	0	2	1	1	0	21	2	26	0	263	
4:45 PM	0	62	23	0	27	82	0	0	2	3	5	0	19	0	33	0	256	
4:50 PM	4	58	16	0	23	58	0	0	2	5	3	0	25	5	25	0	224	
4:55 PM	0	45	15	0	40	60	0	0	1	5	4	0	14	3	31	0	218	3063
5:00 PM	1	50	20	0	27	59	1	0	1	3	6	0	22	2	32	0	224	3024
5:05 PM	3	59	16	0	35	56	0	0	3	5	2	0	15	6	32	0	232	3010
5:10 PM	5	56	10	0	41	42	2	0	2	2	3	0	21	4	19	0	207	2937
5:15 PM	2	54	18	0	39	58	0	0	0	1	1	0	9	6	20	0	208	2861
5:20 PM	1	39	13	0	32	64	1	0	4	3	1	0	18	5	29	0	210	2833
5:25 PM	1	38	21	0	29	46	1	0	2	3	3	0	14	5	24	0	187	2771
5:30 PM	2	39	21	0	34	39	2	0	0	4	1	0	12	2	12	0	168	2664
5:35 PM	3	32	21	0	16	31	0	0	0	5	3	0	12	1	21	0	145	2542
5:40 PM	1	37	10	0	40	67	2	0	2	1	2	0	12	3	21	0	198	2477
5:45 PM	2	20	9	0	23	44	0	0	4	5	1	0	14	3	13	0	138	2359
5:50 PM	1	45	15	0	26	37	0	0	0	0	1	0	12	1	13	0	151	2286
5:55 PM	2	40	20	0	14	53	0	0	0	2	5	0	11	5	13	0	165	2233
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	724	300	0	484	848	8	0	40	60	32	0	236	56	408	0	3240	
Heavy Trucks	0	24	0	0	8	40	8	0	4	0	0	0	0	0	12	0	96	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	4	4		0	4	0		0	0	0		0	0	0		12	
Scoters																		

Comments:

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
Intersection: Federal Wy / Technology Ln
City, State: Boise, Idaho
Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
Site Code : 00000000
Start Date : 4/26/2022
Page No : 1

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
05:00 AM	57	14	0	71	0	0	0	0	1	1	0	2	73
05:15 AM	111	35	0	146	0	1	0	1	1	7	0	8	155
05:30 AM	127	61	0	188	2	0	0	2	2	8	0	10	200
05:45 AM	137	77	0	214	6	0	0	6	1	22	0	23	243
Total	432	187	0	619	8	1	0	9	5	38	0	43	671
06:00 AM	67	19	0	86	2	3	0	5	2	23	0	25	116
06:15 AM	62	32	2	96	1	2	0	3	2	25	0	27	126
06:30 AM	56	33	0	89	1	0	0	1	1	25	0	26	116
06:45 AM	81	28	2	111	0	1	0	1	0	24	3	27	139
Total	266	112	4	382	4	6	0	10	5	97	3	105	497
07:00 AM	74	16	0	90	1	1	0	2	2	12	0	14	106
07:15 AM	85	24	0	109	1	0	0	1	0	4	0	4	114
07:30 AM	118	33	2	153	1	0	0	1	1	5	0	6	160
07:45 AM	168	30	1	199	0	1	0	1	0	14	0	14	214
Total	445	103	3	551	3	2	0	5	3	35	0	38	594
08:00 AM	170	30	0	200	0	0	0	0	0	15	0	15	215
08:15 AM	146	28	0	174	0	1	0	1	0	14	0	14	189
08:30 AM	124	27	2	153	1	0	0	1	0	22	0	22	176
08:45 AM	154	20	2	176	0	0	0	0	1	24	1	26	202
Total	594	105	4	703	1	1	0	2	1	75	1	77	782
09:00 AM	117	24	0	141	0	0	0	0	0	14	0	14	155
09:15 AM	88	25	1	114	1	1	0	2	2	16	1	19	135
09:30 AM	56	11	0	67	1	0	0	1	1	19	0	20	88
09:45 AM	62	5	1	68	0	0	0	0	0	19	0	19	87
Total	323	65	2	390	2	1	0	3	3	68	1	72	465
10:00 AM	36	10	0	46	1	0	0	1	0	18	0	18	65
10:15 AM	31	3	0	34	2	0	0	2	0	18	0	18	54
10:30 AM	35	11	0	46	2	1	0	3	0	20	0	20	69
10:45 AM	27	8	1	36	3	1	0	4	0	28	0	28	68
Total	129	32	1	162	8	2	0	10	0	84	0	84	256
11:00 AM	28	2	0	30	1	0	0	1	0	42	0	42	73
11:15 AM	38	9	1	48	3	0	0	3	0	29	0	29	80
11:30 AM	39	6	0	45	2	0	0	2	0	41	0	41	88
11:45 AM	33	7	0	40	2	0	0	2	0	54	0	54	96
Total	138	24	1	163	8	0	0	8	0	166	0	166	337
12:00 PM	40	11	0	51	2	0	1	3	1	46	0	47	101
12:15 PM	40	7	0	47	1	0	0	1	0	43	0	43	91
12:30 PM	34	9	0	43	0	0	1	1	0	38	0	38	82
12:45 PM	52	10	0	62	7	0	1	8	0	33	0	33	103
Total	166	37	0	203	10	0	3	13	1	160	0	161	377
01:00 PM	50	11	0	61	5	1	1	7	0	29	0	29	97
01:15 PM	39	3	0	42	1	1	1	3	0	31	0	31	76
01:30 PM	36	3	0	39	2	0	1	3	0	30	0	30	72
01:45 PM	25	5	0	30	2	0	0	2	0	21	0	21	53
Total	150	22	0	172	10	2	3	15	0	111	0	111	298

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
Intersection: Federal Wy / Technology Ln
City, State: Boise, Idaho
Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
Site Code : 00000000
Start Date : 4/26/2022
Page No : 2

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
02:00 PM	29	8	0	37	1	0	0	1	0	38	0	38	76
02:15 PM	20	6	0	26	3	1	3	7	0	43	0	43	76
02:30 PM	22	7	0	29	3	0	0	3	0	52	0	52	84
02:45 PM	20	2	0	22	0	1	1	2	1	44	0	45	69
Total	91	23	0	114	7	2	4	13	1	177	0	178	305
03:00 PM	15	6	0	21	6	0	0	6	0	63	0	63	90
03:15 PM	21	3	0	24	4	1	0	5	0	69	0	69	98
03:30 PM	21	5	0	26	11	2	0	13	1	78	0	79	118
03:45 PM	12	4	0	16	2	0	0	2	0	109	0	109	127
Total	69	18	0	87	23	3	0	26	1	319	0	320	433
04:00 PM	14	5	0	19	8	2	1	11	0	169	0	169	199
04:15 PM	10	4	0	14	6	4	2	12	0	148	0	148	174
04:30 PM	23	1	0	24	17	3	3	23	0	223	0	223	270
04:45 PM	22	1	0	23	7	0	0	7	0	109	0	109	139
Total	69	11	0	80	38	9	6	53	0	649	0	649	782
05:00 PM	25	4	0	29	4	2	1	7	0	164	0	164	200
05:15 PM	19	6	0	25	6	1	1	8	0	125	0	125	158
05:30 PM	35	9	0	44	9	2	1	12	0	112	0	112	168
05:45 PM	39	4	0	43	4	1	0	5	1	133	0	134	182
Total	118	23	0	141	23	6	3	32	1	534	0	535	708
06:00 PM	24	4	0	28	5	0	0	5	0	129	0	129	162
06:15 PM	26	3	0	29	2	1	1	4	1	81	0	82	115
06:30 PM	7	3	0	10	1	0	0	1	0	84	0	84	95
06:45 PM	9	1	0	10	1	0	0	1	0	55	0	55	66
Total	66	11	0	77	9	1	1	11	1	349	0	350	438
07:00 PM	8	0	0	8	0	0	0	0	0	48	0	48	56
07:15 PM	9	0	0	9	2	0	1	3	0	46	0	46	58
07:30 PM	5	1	0	6	1	0	0	1	0	28	0	28	35
07:45 PM	4	1	0	5	0	0	0	0	0	18	0	18	23
Total	26	2	0	28	3	0	1	4	0	140	0	140	172
Grand Total	3082	775	15	3872	157	36	21	214	22	3002	5	3029	7115
Apprch %	79.6	20	0.4		73.4	16.8	9.8		0.7	99.1	0.2		
Total %	43.3	10.9	0.2	54.4	2.2	0.5	0.3	3	0.3	42.2	0.1	42.6	

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	17	10	0	0	0	0	0	0	0	0	0	0	0	27
01:00 AM	0	18	10	0	0	0	0	0	0	0	0	0	0	0	28
02:00 AM	0	4	1	0	0	2	0	0	0	0	0	0	0	0	7
03:00 AM	0	10	3	0	0	0	0	0	8	1	0	0	0	0	22
04:00 AM	0	17	10	0	0	0	0	0	2	0	0	0	0	0	29
05:00 AM	0	61	41	0	1	2	0	0	3	0	0	0	0	0	108
06:00 AM	1	18	13	0	1	3	0	2	5	0	0	0	0	0	43
07:00 AM	0	31	22	0	3	1	0	0	1	0	0	0	0	0	58
08:00 AM	0	42	29	0	5	1	0	3	5	1	0	0	0	0	86
09:00 AM	1	41	30	0	7	1	1	2	3	0	0	0	0	0	86
10:00 AM	2	111	75	1	5	2	1	2	3	0	0	0	0	0	202
11:00 AM	0	108	73	0	3	2	1	2	2	0	0	0	0	0	191
12:00 PM	1	81	53	0	2	4	0	0	5	1	0	0	0	0	147
01:00 PM	0	121	80	1	5	0	0	3	3	0	0	0	0	0	213
02:00 PM	9	204	136	0	2	0	0	3	4	1	0	0	0	0	359
03:00 PM	10	395	266	0	1	0	0	0	0	1	0	0	0	0	673
04:00 PM	9	414	277	0	5	0	0	1	0	0	0	0	0	0	706
05:00 PM	10	239	156	0	1	0	0	0	0	2	0	0	0	0	408
06:00 PM	4	100	64	0	0	1	0	0	0	0	0	0	0	0	169
07:00 PM	0	33	26	0	1	0	0	0	1	0	1	0	0	0	62
08:00 PM	0	15	8	0	0	0	0	0	0	0	0	0	0	0	23
09:00 PM	1	12	8	0	0	0	0	0	0	0	0	0	0	0	21
10:00 PM	0	12	7	0	0	1	0	0	0	0	0	0	0	0	20
11:00 PM	1	8	4	0	0	0	0	0	0	0	0	0	0	0	13
Day Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															
AM Peak Volume	10:00 AM 2	10:00 AM 111	10:00 AM 75	10:00 AM 1	9:00 AM 7	6:00 AM 3	9:00 AM 1	8:00 AM 3	3:00 AM 8	3:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0		10:00 AM 202
PM Peak Volume	3:00 PM 10	4:00 PM 414	4:00 PM 277	1:00 PM 1	1:00 PM 5	12:00 PM 4	12:00 PM 0	1:00 PM 3	12:00 PM 5	5:00 PM 2	7:00 PM 1	12:00 PM 0	12:00 PM 0		4:00 PM 706

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				27		27			27	
01:00 AM				28		28			28	
02:00 AM				7		7			7	
03:00 AM				22		22			22	
04:00 AM				29		29			29	
05:00 AM				108		108			108	
06:00 AM				43		43			43	
07:00 AM				58		58			58	
08:00 AM				86		86			86	
09:00 AM				86		86			86	
10:00 AM				202		202			202	
11:00 AM				191		191			191	
12:00 PM				147		147			147	
01:00 PM				213		213			213	
02:00 PM				359		359			359	
03:00 PM				673		673			673	
04:00 PM				706		706			706	
05:00 PM				408		408			408	
06:00 PM				169		169			169	
07:00 PM				62		62			62	
08:00 PM				23		23			23	
09:00 PM				21		21			21	
10:00 PM				20		20			20	
11:00 PM				13		13			13	
Day Total				3701		3701			3701	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				10:00 AM 202		10:00 AM 202			10:00 AM 202	
PM Peak Volume				4:00 PM 706		4:00 PM 706			4:00 PM 706	

Comments:

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB, SB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	23	12	0	1	0	0	0	0	0	0	0	0	0	36
01:00 AM	0	22	10	0	0	0	0	0	0	0	0	0	0	0	32
02:00 AM	0	14	5	0	0	2	0	0	1	0	0	0	0	0	22
03:00 AM	0	55	34	0	1	0	0	0	8	1	0	0	0	0	99
04:00 AM	5	395	261	0	4	1	0	1	2	0	0	0	0	0	669
05:00 AM	10	289	195	0	5	3	0	1	5	0	0	0	0	0	508
06:00 AM	11	374	250	0	4	4	0	3	7	0	0	0	0	0	653
07:00 AM	7	487	328	0	9	1	0	0	6	1	0	0	0	0	839
08:00 AM	8	261	175	0	9	1	0	4	6	2	0	0	0	0	466
09:00 AM	4	139	94	0	13	3	2	5	3	0	0	0	0	0	263
10:00 AM	5	213	141	1	12	2	1	4	9	1	0	0	0	0	389
11:00 AM	2	227	150	0	6	3	1	4	6	2	0	0	0	0	401
12:00 PM	1	181	120	0	5	6	0	1	11	1	0	0	0	0	326
01:00 PM	0	180	118	1	10	1	0	6	7	0	0	0	0	0	323
02:00 PM	10	281	188	0	3	0	0	5	7	3	0	0	0	0	497
03:00 PM	10	445	298	0	5	0	0	0	1	1	0	0	0	0	760
04:00 PM	9	507	335	0	7	1	0	2	0	0	0	0	0	0	861
05:00 PM	11	279	180	0	2	0	0	0	0	2	0	0	0	0	474
06:00 PM	6	118	76	0	1	1	0	0	1	0	0	0	0	0	203
07:00 PM	0	44	32	0	2	0	0	0	2	0	1	0	0	0	81
08:00 PM	0	24	11	0	0	0	0	0	1	0	0	0	0	0	36
09:00 PM	1	19	10	0	1	0	0	0	0	0	0	0	0	0	31
10:00 PM	0	17	11	0	1	1	0	0	1	0	0	0	0	0	31
11:00 PM	1	9	4	0	1	0	0	0	0	0	0	0	0	0	15
Day Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															
AM Peak Volume	6:00 AM 11	7:00 AM 487	7:00 AM 328	10:00 AM 1	9:00 AM 13	6:00 AM 4	9:00 AM 2	9:00 AM 5	10:00 AM 9	8:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	7:00 AM 839
PM Peak Volume	5:00 PM 11	4:00 PM 507	4:00 PM 335	1:00 PM 1	1:00 PM 10	12:00 PM 6	12:00 PM 0	1:00 PM 6	12:00 PM 11	2:00 PM 3	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	4:00 PM 861

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB, SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB, SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				36		36			36	
01:00 AM				32		32			32	
02:00 AM				22		22			22	
03:00 AM				99		99			99	
04:00 AM				669		669			669	
05:00 AM				508		508			508	
06:00 AM				653		653			653	
07:00 AM				839		839			839	
08:00 AM				466		466			466	
09:00 AM				263		263			263	
10:00 AM				389		389			389	
11:00 AM				401		401			401	
12:00 PM				326		326			326	
01:00 PM				323		323			323	
02:00 PM				497		497			497	
03:00 PM				760		760			760	
04:00 PM				861		861			861	
05:00 PM				474		474			474	
06:00 PM				203		203			203	
07:00 PM				81		81			81	
08:00 PM				36		36			36	
09:00 PM				31		31			31	
10:00 PM				31		31			31	
11:00 PM				15		15			15	
Day Total				8015		8015			8015	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 839		7:00 AM 839			7:00 AM 839	
PM Peak Volume				4:00 PM 861		4:00 PM 861			4:00 PM 861	

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	6	2	0	1	0	0	0	0	0	0	0	0		9
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0		4
02:00 AM	0	10	4	0	0	0	0	0	1	0	0	0	0		15
03:00 AM	0	45	31	0	1	0	0	0	0	0	0	0	0		77
04:00 AM	5	378	251	0	4	1	0	1	0	0	0	0	0		640
05:00 AM	10	228	154	0	4	1	0	1	2	0	0	0	0		400
06:00 AM	10	356	237	0	3	1	0	1	2	0	0	0	0		610
07:00 AM	7	456	306	0	6	0	0	0	5	1	0	0	0		781
08:00 AM	8	219	146	0	4	0	0	1	1	1	0	0	0		380
09:00 AM	3	98	64	0	6	2	1	3	0	0	0	0	0		177
10:00 AM	3	102	66	0	7	0	0	2	6	1	0	0	0		187
11:00 AM	2	119	77	0	3	1	0	2	4	2	0	0	0		210
12:00 PM	0	100	67	0	3	2	0	1	6	0	0	0	0		179
01:00 PM	0	59	38	0	5	1	0	3	4	0	0	0	0		110
02:00 PM	1	77	52	0	1	0	0	2	3	2	0	0	0		138
03:00 PM	0	50	32	0	4	0	0	0	1	0	0	0	0		87
04:00 PM	0	93	58	0	2	1	0	1	0	0	0	0	0		155
05:00 PM	1	40	24	0	1	0	0	0	0	0	0	0	0		66
06:00 PM	2	18	12	0	1	0	0	0	1	0	0	0	0		34
07:00 PM	0	11	6	0	1	0	0	0	1	0	0	0	0		19
08:00 PM	0	9	3	0	0	0	0	0	1	0	0	0	0		13
09:00 PM	0	7	2	0	1	0	0	0	0	0	0	0	0		10
10:00 PM	0	5	4	0	1	0	0	0	1	0	0	0	0		11
11:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0		2
Day Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															
AM Peak Volume	5:00 AM 10	7:00 AM 456	7:00 AM 306	12:00 AM 0	10:00 AM 7	9:00 AM 2	9:00 AM 1	9:00 AM 3	10:00 AM 6	11:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0		7:00 AM 781
PM Peak Volume	6:00 PM 2	12:00 PM 100	12:00 PM 67	12:00 PM 0	1:00 PM 5	12:00 PM 2	12:00 PM 0	1:00 PM 3	12:00 PM 6	2:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0		12:00 PM 179

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				9		9			9	
01:00 AM				4		4			4	
02:00 AM				15		15			15	
03:00 AM				77		77			77	
04:00 AM				640		640			640	
05:00 AM				400		400			400	
06:00 AM				610		610			610	
07:00 AM				781		781			781	
08:00 AM				380		380			380	
09:00 AM				177		177			177	
10:00 AM				187		187			187	
11:00 AM				210		210			210	
12:00 PM				179		179			179	
01:00 PM				110		110			110	
02:00 PM				138		138			138	
03:00 PM				87		87			87	
04:00 PM				155		155			155	
05:00 PM				66		66			66	
06:00 PM				34		34			34	
07:00 PM				19		19			19	
08:00 PM				13		13			13	
09:00 PM				10		10			10	
10:00 PM				11		11			11	
11:00 PM				2		2			2	
Day Total				4314		4314			4314	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 781		7:00 AM 781			7:00 AM 781	
PM Peak Volume				12:00 PM 179		12:00 PM 179			12:00 PM 179	

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
03:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
04:00 AM	0	15	10	0	0	0	0	0	0	0	0	0	0		25
05:00 AM	0	13	7	1	1	0	0	0	0	0	0	0	0		22
06:00 AM	2	42	29	4	1	0	0	0	0	0	0	0	0		78
07:00 AM	0	56	39	0	0	0	0	0	0	0	0	0	0		95
08:00 AM	0	38	23	0	4	0	0	0	0	0	0	0	0		65
09:00 AM	0	36	21	0	2	0	0	0	0	0	0	0	0		59
10:00 AM	1	42	29	1	3	0	0	0	1	0	0	0	0		77
11:00 AM	0	56	38	0	3	0	0	1	0	0	0	0	0		98
12:00 PM	0	49	35	0	2	0	0	0	0	0	0	0	0		86
01:00 PM	1	58	40	1	3	1	0	0	0	0	0	0	0		104
02:00 PM	0	81	55	4	0	1	0	0	0	0	0	0	0		141
03:00 PM	0	98	68	2	1	0	0	0	0	0	0	0	0		169
04:00 PM	1	110	73	0	1	0	0	0	0	0	0	0	0		185
05:00 PM	0	92	60	0	0	0	0	0	0	0	0	0	0		152
06:00 PM	1	75	46	0	0	0	0	0	0	0	0	0	0		122
07:00 PM	0	53	38	0	0	0	0	0	1	0	0	0	0		92
08:00 PM	0	30	21	0	0	0	0	0	0	0	0	0	0		51
09:00 PM	0	20	13	0	0	0	0	0	0	0	0	0	0		33
10:00 PM	0	7	3	0	0	0	0	0	0	0	0	0	0		10
11:00 PM	0	4	1	0	0	0	0	0	0	0	0	0	0		5
Day Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															
AM Peak Volume	6:00 AM 2	7:00 AM 56	7:00 AM 39	6:00 AM 4	8:00 AM 4	12:00 AM 0	12:00 AM 0	11:00 AM 1	10:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0		11:00 AM 98
PM Peak Volume	1:00 PM 1	4:00 PM 110	4:00 PM 73	2:00 PM 4	1:00 PM 3	1:00 PM 1	12:00 PM 0	12:00 PM 0	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0		4:00 PM 185

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				1		1			1	
03:00 AM				3		3			3	
04:00 AM				25		25			25	
05:00 AM				22		22			22	
06:00 AM				78		78			78	
07:00 AM				95		95			95	
08:00 AM				65		65			65	
09:00 AM				59		59			59	
10:00 AM				77		77			77	
11:00 AM				98		98			98	
12:00 PM				86		86			86	
01:00 PM				104		104			104	
02:00 PM				141		141			141	
03:00 PM				169		169			169	
04:00 PM				185		185			185	
05:00 PM				152		152			152	
06:00 PM				122		122			122	
07:00 PM				92		92			92	
08:00 PM				51		51			51	
09:00 PM				33		33			33	
10:00 PM				10		10			10	
11:00 PM				5		5			5	
Day Total				1678		1678			1678	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				11:00 AM 98		11:00 AM 98			11:00 AM 98	
PM Peak Volume				4:00 PM 185		4:00 PM 185			4:00 PM 185	

Comments:

LOCATION: Columbia Rd east of Circuit Way
SPECIFIC LOCATION:
CITY/STATE: Boise, ID

QC JOB #: 15952633
DIRECTION: EB, WB
DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
03:00 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
04:00 AM	0	41	26	0	0	0	0	0	0	0	0	0	0	0	67
05:00 AM	0	45	31	1	1	0	0	0	0	0	0	0	0	0	78
06:00 AM	4	159	108	6	2	0	0	0	0	0	0	0	0	0	279
07:00 AM	2	162	110	3	0	0	0	0	0	0	0	0	0	0	277
08:00 AM	0	91	57	0	6	0	0	0	0	0	0	0	0	0	154
09:00 AM	0	87	55	0	3	0	0	0	0	0	0	0	0	0	145
10:00 AM	2	95	65	1	6	0	0	0	2	0	0	0	0	0	171
11:00 AM	0	104	71	1	5	0	0	1	0	0	0	0	0	0	182
12:00 PM	0	94	66	0	8	0	0	0	0	0	0	0	0	0	168
01:00 PM	1	116	77	2	6	2	0	1	0	0	0	0	0	0	205
02:00 PM	0	154	103	8	3	2	0	0	0	0	0	0	0	0	270
03:00 PM	0	176	120	4	4	0	0	0	0	0	0	0	0	0	304
04:00 PM	3	197	130	0	2	0	0	0	0	0	0	0	0	0	332
05:00 PM	0	149	100	0	0	0	0	0	0	0	0	0	0	0	249
06:00 PM	1	105	64	0	0	0	0	0	0	0	0	0	0	0	170
07:00 PM	0	78	53	0	1	0	0	0	2	0	0	0	0	0	134
08:00 PM	0	48	33	0	0	0	0	0	0	0	0	0	0	0	81
09:00 PM	0	28	18	0	0	0	0	0	0	0	0	0	0	0	46
10:00 PM	0	12	3	0	0	0	0	0	0	0	0	0	0	0	15
11:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
Day Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															
AM Peak Volume	6:00 AM 4	7:00 AM 162	7:00 AM 110	6:00 AM 6	8:00 AM 6	12:00 AM 0	12:00 AM 0	11:00 AM 1	10:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	6:00 AM 279
PM Peak Volume	4:00 PM 3	4:00 PM 197	4:00 PM 130	2:00 PM 8	12:00 PM 8	1:00 PM 2	12:00 PM 0	1:00 PM 1	7:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	4:00 PM 332

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB, WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				6		6			6	
01:00 AM				4		4			4	
02:00 AM				4		4			4	
03:00 AM				10		10			10	
04:00 AM				67		67			67	
05:00 AM				78		78			78	
06:00 AM				279		279			279	
07:00 AM				277		277			277	
08:00 AM				154		154			154	
09:00 AM				145		145			145	
10:00 AM				171		171			171	
11:00 AM				182		182			182	
12:00 PM				168		168			168	
01:00 PM				205		205			205	
02:00 PM				270		270			270	
03:00 PM				304		304			304	
04:00 PM				332		332			332	
05:00 PM				249		249			249	
06:00 PM				170		170			170	
07:00 PM				134		134			134	
08:00 PM				81		81			81	
09:00 PM				46		46			46	
10:00 PM				15		15			15	
11:00 PM				6		6			6	
Day Total				3357		3357			3357	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 279		6:00 AM 279			6:00 AM 279	
PM Peak Volume				4:00 PM 332		4:00 PM 332			4:00 PM 332	

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
03:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0		7
04:00 AM	0	26	16	0	0	0	0	0	0	0	0	0	0		42
05:00 AM	0	32	24	0	0	0	0	0	0	0	0	0	0		56
06:00 AM	2	117	79	2	1	0	0	0	0	0	0	0	0		201
07:00 AM	2	106	71	3	0	0	0	0	0	0	0	0	0		182
08:00 AM	0	53	34	0	2	0	0	0	0	0	0	0	0		89
09:00 AM	0	51	34	0	1	0	0	0	0	0	0	0	0		86
10:00 AM	1	53	36	0	3	0	0	0	1	0	0	0	0		94
11:00 AM	0	48	33	1	2	0	0	0	0	0	0	0	0		84
12:00 PM	0	45	31	0	6	0	0	0	0	0	0	0	0		82
01:00 PM	0	58	37	1	3	1	0	1	0	0	0	0	0		101
02:00 PM	0	73	48	4	3	1	0	0	0	0	0	0	0		129
03:00 PM	0	78	52	2	3	0	0	0	0	0	0	0	0		135
04:00 PM	2	87	57	0	1	0	0	0	0	0	0	0	0		147
05:00 PM	0	57	40	0	0	0	0	0	0	0	0	0	0		97
06:00 PM	0	30	18	0	0	0	0	0	0	0	0	0	0		48
07:00 PM	0	25	15	0	1	0	0	0	1	0	0	0	0		42
08:00 PM	0	18	12	0	0	0	0	0	0	0	0	0	0		30
09:00 PM	0	8	5	0	0	0	0	0	0	0	0	0	0		13
10:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0		5
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
Day Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															
AM Peak Volume	6:00 AM 2	6:00 AM 117	6:00 AM 79	7:00 AM 3	10:00 AM 3	12:00 AM 0	12:00 AM 0	12:00 AM 0	10:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0		6:00 AM 201
PM Peak Volume	4:00 PM 2	4:00 PM 87	4:00 PM 57	2:00 PM 4	12:00 PM 6	1:00 PM 1	12:00 PM 0	1:00 PM 1	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0		4:00 PM 147

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				3		3			3	
03:00 AM				7		7			7	
04:00 AM				42		42			42	
05:00 AM				56		56			56	
06:00 AM				201		201			201	
07:00 AM				182		182			182	
08:00 AM				89		89			89	
09:00 AM				86		86			86	
10:00 AM				94		94			94	
11:00 AM				84		84			84	
12:00 PM				82		82			82	
01:00 PM				101		101			101	
02:00 PM				129		129			129	
03:00 PM				135		135			135	
04:00 PM				147		147			147	
05:00 PM				97		97			97	
06:00 PM				48		48			48	
07:00 PM				42		42			42	
08:00 PM				30		30			30	
09:00 PM				13		13			13	
10:00 PM				5		5			5	
11:00 PM				1		1			1	
Day Total				1679		1679			1679	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 201		6:00 AM 201			6:00 AM 201	
PM Peak Volume				4:00 PM 147		4:00 PM 147			4:00 PM 147	

Comments:

APPENDIX C: Scoping Document

TIS SCOPING MEMO

To: Christy Little, ACHD

From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)

cc: Heather Baldwin, Micron
Deborah E. Nelson, Givens Pursley, LLP

Date: October 10, 2022

Re: Traffic Impact Study Scoping Documentation
Proposed Micron FAB1 Development, S Federal Way, Boise, ID

This memorandum conveys current information related to the preliminary scope of a Traffic Impact Study (TIS) for a microprocessor fabrication facility in Boise, Idaho. The following include trip generation, study area, background growth, nearby approved development, trip distribution and analysis scenarios.

Site Description

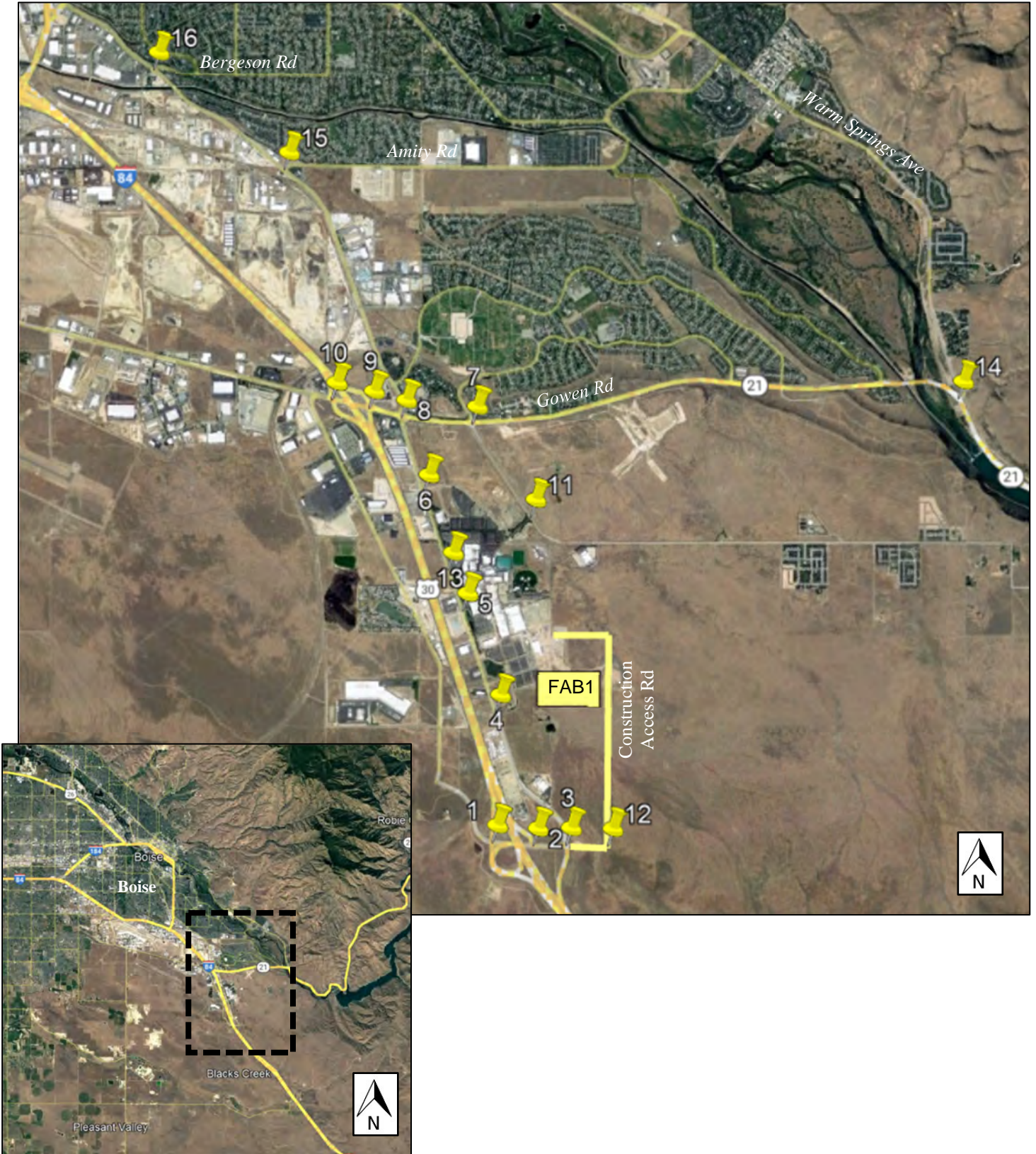
The TIS will comply with all the requirements of the ACHD including analysis, reporting, and development of any necessary mitigation measures meeting minimum design Level-of-Service (LOS) D for suburban roadways and intersections. The proposed development will include several buildings in support of the main fabrication building. The buildings will be east of S Federal Way, north of Memory Lane, and west of Columbia Road. There will be multiple points of egress for the development, all of which are existing. Construction traffic will utilize a temporary road, which will be the extension of Memory Lane.

This study will consider only the first phase of development which will be the Fab building, related office and support buildings, and a vendor building. The site location is shown in Figure 1.

Site Access

Access to the site will be available from existing driveways along S Federal Way and Technology Way.

Figure 1. Site Location and Study Area Map



Site Trip Generation

A new manufacturing facility will be built on land adjacent to the existing Micron R&D campus. The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” with an independent variable of number of employees is the more prudent land use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions.

Table 1. Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

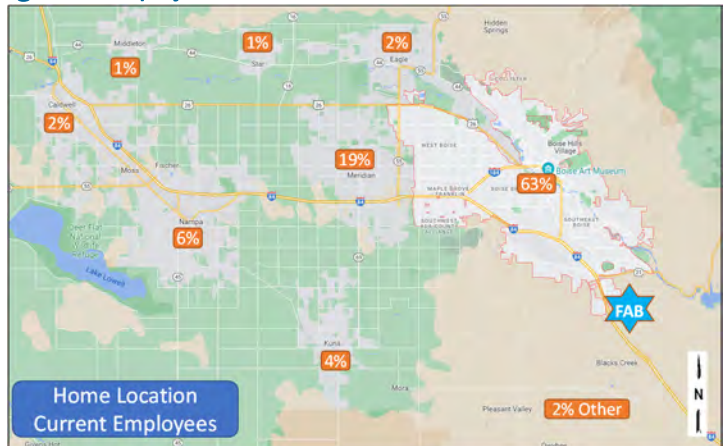
Trip Distribution and Trip Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home locations of current employees is tabulated in Table 2 and shown in Figure 2.

Table 2. Employee Home Base

Current Employee Home City	% of Total
Boise	63%
Meridian	19%
Nampa	6%
Kuna	4%
Caldwell	2%
Eagle	2%
Mountain Home	1%
Middleton	1%
Star	1%
Garden City	0.4%
Emmett	0.4%
Idaho City	0.2%

Figure 2. Employee Home Base



Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 3-5.

Figure 3. Macro Area Trip Distribution – Autos and Trucks



Study Locations

The following intersections and road segments (as illustrated in Figure 1) will be analyzed:

- Intersections
 1. Eisenman Rd & I-84 SB Ramp
 2. Eisenman Rd & I-84 NB On-Ramp
 3. Memory Ln & Federal Way/I-84 NB Off-Ramp
 4. Federal Way & Gate C (signal)
 5. Federal Way & Gate B
 6. Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & Federal Way (signal)
 9. Gowen Road & I-84 NB Ramp (signal)
 10. Gowen Road & I-85 SB Ramp (signal)
 11. Technology Ln & Circuit Way
 - ~~12. Memory Ln & Fab Access Road~~
 13. Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)
- Segments
 - A. Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn I-84 NB Ramp and Federal Way
 - C. Memory Ln, Btwn I-84 NB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way
 - E. Columbia Road, east of Circuit Way

Traffic Counts

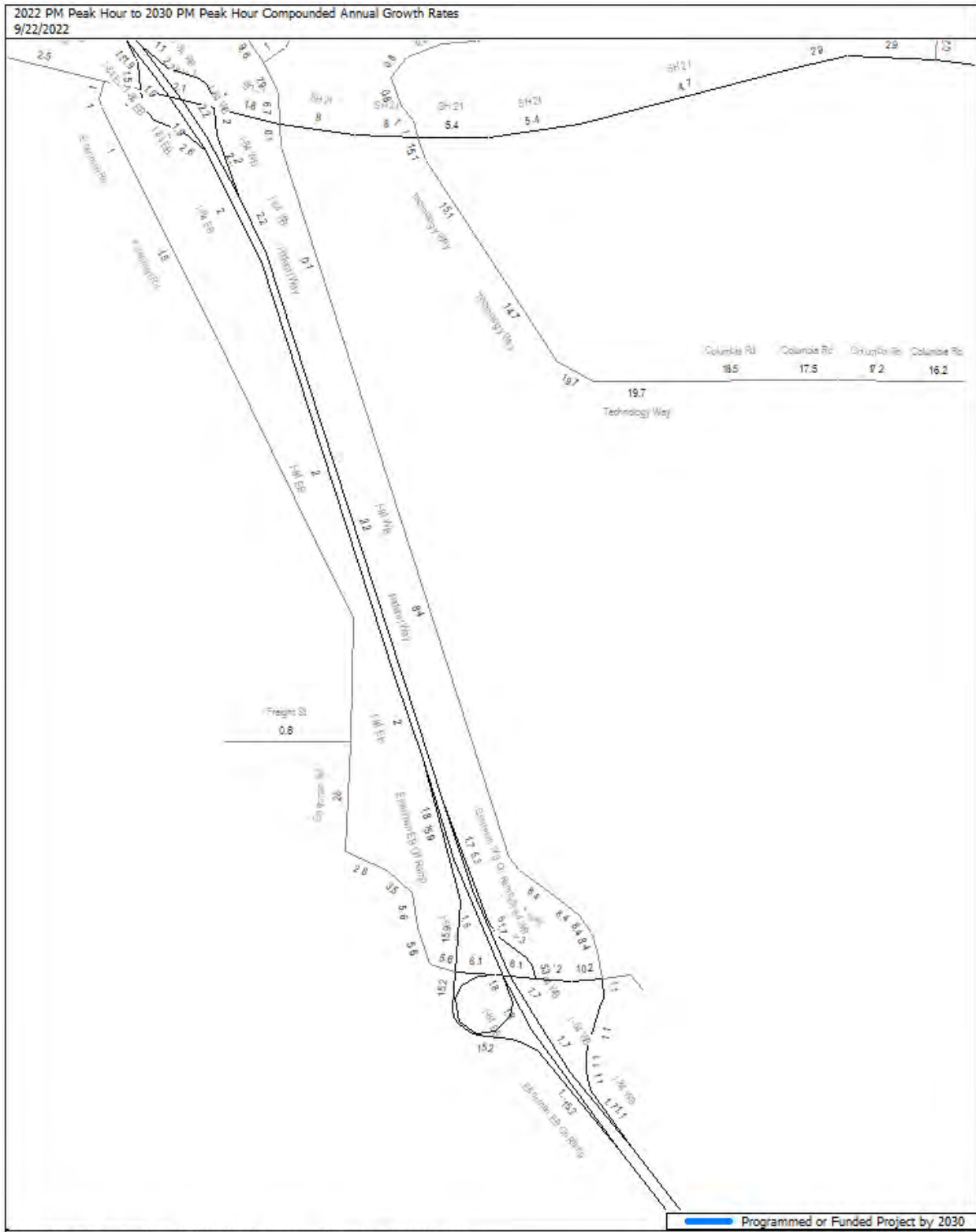
Daily (24-hour) counts, and Intersection turning movement counts will be recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Based on previous traffic counts, the AM Peak Hour is generally between 7:45 and 8:45 am. The PM Peak Hour is between 4:15 and 5:15p. There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low.

Background Growth

Future 2025 turning movement conditions will be forecast utilizing growth rates provided by COMPASS. Table 3 shows the growth changes from the COMPASS model. Figure 7 shows the annual growth rates for each corridor. These rates will be applied to existing traffic counts for three years to determine future year background traffic conditions. No other background project traffic will be considered.

Location	2022-2030 Annual Growth	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	2.5%	1.08
SH 21 w/o Federal Way	1.6%	1.05
SH 21 e/o Federal Way	8.0%	1.26
SH 21 e/o Technology Way	5.4%	1.17
SH 21 w/o Warm Springs	2.9%	1.09
Federal Way s/o SH 21	1.0%	1.00
Federal Way n/o Yamhill Rd	9.6%	1.32
Technology Way, s/o SH 21	15.1%	1.52
Columbia Rd e/o Circuit Way	19.7%	1.72
Eisenman Pkwy/Memory Ln	6.1%	1.19

Figure 7. COMPASS 2022 to 2030 Compounded Annual Growth Rates



Signal Warrants

Signal warrant analysis will be performed for any intersection that is found to exceed ACHD's acceptable v/c ratio of 1.0 in the analysis.

Planned Roadway & Approved Development Projects

There is a planned connector road in the Integrated Five-Year Work Plan (2022-2026). The road would go between Memory Lane and Columbia Road. The alignment of the road has not been determined and no plans current exist. The road will not be considered for this traffic study. Also in the IFYWP is a future widening of Amity Road but the date of such a widening appears to be well into the future.

Analysis Scenarios

Capacity analyses will be completed utilizing Synchro 11® and *Highway Capacity Manual, 6th Edition* methodology. All study intersections will be analyzed during the surrounding roadways' weekday AM and PM peak hours under the following traffic scenarios:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Phase 1 Build with Existing Roadway Conditions

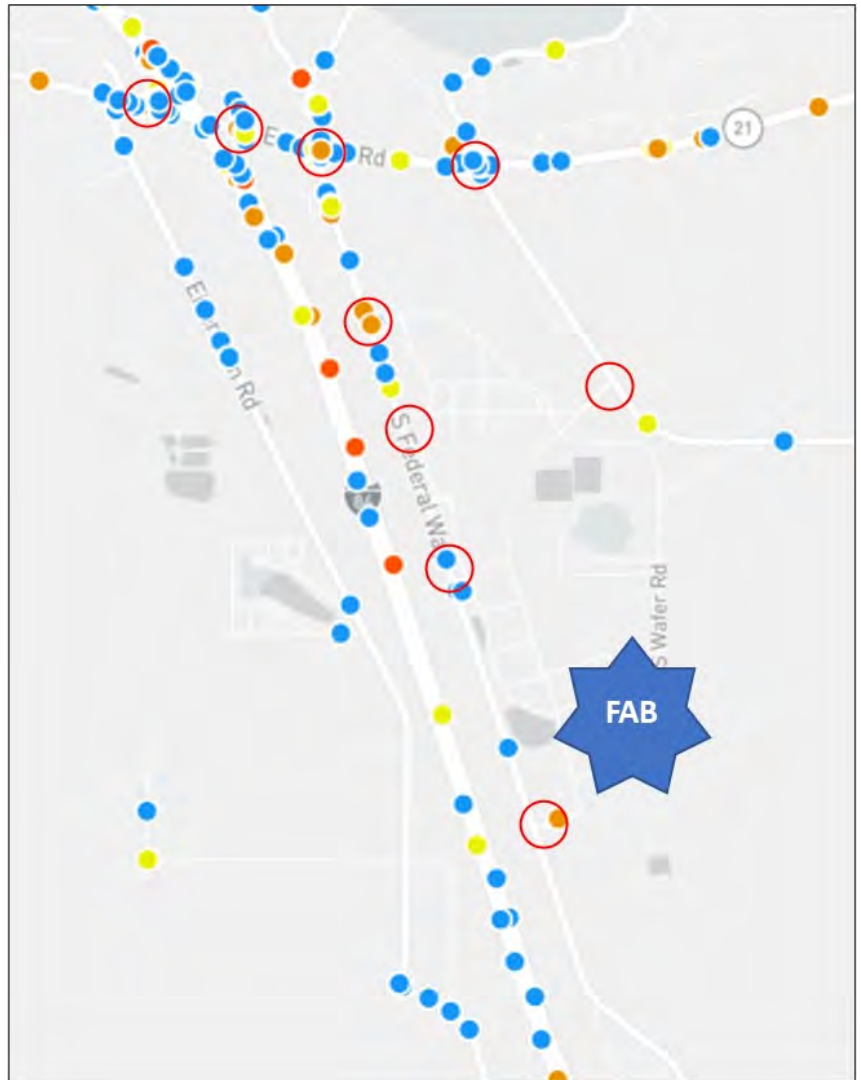
Traffic Operations and Safety Review

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) will be reviewed and summarized at each of the project area intersections. If certain crash trends exist, they will be noted along with possible countermeasure improvements that could be implemented to reduce crash frequency. A further safety review at these locations will not be completed.

A traffic operations review will be performed at the previously noted intersections using Synchro 11 software. In accordance with ACHD Policy, the maximum overall intersection v/c ratio is 0.90 for signalized intersections while the maximum lane group v/c ratio for signalized and unsignalized intersections is 1.0, and 0.85 for roundabouts. Default values as summarized in Policy 7106.6 will be assumed.

Roadway segments will be evaluated using the ACHD LOS Planning Threshold table. Based on the current ACHD Policy Manual, the minimum acceptable LOS for a roadway segment is LOS E for principal arterials and minor arterials, and LOS D for collectors.

Driveway locations will be reviewed to determine if ACHD Access Spacing Policy is met. Additionally, a turn lane analysis in accordance with NCHRP 457 will be performed at the site access points to determine if auxiliary right and left turn lanes are warranted.



Study Area Crashes – 2017-2021 (Source LHTAC)

Report

The TIS report will be prepared with adherence to TIS requirements found in the ACHD General Requirements and Procedures for Development except as may be deviated by this document.

Construction Period Traffic

In a separate analysis and memo, the construction traffic will be assessed relative to the plans and recommendations identified in the TIS. The number of construction vehicles and contractor private vehicles – over time – will be estimated and the expected distribution and relative impacts will be considered. Graphics showing the volume of traffic through the study area will be included in the technical memo. No detailed capacity analysis will be performed unless the volume of traffic appears to be concentrated in any one area and believed to cause problems. In that case, limited capacity analysis will be performed to determine possible construction-time period mitigation.

APPENDIX D: Highway Capacity Worksheets

The following is the required setup for capacity analysis per ACHD guidelines. These were followed, as applicable, in the Synchro analysis.

Variable	Existing Analysis	Future Year Analysis
HCS Analysis Type ¹	Operations	
HCS Report Type	Full Report and Back of Queue Worksheets or Long Report	
HCM Analysis Duration	0.25 hours	
PHF	Actual by approach	0.90 ²
RTOR	Actual count or 0	Existing percentage or 0
Unit Extension	3 sec	
Arrival Type	HCM Exhibit 10-18	
Start Up Time	2 sec	
Extension of Effective Green Time	2 sec	
Walking Speed	4 ft/sec ³	3.5 ft/sec ³
Pedestrian Volume	Actual count or 400 CBD or 50 non-CBD	
Pedestrian Travel Distance	Distance from top of ramp to opposite curb	
Lane Utilization Factor	HCM Exhibit 10-23	
Phasing	Existing	Leading/Protected left turns
Actuation Type	Existing	Fully actuated except Boise CBD
Cycle Length	Use Cycle Length from Table	
Base (Ideal) Saturation Flow Rate	1800	
Lane Width Existing	Existing	Existing ⁴
% Heavy Vehicles	Existing %	
% Grade	Existing %	
Parking maneuvers per hour	HCM Exhibit 10-20	
Bus Stops per hour	HCM Exhibit 10-21	
Yellow Time	4 sec 40 mph and under; 5 sec over 40 mph	
Red Time	1 sec	
Min Vehicle Green Time	5 sec	
Min Pedestrian Green Time	5 sec	
Upstream filtering adjust factor	HCM Exhibit 15-7 5	

¹The preferred software is the latest version of the HCS or Synchro.

²Use existing PHF if existing PHF is > 0.90 and no capacity improvements are planned.

³Use walking speed of 3 ft/sec around certain land uses such as schools.






















⁴Use ACHD Policy Manual if improvements will be completed by analysis year.

⁵Use value of 1.0 if nearest upstream signal is greater than 1/2 mile away.

Synchro Output – Existing Conditions Analysis

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Future Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.79	0.79	0.79	0.67	0.67	0.67	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	10	25	0	0	0	0	37	68	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Future Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	67	67	67	75	75	75	73	73	73
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	49	43	10	25	0	0	0	0	37	0	68

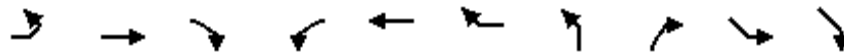
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	92	0	0		70	137	25
Stage 1	-	-	-	-	-	-		45	45	-
Stage 2	-	-	-	-	-	-		25	92	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1264	-	0		925	664	950
Stage 1	0	-	-	-	-	0		972	765	-
Stage 2	0	-	-	-	-	0		989	726	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1264	-	-		918	0	950
Mov Cap-2 Maneuver	-	-	-	-	-	-		918	0	-
Stage 1	-	-	-	-	-	-		972	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1264	-	918	950
HCM Lane V/C Ratio	-	-	0.008	-	0.04	0.072
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	32	41	0	0	23	4	0	0	0	0
Future Volume (vph)	32	41	0	0	23	4	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.87	0.87	0.90	0.90	0.75	0.75	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	37	47	0	0	31	5	0	0	0	0
Sign Control		Free			Free		Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022

Intersection											
Int Delay, s/veh	2.4										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗↗			↕	↗↗	↘				
Traffic Vol, veh/h	32	41	0	0	23	4	0	0	0	0	
Future Vol, veh/h	32	41	0	0	23	4	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	87	87	90	90	75	75	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	37	47	0	0	31	5	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	36	0	-	-	-	0	155 24
Stage 1	-	-	-	-	-	-	121 -
Stage 2	-	-	-	-	-	-	34 -
Critical Hdwy	5.045	-	-	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43 -
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1240	-	0	0	-	-	829 1047
Stage 1	-	-	0	0	-	-	892 -
Stage 2	-	-	0	0	-	-	988 -
Platoon blocked, %		-			-	-	
Mov Cap-1 Maneuver	1240	-	-	-	-	-	804 1047
Mov Cap-2 Maneuver	-	-	-	-	-	-	804 -
Stage 1	-	-	-	-	-	-	865 -
Stage 2	-	-	-	-	-	-	988 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1240	-	-	-
HCM Lane V/C Ratio	-	0.03	-	-	-
HCM Control Delay (s)	0	8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Future Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.77	0.90	0.77	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.67	0.67
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1	0	0	1	0	15	21	0	0	0	24
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Future Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	90	77	90	90	90	75	75	90	90	67	67
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	51	1	0	0	1	0	15	21	0	0	0	24













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.016	0.024	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	18	32	50	21
Future Volume (vph)	4	7	18	32	50	21
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	14	20	36	74	31
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.9	5.9	27.2	27.2	27.2	27.2
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.6		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

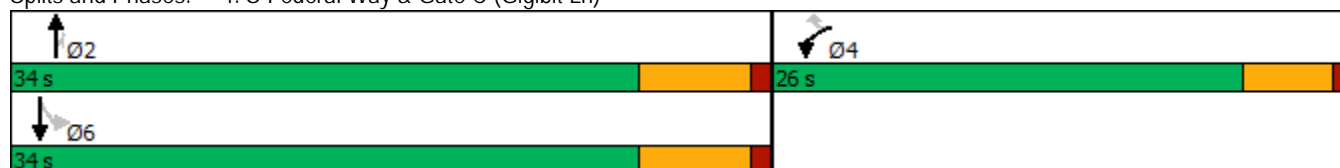


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.07
Intersection Signal Delay:	2.8
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	14	20	36	74	31
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑	↗	↙	↑
Traffic Volume (vph)	4	7	18	32	50	21
Future Volume (vph)	4	7	18	32	50	21
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.74	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1241	1395
Peak-hour factor, PHF	0.50	0.50	0.89	0.89	0.68	0.68
Adj. Flow (vph)	8	14	20	36	74	31
RTOR Reduction (vph)	0	14	0	13	0	0
Lane Group Flow (vph)	8	0	20	23	74	31
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	0.9	0.9	21.9	21.9	21.9	21.9
Effective Green, g (s)	0.9	0.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.03	0.03	0.65	0.65	0.65	0.65
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	45	40	996	991	804	903
v/s Ratio Prot	c0.00		0.01			0.02
v/s Ratio Perm		0.00		0.02	c0.06	
v/c Ratio	0.18	0.01	0.02	0.02	0.09	0.03
Uniform Delay, d1	16.1	16.0	2.1	2.1	2.2	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.1	0.0	0.0	0.0	0.0
Delay (s)	18.0	16.1	2.1	2.1	2.3	2.2
Level of Service	B	B	A	A	A	A
Approach Delay (s)	16.8		2.1			2.2
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	33.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	18	32	50	21
Future Volume (veh/h)	4	7	18	32	50	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	8	14	20	0	74	31
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	50	44	474		827	423
Arrive On Green	0.03	0.03	0.30	0.00	0.30	0.30
Sat Flow, veh/h	1714	1525	1561	1525	1326	1393
Grp Volume(v), veh/h	8	14	20	0	74	31
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1326	1393
Q Serve(g_s), s	0.1	0.1	0.1	0.0	0.7	0.3
Cycle Q Clear(g_c), s	0.1	0.1	0.1	0.0	0.8	0.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	50	44	474		827	423
V/C Ratio(X)	0.16	0.32	0.04		0.09	0.07
Avail Cap(c_a), veh/h	2185	1944	2653		2678	2367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.8	7.8	4.0	0.0	4.3	4.1
Incr Delay (d2), s/veh	1.5	4.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	11.8	4.1	0.0	4.4	4.2
LnGrp LOS	A	B	A		A	A
Approach Vol, veh/h	22		20			105
Approach Delay, s/veh	10.9		4.1			4.3
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.1		2.1		2.8
Green Ext Time (p_c), s		0.0		0.0		0.3

Intersection Summary

HCM 6th Ctrl Delay	5.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Future Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	39	0	0	24	0	655	123	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Future Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	80	80	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	39	0	22	2	655	119	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1442	1455	62	1393	1456	12	123	0	0	24	0	0
Stage 1	1431	1431	-	23	23	-	-	-	-	-	-	-
Stage 2	11	24	-	1370	1433	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	95	131	996	103	131	1072	1477	-	-	1604	-	-
Stage 1	144	202	-	998	880	-	-	-	-	-	-	-
Stage 2	1014	879	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	78	996	70	78	1072	1477	-	-	1604	-	-
Mov Cap-2 Maneuver	62	78	-	70	78	-	-	-	-	-	-	-
Stage 1	144	120	-	998	880	-	-	-	-	-	-	-
Stage 2	977	879	-	93	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10	0	7.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1477	-	-	-	70	1072	1604	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.036	0.408	-	-
HCM Control Delay (s)	0	-	-	0	57.4	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Future Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.38	0.38	0.38	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	0	3	3	0	21	0	68	0	0	867	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗	↙		↗		↕↕			↕↕	
Traffic Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Future Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	96	96	96	88	88	88	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	5	0	3	3	0	21	0	68	0	0	864	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	900	-	434	500	-	34	867	0	-	-	-	0
Stage 1	866	-	-	68	-	-	-	-	-	-	-	-
Stage 2	34	-	-	432	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	170	0	367	458	0	1006	785	-	0	0	-	-
Stage 1	231	0	-	940	0	-	-	-	0	0	-	-
Stage 2	854	0	-	577	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	166	-	367	455	-	1006	785	-	-	-	-	-
Mov Cap-2 Maneuver	206	-	-	502	-	-	-	-	-	-	-	-
Stage 1	231	-	-	940	-	-	-	-	-	-	-	-
Stage 2	836	-	-	573	-	-	-	-	-	-	-	-























Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.2		9.2		0		0	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	785	-	206	367	502	1006	-	-
HCM Lane V/C Ratio	-	-	0.026	0.007	0.006	0.021	-	-
HCM Control Delay (s)	0	-	22.9	14.9	12.2	8.7	-	-
HCM Lane LOS	A	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	237	210	37	504	0	167	39	13	5	216	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.7	90.0	90.0	95.2	88.7		12.6	29.8	29.8	22.8	16.9	
Actuated g/C Ratio	0.67	0.62	0.62	0.66	0.61		0.09	0.21	0.21	0.16	0.12	
v/c Ratio	0.14	0.13	0.21	0.05	0.25		0.61	0.11	0.03	0.02	0.82	
Control Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
LOS	A	B	A	A	B		E	D	A	D	E	
Approach Delay		8.6			14.8			63.6			56.2	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	19	48	0	10	114		79	29	0	4	110	
Queue Length 95th (ft)	38	73	23	24	152		111	59	0	11	143	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

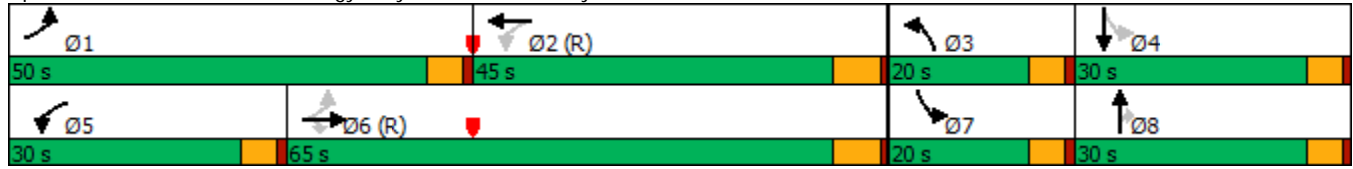


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	672	1845	983	860	2025		326	395	422	329	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25		0.51	0.10	0.03	0.02	0.63	

Intersection Summary

Area Type:	Other
Cycle Length:	145
Actuated Cycle Length:	145
Offset:	70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	25.9
Intersection LOS:	C
Intersection Capacity Utilization	47.7%
ICU Level of Service	A
Analysis Period (min)	15

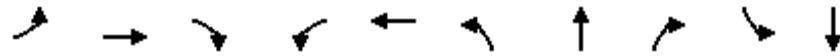
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	237	210	37	504	167	39	13	5	216
v/c Ratio	0.14	0.13	0.21	0.05	0.25	0.61	0.11	0.03	0.02	0.82
Control Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Length 50th (ft)	19	48	0	10	114	79	29	0	4	110
Queue Length 95th (ft)	38	73	23	24	152	111	59	0	11	143
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	672	1845	983	860	2025	326	395	422	329	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25	0.51	0.10	0.03	0.02	0.63

Intersection Summary

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3311		3159	1748	1404	1710	1500	
Flt Permitted	0.44	1.00	1.00	0.60	1.00		0.95	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	638	2974	1457	1088	3311		3159	1748	1404	1317	1500	
Peak-hour factor, PHF	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Adj. Flow (vph)	65	237	210	37	492	12	167	39	13	5	50	166
RTOR Reduction (vph)	0	0	81	0	1	0	0	0	10	0	88	0
Lane Group Flow (vph)	65	237	129	37	503	0	167	39	3	5	128	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	95.8	89.0	89.0	93.2	87.7		12.6	28.2	28.2	18.2	16.9	
Effective Green, g (s)	95.8	89.0	89.0	93.2	87.7		12.6	28.2	28.2	18.2	16.9	
Actuated g/C Ratio	0.66	0.61	0.61	0.64	0.60		0.09	0.19	0.19	0.13	0.12	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	456	1825	894	722	2002		274	339	273	168	174	
v/s Ratio Prot	c0.01	0.08		0.00	c0.15		c0.05	0.02		0.00	c0.09	
v/s Ratio Perm	0.09		0.09	0.03					0.00	0.00		
v/c Ratio	0.14	0.13	0.14	0.05	0.25		0.61	0.12	0.01	0.03	0.73	
Uniform Delay, d1	8.9	11.8	11.9	9.5	13.4		63.8	48.1	47.1	55.6	61.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.3	0.0	0.3		3.8	0.2	0.0	0.1	14.8	
Delay (s)	9.0	11.9	12.2	9.5	13.7		67.6	48.3	47.1	55.7	76.6	
Level of Service	A	B	B	A	B		E	D	D	E	E	
Approach Delay (s)		11.7			13.4			63.0			76.2	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			29.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			47.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	592	2176		905	2389		213	179		118	74	
Arrive On Green	0.03	0.72	0.00	0.03	0.72	0.00	0.07	0.10	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Cycle Q Clear(g_c), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	592	2176		905	2389		213	179		118	74	
V/C Ratio(X)	0.11	0.11		0.04	0.21		0.78	0.22		0.04	0.67	
Avail Cap(c_a), veh/h	980	2176		1154	2389		331	303		284	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.1	6.1	0.0	5.0	6.9	0.0	66.6	59.8	0.0	66.0	68.5	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	6.4	0.6	0.0	0.1	10.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.0	0.3	2.5	0.0	3.2	1.3	0.0	0.2	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	6.2	0.0	5.0	7.1	0.0	73.1	60.4	0.0	66.1	78.6	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		302			529			206			55	
Approach Delay, s/veh		6.0			6.9			70.7			77.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	109.7	14.7	11.0	8.9	110.5	5.9	19.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	3.8	9.1	9.5	6.0	2.8	5.5	2.4	5.0				
Green Ext Time (p_c), s	0.2	3.4	0.2	0.1	0.1	1.6	0.0	0.1				

Intersection Summary

























HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	10.3	37.6	37.6	8.0	32.5	32.5	6.9	17.2	17.2	26.4	21.0	33.7
Actuated g/C Ratio	0.11	0.42	0.42	0.09	0.36	0.36	0.08	0.19	0.19	0.29	0.23	0.37
v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.21	0.11	0.02	0.31	0.38	0.47
Control Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
LOS	E	B	A	D	C	A	D	C	A	C	C	A
Approach Delay		25.0			23.3			30.5			17.5	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	84	46	15	37	118	0	14	14	0	41	72	8

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

10/27/2022

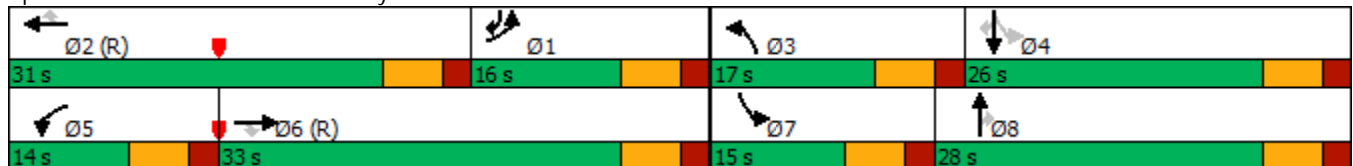


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#159	80	63	78	162	14	29	27	0	77	111	43
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	327	1242	890	148	1164	651	378	720	566	374	856	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.13	0.08	0.02	0.31	0.35	0.47

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 22.7 Intersection LOS: C
 Intersection Capacity Utilization 61.5% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.21	0.11	0.02	0.31	0.38	0.47
Control Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
Queue Length 50th (ft)	84	46	15	37	118	0	14	14	0	41	72	8
Queue Length 95th (ft)	#159	80	63	78	162	14	29	27	0	77	111	43
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	327	1242	890	148	1164	651	378	720	566	374	856	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.13	0.08	0.02	0.31	0.35	0.47

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

10/27/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306	
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306	
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.63	1.00	1.00	
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1085	3353	1342	
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95	
Adj. Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322	
RTOR Reduction (vph)	0	0	282	0	0	87	0	0	10	0	0	182	
Lane Group Flow (vph)	287	302	232	68	469	41	51	61	2	116	299	140	
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	
Protected Phases	1	6		5	2		3	8		7	4	1	
Permitted Phases			6			2			8	4		4	
Actuated Green, G (s)	11.5	34.0	34.0	6.4	28.9	28.9	4.6	18.4	18.4	28.2	21.0	32.5	
Effective Green, g (s)	11.5	34.0	34.0	6.4	28.9	28.9	4.6	18.4	18.4	28.2	21.0	32.5	
Actuated g/C Ratio	0.13	0.38	0.38	0.07	0.32	0.32	0.05	0.20	0.20	0.31	0.23	0.36	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	365	1123	566	119	1035	476	158	602	312	384	782	484	
v/s Ratio Prot	c0.10	0.10		0.04	c0.15		0.02	0.02		c0.02	c0.09	0.04	
v/s Ratio Perm			0.15			0.03			0.00	0.07		0.07	
v/c Ratio	0.79	0.27	0.41	0.57	0.45	0.09	0.32	0.10	0.01	0.30	0.38	0.29	
Uniform Delay, d1	38.1	19.4	20.6	40.5	24.3	21.3	41.2	29.1	28.5	22.9	29.0	20.5	
Progression Factor	0.95	0.90	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.4	0.6	2.1	6.5	1.4	0.4	1.2	0.1	0.0	0.4	0.3	0.3	
Delay (s)	46.3	17.9	16.0	47.0	25.7	21.7	42.4	29.2	28.5	23.3	29.4	20.8	
Level of Service	D	B	B	D	C	C	D	C	C	C	C	C	
Approach Delay (s)		24.4			27.1			34.5			24.7		
Approach LOS		C			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			25.7									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.49										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	24.0
Intersection Capacity Utilization			61.5%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1047	1422		123	599		126	333	169	332	505	692
Arrive On Green	0.12	0.16	0.00	0.07	0.18	0.00	0.04	0.11	0.11	0.08	0.15	0.15
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.1	7.9	0.0	3.5	12.3	0.0	1.4	1.7	0.6	5.5	7.5	3.0
Cycle Q Clear(g_c), s	8.1	7.9	0.0	3.5	12.3	0.0	1.4	1.7	0.6	5.5	7.5	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1047	1422		123	599		126	333	169	332	505	692
V/C Ratio(X)	0.27	0.21		0.55	0.78		0.41	0.18	0.07	0.35	0.59	0.47
Avail Cap(c_a), veh/h	1047	1422		150	906		384	732	373	367	748	791
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.95	0.95	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	23.4	0.0	40.3	35.0	0.0	42.2	36.3	35.8	31.8	35.7	4.4
Incr Delay (d2), s/veh	0.1	0.3	0.0	3.7	9.4	0.0	2.1	0.3	0.2	0.6	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.0	0.0	1.5	5.5	0.0	0.6	0.6	0.2	2.2	3.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	23.8	0.0	44.0	44.4	0.0	44.2	36.6	36.0	32.4	36.8	4.9
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		26.4			44.4			39.7			22.1	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.4	22.5	9.6	19.5	12.5	48.4	13.1	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.1	14.3	3.4	9.5	5.5	9.9	7.5	3.7				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.2	0.0	1.7	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C























Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 	 						
Traffic Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	1182	0	0	215	603	34	0	33	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	75.9	77.9			62.9	62.9	10.1		10.1			
Actuated g/C Ratio	0.84	0.87			0.70	0.70	0.11		0.11			
v/c Ratio	0.23	0.30			0.10	0.31	0.21		0.16			
Control Delay	2.8	2.3			4.0	0.9	39.9		1.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.8	2.3			4.0	0.9	39.9		1.6			
LOS	A	A			A	A	D		A			
Approach Delay		2.4			1.7			21.0				
Approach LOS		A			A			C				
Queue Length 50th (ft)	22	57			13	1	18		0			
Queue Length 95th (ft)	36	67			22	0	39		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

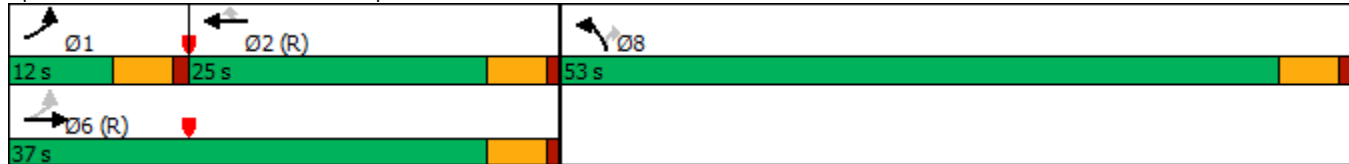


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	829	3903			2061	1941	766		677			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.10	0.31	0.04		0.05			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	2.7
Intersection LOS:	A
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

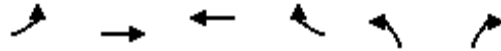
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	194	1182	215	603	34	33
v/c Ratio	0.23	0.30	0.10	0.31	0.21	0.16
Control Delay	2.8	2.3	4.0	0.9	39.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	2.3	4.0	0.9	39.9	1.6
Queue Length 50th (ft)	22	57	13	1	18	0
Queue Length 95th (ft)	36	67	22	0	39	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	829	3903	2061	1941	766	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.10	0.31	0.04	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.57	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	917	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Adj. Flow (vph)	194	1182	0	0	215	603	34	0	33	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	195	0	0	31	0	0	0
Lane Group Flow (vph)	194	1182	0	0	215	408	34	0	2	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	73.9	73.9			60.9	60.9	6.1		6.1			
Effective Green, g (s)	73.9	73.9			60.9	60.9	6.1		6.1			
Actuated g/C Ratio	0.82	0.82			0.68	0.68	0.07		0.07			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	807	3701			1994	1703	97		80			
v/s Ratio Prot	0.02	c0.26			0.07		c0.02					
v/s Ratio Perm	0.18					0.16			0.00			
v/c Ratio	0.24	0.32			0.11	0.24	0.35		0.03			
Uniform Delay, d1	1.8	2.0			5.1	5.6	40.1		39.2			
Progression Factor	1.00	1.00			0.65	0.68	1.00		1.00			
Incremental Delay, d2	0.2	0.2			0.1	0.3	2.2		0.1			
Delay (s)	2.0	2.2			3.4	4.1	42.2		39.3			
Level of Service	A	A			A	A	D		D			
Approach Delay (s)		2.2			3.9			40.8			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			3.9									A
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			90.0									15.0
Intersection Capacity Utilization			51.0%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	194	1182	0	0	215	0	34	0	33			
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	844	3649	0	0	2055		132	0	108			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	194	1182	0	0	215	0	34	0	33			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	3.0	6.3	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Cycle Q Clear(g_c), s	3.0	6.3	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	844	3649	0	0	2055		132	0	108			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.10		0.26	0.00	0.31			
Avail Cap(c_a), veh/h	877	3649	0	0	2055		779	0	636			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.79	0.79	0.00	0.00	0.91	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.2	2.5	0.0	0.0	12.9	0.0	38.1	0.0	38.3			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.1	0.0	0.0	1.6	0.0	0.7	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.6	0.0	0.0	13.0	0.0	39.1	0.0	39.9			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1376			215			67				
Approach Delay, s/veh		2.7			13.0			39.5				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.1	66.8				76.9		13.1				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	5.0	7.1				8.3		4.3				
Green Ext Time (p_c), s	0.1	1.0				9.1		0.2				

Intersection Summary


















HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		127.1		137.6	137.6					72.4		72.4
Actuated g/C Ratio		0.58		0.63	0.63					0.33		0.33
v/c Ratio		0.21		0.08	0.12					0.81		0.48
Control Delay		23.9		18.6	18.0					73.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		23.9		18.6	18.0					73.7		6.2
LOS		C		B	B					E		A
Approach Delay		23.9			18.1							54.9
Approach LOS		C			B							D
Queue Length 50th (ft)		126		20	63					574		0
Queue Length 95th (ft)		157		45	100					598		75
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

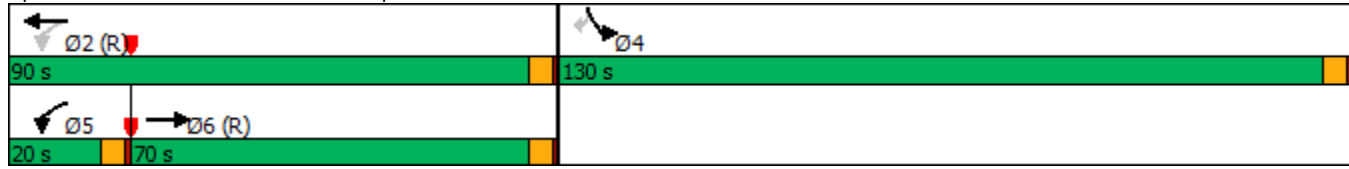
10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2422		473	1828					1778		914
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.08	0.12					0.47		0.35

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	42.0
Intersection LOS:	D
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

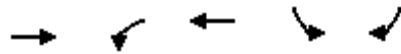
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.21	0.08	0.12	0.81	0.48
Control Delay	23.9	18.6	18.0	73.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	18.6	18.0	73.7	6.2
Queue Length 50th (ft)	126	20	63	574	0
Queue Length 95th (ft)	157	45	100	598	75
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2422	473	1828	1778	914
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.12	0.47	0.35

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4192		1500	2923					3130		1366
Flt Permitted		1.00		0.42	1.00					0.95		1.00
Satd. Flow (perm)		4192		667	2923					3130		1366
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	463	35	37	211	0	0	0	0	832	0	321
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	0	215
Lane Group Flow (vph)	0	495	0	37	211	0	0	0	0	832	0	106
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		126.0		137.6	137.6					72.4		72.4
Effective Green, g (s)		126.0		137.6	137.6					72.4		72.4
Actuated g/C Ratio		0.57		0.63	0.63					0.33		0.33
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2400		442	1828					1030		449
v/s Ratio Prot		c0.12		0.00	c0.07					c0.27		
v/s Ratio Perm				0.05								0.08
v/c Ratio		0.21		0.08	0.12					0.81		0.24
Uniform Delay, d1		22.8		16.1	16.6					67.4		53.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.2		0.1	0.1					4.7		0.3
Delay (s)		23.0		16.2	16.8					72.2		53.9
Level of Service		C		B	B					E		D
Approach Delay (s)		23.0			16.7			0.0			67.1	
Approach LOS		C			B			A			E	

Intersection Summary

HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2582	193	535	1987	0				902	0	393
Arrive On Green	0.00	0.63	0.63	0.02	0.67	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4262	308	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Cycle Q Clear(g_c), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1813	962	535	1987	0				902	0	393
V/C Ratio(X)	0.00	0.18	0.18	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1813	962	608	1987	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.2	17.3	13.7	12.9	0.0				76.3	0.0	73.3
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.5	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	4.0	0.7	2.0	0.0				22.9	0.0	34.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.5	17.7	13.7	13.0	0.0				80.9	0.0	77.5
LnGrp LOS	A	B	B	B	B	A				F	A	E
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		17.5			13.1						79.9	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		152.4		67.6	9.5	142.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		7.6		58.0	3.9	12.5						
Green Ext Time (p_c), s		1.5		4.6	0.0	3.5						
Intersection Summary												
HCM 6th Ctrl Delay				54.8								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/27/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	12	169	93	141
Future Volume (vph)	21	3	12	169	93	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.86	0.86
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	4	15	217	108	164
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.4% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
 11: Technology Way & Circuit Ln

10/27/2022

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	21	3	12	169	93	141
Future Vol, veh/h	21	3	12	169	93	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	78	78	86	86
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	28	4	15	217	108	164























Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	355	-	108	0	-
Stage 1	108	-	-	-	-
Stage 2	247	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	601	0	1495	-	-
Stage 1	864	0	-	-	-
Stage 2	745	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	595	-	1495	-	-
Mov Cap-2 Maneuver	595	-	-	-	-
Stage 1	855	-	-	-	-
Stage 2	745	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1495	-	595	-	-
HCM Lane V/C Ratio	0.01	-	0.047	-	-
HCM Control Delay (s)	7.4	-	11.3	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Future Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.63	0.63	0.63	0.68	0.68	0.68	0.69	0.69	0.69
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	3	5	0	0	55	0	149	645	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Future Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	63	63	63	68	68	68	69	69	69
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	3	0	5	0	51	4	149	645	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	969	998	323	674	996	28	645	0	0	55	0	0
Stage 1	943	943	-	53	53	-	-	-	-	-	-	-
Stage 2	26	55	-	621	943	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	211	246	679	344	246	1047	950	-	-	1563	-	-
Stage 1	286	344	-	959	855	-	-	-	-	-	-	-
Stage 2	994	853	-	446	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	195	223	679	319	223	1047	950	-	-	1563	-	-
Mov Cap-2 Maneuver	195	223	-	319	223	-	-	-	-	-	-	-
Stage 1	286	311	-	959	855	-	-	-	-	-	-	-
Stage 2	989	853	-	403	311	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.7	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	950	-	-	-	-	319	1047	1563	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.01	0.005	0.096	-	-
HCM Control Delay (s)	0	-	-	0	0	16.4	8.5	7.5	-	-
HCM Lane LOS	A	-	-	A	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	95	2	0	153	22	0	1	0	10	0	111
Future Volume (vph)	74	95	2	0	153	22	0	1	0	10	0	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.79	0.79	0.90	0.90	0.77	0.77	0.90	0.90	0.90	0.89	0.90	0.89
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	122	0	0	228	0	0	1	0	11	125	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Vol, veh/h	74	95	2	0	153	22	0	1	0	10	0	111
Future Vol, veh/h	74	95	2	0	153	22	0	1	0	10	0	111
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	90	90	77	77	90	90	90	89	90	89
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	94	120	2	0	199	29	0	1	0	11	0	125




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	122	0	0	585	537	121	524	524	214
Stage 1	-	-	-	-	-	-	309	309	-	214	214	-
Stage 2	-	-	-	-	-	-	276	228	-	310	310	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1352	-	-	1465	-	-	422	450	930	467	458	831
Stage 1	-	-	-	-	-	-	701	660	-	793	725	-
Stage 2	-	-	-	-	-	-	730	715	-	705	659	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1352	-	-	1465	-	-	340	419	930	441	426	831
Mov Cap-2 Maneuver	-	-	-	-	-	-	340	419	-	441	426	-
Stage 1	-	-	-	-	-	-	652	614	-	737	725	-
Stage 2	-	-	-	-	-	-	620	715	-	655	613	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0	13.6	10.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	419	1352	-	-	1465	-	-	441	831
HCM Lane V/C Ratio	0.003	0.069	-	-	-	-	-	0.025	0.15
HCM Control Delay (s)	13.6	7.9	-	-	0	-	-	13.4	10.1
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.1	0.5

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	475	0	544	0	245	439	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					13.9	13.9		43.2		63.0	62.0	
Actuated g/C Ratio					0.13	0.13		0.39		0.57	0.56	
v/c Ratio					0.70	0.64		0.44		0.58	0.24	
Control Delay					63.8	8.2		29.1		19.6	17.3	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					63.8	8.2		29.1		19.6	17.3	
LOS					E	A		C		B	B	
Approach Delay					21.1			29.1			18.2	
Approach LOS					C			C			B	
Queue Length 50th (ft)					96	0		165		124	114	
Queue Length 95th (ft)					143	24		196		m140	m117	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					236	786		1224		441	1818	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.61	0.60		0.44		0.56	0.24	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	22.4
Intersection LOS:	C
Intersection Capacity Utilization	47.2%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/27/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	143	475	544	245	439
v/c Ratio	0.70	0.64	0.44	0.58	0.24
Control Delay	63.8	8.2	29.1	19.6	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	8.2	29.1	19.6	17.3
Queue Length 50th (ft)	96	0	165	124	114
Queue Length 95th (ft)	143	24	196	m140	m117
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	236	786	1224	441	1818
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.60	0.44	0.56	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		1.00	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		1487	3226	
Flt Permitted					0.95	1.00		1.00		0.34	1.00	
Satd. Flow (perm)					1629	2614		3106		527	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	142	0	475	0	495	49	245	439	0
RTOR Reduction (vph)	0	0	0	0	0	415	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	60	0	538	0	245	439	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)					13.9	13.9		42.2		61.0	61.0	
Effective Green, g (s)					13.9	13.9		42.2		61.0	61.0	
Actuated g/C Ratio					0.13	0.13		0.38		0.55	0.55	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					205	330		1191		412	1788	
v/s Ratio Prot					c0.09			0.17		c0.07	0.14	
v/s Ratio Perm						0.02				c0.25		
v/c Ratio					0.70	0.18		0.45		0.59	0.25	
Uniform Delay, d1					46.0	43.0		25.3		14.0	12.6	
Progression Factor					1.00	1.00		1.00		1.28	1.20	
Incremental Delay, d2					9.9	0.3		1.2		0.2	0.0	
Delay (s)					55.9	43.2		26.5		18.2	15.3	
Level of Service					E	D		C		B	B	
Approach Delay (s)		0.0			46.2			26.5			16.3	
Approach LOS		A			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			29.3		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					21.0		
Intersection Capacity Utilization			47.2%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	142	0	475	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	249	0	381	679	1870	185	612	2460	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.63	0.63	0.07	0.75	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2948	291	1514	3346	0
Grp Volume(v), veh/h	0	0	0	142	0	475	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	8.5	0.0	16.0	0.0	8.1	8.1	5.8	4.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.5	0.0	16.0	0.0	8.1	8.1	5.8	4.2	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	249	0	381	679	1017	1037	612	2460	0
V/C Ratio(X)	0.00	0.00	0.00	0.57	0.00	1.25	0.00	0.26	0.27	0.40	0.18	0.00
Avail Cap(c_a), veh/h	0	376	0	249	0	381	927	1017	1037	719	2460	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.49	0.49	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.8	0.0	47.0	0.0	8.8	8.8	5.6	3.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.1	0.0	130.7	0.0	0.6	0.6	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.7	0.0	12.2	0.0	2.6	2.7	1.4	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	46.8	0.0	177.7	0.0	9.5	9.5	5.8	3.9	0.0
LnGrp LOS	A	A	A	D	A	F	A	A	A	A	A	A
Approach Vol, veh/h		0			617			544			684	
Approach Delay, s/veh		0.0			147.6			9.5			4.6	
Approach LOS					F			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	75.8		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	7.8	10.1		18.0	0.0	6.2		0.0				
Green Ext Time (p_c), s	0.4	3.0		0.0	0.0	2.7		0.0				

Intersection Summary























HCM 6th Ctrl Delay	53.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	81	0	142	146	389	31	676	259	239	612	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		7.5		30.0	30.0	30.0	40.6	40.6	40.6	14.0	51.8	
Actuated g/C Ratio		0.07		0.27	0.27	0.27	0.37	0.37	0.37	0.13	0.47	
v/c Ratio		0.50		2.37	2.70	0.57	0.15	0.56	0.38	0.62	0.44	
Control Delay		48.2		684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		48.2		684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5	
LOS		D		F	F	A	B	B	A	D	C	
Approach Delay		48.2			327.8			13.9			31.2	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		22		~172	~184	0	7	90	0	83	163	
Queue Length 95th (ft)		45		#265	#283	72	m16	128	7	121	216	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

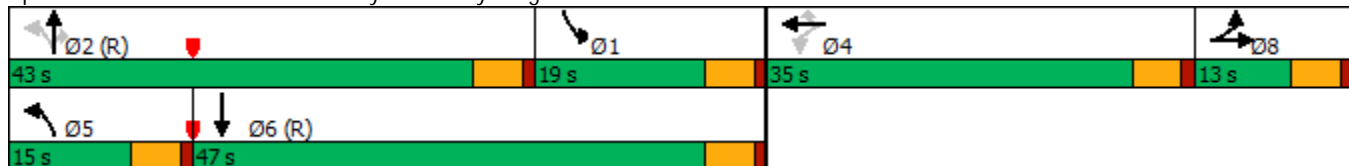


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		173		60	54	687	235	1213	686	383	1379	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.47		2.37	2.70	0.57	0.13	0.56	0.38	0.62	0.44	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.70
Intersection Signal Delay:	103.2
Intersection LOS:	F
Intersection Capacity Utilization	56.2%
ICU Level of Service	B
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	142	146	389	31	676	259	239	612
v/c Ratio	0.50	2.37	2.70	0.57	0.15	0.56	0.38	0.62	0.44
Control Delay	48.2	684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5
Queue Length 50th (ft)	22	~172	~184	0	7	90	0	83	163
Queue Length 95th (ft)	45	#265	#283	72	m16	128	7	121	216
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	173	60	54	687	235	1213	686	383	1379
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	2.37	2.70	0.57	0.13	0.56	0.38	0.62	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2127		1593	1596	1485	1437	3288	1417	3016	2920	
Flt Permitted		0.97		0.13	0.12	1.00	0.25	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2127		224	199	1485	377	3288	1417	3016	2920	
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Adj. Flow (vph)	48	13	20	258	30	389	31	676	259	239	559	53
RTOR Reduction (vph)	0	19	0	0	0	283	0	0	170	0	6	0
Lane Group Flow (vph)	0	62	0	142	146	106	31	676	89	239	606	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Effective Green, g (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Actuated g/C Ratio		0.06		0.27	0.27	0.27	0.34	0.34	0.34	0.15	0.44	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		123		61	54	405	175	1123	484	438	1295	
v/s Ratio Prot		c0.03					0.01	c0.21		c0.08	0.21	
v/s Ratio Perm				0.64	c0.74	0.07	0.05		0.06			
v/c Ratio		0.51		2.33	2.70	0.26	0.18	0.60	0.18	0.55	0.47	
Uniform Delay, d1		50.3		40.0	40.0	31.3	25.2	30.0	25.4	43.6	21.5	
Progression Factor		1.00		1.00	1.00	1.00	0.60	0.58	0.25	1.00	1.00	
Incremental Delay, d2		3.2		645.4	816.3	0.3	0.4	2.1	0.7	1.4	1.2	
Delay (s)		53.5		685.4	856.3	31.7	15.6	19.5	7.0	45.0	22.7	
Level of Service		D		F	F	C	B	B	A	D	C	
Approach Delay (s)		53.5			346.6			16.0			29.0	
Approach LOS		D			F			B			C	
Intersection Summary												
HCM 2000 Control Delay			108.4								HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			110.0							20.0		
Intersection Capacity Utilization			56.2%								ICU Level of Service	B
Analysis Period (min)			15									
c	Critical Lane Group											

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↑↑	↔	↔	↔	↔
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	279	0	389	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	71	26	41	920	0	406	206	1145	494	477	1343	127
Arrive On Green	0.04	0.04	0.04	0.27	0.00	0.27	0.03	0.35	0.35	0.16	0.47	0.47
Sat Flow, veh/h	1594	594	915	3375	0	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	279	0	389	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	1594	0	1509	1688	0	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	3.3	0.0	2.4	7.2	0.0	28.3	1.6	18.5	15.9	7.9	14.2	14.3
Cycle Q Clear(g_c), s	3.3	0.0	2.4	7.2	0.0	28.3	1.6	18.5	15.9	7.9	14.2	14.3
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	71	0	67	920	0	406	206	1145	494	477	727	743
V/C Ratio(X)	0.68	0.00	0.49	0.30	0.00	0.96	0.15	0.59	0.52	0.50	0.42	0.42
Avail Cap(c_a), veh/h	116	0	110	920	0	406	298	1145	494	477	727	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	0.0	51.3	31.7	0.0	39.4	27.4	29.6	28.8	42.5	19.0	19.0
Incr Delay (d2), s/veh	10.8	0.0	5.5	0.2	0.0	33.7	0.3	1.9	3.3	0.8	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.0	3.0	0.0	14.1	0.6	7.4	5.7	2.9	4.9	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	0.0	56.8	31.9	0.0	73.1	27.7	31.5	32.1	43.4	20.7	20.7
LnGrp LOS	E	A	E	C	A	E	C	C	C	D	C	C
Approach Vol, veh/h		81			668			966			851	
Approach Delay, s/veh		60.2			55.9			31.5			27.1	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.1	43.0		35.0	8.1	57.1		9.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	9.9	20.5		30.3	3.6	16.3		5.3				
Green Ext Time (p_c), s	0.3	5.0		0.0	0.0	3.2		0.1				

Intersection Summary



















HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Future Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.89	0.89	0.89	0.76	0.76	0.76	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	66	46	0	0	0	0	7	100	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

01/18/2023

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Future Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	76	76	76	71	71	71	71	71	71
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	36	48	66	46	0	0	0	0	7	0	100

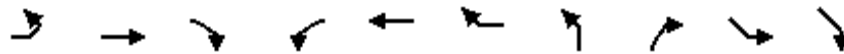
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	84	0	0		196	262	46
Stage 1	-	-	-	-	-	-		178	178	-
Stage 2	-	-	-	-	-	-		18	84	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1273	-	0		778	556	923
Stage 1	0	-	-	-	-	0		847	658	-
Stage 2	0	-	-	-	-	0		997	732	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1273	-	-		738	0	923
Mov Cap-2 Maneuver	-	-	-	-	-	-		738	0	-
Stage 1	-	-	-	-	-	-		847	0	-
Stage 2	-	-	-	-	-	-		945	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1273	-	738	923
HCM Lane V/C Ratio	-	-	0.052	-	0.01	0.108
HCM Control Delay (s)	-	-	8	-	9.9	9.4
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	30	13	0	0	83	72	0	0	0	0
Future Volume (vph)	30	13	0	0	83	72	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.83	0.83	0.83	0.70	0.70	0.70	1.00	1.00	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	36	16	0	0	119	103	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/18/2023

Intersection											
Int Delay, s/veh	1.1										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗			↗	↘	↘				
Traffic Vol, veh/h	30	13	0	0	83	72	0	0	0	0	
Future Vol, veh/h	30	13	0	0	83	72	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	83	83	83	70	70	70	100	100	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	36	16	0	0	119	103	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	222	0	-	-	-	0	259
Stage 1	-	-	-	-	-	-	88
Stage 2	-	-	-	-	-	-	171
Critical Hdwy	5.045	-	-	-	-	-	6.63
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519
Pot Cap-1 Maneuver	1026	-	0	0	-	-	719
Stage 1	-	-	0	0	-	-	926
Stage 2	-	-	0	0	-	-	858
Platoon blocked, %		-			-		
Mov Cap-1 Maneuver	1026	-	-	-	-	-	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	694
Stage 1	-	-	-	-	-	-	894
Stage 2	-	-	-	-	-	-	858

Approach	EB	WB	NB
HCM Control Delay, s	6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1026	-	-	-
HCM Lane V/C Ratio	-	0.035	-	-	-
HCM Control Delay (s)	0	8.6	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Future Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.67	0.67	0.67	0.73	0.73	0.73
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	0	0	0	2	0	37	22	0	0	0	175
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.4%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Future Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	67	67	67	73	73	73
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	18	0	0	0	2	0	37	22	0	0	0	175













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	2
Stage 1	-	-	0
Stage 2	-	-	2
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	939
Stage 1	-	-	-
Stage 2	-	-	939
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	939
Mov Cap-2 Maneuver	-	-	939
Stage 1	-	-	-
Stage 2	-	-	939

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	939	898	-	-	-	-	-
HCM Lane V/C Ratio	0.04	0.025	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	26	4	6	36
Future Volume (vph)	67	101	26	4	6	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.78	0.78	0.75	0.75	0.58	0.58
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	129	35	5	10	62
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	6.8	6.8	12.6	12.6	12.6	12.6
Actuated g/C Ratio	0.25	0.25	0.46	0.46	0.46	0.46
v/c Ratio	0.20	0.27	0.05	0.01	0.02	0.10
Control Delay	8.6	3.5	7.0	4.8	6.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	3.5	7.0	4.8	6.8	7.3
LOS	A	A	A	A	A	A
Approach Delay	5.6		6.7			7.2
Approach LOS	A		A			A
Queue Length 50th (ft)	8	0	3	0	1	5
Queue Length 95th (ft)	18	11	9	2	3	11
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1334	1222	1503	1495	1195	1363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.11	0.02	0.00	0.01	0.05

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.1
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.27
Intersection Signal Delay:	6.1
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	86	129	35	5	10	62
v/c Ratio	0.20	0.27	0.05	0.01	0.02	0.10
Control Delay	8.6	3.5	7.0	4.8	6.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	3.5	7.0	4.8	6.8	7.3
Queue Length 50th (ft)	8	0	3	0	1	5
Queue Length 95th (ft)	18	11	9	2	3	11
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1334	1222	1503	1495	1195	1363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.11	0.02	0.00	0.01	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	26	4	6	36
Future Volume (vph)	67	101	26	4	6	36
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.73	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1224	1395
Peak-hour factor, PHF	0.78	0.78	0.75	0.75	0.58	0.58
Adj. Flow (vph)	86	129	35	5	10	62
RTOR Reduction (vph)	0	103	0	3	0	0
Lane Group Flow (vph)	86	26	35	2	10	62
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	5.7	5.7	11.4	11.4	11.4	11.4
Effective Green, g (s)	5.7	5.7	11.4	11.4	11.4	11.4
Actuated g/C Ratio	0.20	0.20	0.41	0.41	0.41	0.41
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	346	310	623	620	496	565
v/s Ratio Prot	c0.05		0.02			c0.04
v/s Ratio Perm		0.02		0.00	0.01	
v/c Ratio	0.25	0.08	0.06	0.00	0.02	0.11
Uniform Delay, d1	9.4	9.1	5.1	5.0	5.0	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0	0.0	0.0	0.1
Delay (s)	9.8	9.2	5.1	5.0	5.0	5.3
Level of Service	A	A	A	A	A	A
Approach Delay (s)	9.4		5.1			5.2
Approach LOS	A		A			A

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	28.1	Sum of lost time (s)	11.0
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	26	4	6	36
Future Volume (veh/h)	67	101	26	4	6	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	86	129	35	0	10	62
Peak Hour Factor	0.78	0.78	0.75	0.75	0.58	0.58
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	303	270	402		685	358
Arrive On Green	0.18	0.18	0.26	0.00	0.26	0.26
Sat Flow, veh/h	1714	1525	1561	1525	1308	1393
Grp Volume(v), veh/h	86	129	35	0	10	62
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1308	1393
Q Serve(g_s), s	0.8	1.5	0.3	0.0	0.1	0.7
Cycle Q Clear(g_c), s	0.8	1.5	0.3	0.0	0.4	0.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	303	270	402		685	358
V/C Ratio(X)	0.28	0.48	0.09		0.01	0.17
Avail Cap(c_a), veh/h	1852	1648	2250		2233	2007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	7.2	5.5	0.0	5.7	5.6
Incr Delay (d2), s/veh	0.5	1.3	0.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.4	8.5	5.6	0.0	5.7	5.8
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	215		35			72
Approach Delay, s/veh	8.1		5.6			5.8
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		8.4		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		3.5		2.7
Green Ext Time (p_c), s		0.1		0.6		0.3

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Future Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.82	0.82	0.82	0.77	0.77	0.77	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	7	656	0	0	191	0	108	40	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.9% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

01/18/2023

Intersection												
Int Delay, s/veh	12.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Future Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	82	82	82	77	77	77	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	7	0	656	0	187	4	108	40	0





















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	350	447	20	425	445	96	40	0	0	191	0	0
Stage 1	256	256	-	189	189	-	-	-	-	-	-	-
Stage 2	94	191	-	236	256	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	585	509	1060	518	511	948	1583	-	-	1395	-	-
Stage 1	732	699	-	800	748	-	-	-	-	-	-	-
Stage 2	908	746	-	752	699	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	170	470	1060	487	472	948	1583	-	-	1395	-	-
Mov Cap-2 Maneuver	170	470	-	487	472	-	-	-	-	-	-	-
Stage 1	732	645	-	800	748	-	-	-	-	-	-	-
Stage 2	280	746	-	694	645	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	26.4		16.9		0		5.7	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1583	-	-	170	487	948	1395	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.015	0.692	0.078	-	-
HCM Control Delay (s)	0	-	-	26.4	12.5	16.9	7.8	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.8	0.3	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	742	0	0	153	1
Future Volume (vph)	1	0	0	1	0	145	0	742	0	0	153	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	1.00	1.00	1.00	0.66	0.66	0.66	0.85	0.85	0.85	0.88	0.88	0.88
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	2	0	220	0	873	0	0	175	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

01/18/2023

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗	↕	↕			↕	↕
Traffic Vol, veh/h	1	0	0	1	0	145	0	742	0	0	153	1
Future Vol, veh/h	1	0	0	1	0	145	0	742	0	0	153	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	66	66	66	85	85	85	88	88	88
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	2	0	220	0	873	0	0	174	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	612	-	88	960	-	437	175	0	-	-	-	0
Stage 1	175	-	-	873	-	-	-	-	-	-	-	-
Stage 2	437	-	-	87	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	292	0	710	214	0	546	1414	-	0	0	-	-
Stage 1	688	0	-	316	0	-	-	-	0	0	-	-
Stage 2	457	0	-	917	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	175	-	710	214	-	546	1414	-	-	-	-	-
Mov Cap-2 Maneuver	235	-	-	277	-	-	-	-	-	-	-	-
Stage 1	688	-	-	316	-	-	-	-	-	-	-	-
Stage 2	273	-	-	917	-	-	-	-	-	-	-	-























Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.4		16		0		0	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1414	-	235	-	277	546	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.005	0.402	-	-
HCM Control Delay (s)	0	-	20.4	0	18.1	16	-	-
HCM Lane LOS	A	-	C	A	C	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.9	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.95	0.95	0.95	0.75	0.75	0.75	0.86	0.86	0.86	0.85	0.85	0.85
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	509	183	17	392	0	194	35	35	7	153	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.4	91.8	91.8	85.1	78.1		13.1	23.2	23.2	15.6	9.6	
Actuated g/C Ratio	0.72	0.68	0.68	0.63	0.58		0.10	0.17	0.17	0.12	0.07	
v/c Ratio	0.39	0.25	0.17	0.03	0.20		0.64	0.12	0.11	0.04	0.66	
Control Delay	9.2	10.3	2.2	7.8	15.4		68.2	45.7	0.7	40.0	26.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.2	10.3	2.2	7.8	15.4		68.2	45.7	0.7	40.0	26.2	
LOS	A	B	A	A	B		E	D	A	D	C	
Approach Delay		8.4			15.1			56.2			26.8	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	55	68	0	4	77		85	26	0	5	13	
Queue Length 95th (ft)	116	156	34	11	116		119	55	0	16	68	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023

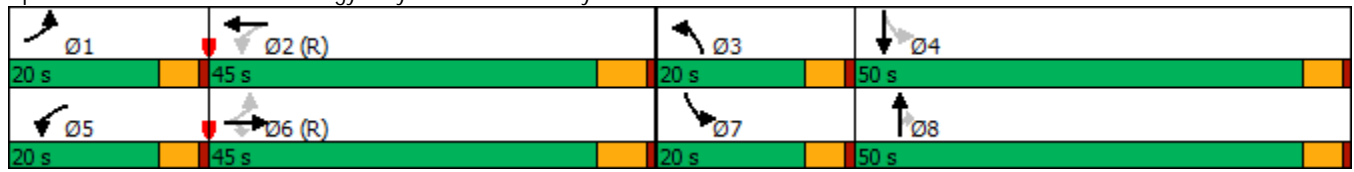


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	583	2022	1049	678	1916		351	582	538	282	576	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.38	0.25	0.17	0.03	0.20		0.55	0.06	0.07	0.02	0.27	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	135
Offset:	70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	18.9
Intersection LOS:	B
Intersection Capacity Utilization	51.9%
ICU Level of Service	A
Analysis Period (min)	15

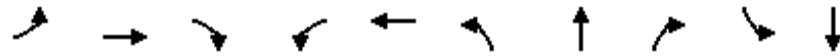
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	223	509	183	17	392	194	35	35	7	153
v/c Ratio	0.39	0.25	0.17	0.03	0.20	0.64	0.12	0.11	0.04	0.66
Control Delay	9.2	10.3	2.2	7.8	15.4	68.2	45.7	0.7	40.0	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	10.3	2.2	7.8	15.4	68.2	45.7	0.7	40.0	26.2
Queue Length 50th (ft)	55	68	0	4	77	85	26	0	5	13
Queue Length 95th (ft)	116	156	34	11	116	119	55	0	16	68
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	583	2022	1049	678	1916	351	582	538	282	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.25	0.17	0.03	0.20	0.55	0.06	0.07	0.02	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3309		3159	1748	1404	1710	1452	
Flt Permitted	0.48	1.00	1.00	0.46	1.00		0.95	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	698	2974	1457	836	3309		3159	1748	1404	1322	1452	
Peak-hour factor, PHF	0.95	0.95	0.95	0.75	0.75	0.75	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	223	509	183	17	381	11	194	35	35	7	15	138
RTOR Reduction (vph)	0	0	63	0	1	0	0	0	29	0	128	0
Lane Group Flow (vph)	223	509	120	17	391	0	194	35	6	7	25	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	96.3	88.7	88.7	80.7	78.1		13.1	21.3	21.3	11.0	9.6	
Effective Green, g (s)	96.3	88.7	88.7	80.7	78.1		13.1	21.3	21.3	11.0	9.6	
Actuated g/C Ratio	0.71	0.66	0.66	0.60	0.58		0.10	0.16	0.16	0.08	0.07	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	564	1954	957	516	1914		306	275	221	111	103	
v/s Ratio Prot	c0.04	0.17		0.00	0.12		c0.06	0.02		0.00	c0.02	
v/s Ratio Perm	c0.24		0.08	0.02					0.00	0.00		
v/c Ratio	0.40	0.26	0.13	0.03	0.20		0.63	0.13	0.02	0.06	0.24	
Uniform Delay, d1	6.8	9.6	8.7	11.0	13.6		58.6	48.9	48.1	57.2	59.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	0.3	0.0	0.2		4.3	0.2	0.0	0.2	1.2	
Delay (s)	7.3	9.9	8.9	11.1	13.8		62.9	49.1	48.1	57.4	60.5	
Level of Service	A	A	A	B	B		E	D	D	E	E	
Approach Delay (s)		9.1			13.7			59.1			60.3	
Approach LOS		A			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			22.4	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			135.0	Sum of lost time (s)				21.0				
Intersection Capacity Utilization			51.9%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	223	509	0	17	381	0	194	35	0	7	15	0
Peak Hour Factor	0.95	0.95	0.95	0.75	0.75	0.75	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	664	2168		681	2240		244	177		114	59	
Arrive On Green	0.06	0.72	0.00	0.02	0.67	0.00	0.08	0.10	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	223	509	0	17	381	0	194	35	0	7	15	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	6.4	7.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.5	1.1	0.0
Cycle Q Clear(g_c), s	6.4	7.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.5	1.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	664	2168		681	2240		244	177		114	59	
V/C Ratio(X)	0.34	0.23		0.02	0.17		0.80	0.20		0.06	0.26	
Avail Cap(c_a), veh/h	728	2168		842	2240		355	586		289	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.3	6.5	0.0	6.6	8.3	0.0	61.3	55.7	0.0	62.3	63.7	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.2	0.0	7.7	0.5	0.0	0.2	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.3	0.0	0.1	2.0	0.0	3.5	1.1	0.0	0.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	6.7	0.0	6.7	8.4	0.0	69.0	56.3	0.0	62.5	65.9	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		732			398			229			22	
Approach Delay, s/veh		6.3			8.4			67.0			64.9	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	96.5	15.3	9.4	7.4	102.9	6.2	18.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	8.4	7.7	10.1	3.1	2.4	9.7	2.5	4.5				
Green Ext Time (p_c), s	0.3	2.6	0.2	0.0	0.0	3.6	0.0	0.1				

Intersection Summary

























HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	45.0	75.0	75.0	14.0	44.0	44.0	46.0	48.0	48.0	43.0	45.0	45.0
Total Split (%)	25.0%	41.7%	41.7%	7.8%	24.4%	24.4%	25.6%	26.7%	26.7%	23.9%	25.0%	25.0%
Maximum Green (s)	40.0	70.0	70.0	9.0	39.0	39.0	41.0	43.0	43.0	38.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	40.4	87.2	87.2	8.1	47.1	47.1	38.6	45.1	45.1	61.1	33.8	79.3
Actuated g/C Ratio	0.22	0.48	0.48	0.04	0.26	0.26	0.21	0.25	0.25	0.34	0.19	0.44
v/c Ratio	0.93	0.47	0.16	0.15	0.60	0.22	0.91	0.52	0.15	0.69	0.11	0.72
Control Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
LOS	F	D	A	F	E	A	F	E	A	D	E	D
Approach Delay		55.9			55.8			72.0			45.4	
Approach LOS		E			E			E			D	
Queue Length 50th (ft)	359	286	0	13	294	0	359	193	0	217	35	366

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

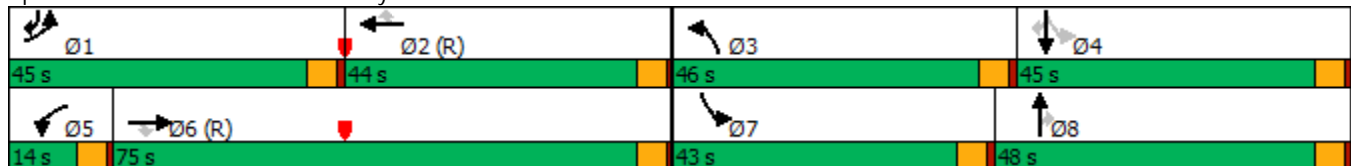
01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#443	383	42	34	335	43	406	248	9	285	59	479
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	654	1441	793	83	844	464	706	807	493	513	745	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.47	0.16	0.13	0.60	0.22	0.86	0.48	0.14	0.56	0.10	0.72

Intersection Summary

Area Type: Other
 Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 58.1 Intersection LOS: E
 Intersection Capacity Utilization 68.9% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

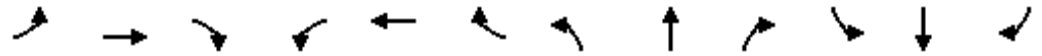
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
v/c Ratio	0.93	0.47	0.16	0.15	0.60	0.22	0.91	0.52	0.15	0.69	0.11	0.72
Control Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
Queue Length 50th (ft)	359	286	0	13	294	0	359	193	0	217	35	366
Queue Length 95th (ft)	#443	383	42	34	335	43	406	248	9	285	59	479
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	654	1441	793	83	844	464	706	807	493	513	745	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.47	0.16	0.13	0.60	0.22	0.86	0.48	0.14	0.56	0.10	0.72































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	887	3353	1342
Peak-hour factor, PHF	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
RTOR Reduction (vph)	0	0	68	0	0	75	0	0	53	0	0	25
Lane Group Flow (vph)	599	682	60	11	504	26	606	384	18	289	71	418
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	40.4	84.3	84.3	3.3	47.2	47.2	38.6	45.1	45.1	61.1	33.8	74.2
Effective Green, g (s)	40.4	84.3	84.3	3.3	47.2	47.2	38.6	45.1	45.1	61.1	33.8	74.2
Actuated g/C Ratio	0.22	0.47	0.47	0.02	0.26	0.26	0.21	0.25	0.25	0.34	0.19	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	641	1392	702	30	845	389	664	738	383	415	629	590
v/s Ratio Prot	c0.21	0.23		0.01	c0.16		c0.20	0.13		0.11	0.02	c0.16
v/s Ratio Perm			0.04			0.02			0.01	0.13		0.15
v/c Ratio	0.93	0.49	0.09	0.37	0.60	0.07	0.91	0.52	0.05	0.70	0.11	0.71
Uniform Delay, d1	68.5	33.0	26.5	87.3	58.1	49.9	69.1	58.1	51.1	47.6	60.7	43.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.8	1.2	0.2	7.4	3.1	0.3	16.9	0.7	0.1	5.0	0.1	3.9
Delay (s)	89.3	34.3	26.7	94.8	61.2	50.2	86.0	58.8	51.2	52.7	60.7	47.8
Level of Service	F	C	C	F	E	D	F	E	D	D	E	D
Approach Delay (s)		57.0			60.0			73.8			50.7	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			60.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			68.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔	↑↑	↔	↔↔	↑↑	↔	↔	↑↑	↔
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	599	682	0	11	504	0	606	384	71	289	71	443
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	630	1332		32	794		650	842	429	447	748	596
Arrive On Green	0.22	0.44	0.00	0.02	0.24	0.00	0.21	0.28	0.28	0.15	0.22	0.22
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	599	682	0	11	504	0	606	384	71	289	71	443
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	36.5	29.3	0.0	1.2	24.9	0.0	34.1	19.0	6.3	23.9	3.0	40.0
Cycle Q Clear(g_c), s	36.5	29.3	0.0	1.2	24.9	0.0	34.1	19.0	6.3	23.9	3.0	40.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	630	1332		32	794		650	842	429	447	748	596
V/C Ratio(X)	0.95	0.51		0.35	0.63		0.93	0.46	0.17	0.65	0.09	0.74
Avail Cap(c_a), veh/h	647	1332		84	794		716	842	429	552	748	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.95	0.95	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.6	36.3	0.0	87.2	60.9	0.0	70.2	53.3	48.8	43.6	55.6	42.1
Incr Delay (d2), s/veh	22.7	1.3	0.0	6.1	3.7	0.0	18.2	0.4	0.2	1.8	0.1	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	11.2	0.0	0.6	10.7	0.0	15.3	7.2	2.4	10.1	1.3	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.3	37.6	0.0	93.3	64.6	0.0	88.4	53.7	48.9	45.4	55.7	47.1
LnGrp LOS	F	D		F	E		F	D	D	D	E	D
Approach Vol, veh/h		1281			515			1061			803	
Approach Delay, s/veh		63.2			65.2			73.2			47.2	
Approach LOS		E			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.0	48.8	42.2	45.0	8.4	84.4	31.6	55.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	40.0	39.0	41.0	40.0	9.0	70.0	38.0	43.0				
Max Q Clear Time (g_c+I1), s	38.5	26.9	36.1	42.0	3.2	31.3	25.9	21.0				
Green Ext Time (p_c), s	0.4	2.5	1.1	0.0	0.0	5.3	0.7	2.6				

Intersection Summary























HCM 6th Ctrl Delay	62.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 	 						
Traffic Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.67	0.67	0.67	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	392	1299	0	0	385	1160	54	0	91	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	108.6	108.6			90.4	90.4	11.4		11.4			
Actuated g/C Ratio	0.84	0.84			0.70	0.70	0.09		0.09			
v/c Ratio	0.53	0.34			0.19	0.55	0.43		0.49			
Control Delay	5.3	2.8			7.8	1.6	66.6		19.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.3	2.8			7.8	1.6	66.6		19.6			
LOS	A	A			A	A	E		B			
Approach Delay		3.4			3.1			37.1				
Approach LOS		A			A			D				
Queue Length 50th (ft)	52	65			51	0	44		0			
Queue Length 95th (ft)	97	100			88	18	64		20			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	806	3766			2050	2103	221		260			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.49	0.34			0.19	0.55	0.24		0.35			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	4.7
Intersection LOS:	A
Intersection Capacity Utilization	78.5%
ICU Level of Service	D
Analysis Period (min)	15

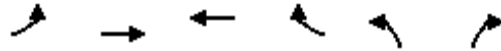
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	392	1299	385	1160	54	91
v/c Ratio	0.53	0.34	0.19	0.55	0.43	0.49
Control Delay	5.3	2.8	7.8	1.6	66.6	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	2.8	7.8	1.6	66.6	19.6
Queue Length 50th (ft)	52	65	51	0	44	0
Queue Length 95th (ft)	97	100	88	18	64	20
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	806	3766	2050	2103	221	260
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.34	0.19	0.55	0.24	0.35

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

01/18/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.50	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	798	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.89	0.89	0.89	0.87	0.87	0.87	0.67	0.67	0.67	1.00	1.00	1.00
Adj. Flow (vph)	392	1299	0	0	385	1160	54	0	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	353	0	0	83	0	0	0
Lane Group Flow (vph)	392	1299	0	0	385	807	54	0	8	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	108.6	108.6			90.4	90.4	11.4		11.4			
Effective Green, g (s)	108.6	108.6			90.4	90.4	11.4		11.4			
Actuated g/C Ratio	0.84	0.84			0.70	0.70	0.09		0.09			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	740	3765			2049	1750	126		104			
v/s Ratio Prot	c0.05	0.29			0.13		c0.04					
v/s Ratio Perm	c0.39					0.32			0.01			
v/c Ratio	0.53	0.35			0.19	0.46	0.43		0.08			
Uniform Delay, d1	2.6	2.5			6.9	8.9	56.2		54.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.7	0.3			0.2	0.9	2.3		0.3			
Delay (s)	3.2	2.7			7.1	9.8	58.5		54.8			
Level of Service	A	A			A	A	E		D			
Approach Delay (s)		2.8			9.1			56.2			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			8.0									A
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			130.0									15.0
Intersection Capacity Utilization			78.5%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	392	1299	0	0	385	0	54	0	91			
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.67	0.67	0.67			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	800	3799	0	0	2109		134	0	109			
Arrive On Green	0.09	0.83	0.00	0.00	0.70	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	392	1299	0	0	385	0	54	0	91			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.4	8.7	0.0	0.0	5.7	0.0	4.5	0.0	9.8			
Cycle Q Clear(g_c), s	8.4	8.7	0.0	0.0	5.7	0.0	4.5	0.0	9.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	800	3799	0	0	2109		134	0	109			
V/C Ratio(X)	0.49	0.34	0.00	0.00	0.18		0.40	0.00	0.83			
Avail Cap(c_a), veh/h	962	3799	0	0	2109		225	0	183			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.66	0.66	0.00	0.00	0.57	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.6	2.6	0.0	0.0	6.5	0.0	55.7	0.0	58.1			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.0	0.0	14.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	1.9	0.0	0.0	1.7	0.0	1.7	0.0	3.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	2.7	0.0	0.0	6.6	0.0	57.6	0.0	72.9			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1691			385			145				
Approach Delay, s/veh		3.0			6.6			67.2				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.5	96.6				113.1		16.9				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.4	7.7				10.7		11.8				
Green Ext Time (p_c), s	1.1	2.8				13.6		0.2				

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.76	0.76	0.76	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	859	0	74	330	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		101.9		116.3	116.3					63.7		63.7
Actuated g/C Ratio		0.54		0.61	0.61					0.34		0.34
v/c Ratio		0.38		0.24	0.18					0.96		0.38
Control Delay		26.4		17.4	16.6					80.1		6.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.4		17.4	16.6					80.1		6.3
LOS		C		B	B					F		A
Approach Delay		26.4			16.8							66.4
Approach LOS		C			B							E
Queue Length 50th (ft)		226		37	93					628		0
Queue Length 95th (ft)		217		64	121					#761		66
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/18/2023

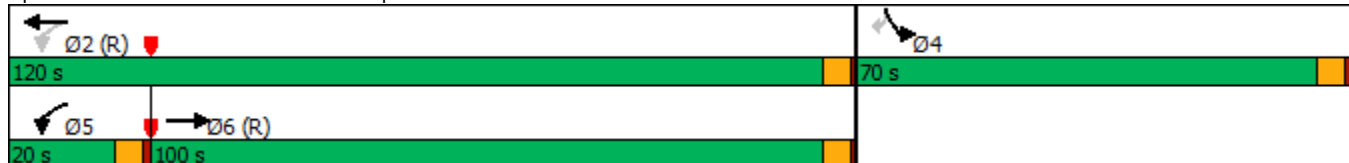


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2250		339	1788					1070		617
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.38		0.22	0.18					0.94		0.37

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 44.6
 Intersection LOS: D
 Intersection Capacity Utilization 78.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

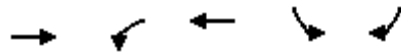
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

01/18/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	859	74	330	1003	229
v/c Ratio	0.38	0.24	0.18	0.96	0.38
Control Delay	26.4	17.4	16.6	80.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	17.4	16.6	80.1	6.3
Queue Length 50th (ft)	226	37	93	628	0
Queue Length 95th (ft)	217	64	121	#761	66
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2250	339	1788	1070	617
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.18	0.94	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4187		1500	2923					3130		1366
Flt Permitted		1.00		0.26	1.00					0.95		1.00
Satd. Flow (perm)		4187		414	2923					3130		1366
Peak-hour factor, PHF	0.76	0.76	0.76	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	795	64	74	330	0	0	0	0	1003	0	229
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	152
Lane Group Flow (vph)	0	854	0	74	330	0	0	0	0	1003	0	77
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		101.9		116.3	116.3					63.7		63.7
Effective Green, g (s)		101.9		116.3	116.3					63.7		63.7
Actuated g/C Ratio		0.54		0.61	0.61					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2245		307	1789					1049		457
v/s Ratio Prot		c0.20		c0.01	0.11					c0.32		
v/s Ratio Perm				0.14								0.06
v/c Ratio		0.38		0.24	0.18					0.96		0.17
Uniform Delay, d1		25.7		16.1	16.1					61.8		44.5
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.5		0.4	0.2					18.0		0.2
Delay (s)		26.2		16.5	16.3					79.8		44.7
Level of Service		C		B	B					E		D
Approach Delay (s)		26.2			16.4			0.0			73.3	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	795	64	74	330	0				1003	0	229
Peak Hour Factor	0.76	0.76	0.76	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2292	184	348	1829	0				1048	0	457
Arrive On Green	0.00	0.56	0.56	0.03	0.62	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	4238	328	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	561	298	74	330	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	20.1	20.3	3.9	9.1	0.0				58.9	0.0	25.2
Cycle Q Clear(g_c), s	0.0	20.1	20.3	3.9	9.1	0.0				58.9	0.0	25.2
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1619	857	348	1829	0				1048	0	457
V/C Ratio(X)	0.00	0.35	0.35	0.21	0.18	0.00				0.96	0.00	0.50
Avail Cap(c_a), veh/h	0	1619	857	422	1829	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.8	22.9	17.4	15.7	0.0				62.3	0.0	51.0
Incr Delay (d2), s/veh	0.0	0.6	1.1	0.3	0.2	0.0				17.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.1	7.7	1.4	3.2	0.0				25.6	0.0	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.4	24.0	17.7	15.9	0.0				79.9	0.0	51.9
LnGrp LOS	A	C	C	B	B	A				E	A	D
Approach Vol, veh/h		859			404						1232	
Approach Delay, s/veh		23.6			16.2						74.7	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		122.2		67.8	10.8	111.3						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		11.1		60.9	5.9	22.3						
Green Ext Time (p_c), s		2.4		2.0	0.1	6.8						

Intersection Summary

HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

01/18/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	1	147	174	29
Future Volume (vph)	73	11	1	147	174	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.77	0.77
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	13	1	175	226	38
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	73	11	1	147	174	29
Future Vol, veh/h	73	11	1	147	174	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	77	77
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	87	13	1	175	226	38























Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	403	-	226	0	0
Stage 1	226	-	-	-	-
Stage 2	177	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	563	0	1354	-	0
Stage 1	762	0	-	-	0
Stage 2	803	0	-	-	0
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	562	-	1354	-	-
Mov Cap-2 Maneuver	562	-	-	-	-
Stage 1	761	-	-	-	-
Stage 2	803	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1354	-	562	-	-
HCM Lane V/C Ratio	0.001	-	0.155	-	-
HCM Control Delay (s)	7.7	-	12.6	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Future Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.53	0.53	0.53	0.72	0.72	0.72	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	17	72	0	0	901	0	14	88	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

01/18/2023

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Future Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	53	53	53	72	72	72	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	17	0	72	0	901	0	14	88	0

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	567	1017	44	973	1017	451	88	0	0	901	0	0
Stage 1	116	116	-	901	901	-	-	-	-	-	-	-
Stage 2	451	901	-	72	116	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	411	239	1023	210	239	561	1520	-	-	763	-	-
Stage 1	882	803	-	303	360	-	-	-	-	-	-	-
Stage 2	563	360	-	935	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	353	235	1023	207	235	561	1520	-	-	763	-	-
Mov Cap-2 Maneuver	353	235	-	207	235	-	-	-	-	-	-	-
Stage 1	882	789	-	303	360	-	-	-	-	-	-	-
Stage 2	491	360	-	918	789	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	0		14.6			0		1.3		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1520	-	-	-	-	207	561	763	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.082	0.128	0.018	-	-
HCM Control Delay (s)	0	-	-	0	0	23.9	12.4	9.8	-	-
HCM Lane LOS	A	-	-	A	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.3	0.4	0.1	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	246	4	1	142	18	0	1	1	44	1	112
Future Volume (vph)	131	246	4	1	142	18	0	1	1	44	1	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.90	0.90	0.90	0.74	0.74	0.74
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	298	0	1	181	0	0	2	0	59	152	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

01/18/2023

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Vol, veh/h	131	246	4	1	142	18	0	1	1	44	1	112
Future Vol, veh/h	131	246	4	1	142	18	0	1	1	44	1	112
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	88	88	88	90	90	90	74	74	74
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	156	293	5	1	161	20	0	1	1	59	1	151

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	181	0	0	298	0	0	857	791	296	782	783	171
Stage 1	-	-	-	-	-	-	608	608	-	173	173	-
Stage 2	-	-	-	-	-	-	249	183	-	609	610	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1407	-	-	1263	-	-	277	322	743	314	325	878
Stage 1	-	-	-	-	-	-	483	486	-	834	756	-
Stage 2	-	-	-	-	-	-	755	748	-	486	485	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1407	-	-	1263	-	-	209	286	743	286	289	878
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	286	-	286	289	-
Stage 1	-	-	-	-	-	-	429	432	-	741	755	-
Stage 2	-	-	-	-	-	-	623	747	-	430	431	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0	13.8	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	413	1407	-	-	1263	-	-	286	862
HCM Lane V/C Ratio	0.005	0.111	-	-	0.001	-	-	0.208	0.177
HCM Control Delay (s)	13.8	7.9	-	-	7.9	-	-	20.9	10.1
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-	0.8	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45				45
Link Distance (ft)		148			1500			4622				4736
Travel Time (s)		4.0			22.7			70.0				71.8
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	100	409	1	876	0	480	654	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		25.1			12.9	12.9	40.6	34.0		79.1	76.0	
Actuated g/C Ratio		0.19			0.10	0.10	0.31	0.26		0.61	0.58	
v/c Ratio		0.00			0.62	0.65	0.00	1.08		0.96	0.35	
Control Delay		0.0			72.4	10.2	17.0	100.4		60.5	18.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			72.4	10.2	17.0	100.4		60.5	18.7	
LOS		A			E	B	B	F		E	B	
Approach Delay					22.4			100.3			36.4	
Approach LOS					C			F			D	
Queue Length 50th (ft)		0			82	0	0	-426		-451	134	
Queue Length 95th (ft)		0			141	52	3	#486		m#537	m188	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

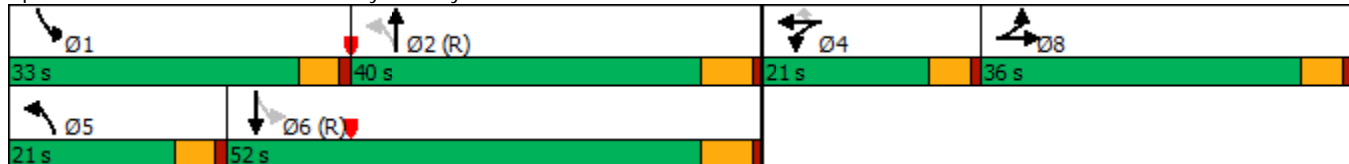


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		505			200	680	405	809		498	1885	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.50	0.60	0.00	1.08		0.96	0.35	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 55.7
 Intersection LOS: E
 Intersection Capacity Utilization 71.5%
 ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	100	409	1	876	480	654
v/c Ratio	0.00	0.62	0.65	0.00	1.08	0.96	0.35
Control Delay	0.0	72.4	10.2	17.0	100.4	60.5	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	72.4	10.2	17.0	100.4	60.5	18.7
Queue Length 50th (ft)	0	82	0	0	-426	-451	134
Queue Length 95th (ft)	0	141	52	3	#486	m#537	m188
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	505	200	680	405	809	498	1885
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.50	0.60	0.00	1.08	0.96	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		1487	3226	
Flt Permitted		0.98			0.95	1.00	0.40	1.00		0.11	1.00	
Satd. Flow (perm)		1638			1629	2614	726	3028		165	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	100	0	409	1	695	181	480	654	0
RTOR Reduction (vph)	0	2	0	0	0	368	0	18	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	100	41	1	858	0	480	654	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)		24.0			12.9	12.9	34.1	33.0		77.1	71.0	
Effective Green, g (s)		24.0			12.9	12.9	34.1	33.0		77.1	71.0	
Actuated g/C Ratio		0.18			0.10	0.10	0.26	0.25		0.59	0.55	
Clearance Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		302			161	259	198	768		495	1761	
v/s Ratio Prot		c0.00			c0.06		0.00	c0.28		c0.29	0.20	
v/s Ratio Perm						0.02	0.00			0.28		
v/c Ratio		0.00			0.62	0.16	0.01	1.12		0.97	0.37	
Uniform Delay, d1		43.2			56.2	53.6	35.4	48.5		37.3	16.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.63	1.07	
Incremental Delay, d2		0.0			7.2	0.3	0.0	69.7		6.6	0.1	
Delay (s)		43.2			63.4	53.9	35.4	118.2		67.3	18.0	
Level of Service		D			E	D	D	F		E	B	
Approach Delay (s)		43.2			55.7			118.1			38.8	
Approach LOS		D			E			F			D	

Intersection Summary		
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.76	E
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	71.5%	21.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	100	0	409	1	695	181	480	654	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	2	0	2	211	0	323	566	1416	369	507	2198	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.12	0.04	0.56	0.56	0.15	0.67	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2518	655	1514	3346	0
Grp Volume(v), veh/h	2	0	0	100	0	409	1	442	434	480	654	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	7.1	0.0	16.0	0.0	21.7	21.7	16.4	10.6	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	7.1	0.0	16.0	0.0	21.7	21.7	16.4	10.6	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	4	0	0	211	0	323	566	902	883	507	2198	0
V/C Ratio(X)	0.46	0.00	0.00	0.47	0.00	1.27	0.00	0.49	0.49	0.95	0.30	0.00
Avail Cap(c_a), veh/h	385	0	0	211	0	323	711	902	883	606	2198	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.10	0.10	0.00
Uniform Delay (d), s/veh	64.7	0.0	0.0	53.1	0.0	57.0	10.4	17.2	17.2	16.7	8.6	0.0
Incr Delay (d2), s/veh	61.6	0.0	0.0	1.6	0.0	142.6	0.0	1.9	2.0	3.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.1	0.0	11.7	0.0	8.0	7.8	8.8	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.3	0.0	0.0	54.7	0.0	199.6	10.4	19.1	19.2	20.4	8.7	0.0
LnGrp LOS	F	A	A	D	A	F	B	B	B	C	A	A
Approach Vol, veh/h		2			509			877			1134	
Approach Delay, s/veh		126.3			171.2			19.1			13.6	
Approach LOS		F			F			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.5	79.1		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	18.4	23.7		18.0	2.0	12.6		2.2				
Green Ext Time (p_c), s	1.1	3.7		0.0	0.0	4.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	47.4
HCM 6th LOS	D

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	128	0	144	148	367	47	768	280	503	931	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		14.1		34.0	34.0	34.0	46.9	39.2	39.2	22.7	56.4	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.36	0.30	0.30	0.17	0.43	
v/c Ratio		0.42		2.82	3.44	0.56	0.23	0.77	0.49	0.96	0.71	
Control Delay		42.3		891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		42.3		891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5	
LOS		D		F	F	A	B	B	A	F	D	
Approach Delay		42.3			462.0			14.6			52.2	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		37		~217	~232	0	8	103	0	220	352	
Queue Length 95th (ft)		71		#325	#348	82	m12	m133	m5	#335	451	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

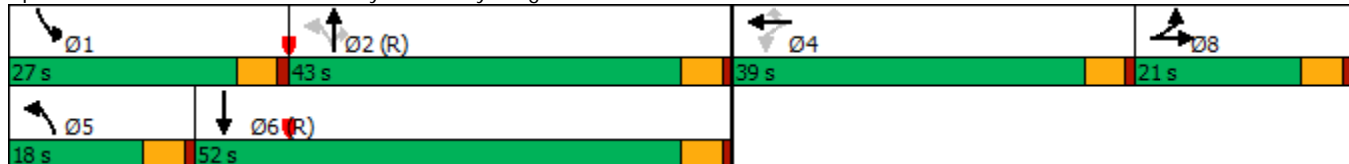


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		339		51	43	659	259	992	568	526	1308	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.38		2.82	3.44	0.56	0.18	0.77	0.49	0.96	0.71	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.44
 Intersection Signal Delay: 120.8 Intersection LOS: F
 Intersection Capacity Utilization 61.7% ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	144	148	367	47	768	280	503	931
v/c Ratio	0.42	2.82	3.44	0.56	0.23	0.77	0.49	0.96	0.71
Control Delay	42.3	891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5
Queue Length 50th (ft)	37	~217	~232	0	8	103	0	220	352
Queue Length 95th (ft)	71	#325	#348	82	m12	m133	m5	#335	451
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	339	51	43	659	259	992	568	526	1308
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	2.82	3.44	0.56	0.18	0.77	0.49	0.96	0.71

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2498		1593	1596	1485	1437	3288	1417	3016	3014	
Flt Permitted		0.99		0.12	0.10	1.00	0.25	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2498		197	166	1485	383	3288	1417	3016	3014	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	249	43	367	47	768	280	503	922	9
RTOR Reduction (vph)	0	32	0	0	0	271	0	0	140	0	1	0
Lane Group Flow (vph)	0	96	0	144	148	96	47	768	140	503	930	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		14.1		34.0	34.0	34.0	45.8	39.2	39.2	22.7	55.3	
Effective Green, g (s)		14.1		34.0	34.0	34.0	45.8	39.2	39.2	22.7	55.3	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.35	0.30	0.30	0.17	0.43	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		270		51	43	388	188	991	427	526	1282	
v/s Ratio Prot		c0.04					0.01	c0.23		c0.17	0.31	
v/s Ratio Perm				0.73	c0.89	0.06	0.08		0.10			
v/c Ratio		0.36		2.82	3.44	0.25	0.25	0.77	0.33	0.96	0.73	
Uniform Delay, d1		53.7		48.0	48.0	37.9	28.4	41.4	35.2	53.2	31.0	
Progression Factor		1.00		1.00	1.00	1.00	0.49	0.40	0.06	1.00	1.00	
Incremental Delay, d2		0.8		872.0	1155.0	0.3	0.3	2.5	0.8	28.3	3.6	
Delay (s)		54.5		920.0	1203.0	38.2	14.1	19.2	3.0	81.4	34.7	
Level of Service		D		F	F	D	B	B	A	F	C	
Approach Delay (s)		54.5			492.5			14.8			51.1	
Approach LOS		D			F			B			D	
Intersection Summary												
HCM 2000 Control Delay			127.0									F
HCM 2000 Volume to Capacity ratio			1.57									
Actuated Cycle Length (s)			130.0						20.0			
Intersection Capacity Utilization			61.7%									B
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	280	0	367	47	768	280	503	922	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	41	90	53	874	0	386	250	1192	515	519	1551	15
Arrive On Green	0.06	0.06	0.06	0.26	0.00	0.26	0.03	0.36	0.36	0.17	0.50	0.50
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3118	30
Grp Volume(v), veh/h	68	0	60	280	0	367	47	768	280	503	454	477
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	5.3	0.0	5.1	8.7	0.0	31.5	2.6	25.1	20.3	21.2	27.4	27.4
Cycle Q Clear(g_c), s	5.3	0.0	5.1	8.7	0.0	31.5	2.6	25.1	20.3	21.2	27.4	27.4
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	96	0	88	874	0	386	250	1192	515	519	765	802
V/C Ratio(X)	0.71	0.00	0.68	0.32	0.00	0.95	0.19	0.64	0.54	0.97	0.59	0.59
Avail Cap(c_a), veh/h	202	0	186	883	0	390	350	1192	515	519	765	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.22	0.22	0.22	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.1	0.0	60.0	38.9	0.0	47.4	25.3	34.7	33.1	53.7	23.3	23.3
Incr Delay (d2), s/veh	9.2	0.0	9.0	0.2	0.0	33.1	0.1	0.6	0.9	31.7	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.2	3.7	0.0	15.3	0.9	10.0	7.0	10.1	9.9	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	0.0	69.0	39.1	0.0	80.5	25.4	35.3	34.0	85.3	26.7	26.5
LnGrp LOS	E	A	E	D	A	F	C	D	C	F	C	C
Approach Vol, veh/h		128			647			1095			1434	
Approach Delay, s/veh		69.2			62.6			34.5			47.2	
Approach LOS		E			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.8		38.7	9.1	69.7		12.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	23.2	27.1		33.5	4.6	29.4		7.3				
Green Ext Time (p_c), s	0.0	4.5		0.2	0.0	4.8		0.4				

Intersection Summary

HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.

Synchro Output – Background Conditions Analysis

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Future Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	9	22	0	0	0	0	36	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Future Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	52	46	9	22	0	0	0	0	36	0	67

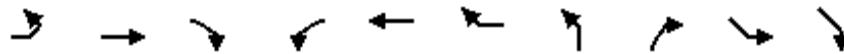
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	98	0	0		66	138	22
Stage 1	-	-	-	-	-	-		40	40	-
Stage 2	-	-	-	-	-	-		26	98	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1256	-	0		930	663	954
Stage 1	0	-	-	-	-	0		977	769	-
Stage 2	0	-	-	-	-	0		988	721	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1256	-	-		923	0	954
Mov Cap-2 Maneuver	-	-	-	-	-	-		923	0	-
Stage 1	-	-	-	-	-	-		977	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1256	-	923	954
HCM Lane V/C Ratio	-	-	0.007	-	0.039	0.07
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↶			
Traffic Volume (vph)	38	49	0	0	27	5	0	0	0	0
Future Volume (vph)	38	49	0	0	27	5	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	42	54	0	0	30	6	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022

Intersection											
Int Delay, s/veh	2.6										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗↗			↕	↗↗	↘				
Traffic Vol, veh/h	38	49	0	0	27	5	0	0	0	0	
Future Vol, veh/h	38	49	0	0	27	5	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	42	54	0	0	30	6	0	0	0	0	

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	36	0	-	-	0 171 27
Stage 1	-	-	-	-	- 138 -
Stage 2	-	-	-	-	- 33 -
Critical Hdwy	5.045	-	-	-	- 6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	- 5.83 -
Critical Hdwy Stg 2	-	-	-	-	- 5.43 -
Follow-up Hdwy	2.7985	-	-	-	- 3.519 3.319
Pot Cap-1 Maneuver	1240	-	0	0	- 811 1043
Stage 1	-	-	0	0	- 875 -
Stage 2	-	-	0	0	- 989 -
Platoon blocked, %		-			- - -
Mov Cap-1 Maneuver	1240	-	-	-	- 783 1043
Mov Cap-2 Maneuver	-	-	-	-	- 783 -
Stage 1	-	-	-	-	- 845 -
Stage 2	-	-	-	-	- 989 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1240	-	-	-
HCM Lane V/C Ratio	-	0.034	-	-	-
HCM Control Delay (s)	0	8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Future Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	0	0	0	1	0	14	21	0	0	0	21
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Future Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	52	0	0	0	1	0	14	21	0	0	0	21













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.023	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	19	32	50	22
Future Volume (vph)	4	7	19	32	50	22
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	8	21	36	56	24
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.8	5.8	27.0	27.0	27.0	27.0
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.9		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.5
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.05
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	8	21	36	56	24
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↑	↱	↰	↑
Traffic Volume (vph)	4	7	19	32	50	22
Future Volume (vph)	4	7	19	32	50	22
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.74	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1239	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	8	21	36	56	24
RTOR Reduction (vph)	0	8	0	13	0	0
Lane Group Flow (vph)	4	0	21	23	56	24
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	0.9	0.9	21.7	21.7	21.7	21.7
Effective Green, g (s)	0.9	0.9	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.03	0.03	0.65	0.65	0.65	0.65
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	45	40	993	988	800	900
v/s Ratio Prot	c0.00		0.01			0.02
v/s Ratio Perm		0.00		0.02	c0.05	
v/c Ratio	0.09	0.01	0.02	0.02	0.07	0.03
Uniform Delay, d1	16.0	15.9	2.1	2.1	2.2	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	0.0	0.0	0.0	0.0
Delay (s)	16.8	16.0	2.1	2.1	2.2	2.2
Level of Service	B	B	A	A	A	A
Approach Delay (s)	16.2		2.1			2.2
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	11.0
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	19	32	50	22
Future Volume (veh/h)	4	7	19	32	50	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	4	8	21	0	56	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	28	25	480		837	428
Arrive On Green	0.02	0.02	0.31	0.00	0.31	0.31
Sat Flow, veh/h	1714	1525	1561	1525	1325	1393
Grp Volume(v), veh/h	4	8	21	0	56	24
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1325	1393
Q Serve(g_s), s	0.0	0.1	0.2	0.0	0.5	0.2
Cycle Q Clear(g_c), s	0.0	0.1	0.2	0.0	0.7	0.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	28	25	480		837	428
V/C Ratio(X)	0.14	0.32	0.04		0.07	0.06
Avail Cap(c_a), veh/h	2213	1970	2688		2711	2398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.9	7.9	4.0	0.0	4.2	4.0
Incr Delay (d2), s/veh	2.3	7.3	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.2	15.2	4.0	0.0	4.2	4.0
LnGrp LOS	B	B	A		A	A
Approach Vol, veh/h	12		21			80
Approach Delay, s/veh	13.6		4.0			4.2
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.3		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.7
Green Ext Time (p_c), s		0.0		0.0		0.2

Intersection Summary

HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Future Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	34	0	0	25	0	655	126	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.5% ICU Level of Service A

Analysis Period (min) 15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Future Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	34	0	23	2	655	122	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1446	1459	63	1395	1460	13	126	0	0	25	0	0
Stage 1	1434	1434	-	24	24	-	-	-	-	-	-	-
Stage 2	12	25	-	1371	1436	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	94	131	995	103	130	1070	1473	-	-	1603	-	-
Stage 1	143	201	-	996	879	-	-	-	-	-	-	-
Stage 2	1012	878	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	77	995	70	77	1070	1473	-	-	1603	-	-
Mov Cap-2 Maneuver	62	77	-	70	77	-	-	-	-	-	-	-
Stage 1	143	119	-	996	879	-	-	-	-	-	-	-
Stage 2	979	878	-	93	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10	0	7.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	-	70	1070	1603	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.032	0.409	-	-
HCM Control Delay (s)	0	-	-	0	57.3	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Future Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	69	0	0	894	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Future Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	69	0	0	891	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	928	-	447	515	-	35	894	0	-	-	-	0
Stage 1	893	-	-	69	-	-	-	-	-	-	-	-
Stage 2	35	-	-	446	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	161	0	358	447	0	1005	767	-	0	0	-	-
Stage 1	221	0	-	939	0	-	-	-	0	0	-	-
Stage 2	853	0	-	567	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	158	-	358	446	-	1005	767	-	-	-	-	-
Mov Cap-2 Maneuver	197	-	-	495	-	-	-	-	-	-	-	-
Stage 1	221	-	-	939	-	-	-	-	-	-	-	-
Stage 2	835	-	-	565	-	-	-	-	-	-	-	-
























Approach	EB		WB		NB		SB			
HCM Control Delay, s	20.7		9.2		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	767	-	197	358	495	1005	-	-
HCM Lane V/C Ratio	-	-	0.011	0.003	0.006	0.021	-	-
HCM Control Delay (s)	0	-	23.5	15.1	12.3	8.7	-	-
HCM Lane LOS	A	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	216	41	550	0	241	56	19	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	99.0	91.3	91.3	96.6	90.1		14.3	28.4	28.4	19.7	13.9	
Actuated g/C Ratio	0.68	0.63	0.63	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.13	0.22	0.05	0.27		0.77	0.16	0.05	0.02	0.78	
Control Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.0			14.1			69.8			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	48	0	11	123		115	42	0	3	76	
Queue Length 95th (ft)	43	83	39	29	192		#166	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	665	1871	997	867	2058		326	378	409	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27		0.74	0.15	0.05	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.1
 Intersection LOS: C
 Intersection Capacity Utilization 53.0%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

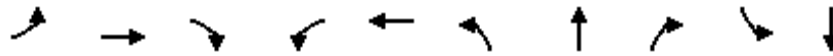
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	216	41	550	241	56	19	4	182
v/c Ratio	0.15	0.13	0.22	0.05	0.27	0.77	0.16	0.05	0.02	0.78
Control Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Length 50th (ft)	19	48	0	11	123	115	42	0	3	76
Queue Length 95th (ft)	43	83	39	29	192	#166	84	0	12	156
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	665	1871	997	867	2058	326	378	409	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27	0.74	0.15	0.05	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3312		3159	1748	1404	1710	1500	
Flt Permitted	0.42	1.00	1.00	0.60	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	606	2974	1457	1081	3312		3159	1748	1404	1297	1500	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	243	216	41	538	12	241	56	19	4	42	140
RTOR Reduction (vph)	0	0	81	0	0	0	0	0	15	0	90	0
Lane Group Flow (vph)	67	243	135	41	550	0	241	56	4	4	92	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	97.0	90.3	90.3	94.6	89.1		14.3	26.9	26.9	15.2	13.9	
Effective Green, g (s)	97.0	90.3	90.3	94.6	89.1		14.3	26.9	26.9	15.2	13.9	
Actuated g/C Ratio	0.67	0.62	0.62	0.65	0.61		0.10	0.19	0.19	0.10	0.10	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	441	1852	907	729	2035		311	324	260	139	143	
v/s Ratio Prot	c0.01	0.08		0.00	c0.17		c0.08	0.03		0.00	c0.06	
v/s Ratio Perm	0.09		0.09	0.03					0.00	0.00		
v/c Ratio	0.15	0.13	0.15	0.06	0.27		0.77	0.17	0.01	0.03	0.64	
Uniform Delay, d1	8.5	11.2	11.4	9.0	12.9		63.8	49.7	48.2	58.2	63.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.1	0.3	0.0	0.3		11.4	0.3	0.0	0.1	9.4	
Delay (s)	8.6	11.4	11.7	9.0	13.2		75.2	49.9	48.2	58.3	72.6	
Level of Service	A	B	B	A	B		E	D	D	E	E	
Approach Delay (s)		11.2			13.0			69.1			72.2	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			30.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)		21.0			
Intersection Capacity Utilization			53.0%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	552	2117		877	2327		285	213		109	67	
Arrive On Green	0.03	0.70	0.00	0.03	0.70	0.00	0.09	0.12	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	552	2117		877	2327		285	213		109	67	
V/C Ratio(X)	0.12	0.11		0.05	0.23		0.84	0.26		0.04	0.63	
Avail Cap(c_a), veh/h	939	2117		1125	2327		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	7.0	0.0	5.7	7.9	0.0	65.0	57.8	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	16.1	0.7	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.2	0.0	0.3	3.0	0.0	5.0	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	7.2	0.0	5.7	8.2	0.0	81.1	58.5	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			579			297			46	
Approach Delay, s/veh		6.9			8.0			76.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	107.0	17.9	10.4	9.0	107.7	5.7	22.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.4	12.8	5.3	3.0	5.8	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.2	0.1	0.1	1.7	0.0	0.2				

Intersection Summary

























HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	10.5	37.2	37.2	8.1	32.0	32.0	6.9	17.2	17.2	26.8	21.4	34.3
Actuated g/C Ratio	0.12	0.41	0.41	0.09	0.36	0.36	0.08	0.19	0.19	0.30	0.24	0.38
v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.21	0.10	0.02	0.43	0.50	0.63
Control Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
LOS	E	B	A	D	C	A	D	C	A	C	C	B
Approach Delay		27.7			25.3			30.6			21.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	89	51	40	47	151	0	13	13	0	55	97	41

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

10/27/2022

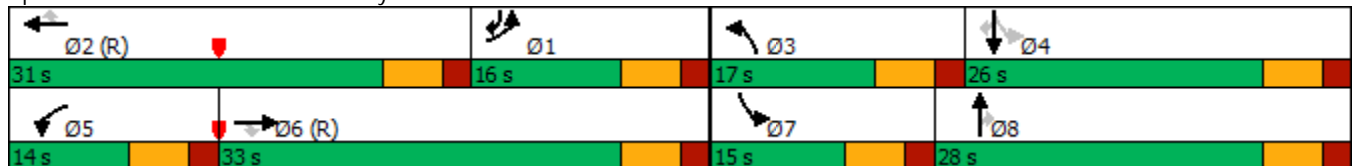


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#171	90	203	#103	208	34	30	29	0	98	144	101
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1230	849	150	1145	644	378	720	566	355	859	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.13	0.08	0.02	0.43	0.46	0.63

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 25.1 Intersection LOS: C
 Intersection Capacity Utilization 65.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.21	0.10	0.02	0.43	0.50	0.63
Control Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
Queue Length 50th (ft)	89	51	40	47	151	0	13	13	0	55	97	41
Queue Length 95th (ft)	#171	90	203	#103	208	34	30	29	0	98	144	101
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1230	849	150	1145	644	378	720	566	355	859	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.13	0.08	0.02	0.43	0.46	0.63































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

10/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	950	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
RTOR Reduction (vph)	0	0	244	0	0	108	0	0	9	0	0	162
Lane Group Flow (vph)	301	317	295	84	578	50	49	59	2	153	394	262
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	11.7	33.6	33.6	6.5	28.4	28.4	4.5	16.4	16.4	30.9	21.4	33.1
Effective Green, g (s)	11.7	33.6	33.6	6.5	28.4	28.4	4.5	16.4	16.4	30.9	21.4	33.1
Actuated g/C Ratio	0.13	0.37	0.37	0.07	0.32	0.32	0.05	0.18	0.18	0.34	0.24	0.37
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	1110	560	121	1017	468	155	537	278	399	797	493
v/s Ratio Prot	c0.11	0.11		0.05	c0.18		0.02	0.02		c0.04	0.12	c0.07
v/s Ratio Perm			0.20			0.03			0.00	0.09		0.13
v/c Ratio	0.81	0.29	0.53	0.69	0.57	0.11	0.32	0.11	0.01	0.38	0.49	0.53
Uniform Delay, d1	38.1	19.8	22.0	40.8	25.7	21.8	41.3	30.7	30.1	21.6	29.6	22.4
Progression Factor	0.95	0.90	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.3	0.6	3.4	15.9	2.3	0.5	1.2	0.1	0.0	0.6	0.5	1.1
Delay (s)	48.4	18.4	19.9	56.6	28.0	22.3	42.4	30.8	30.1	22.2	30.1	23.5
Level of Service	D	B	B	E	C	C	D	C	C	C	C	C
Approach Delay (s)		26.9			29.8			35.5			26.0	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			27.7		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						24.0	
Intersection Capacity Utilization			65.7%		ICU Level of Service						C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	894	1345		132	705		123	333	169	366	574	649
Arrive On Green	0.10	0.15	0.00	0.08	0.22	0.00	0.04	0.11	0.11	0.10	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.7	8.3	0.0	4.3	15.2	0.0	1.4	1.6	0.6	7.1	9.9	4.3
Cycle Q Clear(g_c), s	8.7	8.3	0.0	4.3	15.2	0.0	1.4	1.6	0.6	7.1	9.9	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	894	1345		132	705		123	333	169	366	574	649
V/C Ratio(X)	0.34	0.24		0.64	0.82		0.40	0.18	0.06	0.42	0.69	0.65
Avail Cap(c_a), veh/h	894	1345		150	906		384	732	373	368	748	719
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	24.8	0.0	40.3	33.6	0.0	42.2	36.3	35.8	29.8	35.1	6.0
Incr Delay (d2), s/veh	0.2	0.4	0.0	6.5	9.4	0.0	2.1	0.3	0.2	0.8	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.2	0.0	2.0	6.7	0.0	0.5	0.6	0.2	2.8	4.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	25.2	0.0	46.8	43.0	0.0	44.3	36.5	36.0	30.6	36.8	7.8
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		28.6			43.5			39.7			23.2	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.6	25.5	9.5	21.4	13.0	46.1	14.9	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.7	17.2	3.4	11.9	6.3	10.3	9.1	3.6				
Green Ext Time (p_c), s	0.0	2.3	0.0	2.6	0.0	1.8	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	31.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1171	0	0	226	633	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.0	78.0			63.1	63.1	10.0		10.0			
Actuated g/C Ratio	0.84	0.87			0.70	0.70	0.11		0.11			
v/c Ratio	0.23	0.30			0.11	0.32	0.19		0.14			
Control Delay	2.7	2.3			3.5	0.7	39.6		1.4			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.7	2.3			3.5	0.7	39.6		1.4			
LOS	A	A			A	A	D		A			
Approach Delay		2.3			1.4			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	56			13	0	16		0			
Queue Length 95th (ft)	37	70			25	3	42		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

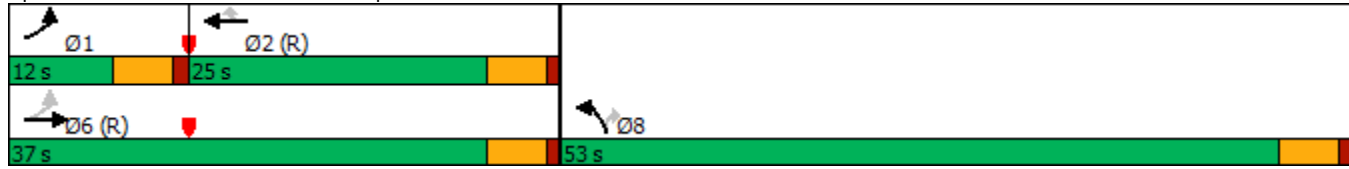


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	824	3907			2066	1953	766		677			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.11	0.32	0.04		0.04			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	52.4%
ICU Level of Service	A
Analysis Period (min)	15

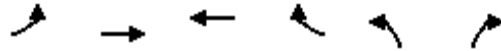
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/27/2022



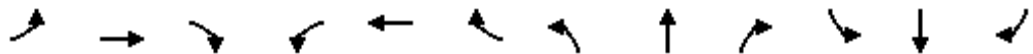
Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1171	226	633	30	29
v/c Ratio	0.23	0.30	0.11	0.32	0.19	0.14
Control Delay	2.7	2.3	3.5	0.7	39.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	2.3	3.5	0.7	39.6	1.4
Queue Length 50th (ft)	21	56	13	0	16	0
Queue Length 95th (ft)	37	70	25	3	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	824	3907	2066	1953	766	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.11	0.32	0.04	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.56	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	907	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Adj. Flow (vph)	192	1171	0	0	226	633	30	0	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	203	0	0	27	0	0	0
Lane Group Flow (vph)	192	1171	0	0	226	430	30	0	2	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	74.0	74.0			61.1	61.1	6.0		6.0			
Effective Green, g (s)	74.0	74.0			61.1	61.1	6.0		6.0			
Actuated g/C Ratio	0.82	0.82			0.68	0.68	0.07		0.07			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	800	3706			2001	1708	95		79			
v/s Ratio Prot	0.02	c0.26			0.08		c0.02					
v/s Ratio Perm	0.18					0.17			0.00			
v/c Ratio	0.24	0.32			0.11	0.25	0.32		0.02			
Uniform Delay, d1	1.8	1.9			5.0	5.6	40.0		39.3			
Progression Factor	1.00	1.00			0.58	0.49	1.00		1.00			
Incremental Delay, d2	0.2	0.2			0.1	0.3	1.9		0.1			
Delay (s)	2.0	2.1			3.0	3.0	42.0		39.4			
Level of Service	A	A			A	A	D		D			
Approach Delay (s)		2.1			3.0			40.7			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			3.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				15.0			
Intersection Capacity Utilization			52.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1171	0	0	226	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	839	3670	0	0	2072		125	0	102			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1171	0	0	226	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.9	6.1	0.0	0.0	5.4	0.0	1.7	0.0	2.1			
Cycle Q Clear(g_c), s	2.9	6.1	0.0	0.0	5.4	0.0	1.7	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	839	3670	0	0	2072		125	0	102			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.11		0.24	0.00	0.28			
Avail Cap(c_a), veh/h	873	3670	0	0	2072		779	0	636			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.82	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.1	2.3	0.0	0.0	12.8	0.0	38.4	0.0	38.6			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.0	0.0	0.0	1.6	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	2.5	0.0	0.0	12.8	0.0	39.4	0.0	40.1			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1363			226			59				
Approach Delay, s/veh		2.6			12.8			39.7				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.9	7.4				8.1		4.1				
Green Ext Time (p_c), s	0.1	1.0				9.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		115.9		127.0	127.0					83.0		83.0
Actuated g/C Ratio		0.53		0.58	0.58					0.38		0.38
v/c Ratio		0.21		0.09	0.13					0.74		0.46
Control Delay		32.1		27.4	25.3					62.5		4.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		32.1		27.4	25.3					62.5		4.5
LOS		C		C	C					E		A
Approach Delay		32.1			25.6							46.4
Approach LOS		C			C							D
Queue Length 50th (ft)		123		22	70					597		0
Queue Length 95th (ft)		234		69	150					442		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

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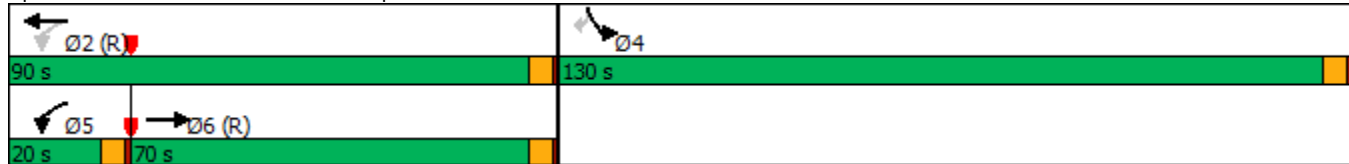


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2211		447	1686					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.09	0.13					0.49		0.36

Intersection Summary

Area Type: Other
 Cycle Length: 220
 Actuated Cycle Length: 220
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 40.1
 Intersection LOS: D
 Intersection Capacity Utilization 52.4%
 ICU Level of Service A
 Analysis Period (min) 15

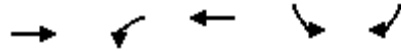
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.21	0.09	0.13	0.74	0.46
Control Delay	32.1	27.4	25.3	62.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	27.4	25.3	62.5	4.5
Queue Length 50th (ft)	123	22	70	597	0
Queue Length 95th (ft)	234	69	150	442	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2211	447	1686	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.09	0.13	0.49	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4194		1500	2923					3130		1366
Flt Permitted		1.00		0.43	1.00					0.95		1.00
Satd. Flow (perm)		4194		678	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	437	32	39	221	0	0	0	0	872	0	336
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	209
Lane Group Flow (vph)	0	467	0	39	221	0	0	0	0	872	0	127
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		114.9		127.0	127.0					83.0		83.0
Effective Green, g (s)		114.9		127.0	127.0					83.0		83.0
Actuated g/C Ratio		0.52		0.58	0.58					0.38		0.38
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2190		417	1687					1180		515
v/s Ratio Prot		c0.11		0.00	c0.08					c0.28		
v/s Ratio Perm				0.05								0.09
v/c Ratio		0.21		0.09	0.13					0.74		0.25
Uniform Delay, d1		28.2		20.5	21.3					59.1		47.0
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.2		0.1	0.2					2.5		0.3
Delay (s)		28.5		20.6	21.4					61.6		47.3
Level of Service		C		C	C					E		D
Approach Delay (s)		28.5			21.3			0.0			57.6	
Approach LOS		C			C			A			E	

Intersection Summary

HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2533	183	538	1948	0				944	0	412
Arrive On Green	0.00	0.61	0.61	0.02	0.66	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	4272	299	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Cycle Q Clear(g_c), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1774	942	538	1948	0				944	0	412
V/C Ratio(X)	0.00	0.17	0.17	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1774	942	611	1948	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.4	18.4	14.7	14.0	0.0				74.8	0.0	71.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	3.9	0.8	2.2	0.0				24.0	0.0	35.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	18.8	14.8	14.1	0.0				79.2	0.0	75.6
LnGrp LOS	A	B	B	B	B	A				E	A	E
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		18.7			14.2						78.2	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		149.5		70.5	9.5	139.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		8.1		60.6	4.1	12.2						
Green Ext Time (p_c), s		1.5		4.9	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				55.2								
HCM 6th LOS				E								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/27/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	21	290	142	215
Future Volume (vph)	21	3	21	290	142	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	3	23	322	158	239
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.1%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	21	3	21	290	142	215
Future Vol, veh/h	21	3	21	290	142	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	23	3	23	322	158	239

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	526	-	158	0	-
Stage 1	158	-	-	-	-
Stage 2	368	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	476	0	1434	-	-
Stage 1	820	0	-	-	-
Stage 2	654	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	468	-	1434	-	-
Mov Cap-2 Maneuver	468	-	-	-	-
Stage 1	807	-	-	-	-
Stage 2	654	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1434	-	468	-	-
HCM Lane V/C Ratio	0.016	-	0.05	-	-
HCM Control Delay (s)	7.6	-	13.1	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Future Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	3	0	0	43	0	114	509	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Traffic Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Future Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	2	0	3	0	40	3	114	509	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	757	780	255	525	779	22	509	0	0	43	0	0
Stage 1	737	737	-	42	42	-	-	-	-	-	-	-
Stage 2	20	43	-	483	737	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	300	329	750	440	330	1056	1066	-	-	1579	-	-
Stage 1	381	428	-	973	864	-	-	-	-	-	-	-
Stage 2	1002	863	-	539	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	283	305	750	416	306	1056	1066	-	-	1579	-	-
Mov Cap-2 Maneuver	283	305	-	416	306	-	-	-	-	-	-	-
Stage 1	381	397	-	973	864	-	-	-	-	-	-	-
Stage 2	999	863	-	500	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.5	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1066	-	-	-	-	416	1056	1579	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.005	0.003	0.072	-	-
HCM Control Delay (s)	0	-	-	0	0	13.7	8.4	7.5	-	-
HCM Lane LOS	A	-	-	A	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.2	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	104	2	0	167	24	0	1	0	11	0	121
Future Volume (vph)	81	104	2	0	167	24	0	1	0	11	0	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	118	0	0	213	0	0	1	0	12	134	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↔		↖	↗	
Traffic Vol, veh/h	81	104	2	0	167	24	0	1	0	11	0	121
Future Vol, veh/h	81	104	2	0	167	24	0	1	0	11	0	121
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	90	116	2	0	186	27	0	1	0	12	0	134




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	213	0	0	118	0	0	564	510	117	498	498	200
Stage 1	-	-	-	-	-	-	297	297	-	200	200	-
Stage 2	-	-	-	-	-	-	267	213	-	298	298	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1369	-	-	1470	-	-	436	467	935	486	474	846
Stage 1	-	-	-	-	-	-	712	668	-	806	736	-
Stage 2	-	-	-	-	-	-	738	726	-	715	667	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1369	-	-	1470	-	-	348	436	935	461	443	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	348	436	-	461	443	-
Stage 1	-	-	-	-	-	-	665	624	-	753	736	-
Stage 2	-	-	-	-	-	-	621	726	-	667	623	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0	13.3	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	436	1369	-	-	1470	-	-	461	846
HCM Lane V/C Ratio	0.003	0.066	-	-	-	-	-	0.027	0.159
HCM Control Delay (s)	13.3	7.8	-	-	0	-	-	13	10.1
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.1	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0			5.0	10.0
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0			11.0	16.0
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0			21.0	40.0
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%			19.1%	36.4%
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0			16.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0			4.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0			5.0	6.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					14.8	14.8		39.4		62.7	61.7	
Actuated g/C Ratio					0.13	0.13		0.36		0.57	0.56	
v/c Ratio					0.77	0.67		0.58		0.88	0.35	
Control Delay					68.7	8.0		32.8		28.0	17.7	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					68.7	8.0		32.8		28.0	17.7	
LOS					E	A		C		C	B	
Approach Delay					22.0			32.8			21.4	
Approach LOS					C			C			C	
Queue Length 50th (ft)					114	0		207		179	168	
Queue Length 95th (ft)					#209	52		273		m183	m159	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					236	855		1117		398	1809	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.71	0.65		0.58		0.88	0.35	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	24.8
Intersection LOS:	C
Intersection Capacity Utilization	58.0%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/27/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.77	0.67	0.58	0.88	0.35
Control Delay	68.7	8.0	32.8	28.0	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	8.0	32.8	28.0	17.7
Queue Length 50th (ft)	114	0	207	179	168
Queue Length 95th (ft)	#209	52	273	m183	m159
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	236	855	1117	398	1809
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.65	0.58	0.88	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		1.00	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		1487	3226	
Flt Permitted					0.95	1.00		1.00		0.26	1.00	
Satd. Flow (perm)					1629	2614		3106		399	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	167	0	556	0	594	59	351	629	0
RTOR Reduction (vph)	0	0	0	0	0	481	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	167	75	0	646	0	351	629	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)					14.8	14.8		38.3		60.6	60.6	
Effective Green, g (s)					14.8	14.8		38.3		60.6	60.6	
Actuated g/C Ratio					0.13	0.13		0.35		0.55	0.55	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					219	351		1081		390	1777	
v/s Ratio Prot					c0.10			0.21		c0.14	0.19	
v/s Ratio Perm						0.03				c0.35		
v/c Ratio					0.76	0.21		0.60		0.90	0.35	
Uniform Delay, d1					45.9	42.4		29.5		17.1	13.8	
Progression Factor					1.00	1.00		1.00		1.36	1.15	
Incremental Delay, d2					14.5	0.3		2.4		2.9	0.0	
Delay (s)					60.4	42.7		32.0		26.3	15.9	
Level of Service					E	D		C		C	B	
Approach Delay (s)		0.0			46.8			32.0			19.6	
Approach LOS		A			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			31.4		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					21.0		
Intersection Capacity Utilization			58.0%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	556	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	249	0	381	556	1780	176	577	2460	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.60	0.60	0.11	0.75	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2946	292	1514	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	556	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	10.1	0.0	16.0	0.0	11.0	11.0	9.1	6.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.1	0.0	16.0	0.0	11.0	11.0	9.1	6.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	249	0	381	556	968	988	577	2460	0
V/C Ratio(X)	0.00	0.00	0.00	0.67	0.00	1.46	0.00	0.33	0.33	0.61	0.26	0.00
Avail Cap(c_a), veh/h	0	376	0	249	0	381	804	968	988	638	2460	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.5	0.0	47.0	0.0	10.8	10.8	6.9	4.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.8	0.0	220.1	0.0	0.9	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.6	0.0	16.9	0.0	3.7	3.8	2.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	51.3	0.0	267.1	0.0	11.7	11.7	7.0	4.1	0.0
LnGrp LOS	A	A	A	D	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			723			653			980	
Approach Delay, s/veh		0.0			217.3			11.7			5.2	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.6	72.4		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	11.1	13.0		18.0	0.0	8.5		0.0				
Green Ext Time (p_c), s	0.5	3.6		0.0	0.0	4.1		0.0				

Intersection Summary























HCM 6th Ctrl Delay	72.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	850	327	304	762	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		7.5		30.0	30.0	30.0	40.6	40.6	40.6	14.0	51.8	
Actuated g/C Ratio		0.07		0.27	0.27	0.27	0.37	0.37	0.37	0.13	0.47	
v/c Ratio		0.48		3.03	3.36	0.75	0.18	0.70	0.47	0.79	0.55	
Control Delay		47.6		975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		47.6		975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		47.6			451.4			15.6			35.4	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		21		~234	~243	82	7	135	0	108	218	
Queue Length 95th (ft)		46		#347	#361	223	m13	246	14	#173	296	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

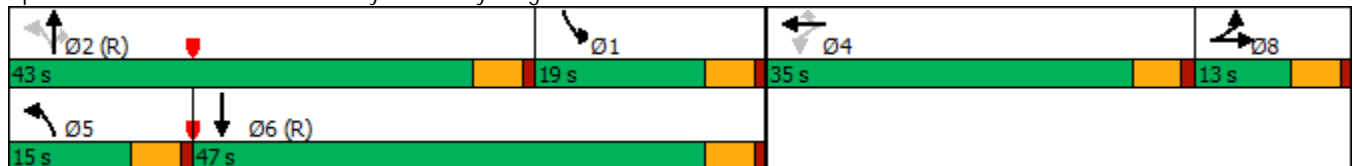


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		172		60	55	675	201	1213	693	383	1391	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.45		3.03	3.36	0.75	0.15	0.70	0.47	0.79	0.55	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.36
 Intersection Signal Delay: 141.1 Intersection LOS: F
 Intersection Capacity Utilization 68.8% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	850	327	304	762
v/c Ratio	0.48	3.03	3.36	0.75	0.18	0.70	0.47	0.79	0.55
Control Delay	47.6	975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5
Queue Length 50th (ft)	21	~234	~243	82	7	135	0	108	218
Queue Length 95th (ft)	46	#347	#361	223	m13	246	14	#173	296
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	172	60	55	675	201	1213	693	383	1391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	3.03	3.36	0.75	0.15	0.70	0.47	0.79	0.55

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2123		1593	1596	1485	1437	3288	1417	3016	2944	
Flt Permitted		0.97		0.13	0.12	1.00	0.17	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2123		224	204	1485	255	3288	1417	3016	2944	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	850	327	304	711	51
RTOR Reduction (vph)	0	18	0	0	0	271	0	0	178	0	4	0
Lane Group Flow (vph)	0	59	0	182	185	236	30	850	149	304	758	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Effective Green, g (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Actuated g/C Ratio		0.06		0.27	0.27	0.27	0.34	0.34	0.34	0.15	0.44	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		123		61	55	405	138	1123	484	438	1306	
v/s Ratio Prot		c0.03					0.01	c0.26		c0.10	0.26	
v/s Ratio Perm				0.81	c0.91	0.16	0.06		0.10			
v/c Ratio		0.48		2.98	3.36	0.58	0.22	0.76	0.31	0.69	0.58	
Uniform Delay, d1		50.2		40.0	40.0	34.6	25.8	32.1	26.6	44.7	22.9	
Progression Factor		1.00		1.00	1.00	1.00	0.61	0.58	0.19	1.00	1.00	
Incremental Delay, d2		2.9		935.0	1108.3	2.1	0.6	3.9	1.3	4.7	1.9	
Delay (s)		53.1		975.0	1148.3	36.7	16.4	22.4	6.4	49.4	24.8	
Level of Service		D		F	F	D	B	C	A	D	C	
Approach Delay (s)		53.1			467.4			17.9			31.8	
Approach LOS		D			F			B			C	

Intersection Summary		
HCM 2000 Control Delay	145.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.58	F
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	68.8%	ICU Level of Service
Analysis Period (min)	15	C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	68	25	40	920	0	406	168	1145	494	482	1383	99
Arrive On Green	0.04	0.04	0.04	0.27	0.00	0.27	0.03	0.35	0.35	0.16	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	358	0	507	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	24.8	21.3	10.2	18.7	18.7
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	24.8	21.3	10.2	18.7	18.7
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	68	0	64	920	0	406	168	1145	494	482	731	751
V/C Ratio(X)	0.67	0.00	0.48	0.39	0.00	1.25	0.18	0.74	0.66	0.63	0.51	0.51
Avail Cap(c_a), veh/h	116	0	110	920	0	406	261	1145	494	482	731	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.74	0.74	0.74	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	51.5	32.5	0.0	40.0	28.2	31.7	30.5	43.4	20.0	20.0
Incr Delay (d2), s/veh	11.0	0.0	5.5	0.3	0.0	130.6	0.4	3.3	5.1	2.6	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.9	3.9	0.0	25.7	0.6	10.0	7.8	3.9	6.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	0.0	56.9	32.8	0.0	170.6	28.5	35.0	35.7	46.0	22.6	22.5
LnGrp LOS	E	A	E	C	A	F	C	C	D	D	C	C
Approach Vol, veh/h		77			865			1207			1066	
Approach Delay, s/veh		60.5			113.6			35.0			29.3	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.2	26.8		32.0	3.6	20.7		5.1				
Green Ext Time (p_c), s	0.2	5.1		0.0	0.0	4.0		0.1				

Intersection Summary






















HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Future Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	67	47	0	0	0	0	7	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Future Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	42	57	67	47	0	0	0	0	7	0	94

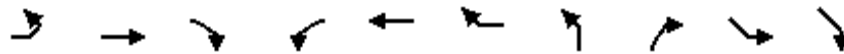
Major/Minor	Major1			Major2			Minor2				
Conflicting Flow All	-	0	0	99	0	0			202	280	47
Stage 1	-	-	-	-	-	-			181	181	-
Stage 2	-	-	-	-	-	-			21	99	-
Critical Hdwy	-	-	-	4.745	-	-			6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-			5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-			3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1255	-	0			772	542	922
Stage 1	0	-	-	-	-	0			844	656	-
Stage 2	0	-	-	-	-	0			994	720	-
Platoon blocked, %	-	-	-	-	-	-			-	-	-
Mov Cap-1 Maneuver	-	-	-	1255	-	-			731	0	922
Mov Cap-2 Maneuver	-	-	-	-	-	-			731	0	-
Stage 1	-	-	-	-	-	-			844	0	-
Stage 2	-	-	-	-	-	-			941	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1255	-	731	922
HCM Lane V/C Ratio	-	-	0.053	-	0.009	0.102
HCM Control Delay (s)	-	-	8	-	10	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.3

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	36	16	0	0	99	86	0	0	0	0
Future Volume (vph)	36	16	0	0	99	86	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	40	18	0	0	110	96	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023

Intersection											
Int Delay, s/veh	1.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗↗			↕	↗↗	↘				
Traffic Vol, veh/h	36	16	0	0	99	86	0	0	0	0	
Future Vol, veh/h	36	16	0	0	99	86	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	40	18	0	0	110	96	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	206	0	-	-	-	0	256 9
Stage 1	-	-	-	-	-	-	98 -
Stage 2	-	-	-	-	-	-	158 -
Critical Hdwy	5.045	-	-	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43 -
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1043	-	0	0	-	-	722 1070
Stage 1	-	-	0	0	-	-	915 -
Stage 2	-	-	0	0	-	-	870 -
Platoon blocked, %		-			-	-	
Mov Cap-1 Maneuver	1043	-	-	-	-	-	695 1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	695 -
Stage 1	-	-	-	-	-	-	880 -
Stage 2	-	-	-	-	-	-	870 -

Approach	EB	WB	NB
HCM Control Delay, s	5.9	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1043	-	-	-
HCM Lane V/C Ratio	-	0.038	-	-	-
HCM Control Delay (s)	0	8.6	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Future Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	0	0	0	1	0	33	20	0	0	0	170
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Future Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	16	0	0	0	1	0	33	20	0	0	0	170













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.035	0.022	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	27	4	6	37
Future Volume (vph)	67	101	27	4	6	37
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	112	30	4	7	41
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	6.7	6.7	13.3	13.3	13.3	13.3
Actuated g/C Ratio	0.24	0.24	0.48	0.48	0.48	0.48
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
LOS	A	A	A	A	A	A
Approach Delay	5.5		6.7			7.0
Approach LOS	A		A			A
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.25
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization:	19.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	112	30	4	7	41
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	27	4	6	37
Future Volume (vph)	67	101	27	4	6	37
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.74	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1229	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	112	30	4	7	41
RTOR Reduction (vph)	0	90	0	2	0	0
Lane Group Flow (vph)	74	22	30	2	7	41
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	5.5	5.5	12.1	12.1	12.1	12.1
Effective Green, g (s)	5.5	5.5	12.1	12.1	12.1	12.1
Actuated g/C Ratio	0.19	0.19	0.42	0.42	0.42	0.42
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	328	294	650	647	519	590
v/s Ratio Prot	c0.04		0.02			c0.03
v/s Ratio Perm		0.01		0.00	0.01	
v/c Ratio	0.23	0.07	0.05	0.00	0.01	0.07
Uniform Delay, d1	9.8	9.5	4.9	4.8	4.8	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0	0.0	0.0	0.1
Delay (s)	10.1	9.6	4.9	4.8	4.8	5.0
Level of Service	B	A	A	A	A	A
Approach Delay (s)	9.8		4.9			4.9
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	28.6	Sum of lost time (s)	11.0
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	27	4	6	37
Future Volume (veh/h)	67	101	27	4	6	37
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	74	112	30	0	7	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	281	250	408		700	364
Arrive On Green	0.16	0.16	0.26	0.00	0.26	0.26
Sat Flow, veh/h	1714	1525	1561	1525	1314	1393
Grp Volume(v), veh/h	74	112	30	0	7	41
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1314	1393
Q Serve(g_s), s	0.7	1.3	0.3	0.0	0.1	0.4
Cycle Q Clear(g_c), s	0.7	1.3	0.3	0.0	0.4	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	281	250	408		700	364
V/C Ratio(X)	0.26	0.45	0.07		0.01	0.11
Avail Cap(c_a), veh/h	1881	1674	2284		2279	2038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	7.2	5.3	0.0	5.5	5.4
Incr Delay (d2), s/veh	0.5	1.3	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.5	8.5	5.4	0.0	5.5	5.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	186		30			48
Approach Delay, s/veh	8.1		5.4			5.5
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		8.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		3.3		2.4
Green Ext Time (p_c), s		0.1		0.5		0.2

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Future Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	7	673	0	0	164	0	102	38	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

01/19/2023

Intersection												
Int Delay, s/veh	12.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Future Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	7	0	673	0	161	3	102	38	0





















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	323	406	19	386	405	82	38	0	0	164	0	0
Stage 1	242	242	-	163	163	-	-	-	-	-	-	-
Stage 2	81	164	-	223	242	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	612	537	1061	552	538	968	1585	-	-	1427	-	-
Stage 1	746	709	-	829	767	-	-	-	-	-	-	-
Stage 2	924	766	-	765	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	177	499	1061	522	500	968	1585	-	-	1427	-	-
Mov Cap-2 Maneuver	177	499	-	522	500	-	-	-	-	-	-	-
Stage 1	746	659	-	829	767	-	-	-	-	-	-	-
Stage 2	282	766	-	710	659	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	25.6		16.7		0		5.6	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	177	522	968	1427	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.013	0.695	0.072	-	-
HCM Control Delay (s)	0	-	-	25.6	12	16.7	7.7	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.9	0.2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	764	0	0	158	1
Future Volume (vph)	1	0	0	1	0	145	0	764	0	0	158	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	849	0	0	177	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	1	0	145	0	764	0	0	158	1
Future Vol, veh/h	1	0	0	1	0	145	0	764	0	0	158	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	849	0	0	176	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	602	-	89	937	-	425	177	0	-	-	-	0
Stage 1	177	-	-	849	-	-	-	-	-	-	-	-
Stage 2	425	-	-	88	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	298	0	708	223	0	556	1411	-	0	0	-	-
Stage 1	686	0	-	326	0	-	-	-	0	0	-	-
Stage 2	466	0	-	916	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	217	-	708	223	-	556	1411	-	-	-	-	-
Mov Cap-2 Maneuver	286	-	-	285	-	-	-	-	-	-	-	-
Stage 1	686	-	-	326	-	-	-	-	-	-	-	-
Stage 2	339	-	-	916	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	17.6		13.9		0			0		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1411	-	286	-	285	556	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.004	0.272	-	-
HCM Control Delay (s)	0	-	17.6	0	17.7	13.9	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	597	215	18	411	0	283	51	51	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.4	90.8	90.8	81.5	74.5		14.6	23.5	23.5	15.0	9.0	
Actuated g/C Ratio	0.71	0.67	0.67	0.60	0.55		0.11	0.17	0.17	0.11	0.07	
v/c Ratio	0.46	0.30	0.20	0.04	0.22		0.83	0.17	0.15	0.04	0.66	
Control Delay	10.4	10.9	2.1	8.3	17.3		79.1	46.5	1.0	39.8	27.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.4	10.9	2.1	8.3	17.3		79.1	46.5	1.0	39.8	27.1	
LOS	B	B	A	A	B		E	D	A	D	C	
Approach Delay		9.0			16.9			64.4			27.7	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	69	87	0	4	88		126	37	0	5	12	
Queue Length 95th (ft)	137	187	36	14	157		#194	77	0	17	77	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

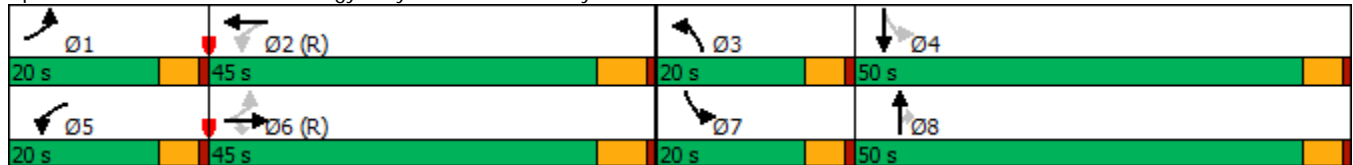


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	570	2000	1050	619	1827		351	582	538	277	570	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.46	0.30	0.20	0.03	0.22		0.81	0.09	0.09	0.03	0.25	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 22.5
 Intersection LOS: C
 Intersection Capacity Utilization 58.9%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

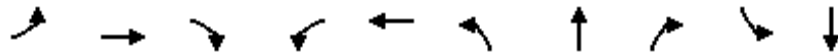
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	261	597	215	18	411	283	51	51	7	144
v/c Ratio	0.46	0.30	0.20	0.04	0.22	0.83	0.17	0.15	0.04	0.66
Control Delay	10.4	10.9	2.1	8.3	17.3	79.1	46.5	1.0	39.8	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	10.9	2.1	8.3	17.3	79.1	46.5	1.0	39.8	27.1
Queue Length 50th (ft)	69	87	0	4	88	126	37	0	5	12
Queue Length 95th (ft)	137	187	36	14	157	#194	77	0	17	77
Internal Link Dist (ft)	1908				346		3134		856	
Turn Bay Length (ft)	155	415		90	520		240	125		
Base Capacity (vph)	570	2000	1050	619	1827	351	582	538	277	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.30	0.20	0.03	0.22	0.81	0.09	0.09	0.03	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3310		3159	1748	1404	1710	1451	
Flt Permitted	0.46	1.00	1.00	0.43	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	674	2974	1457	767	3310		3159	1748	1404	1303	1451	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	597	215	18	400	11	283	51	51	7	14	130
RTOR Reduction (vph)	0	0	75	0	1	0	0	0	43	0	121	0
Lane Group Flow (vph)	261	597	140	18	410	0	283	51	8	7	23	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	95.4	87.8	87.8	77.1	74.5		14.6	22.2	22.2	10.4	9.0	
Effective Green, g (s)	95.4	87.8	87.8	77.1	74.5		14.6	22.2	22.2	10.4	9.0	
Actuated g/C Ratio	0.71	0.65	0.65	0.57	0.55		0.11	0.16	0.16	0.08	0.07	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	559	1934	947	456	1826		341	287	230	104	96	
v/s Ratio Prot	c0.05	0.20		0.00	0.12		c0.09	0.03		0.00	c0.02	
v/s Ratio Perm	c0.27		0.10	0.02					0.01	0.00		
v/c Ratio	0.47	0.31	0.15	0.04	0.22		0.83	0.18	0.04	0.07	0.24	
Uniform Delay, d1	7.5	10.3	9.1	12.5	15.5		59.0	48.5	47.4	57.7	59.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.4	0.3	0.0	0.3		15.3	0.3	0.1	0.3	1.3	
Delay (s)	8.1	10.7	9.5	12.6	15.8		74.3	48.8	47.5	58.0	61.0	
Level of Service	A	B	A	B	B		E	D	D	E	E	
Approach Delay (s)		9.8			15.6			67.4			60.9	
Approach LOS		A			B			E			E	

Intersection Summary		
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	C
Actuated Cycle Length (s)	135.0	Sum of lost time (s)
Intersection Capacity Utilization	58.9%	ICU Level of Service
Analysis Period (min)	15	B
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	261	597	0	18	400	0	283	51	0	7	14	0
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	634	2080		595	2090		329	227		115	62	
Arrive On Green	0.08	0.69	0.00	0.02	0.63	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	261	597	0	18	400	0	283	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	8.7	10.4	0.0	0.5	6.9	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Cycle Q Clear(g_c), s	8.7	10.4	0.0	0.5	6.9	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	634	2080		595	2090		329	227		115	62	
V/C Ratio(X)	0.41	0.29		0.03	0.19		0.86	0.23		0.06	0.23	
Avail Cap(c_a), veh/h	675	2080		754	2090		355	586		291	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.9	8.1	0.0	8.7	10.7	0.0	59.6	52.8	0.0	62.1	63.4	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	17.9	0.5	0.0	0.2	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	0.0	0.2	2.5	0.0	5.5	1.6	0.0	0.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	8.4	0.0	8.7	10.9	0.0	77.5	53.2	0.0	62.3	65.2	0.0
LnGrp LOS	A	A		A	B		E	D		E	E	
Approach Vol, veh/h		858			418			334			21	
Approach Delay, s/veh		8.0			10.8			73.8			64.2	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	90.5	18.9	9.7	7.5	99.0	6.2	22.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	10.7	8.9	13.8	3.0	2.5	12.4	2.5	5.5				
Green Ext Time (p_c), s	0.3	2.7	0.1	0.0	0.0	4.2	0.0	0.2				

Intersection Summary






























HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40				40
Link Distance (ft)		980			1988			2188				3433
Travel Time (s)		19.1			38.7			37.3				58.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	691	129	12	592	119	590	373	69	367	91	563
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	45.0	75.0	75.0	14.0	44.0	44.0	46.0	48.0	48.0	43.0	45.0	45.0
Total Split (%)	25.0%	41.7%	41.7%	7.8%	24.4%	24.4%	25.6%	26.7%	26.7%	23.9%	25.0%	25.0%
Maximum Green (s)	40.0	70.0	70.0	9.0	39.0	39.0	41.0	43.0	43.0	38.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	40.7	86.3	86.3	8.2	46.0	46.0	38.0	39.5	39.5	69.2	35.4	81.0
Actuated g/C Ratio	0.23	0.48	0.48	0.05	0.26	0.26	0.21	0.22	0.22	0.38	0.20	0.45
v/c Ratio	0.94	0.48	0.16	0.16	0.72	0.26	0.90	0.58	0.17	0.82	0.14	0.90
Control Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
LOS	F	D	A	F	E	B	F	E	A	D	E	E
Approach Delay		56.5			60.2			73.8			57.0	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	362	288	0	14	357	15	350	200	0	297	46	543

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

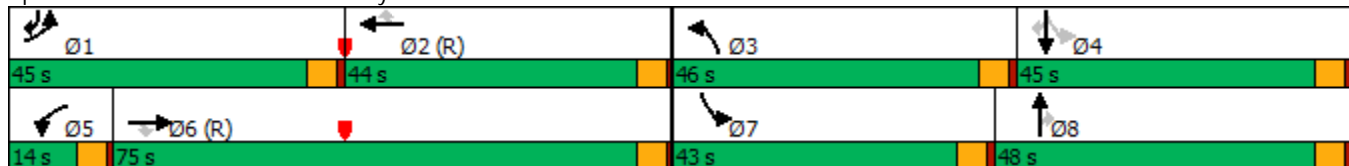


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#482	408	47	39	436	76	424	265	13	391	74	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	663	1426	786	83	824	456	706	721	451	485	745	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.48	0.16	0.14	0.72	0.26	0.84	0.52	0.15	0.76	0.12	0.89

Intersection Summary

Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	61.5
Intersection LOS:	E
Intersection Capacity Utilization:	77.8%
ICU Level of Service:	D
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	607	691	129	12	592	119	590	373	69	367	91	563
v/c Ratio	0.94	0.48	0.16	0.16	0.72	0.26	0.90	0.58	0.17	0.82	0.14	0.90
Control Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
Queue Length 50th (ft)	362	288	0	14	357	15	350	200	0	297	46	543
Queue Length 95th (ft)	#482	408	47	39	436	76	424	265	13	391	74	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	663	1426	786	83	824	456	706	721	451	485	745	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.48	0.16	0.14	0.72	0.26	0.84	0.52	0.15	0.76	0.12	0.89































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	708	3353	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	691	129	12	592	119	590	373	69	367	91	563
RTOR Reduction (vph)	0	0	69	0	0	77	0	0	54	0	0	24
Lane Group Flow (vph)	607	691	60	12	592	42	590	373	15	367	91	539
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	40.7	83.2	83.2	3.4	45.9	45.9	38.0	39.5	39.5	69.3	35.4	76.1
Effective Green, g (s)	40.7	83.2	83.2	3.4	45.9	45.9	38.0	39.5	39.5	69.3	35.4	76.1
Actuated g/C Ratio	0.23	0.46	0.46	0.02	0.25	0.25	0.21	0.22	0.22	0.38	0.20	0.42
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	646	1374	693	31	822	378	654	646	335	448	659	604
v/s Ratio Prot	c0.21	0.23		0.01	c0.18		c0.19	c0.13		0.15	0.03	c0.20
v/s Ratio Perm			0.04			0.03			0.01	0.16		0.20
v/c Ratio	0.94	0.50	0.09	0.39	0.72	0.11	0.90	0.58	0.05	0.82	0.14	0.89
Uniform Delay, d1	68.4	33.9	27.1	87.3	61.2	51.4	69.2	62.8	55.4	44.1	59.7	48.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.5	1.3	0.2	7.8	5.4	0.6	15.7	1.3	0.1	11.1	0.1	15.4
Delay (s)	89.9	35.2	27.4	95.1	66.6	52.0	84.9	64.0	55.4	55.3	59.8	63.5
Level of Service	F	D	C	F	E	D	F	E	E	E	E	E
Approach Delay (s)		57.8			64.7			75.4			60.2	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			63.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			180.0	Sum of lost time (s)				20.0				
Intersection Capacity Utilization			77.8%	ICU Level of Service			D					
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↖	↗	↕	↖	↖↗	↕	↖	↗	↕	↖
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	607	691	0	12	592	0	590	373	69	367	91	563
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	636	1342		34	802		635	722	368	468	748	599
Arrive On Green	0.22	0.44	0.00	0.02	0.25	0.00	0.20	0.24	0.24	0.18	0.22	0.22
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	607	691	0	12	592	0	590	373	69	367	91	563
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	37.1	29.7	0.0	1.3	30.1	0.0	33.2	19.4	6.5	30.4	3.9	40.0
Cycle Q Clear(g_c), s	37.1	29.7	0.0	1.3	30.1	0.0	33.2	19.4	6.5	30.4	3.9	40.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	636	1342		34	802		635	722	368	468	748	599
V/C Ratio(X)	0.95	0.51		0.35	0.74		0.93	0.52	0.19	0.78	0.12	0.94
Avail Cap(c_a), veh/h	647	1342		84	802		716	722	368	515	748	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.88	0.88	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.4	36.0	0.0	87.0	62.5	0.0	70.5	59.2	54.3	42.0	56.0	48.1
Incr Delay (d2), s/veh	23.6	1.3	0.0	5.5	5.3	0.0	17.3	0.6	0.2	7.1	0.1	23.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	11.3	0.0	0.6	13.1	0.0	14.8	7.4	2.5	13.3	1.7	27.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.0	37.4	0.0	92.5	67.8	0.0	87.8	59.8	54.5	49.2	56.0	71.1
LnGrp LOS	F	D		F	E		F	E	D	D	E	E
Approach Vol, veh/h		1298			604			1032			1021	
Approach Delay, s/veh		63.4			68.3			75.5			61.9	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.3	49.3	41.4	45.0	8.6	85.0	37.9	48.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	40.0	39.0	41.0	40.0	9.0	70.0	38.0	43.0				
Max Q Clear Time (g_c+I1), s	39.1	32.1	35.2	42.0	3.3	31.7	32.4	21.4				
Green Ext Time (p_c), s	0.3	2.1	1.2	0.0	0.0	5.4	0.6	2.5				

Intersection Summary

HCM 6th Ctrl Delay	66.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/19/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1347	0	0	382	1150	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.2	113.2			94.6	94.6	10.8		10.8			
Actuated g/C Ratio	0.86	0.87			0.73	0.73	0.08		0.08			
v/c Ratio	0.53	0.34			0.18	0.54	0.35		0.43			
Control Delay	4.8	2.3			6.9	1.5	64.6		20.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	4.8	2.3			6.9	1.5	64.6		20.6			
LOS	A	A			A	A	E		C			
Approach Delay		2.9			2.8			37.0				
Approach LOS		A			A			D				
Queue Length 50th (ft)	54	68			51	0	34		0			
Queue Length 95th (ft)	95	97			87	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	831	3926			2144	2144	221		243			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.49	0.34			0.18	0.54	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	4.0
Intersection LOS:	A
Intersection Capacity Utilization	81.3%
ICU Level of Service	D
Analysis Period (min)	15

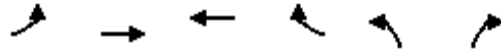
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1347	382	1150	42	71
v/c Ratio	0.53	0.34	0.18	0.54	0.35	0.43
Control Delay	4.8	2.3	6.9	1.5	64.6	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	2.3	6.9	1.5	64.6	20.6
Queue Length 50th (ft)	54	68	51	0	34	0
Queue Length 95th (ft)	95	97	87	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	831	3926	2144	2144	221	243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.34	0.18	0.54	0.19	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

01/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.50	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	802	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Adj. Flow (vph)	407	1347	0	0	382	1150	42	0	71	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	323	0	0	66	0	0	0
Lane Group Flow (vph)	407	1347	0	0	382	827	42	0	5	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	111.2	111.2			93.5	93.5	8.8		8.8			
Effective Green, g (s)	111.2	111.2			93.5	93.5	8.8		8.8			
Actuated g/C Ratio	0.86	0.86			0.72	0.72	0.07		0.07			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	756	3856			2120	1810	97		80			
v/s Ratio Prot	c0.05	0.30			0.13		c0.03					
v/s Ratio Perm	c0.41					0.33			0.00			
v/c Ratio	0.54	0.35			0.18	0.46	0.43		0.06			
Uniform Delay, d1	2.0	1.9			5.9	7.6	58.2		56.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.7	0.3			0.2	0.8	3.1		0.3			
Delay (s)	2.8	2.2			6.1	8.5	61.3		57.0			
Level of Service	A	A			A	A	E		E			
Approach Delay (s)		2.3			7.9			58.6			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			6.7									A
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			130.0									15.0
Intersection Capacity Utilization			81.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1347	0	0	382	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	818	3872	0	0	2163		110	0	90			
Arrive On Green	0.09	0.85	0.00	0.00	0.72	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1347	0	0	382	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.1	8.3	0.0	0.0	5.3	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	8.1	8.3	0.0	0.0	5.3	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	818	3872	0	0	2163		110	0	90			
V/C Ratio(X)	0.50	0.35	0.00	0.00	0.18		0.38	0.00	0.79			
Avail Cap(c_a), veh/h	983	3872	0	0	2163		225	0	183			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.63	0.63	0.00	0.00	0.43	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.1	2.1	0.0	0.0	5.7	0.0	57.2	0.0	59.1			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	13.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.6	0.0	0.0	1.5	0.0	1.3	0.0	2.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	2.3	0.0	0.0	5.8	0.0	59.3	0.0	73.0			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1754			382			113				
Approach Delay, s/veh		2.6			5.8			67.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.2	98.9				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.1	7.3				10.3		9.6				
Green Ext Time (p_c), s	1.1	2.8				14.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	77	346	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		100.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.34		0.23	0.20					0.98		0.38
Control Delay		26.1		17.3	17.1					84.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.1		17.3	17.1					84.7		6.2
LOS		C		B	B					F		A
Approach Delay		26.1			17.2							70.1
Approach LOS		C			B							E
Queue Length 50th (ft)		194		39	98					675		0
Queue Length 95th (ft)		235		66	127					#826		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023

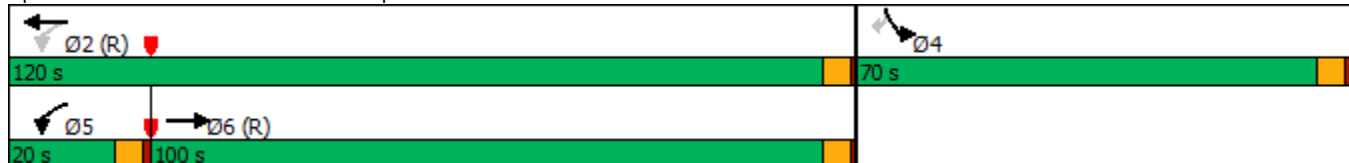


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2219		365	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.34		0.21	0.20					0.98		0.38

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 47.5
 Intersection LOS: D
 Intersection Capacity Utilization 81.3%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

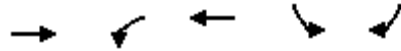
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	77	346	1052	240
v/c Ratio	0.34	0.23	0.20	0.98	0.38
Control Delay	26.1	17.3	17.1	84.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	17.3	17.1	84.7	6.2
Queue Length 50th (ft)	194	39	98	675	0
Queue Length 95th (ft)	235	66	127	#826	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2219	365	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.21	0.20	0.98	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4187		1500	2923					3130		1366
Flt Permitted		1.00		0.30	1.00					0.95		1.00
Satd. Flow (perm)		4187		469	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	703	57	77	346	0	0	0	0	1052	0	240
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	158
Lane Group Flow (vph)	0	755	0	77	346	0	0	0	0	1052	0	82
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		100.5		115.0	115.0					65.0		65.0
Effective Green, g (s)		100.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2214		335	1769					1070		467
v/s Ratio Prot		c0.18		c0.01	0.12					c0.34		
v/s Ratio Perm				0.13								0.06
v/c Ratio		0.34		0.23	0.20					0.98		0.18
Uniform Delay, d1		25.7		16.4	16.8					62.0		43.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.4		0.4	0.2					23.3		0.2
Delay (s)		26.1		16.8	17.0					85.3		43.9
Level of Service		C		B	B					F		D
Approach Delay (s)		26.1			17.0			0.0			77.6	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	51.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	77	346	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2245	181	377	1800	0				1079	0	471
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4236	330	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	496	264	77	346	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	17.7	17.9	4.1	9.9	0.0				62.2	0.0	26.3
Cycle Q Clear(g_c), s	0.0	17.7	17.9	4.1	9.9	0.0				62.2	0.0	26.3
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1586	839	377	1800	0				1079	0	471
V/C Ratio(X)	0.00	0.31	0.32	0.20	0.19	0.00				0.97	0.00	0.51
Avail Cap(c_a), veh/h	0	1586	839	448	1800	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.4	23.4	17.9	16.6	0.0				61.8	0.0	50.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.2	0.0				21.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.3	6.9	1.5	3.5	0.0				27.4	0.0	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.9	24.4	18.2	16.9	0.0				83.2	0.0	50.9
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		760			423						1292	
Approach Delay, s/veh		24.1			17.1						77.2	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.3		69.7	11.1	109.2						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		11.9		64.2	6.1	19.9						
Green Ext Time (p_c), s		2.5		0.5	0.1	5.8						
Intersection Summary												
HCM 6th Ctrl Delay				50.6								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

01/19/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	2	252	265	44
Future Volume (vph)	73	11	2	252	265	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	12	2	280	294	49
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

01/19/2023

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	73	11	2	252	265	44
Future Vol, veh/h	73	11	2	252	265	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	81	12	2	280	294	49























Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	578	-	294	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-	0
Stage 1	709	0	-	-	-	0
Stage 2	716	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	442	-	1279	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.184	-	-
HCM Control Delay (s)	7.8	-	15	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Future Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	10	42	0	0	743	0	12	79	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Future Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	10	0	42	0	743	0	12	79	0

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	475	846	40	807	846	372	79	0	0	743	0	0
Stage 1	103	103	-	743	743	-	-	-	-	-	-	-
Stage 2	372	743	-	64	103	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	477	301	1029	276	301	631	1532	-	-	873	-	-
Stage 1	897	814	-	378	425	-	-	-	-	-	-	-
Stage 2	626	425	-	945	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	440	297	1029	273	297	631	1532	-	-	873	-	-
Mov Cap-2 Maneuver	440	297	-	273	297	-	-	-	-	-	-	-
Stage 1	897	803	-	378	425	-	-	-	-	-	-	-
Stage 2	584	425	-	932	803	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	0		12.6			0		1.2		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	-	-	273	631	873	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.037	0.067	0.014	-	-
HCM Control Delay (s)	0	-	-	0	0	18.7	11.1	9.2	-	-
HCM Lane LOS	A	-	-	A	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1	0.2	0	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	268	4	1	155	20	0	1	1	48	1	122
Future Volume (vph)	143	268	4	1	155	20	0	1	1	48	1	122
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	302	0	1	194	0	0	2	0	53	137	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Vol, veh/h	143	268	4	1	155	20	0	1	1	48	1	122
Future Vol, veh/h	143	268	4	1	155	20	0	1	1	48	1	122
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	159	298	4	1	172	22	0	1	1	53	1	136




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	194	0	0	302	0	0	872	814	300	804	805	183
Stage 1	-	-	-	-	-	-	618	618	-	185	185	-
Stage 2	-	-	-	-	-	-	254	196	-	619	620	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1391	-	-	1259	-	-	271	312	740	304	316	865
Stage 1	-	-	-	-	-	-	477	481	-	821	747	-
Stage 2	-	-	-	-	-	-	750	739	-	480	480	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1391	-	-	1259	-	-	208	276	740	276	280	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	208	276	-	276	280	-
Stage 1	-	-	-	-	-	-	423	426	-	727	746	-
Stage 2	-	-	-	-	-	-	631	738	-	423	425	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0			14			13.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	402	1391	-	-	1259	-	-	276	851
HCM Lane V/C Ratio	0.006	0.114	-	-	0.001	-	-	0.193	0.161
HCM Control Delay (s)	14	7.9	-	-	7.9	-	-	21.1	10
HCM Lane LOS		B	A	-	-	A	-	C	B
HCM 95th %tile Q(veh)		0	0.4	-	-	0	-	0.7	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	632	861	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		25.1			14.4	14.4	40.6	34.0		77.6	74.4	
Actuated g/C Ratio		0.19			0.11	0.11	0.31	0.26		0.60	0.57	
v/c Ratio		0.00			0.73	0.70	0.00	1.31		1.32	0.47	
Control Delay		0.0			78.3	9.6	17.0	187.9		184.9	24.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			78.3	9.6	17.0	187.9		184.9	24.5	
LOS		A			E	A	B	F		F	C	
Approach Delay					23.1			187.8			92.4	
Approach LOS					C			F			F	
Queue Length 50th (ft)		0			107	0	0	~601		~755	237	
Queue Length 95th (ft)		0			#187	56	3	#740		m#647	m222	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		505			200	793	369	809		480	1847	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.66	0.68	0.00	1.31		1.32	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 109.4

Intersection LOS: F

Intersection Capacity Utilization 89.8%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd

Ø1	Ø2 (R)	Ø4	Ø8
33 s	40 s	21 s	36 s
Ø5	Ø6 (R)		
21 s	52 s		

Queues

15: Federal Way & Amity Rd

01/19/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	632	861
v/c Ratio	0.00	0.73	0.70	0.00	1.31	1.32	0.47
Control Delay	0.0	78.3	9.6	17.0	187.9	184.9	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	78.3	9.6	17.0	187.9	184.9	24.5
Queue Length 50th (ft)	0	107	0	0	-601	-755	237
Queue Length 95th (ft)	0	#187	56	3	#740	m#647	m222
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	505	200	793	369	809	480	1847
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.66	0.68	0.00	1.31	1.32	0.47

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		1487	3226	
Flt Permitted		0.98			0.95	1.00	0.33	1.00		0.11	1.00	
Satd. Flow (perm)		1638			1629	2614	592	3028		165	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	131	0	538	1	844	219	632	861	0
RTOR Reduction (vph)	0	2	0	0	0	478	0	18	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	131	60	1	1045	0	632	861	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)		24.0			14.4	14.4	34.1	33.0		75.6	69.5	
Effective Green, g (s)		24.0			14.4	14.4	34.1	33.0		75.6	69.5	
Actuated g/C Ratio		0.18			0.11	0.11	0.26	0.25		0.58	0.53	
Clearance Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		302			180	289	164	768		478	1724	
v/s Ratio Prot		c0.00			c0.08		0.00	0.35		c0.38	0.27	
v/s Ratio Perm						0.02	0.00			c0.39		
v/c Ratio		0.00			0.73	0.21	0.01	1.36		1.32	0.50	
Uniform Delay, d1		43.2			55.9	52.6	35.4	48.5		38.6	19.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.57	1.24	
Incremental Delay, d2		0.0			13.7	0.4	0.0	170.8		146.4	0.1	
Delay (s)		43.2			69.6	53.0	35.4	219.3		207.2	23.9	
Level of Service		D			E	D	D	F		F	C	
Approach Delay (s)		43.2			56.2			219.1			101.5	
Approach LOS		D			E			F			F	

Intersection Summary		
HCM 2000 Control Delay	130.8	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	0.99	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	89.8%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	538	1	844	219	632	861	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	2	0	2	211	0	323	446	1253	325	498	2198	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.12	0.04	0.50	0.50	0.22	0.67	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2520	654	1514	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	538	1	537	526	632	861	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	9.4	0.0	16.0	0.0	32.9	32.9	28.0	15.2	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	9.4	0.0	16.0	0.0	32.9	32.9	28.0	15.2	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	4	0	0	211	0	323	446	797	781	498	2198	0
V/C Ratio(X)	0.46	0.00	0.00	0.62	0.00	1.67	0.00	0.67	0.67	1.27	0.39	0.00
Avail Cap(c_a), veh/h	385	0	0	211	0	323	591	797	781	498	2198	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	64.7	0.0	0.0	54.1	0.0	57.0	14.0	24.7	24.7	30.3	9.4	0.0
Incr Delay (d2), s/veh	61.6	0.0	0.0	5.5	0.0	313.6	0.0	4.5	4.6	123.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.3	0.0	19.4	0.0	12.8	12.5	32.3	4.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.3	0.0	0.0	59.6	0.0	370.6	14.0	29.2	29.3	153.3	9.4	0.0
LnGrp LOS	F	A	A	E	A	F	B	C	C	F	A	A
Approach Vol, veh/h		2			669			1064			1493	
Approach Delay, s/veh		126.3			309.7			29.2			70.3	
Approach LOS		F			F			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	70.7		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	30.0	34.9		18.0	2.0	17.2		2.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	6.1		0.0				

Intersection Summary























HCM 6th Ctrl Delay	106.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	183	187	484	47	1012	370	662	1222	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		14.1		34.0	34.0	34.0	45.7	38.0	38.0	23.9	56.4	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.35	0.29	0.29	0.18	0.43	
v/c Ratio		0.42		3.59	4.25	0.67	0.35	1.05	0.67	1.19	0.93	
Control Delay		42.3		1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		42.3		1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0	
LOS		D		F	F	B	B	D	A	F	D	
Approach Delay		42.3			603.4			36.1			84.7	
Approach LOS		D			F			D			F	
Queue Length 50th (ft)		37		~289	~269	23	9	~477	0	~367	~541	
Queue Length 95th (ft)		71		#412	#434	137	m11	m258	m10	#489	#731	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

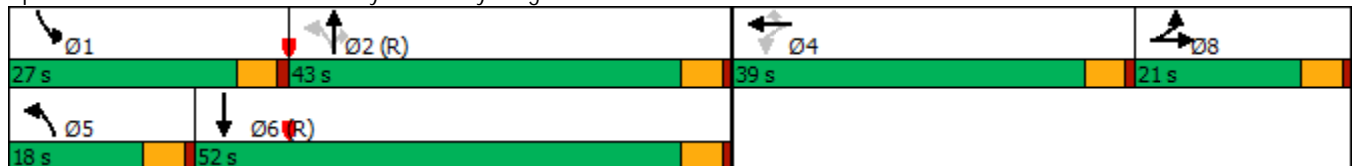


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		339		51	44	719	193	961	556	555	1309	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.38		3.59	4.25	0.67	0.24	1.05	0.67	1.19	0.93	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 4.25
 Intersection Signal Delay: 170.4 Intersection LOS: F
 Intersection Capacity Utilization 74.8% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	183	187	484	47	1012	370	662	1222
v/c Ratio	0.42	3.59	4.25	0.67	0.35	1.05	0.67	1.19	0.93
Control Delay	42.3	1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0
Queue Length 50th (ft)	37	~289	~269	23	9	~477	0	~367	~541
Queue Length 95th (ft)	71	#412	#434	137	m11	m258	m10	#489	#731
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	339	51	44	719	193	961	556	555	1309
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	3.59	4.25	0.67	0.24	1.05	0.67	1.19	0.93

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2498		1593	1596	1485	1437	3288	1417	3016	3017	
Flt Permitted		0.99		0.12	0.10	1.00	0.11	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2498		197	173	1485	172	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1012	370	662	1213	9
RTOR Reduction (vph)	0	32	0	0	0	331	0	0	142	0	1	0
Lane Group Flow (vph)	0	96	0	183	187	153	47	1012	228	662	1221	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		14.1		34.0	34.0	34.0	44.6	38.0	38.0	23.9	55.3	
Effective Green, g (s)		14.1		34.0	34.0	34.0	44.6	38.0	38.0	23.9	55.3	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.34	0.29	0.29	0.18	0.43	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		270		51	45	388	123	961	414	554	1283	
v/s Ratio Prot		c0.04					0.02	c0.31		c0.22	0.40	
v/s Ratio Perm				0.93	c1.08	0.10	0.11		0.16			
v/c Ratio		0.36		3.59	4.16	0.39	0.38	1.05	0.55	1.19	0.95	
Uniform Delay, d1		53.7		48.0	48.0	39.5	30.6	46.0	38.8	53.0	36.1	
Progression Factor		1.00		1.00	1.00	1.00	0.84	0.44	0.09	1.00	1.00	
Incremental Delay, d2		0.8		1211.7	1470.9	0.7	0.2	26.9	0.5	104.5	16.0	
Delay (s)		54.5		1259.7	1518.9	40.2	25.8	47.3	4.0	157.5	52.1	
Level of Service		D		F	F	D	C	D	A	F	D	
Approach Delay (s)		54.5			625.3			35.4			89.1	
Approach LOS		D			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	176.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.95	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	74.8%	ICU Level of Service
Analysis Period (min)	15	D
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	358	0	484	47	1012	370	662	1213	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	41	90	53	883	0	390	170	1183	511	519	1547	11
Arrive On Green	0.06	0.06	0.06	0.26	0.00	0.26	0.03	0.36	0.36	0.17	0.49	0.49
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	68	0	60	358	0	484	47	1012	370	662	596	626
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	36.8	29.2	22.0	41.6	41.6
Cycle Q Clear(g_c), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	36.8	29.2	22.0	41.6	41.6
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	96	0	88	883	0	390	170	1183	511	519	760	798
V/C Ratio(X)	0.71	0.00	0.68	0.41	0.00	1.24	0.28	0.86	0.72	1.28	0.78	0.78
Avail Cap(c_a), veh/h	202	0	186	883	0	390	270	1183	511	519	760	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.1	0.0	60.0	39.7	0.0	48.0	27.6	38.7	36.2	54.0	27.1	27.1
Incr Delay (d2), s/veh	9.2	0.0	9.0	0.3	0.0	129.0	0.1	0.8	0.8	138.5	7.9	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.2	4.8	0.0	26.6	0.9	14.6	10.0	18.1	15.6	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	0.0	69.0	40.0	0.0	177.0	27.6	39.5	37.1	192.5	35.0	34.7
LnGrp LOS	E	A	E	D	A	F	C	D	D	F	D	C
Approach Vol, veh/h		128			842			1429			1884	
Approach Delay, s/veh		69.2			118.7			38.5			90.2	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.4		39.0	9.1	69.3		12.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	24.0	38.8		36.0	4.6	43.6		7.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.1		0.4				

Intersection Summary

HCM 6th Ctrl Delay	77.9
HCM 6th LOS	E






















Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Build Conditions Analysis

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Future Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	62	32	0	0	198	0	90	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Future Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	79	46	62	32	0	0	198	0	90	0	67

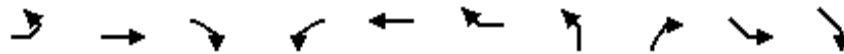
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	125	0	0		196	281	32
Stage 1	-	-	-	-	-	-		156	156	-
Stage 2	-	-	-	-	-	-		40	125	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1224	-	0		778	541	941
Stage 1	0	-	-	-	-	0		866	675	-
Stage 2	0	-	-	-	-	0		972	699	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1224	-	-		738	0	941
Mov Cap-2 Maneuver	-	-	-	-	-	-		738	0	-
Stage 1	-	-	-	-	-	-		866	0	-
Stage 2	-	-	-	-	-	-		922	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.3	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1224	-	738	941
HCM Lane V/C Ratio	-	-	0.051	-	0.122	0.071
HCM Control Delay (s)	-	-	8.1	-	10.6	9.1
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0.4	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↶			
Traffic Volume (vph)	38	227	0	0	84	64	0	0	0	0
Future Volume (vph)	38	227	0	0	84	64	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	42	252	0	0	93	71	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022

Intersection											
Int Delay, s/veh	0.8										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗↗			↗	↗↗	↘				
Traffic Vol, veh/h	38	227	0	0	84	64	0	0	0	0	
Future Vol, veh/h	38	227	0	0	84	64	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	42	252	0	0	93	71	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	164	0	-	-	-	0	465 126
Stage 1	-	-	-	-	-	-	336 -
Stage 2	-	-	-	-	-	-	129 -
Critical Hdwy	5.045	-	-	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43 -
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1089	-	0	0	-	-	541 901
Stage 1	-	-	0	0	-	-	697 -
Stage 2	-	-	0	0	-	-	896 -
Platoon blocked, %		-			-	-	
Mov Cap-1 Maneuver	1089	-	-	-	-	-	520 901
Mov Cap-2 Maneuver	-	-	-	-	-	-	520 -
Stage 1	-	-	-	-	-	-	670 -
Stage 2	-	-	-	-	-	-	896 -

Approach	EB	WB	NB
HCM Control Delay, s	1.2	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1089	-	-	-
HCM Lane V/C Ratio	-	0.039	-	-	-
HCM Control Delay (s)	0	8.4	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Future Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	1	0	0	1	0	14	163	0	0	0	150
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Future Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	250	1	0	0	1	0	14	163	0	0	0	150













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.8	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.182	-	-	-	-	-
HCM Control Delay (s)	8.9	9.9	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.7	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	16	68	290	74	39
Future Volume (vph)	103	16	68	290	74	39
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.5	7.5	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.25	0.25	0.63	0.63	0.63	0.63
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
LOS	B	A	A	A	A	A
Approach Delay	9.8		3.0			6.7
Approach LOS	A		A			A
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	5.1
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	18	76	322	82	43
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	16	68	290	74	39
Future Volume (vph)	103	16	68	290	74	39
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.71	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1179	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	18	76	322	82	43
RTOR Reduction (vph)	0	15	0	159	0	0
Lane Group Flow (vph)	114	3	76	163	82	43
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	4.7	4.7	16.1	16.1	16.1	16.1
Effective Green, g (s)	4.7	4.7	16.1	16.1	16.1	16.1
Actuated g/C Ratio	0.15	0.15	0.51	0.51	0.51	0.51
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	252	226	778	774	596	706
v/s Ratio Prot	c0.07		0.05			0.03
v/s Ratio Perm		0.00		c0.11	0.07	
v/c Ratio	0.45	0.01	0.10	0.21	0.14	0.06
Uniform Delay, d1	12.4	11.6	4.1	4.3	4.2	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.0	0.1	0.1	0.1	0.0
Delay (s)	13.7	11.6	4.1	4.5	4.3	4.0
Level of Service	B	B	A	A	A	A
Approach Delay (s)	13.4		4.4			4.2
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	31.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	103	16	68	290	74	39
Future Volume (veh/h)	103	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	114	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	228	203	423		684	377
Arrive On Green	0.13	0.13	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	114	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.1	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.1	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	228	203	423		684	377
V/C Ratio(X)	0.50	0.09	0.18		0.12	0.11
Avail Cap(c_a), veh/h	1950	1735	2368		2255	2113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	7.0	5.2	0.0	5.8	5.1
Incr Delay (d2), s/veh	1.7	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	7.2	5.4	0.0	5.9	5.2
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	132		76			125
Approach Delay, s/veh	8.9		5.4			5.6
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.1		3.7
Green Ext Time (p_c), s		0.3		0.3		0.4

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	20	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	20	0	53	0	33	55	709	148	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	39.6	0	7.7
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	49	1023	1520	-	-
HCM Lane V/C Ratio	-	-	-	-	0.408	0.052	0.466	-	-
HCM Control Delay (s)	0	-	-	0	122	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.2	2.6	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Future Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	108	0	0	1002	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	↕
Traffic Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Future Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	108	0	0	999	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1055	-	501	608	-	54	1002	0	-	-	-	0
Stage 1	1001	-	-	108	-	-	-	-	-	-	-	-
Stage 2	54	-	-	500	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	127	0	322	384	0	976	699	-	0	0	-	-
Stage 1	185	0	-	892	0	-	-	-	0	0	-	-
Stage 2	829	0	-	527	0	-	-	-	0	0	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	124	-	322	383	-	976	699	-	-	-	-	-
Mov Cap-2 Maneuver	164	-	-	451	-	-	-	-	-	-	-	-
Stage 1	185	-	-	892	-	-	-	-	-	-	-	-
Stage 2	811	-	-	525	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.6		9.3		0		0	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	699	-	164	322	451	976	-	-
HCM Lane V/C Ratio	-	-	0.014	0.003	0.007	0.021	-	-
HCM Control Delay (s)	0	-	27.3	16.2	13	8.8	-	-
HCM Lane LOS	A	-	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	272	96	550	0	261	56	38	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.1	87.3	87.3	97.8	89.8		14.6	28.5	28.5	19.7	13.9	
Actuated g/C Ratio	0.66	0.60	0.60	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.14	0.28	0.13	0.27		0.82	0.16	0.10	0.02	0.78	
Control Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.1			13.7			69.6			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	50	0	27	123		126	42	0	3	76	
Queue Length 95th (ft)	43	86	44	56	192		#192	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	671	1789	985	855	2052		326	379	410	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27		0.80	0.15	0.09	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 26.9
 Intersection LOS: C
 Intersection Capacity Utilization 53.5%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

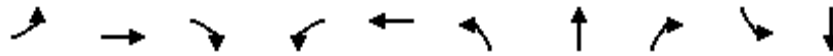
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	272	96	550	261	56	38	4	182
v/c Ratio	0.15	0.14	0.28	0.13	0.27	0.82	0.16	0.10	0.02	0.78
Control Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Length 50th (ft)	19	50	0	27	123	126	42	0	3	76
Queue Length 95th (ft)	43	86	44	56	192	#192	84	0	12	156
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	671	1789	985	855	2052	326	379	410	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27	0.80	0.15	0.09	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3312		3159	1748	1404	1710	1500	
Flt Permitted	0.43	1.00	1.00	0.59	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	624	2974	1457	1062	3312		3159	1748	1404	1297	1500	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	243	272	96	538	12	261	56	38	4	42	140
RTOR Reduction (vph)	0	0	108	0	0	0	0	0	31	0	90	0
Lane Group Flow (vph)	67	243	164	96	550	0	261	56	7	4	92	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	93.9	87.2	87.2	97.1	88.8		14.6	27.2	27.2	15.2	13.9	
Effective Green, g (s)	93.9	87.2	87.2	97.1	88.8		14.6	27.2	27.2	15.2	13.9	
Actuated g/C Ratio	0.65	0.60	0.60	0.67	0.61		0.10	0.19	0.19	0.10	0.10	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	438	1788	876	748	2028		318	327	263	139	143	
v/s Ratio Prot	0.01	0.08		c0.01	c0.17		c0.08	0.03		0.00	c0.06	
v/s Ratio Perm	0.09		0.11	0.08					0.01	0.00		
v/c Ratio	0.15	0.14	0.19	0.13	0.27		0.82	0.17	0.03	0.03	0.64	
Uniform Delay, d1	9.5	12.5	13.0	8.4	13.1		63.9	49.4	48.1	58.2	63.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.2	0.5	0.1	0.3		15.5	0.3	0.0	0.1	9.4	
Delay (s)	9.7	12.7	13.4	8.5	13.4		79.4	49.7	48.1	58.3	72.6	
Level of Service	A	B	B	A	B		E	D	D	E	E	
Approach Delay (s)		12.7			12.7			71.4			72.2	
Approach LOS		B			B			E			E	

Intersection Summary

HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	547	2082		872	2308		304	223		109	67	
Arrive On Green	0.03	0.69	0.00	0.03	0.69	0.00	0.10	0.13	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	547	2082		872	2308		304	223		109	67	
V/C Ratio(X)	0.12	0.12		0.11	0.23		0.86	0.25		0.04	0.63	
Avail Cap(c_a), veh/h	934	2082		1110	2308		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.2	7.6	0.0	5.9	8.3	0.0	64.6	57.1	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.2	0.0	18.6	0.6	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	0.0	0.8	3.1	0.0	5.5	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	7.7	0.0	6.0	8.5	0.0	83.3	57.7	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			634			317			46	
Approach Delay, s/veh		7.4			8.1			78.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	106.2	18.8	10.4	9.9	106.0	5.7	23.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.6	13.7	5.3	4.4	5.9	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.1	0.1	0.2	1.7	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	10.5	34.8	34.8	8.0	29.4	29.4	7.6	19.6	19.6	27.9	20.7	32.4
Actuated g/C Ratio	0.12	0.39	0.39	0.09	0.33	0.33	0.08	0.22	0.22	0.31	0.23	0.36
v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.30	0.11	0.02	0.46	0.54	0.70
Control Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
LOS	E	C	B	E	C	A	D	C	A	C	C	B
Approach Delay		30.0			26.9			32.1			24.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	89	57	131	47	155	0	21	15	0	65	106	60

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

10/27/2022

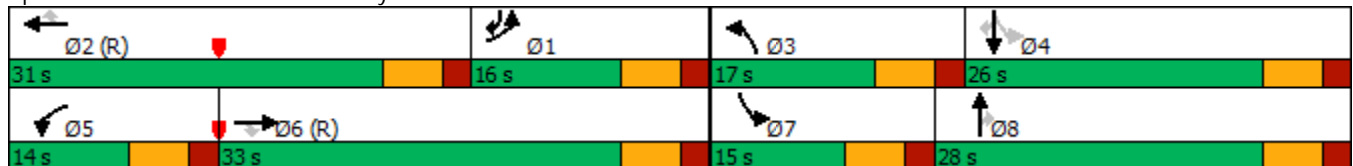


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#171	98	#348	#103	213	40	42	33	0	113	157	134
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1149	814	148	1055	607	378	720	566	387	830	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.21	0.10	0.02	0.46	0.50	0.70

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 27.5 Intersection LOS: C
 Intersection Capacity Utilization 71.2% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

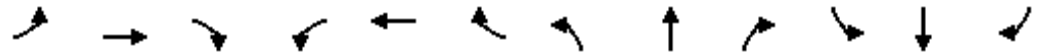
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.30	0.11	0.02	0.46	0.54	0.70
Control Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
Queue Length 50th (ft)	89	57	131	47	155	0	21	15	0	65	106	60
Queue Length 95th (ft)	#171	98	#348	#103	213	40	42	33	0	113	157	134
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1149	814	148	1055	607	378	720	566	387	830	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.21	0.10	0.02	0.46	0.50	0.70































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

10/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1044	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
RTOR Reduction (vph)	0	0	244	0	0	118	0	0	9	0	0	126
Lane Group Flow (vph)	301	345	373	84	589	50	78	69	2	178	419	298
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	11.8	32.4	32.4	6.4	27.0	27.0	6.5	17.6	17.6	30.3	20.7	32.5
Effective Green, g (s)	11.8	32.4	32.4	6.4	27.0	27.0	6.5	17.6	17.6	30.3	20.7	32.5
Actuated g/C Ratio	0.13	0.36	0.36	0.07	0.30	0.30	0.07	0.20	0.20	0.34	0.23	0.36
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	374	1070	540	119	967	445	223	576	299	415	771	484
v/s Ratio Prot	0.11	0.12		0.05	c0.18		0.03	0.02		c0.05	0.12	c0.08
v/s Ratio Perm			c0.25			0.03			0.00	0.10		0.14
v/c Ratio	0.80	0.32	0.69	0.71	0.61	0.11	0.35	0.12	0.01	0.43	0.54	0.62
Uniform Delay, d1	38.0	20.9	24.5	40.9	27.0	22.8	39.7	29.8	29.2	22.3	30.5	23.6
Progression Factor	0.94	0.90	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.8	6.8	17.3	2.9	0.5	1.0	0.1	0.0	0.7	0.8	2.3
Delay (s)	47.4	19.6	26.3	58.2	29.8	23.3	40.7	29.9	29.2	23.0	31.3	26.0
Level of Service	D	B	C	E	C	C	D	C	C	C	C	C
Approach Delay (s)		29.5			31.4			35.2			27.6	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			29.7									C
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0						24.0			
Intersection Capacity Utilization			71.2%									C
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	866	1326		132	715		150	348	177	370	568	633
Arrive On Green	0.10	0.14	0.00	0.08	0.22	0.00	0.05	0.12	0.12	0.10	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.7	9.1	0.0	4.3	15.5	0.0	2.2	1.9	0.6	8.4	10.6	4.7
Cycle Q Clear(g_c), s	8.7	9.1	0.0	4.3	15.5	0.0	2.2	1.9	0.6	8.4	10.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	866	1326		132	715		150	348	177	370	568	633
V/C Ratio(X)	0.35	0.26		0.64	0.82		0.52	0.20	0.06	0.48	0.74	0.67
Avail Cap(c_a), veh/h	866	1326		150	906		384	732	373	370	748	706
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	25.5	0.0	40.3	33.5	0.0	41.9	36.0	35.4	30.4	35.5	6.2
Incr Delay (d2), s/veh	0.2	0.5	0.0	6.4	9.3	0.0	2.8	0.3	0.1	1.0	2.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.6	0.0	2.0	6.8	0.0	0.9	0.7	0.2	3.3	4.4	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	26.0	0.0	46.7	42.8	0.0	44.6	36.2	35.5	31.3	38.2	8.3
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		29.1			43.3			40.3			24.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.8	25.8	10.3	21.2	13.0	45.5	15.0	16.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.7	17.5	4.2	12.6	6.3	11.1	10.4	3.9				
Green Ext Time (p_c), s	0.0	2.3	0.1	2.5	0.0	1.9	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1281	0	0	245	652	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.0	78.0			63.1	63.1	10.0		10.0			
Actuated g/C Ratio	0.84	0.87			0.70	0.70	0.11		0.11			
v/c Ratio	0.24	0.33			0.12	0.33	0.19		0.14			
Control Delay	2.8	2.4			3.8	0.8	39.6		1.4			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.8	2.4			3.8	0.8	39.6		1.4			
LOS	A	A			A	A	D		A			
Approach Delay		2.4			1.6			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	64			16	0	16		0			
Queue Length 95th (ft)	37	79			m26	3	42		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

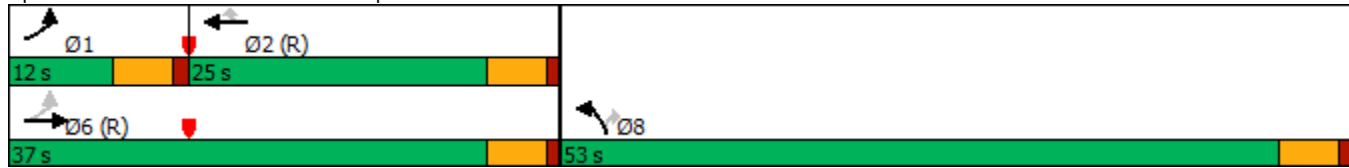


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	810	3907			2066	1959	766		677			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.24	0.33			0.12	0.33	0.04		0.04			

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 2.6
 Intersection LOS: A
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

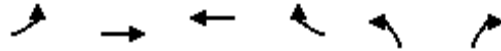
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

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Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1281	245	652	30	29
v/c Ratio	0.24	0.33	0.12	0.33	0.19	0.14
Control Delay	2.8	2.4	3.8	0.8	39.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	2.4	3.8	0.8	39.6	1.4
Queue Length 50th (ft)	21	64	16	0	16	0
Queue Length 95th (ft)	37	79	m26	3	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	810	3907	2066	1959	766	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.33	0.12	0.33	0.04	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.55	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	891	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Adj. Flow (vph)	192	1281	0	0	245	652	30	0	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	209	0	0	27	0	0	0
Lane Group Flow (vph)	192	1281	0	0	245	443	30	0	2	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	74.0	74.0			61.1	61.1	6.0		6.0			
Effective Green, g (s)	74.0	74.0			61.1	61.1	6.0		6.0			
Actuated g/C Ratio	0.82	0.82			0.68	0.68	0.07		0.07			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	788	3706			2001	1708	95		79			
v/s Ratio Prot	0.02	c0.28			0.08		c0.02					
v/s Ratio Perm	0.18					0.18			0.00			
v/c Ratio	0.24	0.35			0.12	0.26	0.32		0.02			
Uniform Delay, d1	1.8	2.0			5.1	5.6	40.0		39.3			
Progression Factor	1.00	1.00			0.63	0.58	1.00		1.00			
Incremental Delay, d2	0.2	0.3			0.1	0.3	1.9		0.1			
Delay (s)	2.0	2.2			3.3	3.6	42.0		39.4			
Level of Service	A	A			A	A	D		D			
Approach Delay (s)		2.2			3.5			40.7			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			3.6									A
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			90.0									15.0
Intersection Capacity Utilization			53.1%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1281	0	0	245	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	822	3670	0	0	2072		125	0	102			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1281	0	0	245	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.9	6.9	0.0	0.0	5.8	0.0	1.7	0.0	2.1			
Cycle Q Clear(g_c), s	2.9	6.9	0.0	0.0	5.8	0.0	1.7	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	822	3670	0	0	2072		125	0	102			
V/C Ratio(X)	0.23	0.35	0.00	0.00	0.12		0.24	0.00	0.28			
Avail Cap(c_a), veh/h	856	3670	0	0	2072		779	0	636			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	0.78	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.1	2.4	0.0	0.0	12.9	0.0	38.4	0.0	38.6			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.2	0.0	0.0	1.8	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.6	0.0	0.0	13.0	0.0	39.4	0.0	40.1			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1473			245			59				
Approach Delay, s/veh		2.7			13.0			39.7				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.9	7.8				8.9		4.1				
Green Ext Time (p_c), s	0.1	1.1				9.9		0.2				

Intersection Summary

HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		112.0		123.2	123.2					86.8		86.8
Actuated g/C Ratio		0.51		0.56	0.56					0.39		0.39
v/c Ratio		0.24		0.10	0.15					0.75		0.45
Control Delay		34.4		28.8	26.9					60.8		4.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		34.4		28.8	26.9					60.8		4.2
LOS		C		C	C					E		A
Approach Delay		34.4			27.2							45.7
Approach LOS		C			C							D
Queue Length 50th (ft)		146		24	80					628		0
Queue Length 95th (ft)		262		69	162					479		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022

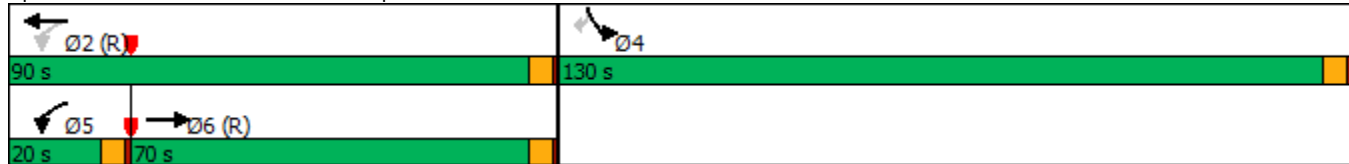


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2141		411	1636					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.24		0.09	0.15					0.52		0.36

Intersection Summary

Area Type: Other
 Cycle Length: 220
 Actuated Cycle Length: 220
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 40.4
 Intersection LOS: D
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15

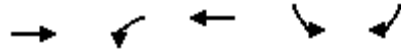
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.24	0.10	0.15	0.75	0.45
Control Delay	34.4	28.8	26.9	60.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	28.8	26.9	60.8	4.2
Queue Length 50th (ft)	146	24	80	628	0
Queue Length 95th (ft)	262	69	162	479	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2141	411	1636	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.09	0.15	0.52	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4203		1500	2923					3130		1366
Flt Permitted		1.00		0.40	1.00					0.95		1.00
Satd. Flow (perm)		4203		628	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	491	32	39	239	0	0	0	0	927	0	336
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	203
Lane Group Flow (vph)	0	521	0	39	239	0	0	0	0	927	0	133
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		111.0		123.2	123.2					86.8		86.8
Effective Green, g (s)		111.0		123.2	123.2					86.8		86.8
Actuated g/C Ratio		0.50		0.56	0.56					0.39		0.39
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2120		380	1636					1234		538
v/s Ratio Prot		c0.12		0.00	c0.08					c0.30		
v/s Ratio Perm				0.05								0.10
v/c Ratio		0.25		0.10	0.15					0.75		0.25
Uniform Delay, d1		30.8		22.3	23.2					57.3		44.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.3		0.1	0.2					2.6		0.2
Delay (s)		31.1		22.4	23.4					59.9		44.9
Level of Service		C		C	C					E		D
Approach Delay (s)		31.1			23.2			0.0			55.9	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2480	160	495	1895	0				1001	0	436
Arrive On Green	0.00	0.60	0.60	0.02	0.64	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	4308	269	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Cycle Q Clear(g_c), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1723	918	495	1895	0				1001	0	436
V/C Ratio(X)	0.00	0.20	0.20	0.08	0.13	0.00				0.93	0.00	0.77
Avail Cap(c_a), veh/h	0	1723	918	567	1895	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.4	20.4	16.3	15.6	0.0				72.8	0.0	68.1
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				4.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	4.6	0.8	2.5	0.0				25.4	0.0	34.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.6	20.9	16.4	15.7	0.0				77.5	0.0	70.9
LnGrp LOS	A	C	C	B	B	A				E	A	E
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		20.7			15.8						75.8	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		145.6		74.4	9.5	136.0						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		9.0		64.2	4.2	14.0						
Green Ext Time (p_c), s		1.7		5.2	0.0	3.7						
Intersection Summary												
HCM 6th Ctrl Delay			53.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/27/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	3	21	290	142	314
Future Volume (vph)	57	3	21	290	142	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	3	23	322	158	349
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 11: Technology Way & Circuit Ln

10/27/2022

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	57	3	21	290	142	314
Future Vol, veh/h	57	3	21	290	142	314
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	63	3	23	322	158	349

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	526	-	158	0	-
Stage 1	158	-	-	-	-
Stage 2	368	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	476	0	1434	-	-
Stage 1	820	0	-	-	-
Stage 2	654	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	468	-	1434	-	-
Mov Cap-2 Maneuver	468	-	-	-	-
Stage 1	807	-	-	-	-
Stage 2	654	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1434	-	468	-	-
HCM Lane V/C Ratio	0.016	-	0.135	-	-
HCM Control Delay (s)	7.6	-	13.9	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Future Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	105	0	2	13	0	12	72	0	134	597	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Future Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	6	56	49	2	0	13	12	69	3	134	590	7

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	921	958	299	686	960	36	597	0	0	72	0	0
Stage 1	862	862	-	95	95	-	-	-	-	-	-	-
Stage 2	59	96	-	591	865	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	229	259	703	338	259	1035	989	-	-	1541	-	-
Stage 1	320	375	-	907	820	-	-	-	-	-	-	-
Stage 2	951	819	-	465	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	209	234	703	238	234	1035	989	-	-	1541	-	-
Mov Cap-2 Maneuver	209	234	-	238	234	-	-	-	-	-	-	-
Stage 1	316	342	-	896	810	-	-	-	-	-	-	-
Stage 2	927	809	-	331	341	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	20.3		10.2			1.3			1.4		
HCM LOS	C		B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	989	-	-	209	340	238	1035	1541	-	-
HCM Lane V/C Ratio	0.012	-	-	0.027	0.307	0.009	0.013	0.087	-	-
HCM Control Delay (s)	8.7	-	-	22.7	20.2	20.3	8.5	7.6	-	-
HCM Lane LOS	A	-	-	C	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.3	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	113	2	0	191	24	0	1	0	11	0	145
Future Volume (vph)	90	113	2	0	191	24	0	1	0	11	0	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	128	0	0	239	0	0	1	0	12	161	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷		↶	↷	
Traffic Vol, veh/h	90	113	2	0	191	24	0	1	0	11	0	145
Future Vol, veh/h	90	113	2	0	191	24	0	1	0	11	0	145
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	100	126	2	0	212	27	0	1	0	12	0	161

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	128	0	0	633	566	127	554	554	226
Stage 1	-	-	-	-	-	-	327	327	-	226	226	-
Stage 2	-	-	-	-	-	-	306	239	-	328	328	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1340	-	-	1458	-	-	392	434	923	446	440	818
Stage 1	-	-	-	-	-	-	686	648	-	781	717	-
Stage 2	-	-	-	-	-	-	704	708	-	689	647	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1340	-	-	1458	-	-	297	401	923	420	407	818
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	401	-	420	407	-
Stage 1	-	-	-	-	-	-	635	599	-	722	717	-
Stage 2	-	-	-	-	-	-	565	708	-	636	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	0	14	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	401	1340	-	-	1458	-	-	420	818
HCM Lane V/C Ratio	0.003	0.075	-	-	-	-	-	0.029	0.197
HCM Control Delay (s)	14	7.9	-	-	0	-	-	13.8	10.5
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.1	0.7

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	193	556	0	673	0	351	656	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					15.3	15.3		38.5		62.3	61.3	
Actuated g/C Ratio					0.14	0.14		0.35		0.57	0.56	
v/c Ratio					0.85	0.66		0.62		0.90	0.37	
Control Delay					78.1	7.8		33.7		28.9	18.1	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					78.1	7.8		33.7		28.9	18.1	
LOS					E	A		C		C	B	
Approach Delay					25.9			33.7			21.9	
Approach LOS					C			C			C	
Queue Length 50th (ft)					134	0		216		181	178	
Queue Length 95th (ft)					#256	52		283		m#202	m168	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					236	855		1091		392	1796	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.82	0.65		0.62		0.90	0.37	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	115
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	26.4
Intersection LOS:	C
Intersection Capacity Utilization	59.9%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/27/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	193	556	673	351	656
v/c Ratio	0.85	0.66	0.62	0.90	0.37
Control Delay	78.1	7.8	33.7	28.9	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	7.8	33.7	28.9	18.1
Queue Length 50th (ft)	134	0	216	181	178
Queue Length 95th (ft)	#256	52	283	m#202	m168
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	236	855	1091	392	1796
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.65	0.62	0.90	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.




















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		1.00	0.95	
Frt					1.00	0.85		0.98		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3097		1487	3226	
Flt Permitted					0.95	1.00		1.00		0.24	1.00	
Satd. Flow (perm)					1629	2614		3097		375	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	193	0	556	0	604	69	351	656	0
RTOR Reduction (vph)	0	0	0	0	0	479	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	193	77	0	666	0	351	656	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)					15.3	15.3		37.5		60.3	60.3	
Effective Green, g (s)					15.3	15.3		37.5		60.3	60.3	
Actuated g/C Ratio					0.14	0.14		0.34		0.55	0.55	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					226	363		1055		385	1768	
v/s Ratio Prot					c0.12			0.21		c0.15	0.20	
v/s Ratio Perm						0.03				c0.35		
v/c Ratio					0.85	0.21		0.63		0.91	0.37	
Uniform Delay, d1					46.3	42.0		30.4		17.6	14.1	
Progression Factor					1.00	1.00		1.00		1.39	1.16	
Incremental Delay, d2					25.5	0.3		2.9		3.4	0.1	
Delay (s)					71.8	42.3		33.3		27.9	16.4	
Level of Service					E	D		C		C	B	
Approach Delay (s)		0.0			49.9			33.3			20.4	
Approach LOS		A			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			33.1		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					21.0		
Intersection Capacity Utilization			59.9%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	193	0	556	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	249	0	381	544	1752	200	567	2460	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.60	0.60	0.11	0.75	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2901	331	1514	3346	0
Grp Volume(v), veh/h	0	0	0	193	0	556	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1628	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.9	0.0	16.0	0.0	11.4	11.5	9.1	6.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.9	0.0	16.0	0.0	11.4	11.5	9.1	6.8	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	249	0	381	544	968	983	567	2460	0
V/C Ratio(X)	0.00	0.00	0.00	0.77	0.00	1.46	0.00	0.34	0.35	0.62	0.27	0.00
Avail Cap(c_a), veh/h	0	376	0	249	0	381	792	968	983	629	2460	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	45.3	0.0	47.0	0.0	10.9	10.9	7.0	4.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	14.0	0.0	220.1	0.0	1.0	1.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	5.9	0.0	16.9	0.0	3.8	3.9	2.2	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	59.3	0.0	267.1	0.0	11.9	11.9	7.2	4.2	0.0
LnGrp LOS	A	A	A	E	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			749			673			1007	
Approach Delay, s/veh		0.0			213.6			11.9			5.2	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.6	72.4		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	11.1	13.5		18.0	0.0	8.8		0.0				
Green Ext Time (p_c), s	0.5	3.7		0.0	0.0	4.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay	71.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	860	327	304	789	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		7.5		30.0	30.0	30.0	40.6	40.6	40.6	14.0	51.8	
Actuated g/C Ratio		0.07		0.27	0.27	0.27	0.37	0.37	0.37	0.13	0.47	
v/c Ratio		0.48		3.03	3.36	0.75	0.18	0.71	0.47	0.79	0.57	
Control Delay		47.6		975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		47.6		975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		47.6			451.4			15.5			35.5	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		21		~234	~243	83	7	136	0	108	230	
Queue Length 95th (ft)		46		#347	#361	224	m13	246	14	#173	310	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

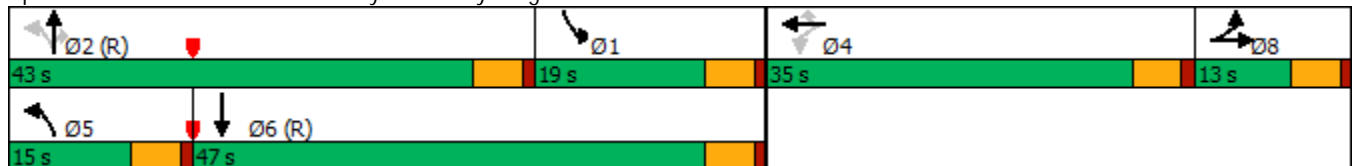


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		172		60	55	674	196	1213	691	383	1391	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.45		3.03	3.36	0.75	0.15	0.71	0.47	0.79	0.57	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.36
 Intersection Signal Delay: 139.8 Intersection LOS: F
 Intersection Capacity Utilization 69.1% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	860	327	304	789
v/c Ratio	0.48	3.03	3.36	0.75	0.18	0.71	0.47	0.79	0.57
Control Delay	47.6	975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0
Queue Length 50th (ft)	21	~234	~243	83	7	136	0	108	230
Queue Length 95th (ft)	46	#347	#361	224	m13	246	14	#173	310
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	172	60	55	674	196	1213	691	383	1391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	3.03	3.36	0.75	0.15	0.71	0.47	0.79	0.57

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↔	↔	↔	↔	↕↕	↔	↔↔	↕↕	↔↔
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2123		1593	1596	1485	1437	3288	1417	3016	2947	
Flt Permitted		0.97		0.13	0.12	1.00	0.16	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2123		224	204	1485	235	3288	1417	3016	2947	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	860	327	304	738	51
RTOR Reduction (vph)	0	18	0	0	0	270	0	0	176	0	4	0
Lane Group Flow (vph)	0	59	0	182	185	237	30	860	151	304	785	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Effective Green, g (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Actuated g/C Ratio		0.06		0.27	0.27	0.27	0.34	0.34	0.34	0.15	0.44	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		123		61	55	405	132	1123	484	438	1307	
v/s Ratio Prot		c0.03					0.01	c0.26		0.10	c0.27	
v/s Ratio Perm				0.81	c0.91	0.16	0.07		0.11			
v/c Ratio		0.48		2.98	3.36	0.59	0.23	0.77	0.31	0.69	0.60	
Uniform Delay, d1		50.2		40.0	40.0	34.6	26.0	32.3	26.7	44.7	23.2	
Progression Factor		1.00		1.00	1.00	1.00	0.60	0.56	0.17	1.00	1.00	
Incremental Delay, d2		2.9		935.0	1108.3	2.2	0.7	4.0	1.3	4.7	2.0	
Delay (s)		53.1		975.0	1148.3	36.8	16.4	22.2	5.9	49.4	25.3	
Level of Service		D		F	F	D	B	C	A	D	C	
Approach Delay (s)		53.1			467.4			17.7			32.0	
Approach LOS		D			F			B			C	

Intersection Summary		
HCM 2000 Control Delay	143.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.59	F
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	69.1%	ICU Level of Service
Analysis Period (min)	15	C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	68	25	40	920	0	406	162	1145	494	482	1386	96
Arrive On Green	0.04	0.04	0.04	0.27	0.00	0.27	0.03	0.35	0.35	0.16	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	358	0	507	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	25.2	21.3	10.2	19.5	19.6
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	25.2	21.3	10.2	19.5	19.6
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	68	0	64	920	0	406	162	1145	494	482	731	752
V/C Ratio(X)	0.67	0.00	0.48	0.39	0.00	1.25	0.19	0.75	0.66	0.63	0.53	0.53
Avail Cap(c_a), veh/h	116	0	110	920	0	406	255	1145	494	482	731	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	51.5	32.5	0.0	40.0	28.3	31.8	30.5	43.4	20.3	20.3
Incr Delay (d2), s/veh	11.0	0.0	5.5	0.3	0.0	130.6	0.4	3.4	5.0	2.6	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.9	3.9	0.0	25.7	0.6	10.2	7.7	3.9	6.8	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	0.0	56.9	32.8	0.0	170.6	28.7	35.2	35.6	46.0	23.0	23.0
LnGrp LOS	E	A	E	C	A	F	C	D	D	D	C	C
Approach Vol, veh/h		77			865			1217			1093	
Approach Delay, s/veh		60.5			113.6			35.1			29.4	
Approach LOS		E			F			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.2	27.2		32.0	3.6	21.6		5.1				
Green Ext Time (p_c), s	0.2	5.0		0.0	0.0	4.2		0.1				

Intersection Summary



















HCM 6th Ctrl Delay	54.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Future Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	0	177	68	0	0	90	0	31	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Future Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	54	57	177	68	0	0	90	0	31	0	94

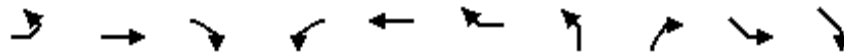
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	111	0	0				449	533	68
Stage 1	-	-	-	-	-	-				422	422	-
Stage 2	-	-	-	-	-	-				27	111	-
Critical Hdwy	-	-	-	4.745	-	-				6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-				5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-				3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1241	-	0				548	376	896
Stage 1	0	-	-	-	-	0				655	497	-
Stage 2	0	-	-	-	-	0				987	710	-
Platoon blocked, %	-	-	-	-	-	-				-	-	-
Mov Cap-1 Maneuver	-	-	-	1241	-	-				470	0	896
Mov Cap-2 Maneuver	-	-	-	-	-	-				470	0	-
Stage 1	-	-	-	-	-	-				655	0	-
Stage 2	-	-	-	-	-	-				846	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.1	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1241	-	470	896
HCM Lane V/C Ratio	-	-	0.142	-	0.066	0.105
HCM Control Delay (s)	-	-	8.4	-	13.2	9.5
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	-	0.2	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	36	97	0	0	216	205	0	0	0	0
Future Volume (vph)	36	97	0	0	216	205	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	40	108	0	0	240	228	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023

Intersection										
Int Delay, s/veh	0.6									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↘	↑↑			↑	↗↗	↘			
Traffic Vol, veh/h	36	97	0	0	216	205	0	0	0	0
Future Vol, veh/h	36	97	0	0	216	205	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	340	-	-	-	-	0	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2
Mvmt Flow	40	108	0	0	240	228	0	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	468	0	542
Stage 1	-	-	188
Stage 2	-	-	354
Critical Hdwy	5.045	-	6.63
Critical Hdwy Stg 1	-	-	5.83
Critical Hdwy Stg 2	-	-	5.43
Follow-up Hdwy	2.7985	-	3.519
Pot Cap-1 Maneuver	796	0	486
Stage 1	-	0	826
Stage 2	-	0	710
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	796	-	462
Mov Cap-2 Maneuver	-	-	462
Stage 1	-	-	785
Stage 2	-	-	710

Approach	EB	WB	NB
HCM Control Delay, s	2.6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	796	-	-	-
HCM Lane V/C Ratio	-	0.05	-	-	-
HCM Control Delay (s)	0	9.8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Future Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	0	0	0	1	0	33	84	0	0	1	432
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔				↔↔		↔	↑				↔↔
Traffic Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Future Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	106	0	0	0	1	0	33	84	0	1	0	432

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.3	9
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	891	-
HCM Lane V/C Ratio	0.035	0.094	-	-	-	0.001	-
HCM Control Delay (s)	9	9.4	0	-	-	9	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.3	-	-	-	0	-

Lanes, Volumes, Timings

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	266	120	49	122	17	74
Future Volume (vph)	266	120	49	122	17	74
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	10.4	10.4	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.34	0.34	0.29	0.29	0.29	0.29
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
LOS	B	A	A	A	A	B
Approach Delay	8.4		5.7			10.5
Approach LOS	A		A			B
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.4
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	8.0
Intersection LOS:	A
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	296	133	54	136	19	82
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	266	120	49	122	17	74
Future Volume (vph)	266	120	49	122	17	74
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.72	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1203	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	296	133	54	136	19	82
RTOR Reduction (vph)	0	87	0	97	0	0
Lane Group Flow (vph)	296	46	54	39	19	82
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	10.5	10.5	8.8	8.8	8.8	8.8
Effective Green, g (s)	10.5	10.5	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.35	0.35	0.29	0.29	0.29	0.29
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	592	530	446	444	349	405
v/s Ratio Prot	c0.17		0.04			c0.06
v/s Ratio Perm		0.03		0.03	0.02	
v/c Ratio	0.50	0.09	0.12	0.09	0.05	0.20
Uniform Delay, d1	7.8	6.7	7.9	7.8	7.8	8.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.1	0.1	0.1	0.2
Delay (s)	8.5	6.7	8.0	7.9	7.8	8.4
Level of Service	A	A	A	A	A	A
Approach Delay (s)	7.9		7.9			8.3
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	30.3	Sum of lost time (s)	11.0
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↶	↷	↶	↶
Traffic Volume (veh/h)	266	120	49	122	17	74
Future Volume (veh/h)	266	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	296	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	474	422	353		581	315
Arrive On Green	0.28	0.28	0.23	0.00	0.23	0.23
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	296	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	3.3	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	3.3	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	474	422	353		581	315
V/C Ratio(X)	0.62	0.32	0.15		0.03	0.26
Avail Cap(c_a), veh/h	1628	1449	1977		1918	1764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	6.3	6.9	0.0	7.2	7.0
Incr Delay (d2), s/veh	1.4	0.4	0.2	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.3	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.8	7.1	0.0	7.2	7.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	429		54			101
Approach Delay, s/veh	7.9		7.1			7.4
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		11.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		5.3		3.1
Green Ext Time (p_c), s		0.2		1.2		0.4

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘			↕		↙	↘	
Traffic Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	48	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

01/19/2023

Intersection												
Int Delay, s/veh	11.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	48	0	639	0	182	27	126	51	0





















Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	27.6		16.5			0			5.6		
HCM LOS	D		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	445	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.107	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	14.1	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	5.6	0.3	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Future Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	931	0	0	224	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗	↙		↗		↕			↕	
Traffic Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Future Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	931	0	0	223	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	690	-	112	1043	-	466	224	0	-	-	-	0
Stage 1	224	-	-	931	-	-	-	-	-	-	-	-
Stage 2	466	-	-	112	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	253	0	678	186	0	522	1357	-	0	0	-	-
Stage 1	638	0	-	291	0	-	-	-	0	0	-	-
Stage 2	437	0	-	887	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	180	-	678	186	-	522	1357	-	-	-	-	-
Mov Cap-2 Maneuver	257	-	-	253	-	-	-	-	-	-	-	-
Stage 1	638	-	-	291	-	-	-	-	-	-	-	-
Stage 2	311	-	-	887	-	-	-	-	-	-	-	-























Approach	EB		WB		NB			SB		
HCM Control Delay, s	19.1		14.7		0			0		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1357	-	257	-	253	522	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.004	0.289	-	-
HCM Control Delay (s)	0	-	19.1	0	19.3	14.7	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.2	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	597	239	42	411	0	327	51	92	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	105.9	95.5	95.5	92.4	84.9		15.0	26.7	26.7	15.1	9.1	
Actuated g/C Ratio	0.73	0.66	0.66	0.64	0.59		0.10	0.18	0.18	0.10	0.06	
v/c Ratio	0.46	0.30	0.23	0.08	0.21		1.00	0.16	0.25	0.05	0.68	
Control Delay	9.9	12.1	2.0	7.6	15.8		114.4	51.2	3.6	44.7	29.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.9	12.1	2.0	7.6	15.8		114.4	51.2	3.6	44.7	29.2	
LOS	A	B	A	A	B		F	D	A	D	C	
Approach Delay		9.4			15.0			85.8			29.9	
Approach LOS		A			B			F			C	
Queue Length 50th (ft)	69	118	0	9	87		-161	41	0	5	13	
Queue Length 95th (ft)	136	189	37	26	155		#267	83	15	19	82	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

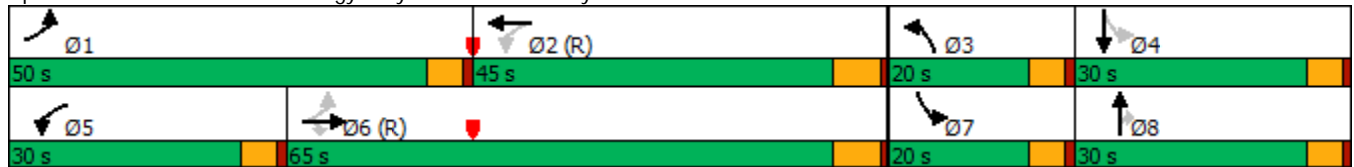


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	711	1958	1041	720	1938		326	321	368	258	357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.37	0.30	0.23	0.06	0.21		1.00	0.16	0.25	0.03	0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 28.5
 Intersection LOS: C
 Intersection Capacity Utilization 60.0%
 ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

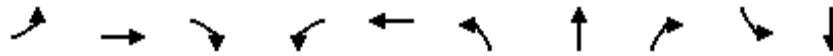
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	261	597	239	42	411	327	51	92	7	144
v/c Ratio	0.46	0.30	0.23	0.08	0.21	1.00	0.16	0.25	0.05	0.68
Control Delay	9.9	12.1	2.0	7.6	15.8	114.4	51.2	3.6	44.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	12.1	2.0	7.6	15.8	114.4	51.2	3.6	44.7	29.2
Queue Length 50th (ft)	69	118	0	9	87	~161	41	0	5	13
Queue Length 95th (ft)	136	189	37	26	155	#267	83	15	19	82
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	711	1958	1041	720	1938	326	321	368	258	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.30	0.23	0.06	0.21	1.00	0.16	0.25	0.03	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3310		3159	1748	1404	1710	1451	
Flt Permitted	0.46	1.00	1.00	0.43	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	675	2974	1457	767	3310		3159	1748	1404	1303	1451	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	597	239	42	400	11	327	51	92	7	14	130
RTOR Reduction (vph)	0	0	90	0	1	0	0	0	75	0	118	0
Lane Group Flow (vph)	261	597	149	42	410	0	327	51	17	7	26	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	100.9	90.5	90.5	86.2	80.8		15.0	26.7	26.7	14.5	13.1	
Effective Green, g (s)	100.9	90.5	90.5	86.2	80.8		15.0	26.7	26.7	14.5	13.1	
Actuated g/C Ratio	0.70	0.62	0.62	0.59	0.56		0.10	0.18	0.18	0.10	0.09	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	543	1856	909	491	1844		326	321	258	134	131	
v/s Ratio Prot	c0.05	0.20		0.00	0.12		c0.10	0.03		0.00	c0.02	
v/s Ratio Perm	c0.28		0.10	0.05					0.01	0.00		
v/c Ratio	0.48	0.32	0.16	0.09	0.22		1.00	0.16	0.07	0.05	0.20	
Uniform Delay, d1	8.6	12.8	11.4	12.2	16.2		65.0	49.7	48.8	59.0	61.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.5	0.4	0.1	0.3		50.6	0.2	0.1	0.2	0.7	
Delay (s)	9.3	13.3	11.8	12.3	16.5		115.6	49.9	49.0	59.1	61.8	
Level of Service	A	B	B	B	B		F	D	D	E	E	
Approach Delay (s)		12.0			16.1			95.4			61.7	
Approach LOS		B			B			F			E	
Intersection Summary												
HCM 2000 Control Delay			34.4	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			145.0	Sum of lost time (s)				21.0				
Intersection Capacity Utilization			60.0%	ICU Level of Service				B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖↖	↑	↖	↖	↗	
Traffic Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	261	597	0	42	400	0	327	51	0	7	14	0
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	641	2087		611	2132		331	224		109	59	
Arrive On Green	0.08	0.69	0.00	0.03	0.64	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	261	597	0	42	400	0	327	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	8.9	11.0	0.0	1.2	7.1	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Cycle Q Clear(g_c), s	8.9	11.0	0.0	1.2	7.1	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	641	2087		611	2132		331	224		109	59	
V/C Ratio(X)	0.41	0.29		0.07	0.19		0.99	0.23		0.06	0.24	
Avail Cap(c_a), veh/h	961	2087		858	2132		331	303		272	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.8	8.6	0.0	8.3	10.8	0.0	64.9	56.8	0.0	66.9	68.4	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	46.4	0.5	0.0	0.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.6	0.0	0.5	2.7	0.0	8.1	1.7	0.0	0.3	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	8.9	0.0	8.4	11.0	0.0	111.3	57.3	0.0	67.2	70.5	0.0
LnGrp LOS	A	A		A	B		F	E		E	E	
Approach Vol, veh/h		858			442			378			21	
Approach Delay, s/veh		8.4			10.7			104.0			69.4	
Approach LOS		A			B			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	98.5	20.0	9.7	9.1	106.2	6.2	23.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	10.9	9.1	16.8	3.1	3.2	13.0	2.6	5.8				
Green Ext Time (p_c), s	0.8	2.7	0.0	0.0	0.1	4.6	0.0	0.1				

Intersection Summary

























HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	45.0	75.0	75.0	14.0	44.0	44.0	46.0	48.0	48.0	43.0	45.0	45.0
Total Split (%)	25.0%	41.7%	41.7%	7.8%	24.4%	24.4%	25.6%	26.7%	26.7%	23.9%	25.0%	25.0%
Maximum Green (s)	40.0	70.0	70.0	9.0	39.0	39.0	41.0	43.0	43.0	38.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	39.6	85.2	85.2	8.0	45.8	45.8	39.8	40.8	40.8	68.7	34.8	79.4
Actuated g/C Ratio	0.22	0.47	0.47	0.04	0.25	0.25	0.22	0.23	0.23	0.38	0.19	0.44
v/c Ratio	0.97	0.50	0.21	0.16	0.75	0.31	0.95	0.59	0.16	0.85	0.16	0.92
Control Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
LOS	F	D	A	F	E	B	F	E	A	D	E	E
Approach Delay		58.0			60.8			77.6			59.9	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	367	300	0	14	375	29	393	211	0	304	52	552

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

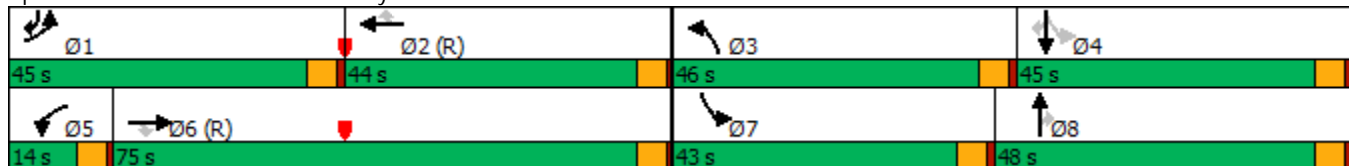


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#482	414	50	39	#475	97	#507	280	13	407	83	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	650	1407	796	83	820	459	706	743	462	484	745	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.50	0.21	0.14	0.75	0.31	0.92	0.53	0.15	0.78	0.14	0.90

Intersection Summary

Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	63.9
Intersection LOS:	E
Intersection Capacity Utilization	79.6%
ICU Level of Service	D
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
v/c Ratio	0.97	0.50	0.21	0.16	0.75	0.31	0.95	0.59	0.16	0.85	0.16	0.92
Control Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
Queue Length 50th (ft)	367	300	0	14	375	29	393	211	0	304	52	552
Queue Length 95th (ft)	#482	414	50	39	#475	97	#507	280	13	407	83	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	650	1407	796	83	820	459	706	743	462	484	745	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.50	0.21	0.14	0.75	0.31	0.92	0.53	0.15	0.78	0.14	0.90





























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 		 		
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	713	3353	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
RTOR Reduction (vph)	0	0	89	0	0	82	0	0	53	0	0	25
Lane Group Flow (vph)	607	704	75	12	616	58	652	394	16	379	103	538
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	39.6	82.1	82.1	3.2	45.7	45.7	39.8	40.8	40.8	68.8	34.9	74.5
Effective Green, g (s)	39.6	82.1	82.1	3.2	45.7	45.7	39.8	40.8	40.8	68.8	34.9	74.5
Actuated g/C Ratio	0.22	0.46	0.46	0.02	0.25	0.25	0.22	0.23	0.23	0.38	0.19	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	629	1356	684	29	819	377	685	668	346	447	650	592
v/s Ratio Prot	c0.21	0.24		0.01	c0.19		c0.21	0.13		0.16	0.03	c0.20
v/s Ratio Perm			0.05			0.04			0.01	0.16		0.20
v/c Ratio	0.97	0.52	0.11	0.41	0.75	0.15	0.95	0.59	0.05	0.85	0.16	0.91
Uniform Delay, d1	69.5	34.9	28.0	87.5	61.9	52.1	69.2	62.1	54.4	44.9	60.3	49.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.0	1.4	0.3	3.5	6.3	0.9	22.9	0.9	0.0	13.4	0.0	17.5
Delay (s)	96.5	36.3	28.3	90.9	68.2	53.0	92.1	63.0	54.4	58.3	60.4	67.1
Level of Service	F	D	C	F	E	D	F	E	D	E	E	E
Approach Delay (s)		60.2			65.8			79.5			63.2	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			66.8	HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			180.0	Sum of lost time (s)				20.0				
Intersection Capacity Utilization			79.6%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	607	704	0	12	616	0	652	394	69	379	103	563
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	635	1294		34	752		685	757	386	479	748	598
Arrive On Green	0.22	0.43	0.00	0.02	0.23	0.00	0.22	0.25	0.25	0.19	0.22	0.22
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	607	704	0	12	616	0	652	394	69	379	103	563
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	37.1	31.3	0.0	1.3	32.3	0.0	36.8	20.4	6.4	31.4	4.4	40.0
Cycle Q Clear(g_c), s	37.1	31.3	0.0	1.3	32.3	0.0	36.8	20.4	6.4	31.4	4.4	40.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	635	1294		34	752		685	757	386	479	748	598
V/C Ratio(X)	0.96	0.54		0.35	0.82		0.95	0.52	0.18	0.79	0.14	0.94
Avail Cap(c_a), veh/h	647	1294		84	752		716	757	386	518	748	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.81	0.81	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.5	38.3	0.0	87.0	65.7	0.0	69.4	57.8	52.6	41.7	56.2	48.1
Incr Delay (d2), s/veh	23.5	1.5	0.0	1.9	8.0	0.0	21.6	0.3	0.1	6.7	0.0	22.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	12.0	0.0	0.6	14.3	0.0	16.8	7.7	2.5	13.7	1.9	27.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.0	39.9	0.0	88.9	73.7	0.0	91.1	58.2	52.7	48.4	56.2	71.1
LnGrp LOS	F	D		F	E		F	E	D	D	E	E
Approach Vol, veh/h		1311			628			1115			1045	
Approach Delay, s/veh		64.5			74.0			77.1			61.4	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.3	46.5	44.2	45.0	8.6	82.2	38.7	50.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	40.0	39.0	41.0	40.0	9.0	70.0	38.0	43.0				
Max Q Clear Time (g_c+I1), s	39.1	34.3	38.8	42.0	3.3	33.3	33.4	22.4				
Green Ext Time (p_c), s	0.2	1.3	0.4	0.0	0.0	3.4	0.3	1.6				

Intersection Summary

HCM 6th Ctrl Delay	68.6
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/19/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1396	0	0	422	1192	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.2	113.2			94.6	94.6	10.8		10.8			
Actuated g/C Ratio	0.86	0.87			0.73	0.73	0.08		0.08			
v/c Ratio	0.55	0.36			0.20	0.55	0.35		0.43			
Control Delay	5.1	2.4			7.0	1.5	64.6		20.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.1	2.4			7.0	1.5	64.6		20.6			
LOS	A	A			A	A	E		C			
Approach Delay		3.0			3.0			37.0				
Approach LOS		A			A			D				
Queue Length 50th (ft)	54	72			56	0	34		0			
Queue Length 95th (ft)	95	102			97	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	810	3926			2144	2155	221		243			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.50	0.36			0.20	0.55	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	4.1
Intersection LOS:	A
Intersection Capacity Utilization	82.7%
ICU Level of Service	E
Analysis Period (min)	15

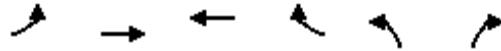
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1396	422	1192	42	71
v/c Ratio	0.55	0.36	0.20	0.55	0.35	0.43
Control Delay	5.1	2.4	7.0	1.5	64.6	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	2.4	7.0	1.5	64.6	20.6
Queue Length 50th (ft)	54	72	56	0	34	0
Queue Length 95th (ft)	95	102	97	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	810	3926	2144	2155	221	243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.36	0.20	0.55	0.19	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗				
Traffic Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0	
Future Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00				
Frt	1.00	1.00			1.00	0.85	1.00		0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195				
Flt Permitted	0.48	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (perm)	770	4508			2948	2517	1437		1195				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00	
Adj. Flow (vph)	407	1396	0	0	422	1192	42	0	71	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	335	0	0	66	0	0	0	
Lane Group Flow (vph)	407	1396	0	0	422	857	42	0	5	0	0	0	
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%	
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm				
Protected Phases	1	6			2		8						
Permitted Phases	6					2			8				
Actuated Green, G (s)	111.2	111.2			93.5	93.5	8.8		8.8				
Effective Green, g (s)	111.2	111.2			93.5	93.5	8.8		8.8				
Actuated g/C Ratio	0.86	0.86			0.72	0.72	0.07		0.07				
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	732	3856			2120	1810	97		80				
v/s Ratio Prot	c0.05	0.31			0.14		c0.03						
v/s Ratio Perm	c0.42					0.34			0.00				
v/c Ratio	0.56	0.36			0.20	0.47	0.43		0.06				
Uniform Delay, d1	2.1	2.0			6.0	7.8	58.2		56.7				
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00				
Incremental Delay, d2	0.9	0.3			0.2	0.9	3.1		0.3				
Delay (s)	3.0	2.2			6.2	8.7	61.3		57.0				
Level of Service	A	A			A	A	E		E				
Approach Delay (s)		2.4			8.0			58.6			0.0		
Approach LOS		A			A			E			A		
Intersection Summary													
HCM 2000 Control Delay			6.8		HCM 2000 Level of Service				A				
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				15.0				
Intersection Capacity Utilization			82.7%		ICU Level of Service				E				
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1396	0	0	422	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	791	3872	0	0	2163		110	0	90			
Arrive On Green	0.09	0.85	0.00	0.00	0.72	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1396	0	0	422	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.1	8.7	0.0	0.0	5.9	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	8.1	8.7	0.0	0.0	5.9	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	791	3872	0	0	2163		110	0	90			
V/C Ratio(X)	0.51	0.36	0.00	0.00	0.20		0.38	0.00	0.79			
Avail Cap(c_a), veh/h	956	3872	0	0	2163		225	0	183			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	0.37	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.2	2.2	0.0	0.0	5.8	0.0	57.2	0.0	59.1			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	13.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.7	0.0	0.0	1.7	0.0	1.3	0.0	2.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	2.3	0.0	0.0	5.9	0.0	59.3	0.0	73.0			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1803			422			113				
Approach Delay, s/veh		2.6			5.9			67.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.2	98.9				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.1	7.9				10.7		9.6				
Green Ext Time (p_c), s	1.1	3.1				15.4		0.2				

Intersection Summary













HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	77	387	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		2.0		2.0	2.0					2.0		2.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		101.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.35		0.24	0.22					1.01		0.38
Control Delay		25.8		17.5	17.5					89.9		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		25.8		17.5	17.5					89.9		6.2
LOS		C		B	B					F		A
Approach Delay		25.8			17.5							74.6
Approach LOS		C			B							E
Queue Length 50th (ft)		200		39	112					-705		0
Queue Length 95th (ft)		241		66	143					#859		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023

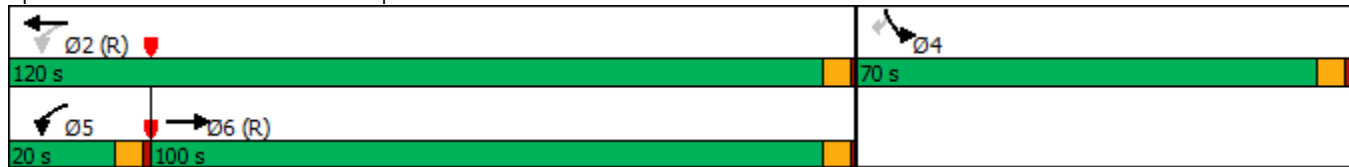


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2241		358	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.35		0.22	0.22					1.01		0.38

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 49.3
 Intersection LOS: D
 Intersection Capacity Utilization 82.7%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

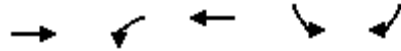
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	77	387	1077	240
v/c Ratio	0.35	0.24	0.22	1.01	0.38
Control Delay	25.8	17.5	17.5	89.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	17.5	17.5	89.9	6.2
Queue Length 50th (ft)	200	39	112	~705	0
Queue Length 95th (ft)	241	66	143	#859	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2241	358	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.22	0.22	1.01	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4189		1500	2923					3130		1366
Flt Permitted		1.00		0.29	1.00					0.95		1.00
Satd. Flow (perm)		4189		456	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	728	57	77	387	0	0	0	0	1077	0	240
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	158
Lane Group Flow (vph)	0	781	0	77	387	0	0	0	0	1077	0	82
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		101.5		115.0	115.0					65.0		65.0
Effective Green, g (s)		101.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		2.0		2.0	2.0					2.0		2.0
Lane Grp Cap (vph)		2237		322	1769					1070		467
v/s Ratio Prot		c0.19		0.01	c0.13					c0.34		
v/s Ratio Perm				0.13								0.06
v/c Ratio		0.35		0.24	0.22					1.01		0.18
Uniform Delay, d1		25.3		16.5	17.1					62.5		43.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.4		0.1	0.3					29.1		0.1
Delay (s)		25.8		16.6	17.3					91.6		43.8
Level of Service		C		B	B					F		D
Approach Delay (s)		25.8			17.2			0.0			82.9	
Approach LOS		C			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			53.5			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			190.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			82.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	77	387	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2245	175	367	1796	0				1084	0	473
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4248	320	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	512	273	77	387	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	18.5	18.7	4.1	11.3	0.0				64.3	0.0	26.3
Cycle Q Clear(g_c), s	0.0	18.5	18.7	4.1	11.3	0.0				64.3	0.0	26.3
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1582	838	367	1796	0				1084	0	473
V/C Ratio(X)	0.00	0.32	0.33	0.21	0.22	0.00				0.99	0.00	0.51
Avail Cap(c_a), veh/h	0	1582	838	438	1796	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.7	23.7	18.1	17.0	0.0				62.3	0.0	49.8
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.1	0.3	0.0				25.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	7.2	1.5	4.0	0.0				28.9	0.0	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.2	24.8	18.2	17.3	0.0				87.8	0.0	50.1
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		785			464						1317	
Approach Delay, s/veh		24.4			17.5						81.0	
Approach LOS		C			B						F	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.0		70.0	11.1	108.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		13.3		66.3	6.1	20.7						
Green Ext Time (p_c), s		1.8		0.0	0.0	3.6						
Intersection Summary												
HCM 6th Ctrl Delay				52.2								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

01/19/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	149	11	2	252	265	88
Future Volume (vph)	149	11	2	252	265	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	12	2	280	294	98
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

01/19/2023

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗	↘	↗	↗	↘
Traffic Vol, veh/h	149	11	2	252	265	88
Future Vol, veh/h	149	11	2	252	265	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	166	12	2	280	294	98

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	578	-	294	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-	0
Stage 1	709	0	-	-	-	0
Stage 2	716	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	442	-	1279	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.375	-	-
HCM Control Delay (s)	7.8	-	17.9	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Future Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45				45
Link Distance (ft)		273			287			1256				2303
Travel Time (s)		9.3			9.8			19.0				34.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	7	0	3	70	0	50	806	0	24	114	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Future Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	119	0	7	3	56	14	50	806	0	24	114	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	693	1068	57	1011	1068	403	114	0	0	806	0	0
Stage 1	162	162	-	906	906	-	-	-	-	-	-	-
Stage 2	531	906	-	105	162	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	334	223	1004	197	223	603	1488	-	-	828	-	-
Stage 1	830	768	-	301	358	-	-	-	-	-	-	-
Stage 2	505	358	-	895	768	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	247	209	1004	187	209	603	1488	-	-	828	-	-
Mov Cap-2 Maneuver	247	209	-	187	209	-	-	-	-	-	-	-
Stage 1	802	746	-	291	346	-	-	-	-	-	-	-
Stage 2	400	346	-	863	746	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	31.1		25.7			0.4			1.7		
HCM LOS	D		D								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	247	1004	187	242	828	-	-
HCM Lane V/C Ratio	0.034	-	-	0.481	0.007	0.018	0.289	0.03	-	-
HCM Control Delay (s)	7.5	-	-	32.4	8.6	24.6	25.8	9.5	-	-
HCM Lane LOS	A	-	-	D	A	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0	0.1	1.2	0.1	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	287	4	1	166	20	0	1	1	48	1	133
Future Volume (vph)	162	287	4	1	166	20	0	1	1	48	1	133
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	323	0	1	206	0	0	2	0	53	149	0
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Vol, veh/h	162	287	4	1	166	20	0	1	1	48	1	133
Future Vol, veh/h	162	287	4	1	166	20	0	1	1	48	1	133
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	180	319	4	1	184	22	0	1	1	53	1	148




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	206	0	0	323	0	0	953	889	321	879	880	195
Stage 1	-	-	-	-	-	-	681	681	-	197	197	-
Stage 2	-	-	-	-	-	-	272	208	-	682	683	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1377	-	-	1237	-	-	239	282	720	270	286	851
Stage 1	-	-	-	-	-	-	440	450	-	809	738	-
Stage 2	-	-	-	-	-	-	734	730	-	443	449	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1377	-	-	1237	-	-	177	245	720	242	248	851
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	245	-	242	248	-
Stage 1	-	-	-	-	-	-	382	391	-	703	737	-
Stage 2	-	-	-	-	-	-	605	729	-	383	390	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	2.9		0		14.9		13.8	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	366	1377	-	-	1237	-	-	242	836
HCM Lane V/C Ratio	0.006	0.131	-	-	0.001	-	-	0.22	0.178
HCM Control Delay (s)	14.9	8	-	-	7.9	-	-	24	10.2
HCM Lane LOS		B	A	-	-	A	-	C	B
HCM 95th %tile Q(veh)		0	0.5	-	-	0	-	0.8	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	143	538	1	1106	0	632	873	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		20.1			14.1	14.1	40.6	34.0		63.0	59.8	
Actuated g/C Ratio		0.18			0.13	0.13	0.37	0.31		0.57	0.54	
v/c Ratio		0.00			0.69	0.67	0.00	1.16		1.71	0.50	
Control Delay		0.0			62.9	8.3	14.0	117.0		354.2	20.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			62.9	8.3	14.0	117.0		354.2	20.1	
LOS		A			E	A	B	F		F	C	
Approach Delay					19.7			116.9			160.4	
Approach LOS					B			F			F	
Queue Length 50th (ft)		0			96	0	0	~480		~691	214	
Queue Length 95th (ft)		0			164	52	3	#614		#916	333	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

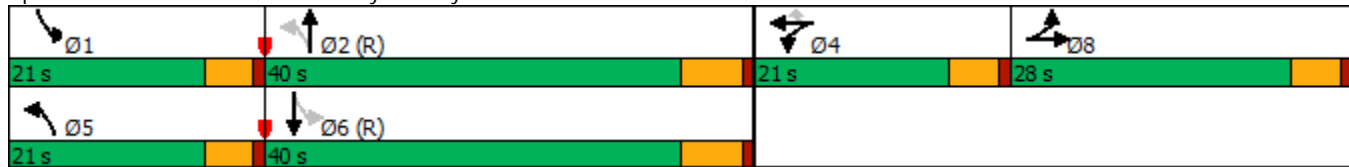


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		452			236	839	434	956		370	1755	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.61	0.64	0.00	1.16		1.71	0.50	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.71
 Intersection Signal Delay: 116.6
 Intersection LOS: F
 Intersection Capacity Utilization 92.2%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/19/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	143	538	1	1106	632	873
v/c Ratio	0.00	0.69	0.67	0.00	1.16	1.71	0.50
Control Delay	0.0	62.9	8.3	14.0	117.0	354.2	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	62.9	8.3	14.0	117.0	354.2	20.1
Queue Length 50th (ft)	0	96	0	0	-480	-691	214
Queue Length 95th (ft)	0	164	52	3	#614	#916	333
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	452	236	839	434	956	370	1755
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.61	0.64	0.00	1.16	1.71	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3021		1487	3226	
Flt Permitted		0.98			0.95	1.00	0.33	1.00		0.11	1.00	
Satd. Flow (perm)		1638			1629	2614	585	3021		165	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	143	0	538	1	866	240	632	873	0
RTOR Reduction (vph)	0	2	0	0	0	469	0	23	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	69	1	1083	0	632	873	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)		19.0			14.1	14.1	34.0	32.9		60.9	54.8	
Effective Green, g (s)		19.0			14.1	14.1	34.0	32.9		60.9	54.8	
Actuated g/C Ratio		0.17			0.13	0.13	0.31	0.30		0.55	0.50	
Clearance Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		282			208	335	192	903		367	1607	
v/s Ratio Prot		c0.00			c0.09		0.00	0.36		c0.36	0.27	
v/s Ratio Perm						0.03	0.00			c0.59		
v/c Ratio		0.00			0.69	0.21	0.01	1.20		1.72	0.54	
Uniform Delay, d1		37.6			45.8	42.9	26.3	38.5		33.8	19.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			9.1	0.3	0.0	100.4		336.2	1.3	
Delay (s)		37.7			54.9	43.2	26.3	138.9		370.0	20.3	
Level of Service		D			D	D	C	F		F	C	
Approach Delay (s)		37.7			45.7			138.8			167.2	
Approach LOS		D			D			F			F	

Intersection Summary

HCM 2000 Control Delay	132.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	143	0	538	1	866	240	632	873	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	2	0	2	249	0	381	450	1279	354	402	2006	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.05	0.52	0.52	0.15	0.62	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2481	687	1514	3346	0
Grp Volume(v), veh/h	2	0	0	143	0	538	1	559	547	632	873	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1564	1514	1630	0
Q Serve(g_s), s	0.1	0.0	0.0	8.6	0.0	16.0	0.0	28.6	28.6	16.0	15.5	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	8.6	0.0	16.0	0.0	28.6	28.6	16.0	15.5	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	4	0	0	249	0	381	450	826	806	402	2006	0
V/C Ratio(X)	0.46	0.00	0.00	0.57	0.00	1.41	0.00	0.68	0.68	1.57	0.44	0.00
Avail Cap(c_a), veh/h	338	0	0	249	0	381	621	826	806	402	2006	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	54.8	0.0	0.0	43.8	0.0	47.0	10.7	19.8	19.8	23.3	11.1	0.0
Incr Delay (d2), s/veh	60.9	0.0	0.0	3.2	0.0	199.8	0.0	4.4	4.6	258.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	15.8	0.0	10.7	10.5	34.0	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.6	0.0	0.0	47.0	0.0	246.8	10.7	24.3	24.4	281.3	11.2	0.0
LnGrp LOS	F	A	A	D	A	F	B	C	C	F	B	A
Approach Vol, veh/h		2			681			1107			1505	
Approach Delay, s/veh		115.6			204.8			24.3			124.6	
Approach LOS		F			F			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	62.7		21.0	10.0	73.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	18.0	30.6		18.0	2.0	17.5		2.1				
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	5.1		0.0				

Intersection Summary























HCM 6th Ctrl Delay	107.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	183	187	484	47	1033	370	662	1234	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		13.9		34.0	34.0	34.0	44.8	38.0	38.0	24.1	57.4	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.34	0.29	0.29	0.19	0.44	
v/c Ratio		0.43		3.59	4.25	0.67	0.37	1.07	0.67	1.18	0.93	
Control Delay		42.5		1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		42.5		1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3	
LOS		D		F	F	B	C	F	C	F	D	
Approach Delay		42.5			603.4			74.9			82.1	
Approach LOS		D			F			E			F	
Queue Length 50th (ft)		37		~289	~269	23	20	~508	129	~367	538	
Queue Length 95th (ft)		71		#412	#434	137	42	#644	247	#489	#731	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

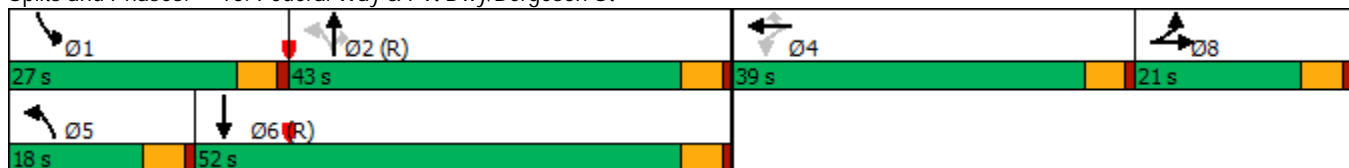


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		339		51	44	719	195	961	553	560	1332	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.38		3.59	4.25	0.67	0.24	1.07	0.67	1.18	0.93	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 4.25
 Intersection Signal Delay: 181.4 Intersection LOS: F
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	183	187	484	47	1033	370	662	1234
v/c Ratio	0.43	3.59	4.25	0.67	0.37	1.07	0.67	1.18	0.93
Control Delay	42.5	1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3
Queue Length 50th (ft)	37	~289	~269	23	20	~508	129	~367	538
Queue Length 95th (ft)	71	#412	#434	137	42	#644	247	#489	#731
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	339	51	44	719	195	961	553	560	1332
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	3.59	4.25	0.67	0.24	1.07	0.67	1.18	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2498		1593	1596	1485	1437	3288	1417	3016	3017	
Flt Permitted		0.99		0.12	0.10	1.00	0.12	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2498		197	173	1485	178	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1033	370	662	1225	9
RTOR Reduction (vph)	0	32	0	0	0	331	0	0	139	0	1	0
Lane Group Flow (vph)	0	96	0	183	187	153	47	1033	231	662	1233	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		13.9		34.0	34.0	34.0	43.8	38.0	38.0	24.1	56.3	
Effective Green, g (s)		13.9		34.0	34.0	34.0	43.8	38.0	38.0	24.1	56.3	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.34	0.29	0.29	0.19	0.43	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		267		51	45	388	116	961	414	559	1306	
v/s Ratio Prot		c0.04					0.02	c0.31		c0.22	0.41	
v/s Ratio Perm				0.93	c1.08	0.10	0.12		0.16			
v/c Ratio		0.36		3.59	4.16	0.39	0.41	1.07	0.56	1.18	0.94	
Uniform Delay, d1		53.9		48.0	48.0	39.5	31.0	46.0	38.9	53.0	35.3	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3		1211.7	1470.9	0.2	0.8	51.4	5.3	100.1	14.7	
Delay (s)		54.2		1259.7	1518.9	39.8	31.9	97.4	44.2	153.0	50.1	
Level of Service		D		F	F	D	C	F	D	F	D	
Approach Delay (s)		54.2			625.1			81.7			86.0	
Approach LOS		D			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	190.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.95	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	75.3%	ICU Level of Service
Analysis Period (min)	15	D
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	358	0	484	47	1033	370	662	1225	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	40	89	52	883	0	390	168	1186	512	519	1550	11
Arrive On Green	0.06	0.06	0.06	0.26	0.00	0.26	0.03	0.36	0.36	0.17	0.50	0.50
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	68	0	60	358	0	484	47	1033	370	662	602	632
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	37.8	29.1	22.0	42.2	42.2
Cycle Q Clear(g_c), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	37.8	29.1	22.0	42.2	42.2
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	94	0	87	883	0	390	168	1186	512	519	762	800
V/C Ratio(X)	0.72	0.00	0.69	0.41	0.00	1.24	0.28	0.87	0.72	1.28	0.79	0.79
Avail Cap(c_a), veh/h	202	0	186	883	0	390	268	1186	512	519	762	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.2	0.0	60.1	39.7	0.0	48.0	27.6	38.9	36.1	54.0	27.2	27.2
Incr Delay (d2), s/veh	3.8	0.0	3.7	0.1	0.0	129.0	0.0	1.0	0.9	138.5	8.2	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.1	4.8	0.0	26.6	0.9	15.0	10.0	18.1	15.8	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	0.0	63.8	39.8	0.0	177.0	27.7	39.9	37.1	192.5	35.4	35.0
LnGrp LOS	E	A	E	D	A	F	C	D	D	F	D	D
Approach Vol, veh/h		128			842			1450			1896	
Approach Delay, s/veh		64.0			118.7			38.8			90.1	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.5		39.0	9.1	69.4		12.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	24.0	39.8		36.0	4.6	44.2		7.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.4		0.3				

Intersection Summary

HCM 6th Ctrl Delay	77.7
HCM 6th LOS	E













Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Mitigation Conditions Analysis

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	121	16	68	290	74	39
Future Volume (vph)	121	16	68	290	74	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.9	7.9	16.5	16.5	16.5	16.5
Actuated g/C Ratio	0.25	0.25	0.52	0.52	0.52	0.52
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
LOS	B	A	A	A	A	A
Approach Delay	10.5		3.4			7.5
Approach LOS	B		A			A
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

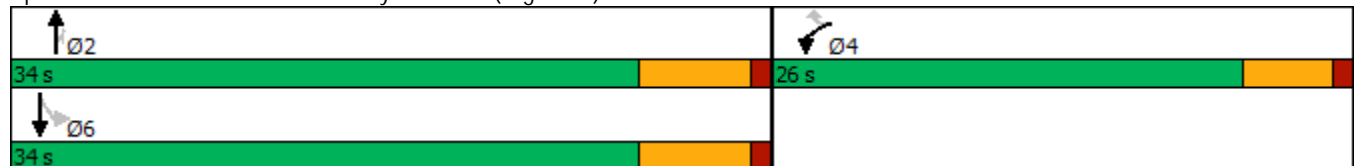
10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	31.6
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.34
Intersection Signal Delay:	5.7
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	18	76	322	82	43
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	121	16	68	290	74	39
Future Volume (veh/h)	121	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	134	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	250	223	417		674	372
Arrive On Green	0.15	0.15	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	134	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.4	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.4	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	250	223	417		674	372
V/C Ratio(X)	0.54	0.08	0.18		0.12	0.12
Avail Cap(c_a), veh/h	1922	1710	2334		2221	2082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	6.9	5.3	0.0	5.9	5.2
Incr Delay (d2), s/veh	1.8	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	7.1	5.5	0.0	6.0	5.3
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	152		76			125
Approach Delay, s/veh	8.9		5.5			5.8
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.7		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.4		3.7
Green Ext Time (p_c), s		0.3		0.4		0.4

Intersection Summary

HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/28/2022

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	0	0	53	0	33	55	709	148	4













Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.7	0	7.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	-	-	1023	1520	-
HCM Lane V/C Ratio	-	-	-	-	-	-	0.052	0.466	-
HCM Control Delay (s)	0	-	-	0	0	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	2.6	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	309	120	49	122	17	74
Future Volume (vph)	309	120	49	122	17	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	11.3	11.3	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.37	0.37	0.27	0.27	0.27	0.27
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
LOS	B	A	B	A	B	B
Approach Delay	8.9		6.2			11.3
Approach LOS	A		A			B
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	8.5
Intersection LOS:	A
Intersection Capacity Utilization	34.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	343	133	54	136	19	82
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	309	120	49	122	17	74
Future Volume (veh/h)	309	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	343	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	524	466	339		555	302
Arrive On Green	0.31	0.31	0.22	0.00	0.22	0.22
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	343	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	4.0	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	4.0	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	524	466	339		555	302
V/C Ratio(X)	0.65	0.29	0.16		0.03	0.27
Avail Cap(c_a), veh/h	1562	1390	1897		1839	1693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	6.1	7.3	0.0	7.7	7.5
Incr Delay (d2), s/veh	1.4	0.3	0.2	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.3	0.1	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.4	7.5	0.0	7.7	8.0
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	476		54			101
Approach Delay, s/veh	7.8		7.5			7.9
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		12.0		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		6.0		3.1
Green Ext Time (p_c), s		0.2		1.4		0.4

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55			45	
Link Distance (ft)		182			257			239			1256	
Travel Time (s)		6.2			8.8			3.0			19.0	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/28/2022

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	0	0	639	0	182	27	126	51	0




















Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	27.6		16.7			0			5.6		
HCM LOS	D		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	-	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	-	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	0	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	5.6	0.3	-	-

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	475	0	544	0	245	439	0
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	37.0	37.0		37.0	37.0	30.0	43.0	43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	27.3%	39.1%	39.1%		27.3%	66.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	25.0	37.0	37.0		25.0	67.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag	Lag		Lead	
Lead-Lag Optimize?							Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)					26.0	46.0		53.0		15.0	73.0	
Actuated g/C Ratio					0.24	0.42		0.48		0.14	0.66	
v/c Ratio					0.47	0.38		0.36		0.62	0.21	
Control Delay					39.8	8.3		20.3		44.9	7.1	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					39.8	8.3		20.3		44.9	7.1	
LOS					D	A		C		D	A	
Approach Delay					15.6			20.3			20.6	
Approach LOS					B			C			C	
Queue Length 50th (ft)					83	46		128		89	85	
Queue Length 95th (ft)					125	57		168		127	110	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					377	1466		1501		655	2140	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.38	0.32		0.36		0.37	0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	18.9
Intersection LOS:	B
Intersection Capacity Utilization	41.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/28/2022























Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	143	475	544	245	439
v/c Ratio	0.47	0.38	0.36	0.62	0.21
Control Delay	39.8	8.3	20.3	44.9	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	8.3	20.3	44.9	7.1
Queue Length 50th (ft)	83	46	128	89	85
Queue Length 95th (ft)	125	57	168	127	110
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	377	1466	1501	655	2140
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.32	0.36	0.37	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		0.97	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		2885	3226	
Flt Permitted					0.76	1.00		1.00		0.95	1.00	
Satd. Flow (perm)					1298	2614		3106		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	142	0	475	0	495	49	245	439	0
RTOR Reduction (vph)	0	0	0	0	0	174	0	5	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	301	0	539	0	245	439	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)					26.0	41.0		53.0		15.0	73.0	
Effective Green, g (s)					26.0	41.0		53.0		15.0	73.0	
Actuated g/C Ratio					0.24	0.37		0.48		0.14	0.66	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					306	1093		1496		393	2140	
v/s Ratio Prot						0.04		c0.17		c0.08	0.14	
v/s Ratio Perm					c0.11	0.08						
v/c Ratio					0.47	0.28		0.36		0.62	0.21	
Uniform Delay, d1					36.1	24.1		17.9		44.8	7.2	
Progression Factor					1.00	1.00		1.00		0.86	0.85	
Incremental Delay, d2					1.1	0.1		0.7		2.8	0.2	
Delay (s)					37.2	24.3		18.5		41.5	6.3	
Level of Service					D	C		B		D	A	
Approach Delay (s)		0.0			27.2			18.5			18.9	
Approach LOS		A			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			21.6		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			41.7%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	142	0	475	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	348	0	344	0	784	65	1638	162	310	2303	0
Arrive On Green	0.00	0.00	0.00	0.19	0.00	0.19	0.00	0.56	0.56	0.11	0.71	0.00
Sat Flow, veh/h	0	1800	0	1440	0	2622	965	2948	291	2937	3346	0
Grp Volume(v), veh/h	0	0	0	142	0	475	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1311	965	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	9.7	0.0	17.1	0.0	9.8	9.9	9.0	5.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	9.7	0.0	17.1	0.0	9.8	9.9	9.0	5.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	348	0	344	0	784	65	891	908	310	2303	0
V/C Ratio(X)	0.00	0.00	0.00	0.41	0.00	0.61	0.00	0.30	0.30	0.79	0.19	0.00
Avail Cap(c_a), veh/h	0	524	0	484	0	1040	65	891	908	667	2303	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	39.7	0.0	33.0	0.0	13.1	13.1	48.0	5.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	0.8	0.0	0.9	0.9	4.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.4	0.0	5.5	0.0	3.4	3.5	3.3	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	40.5	0.0	33.8	0.0	13.9	13.9	52.0	5.6	0.0
LnGrp LOS	A	A	A	D	A	C	A	B	B	D	A	A
Approach Vol, veh/h		0			617			544			684	
Approach Delay, s/veh		0.0			35.3			13.9			22.2	
Approach LOS					D			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	16.6	67.1		26.3		83.7		26.3				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	25.0	37.0		32.0		67.0		32.0				
Max Q Clear Time (g_c+I1), s	11.0	11.9		19.1		7.0		0.0				
Green Ext Time (p_c), s	0.7	3.0		2.2		2.9		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.80	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	33	0	258	30	433	31	676	259	239	612	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	42.0	42.0		42.0	42.0	21.0	11.0	47.0	47.0	21.0	57.0	
Total Split (%)	38.2%	38.2%		38.2%	38.2%	19.1%	10.0%	42.7%	42.7%	19.1%	51.8%	
Maximum Green (s)	37.0	37.0		37.0	37.0	16.0	6.0	42.0	42.0	16.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	30.0	30.0		32.4	32.4	51.2	55.1	48.8	48.8	13.8	60.6	
Actuated g/C Ratio	0.27	0.27		0.29	0.29	0.47	0.50	0.44	0.44	0.13	0.55	
v/c Ratio	0.22	0.09		0.68	0.06	0.58	0.09	0.46	0.34	0.63	0.38	
Control Delay	29.7	14.9		42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.7	14.9		42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7	
LOS	C	B		D	C	B	A	C	A	D	B	
Approach Delay		23.6			27.3			21.2			26.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	24	6		152	14	152	12	202	44	83	142	
Queue Length 95th (ft)	52	27		237	36	186	21	234	86	117	183	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	266	454		436	565	776	365	1459	772	444	1614	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.07		0.59	0.05	0.56	0.08	0.46	0.34	0.54	0.38	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	24.8
Intersection LOS:	C
Intersection Capacity Utilization	56.2%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	33	258	30	433	31	676	259	239	612
v/c Ratio	0.22	0.09	0.68	0.06	0.58	0.09	0.46	0.34	0.63	0.38
Control Delay	29.7	14.9	42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	14.9	42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7
Queue Length 50th (ft)	24	6	152	14	152	12	202	44	83	142
Queue Length 95th (ft)	52	27	237	36	186	21	234	86	117	183
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	266	454	436	565	776	365	1459	772	444	1614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.07	0.59	0.05	0.56	0.08	0.46	0.34	0.54	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1312		1676	1682	1485	1437	3288	1417	3016	2920	
Flt Permitted	0.74	1.00		0.74	1.00	1.00	0.42	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	790	1312		1298	1682	1485	636	3288	1417	3016	2920	
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.80	0.86	0.86	0.86	0.87	0.87	0.87
Adj. Flow (vph)	48	13	20	258	30	432	31	676	259	239	559	53
RTOR Reduction (vph)	0	14	0	0	0	60	0	0	144	0	6	0
Lane Group Flow (vph)	48	19	0	258	30	373	31	676	115	239	606	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		1	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	32.4	32.4		32.4	32.4	46.2	52.8	48.8	48.8	13.8	58.6	
Effective Green, g (s)	32.4	32.4		32.4	32.4	46.2	52.8	48.8	48.8	13.8	58.6	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.42	0.48	0.44	0.44	0.13	0.53	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	232	386		382	495	691	334	1458	628	378	1555	
v/s Ratio Prot		0.01			0.02	c0.07	0.00	c0.21		c0.08	0.21	
v/s Ratio Perm	0.06			c0.20		0.18	0.04		0.08			
v/c Ratio	0.21	0.05		0.68	0.06	0.54	0.09	0.46	0.18	0.63	0.39	
Uniform Delay, d1	29.1	27.8		34.2	27.9	23.9	15.2	21.4	18.5	45.7	15.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.80	1.08	2.71	1.00	1.00	
Incremental Delay, d2	0.4	0.1		4.7	0.1	0.8	0.1	1.0	0.6	3.4	0.7	
Delay (s)	29.6	27.8		38.8	27.9	24.7	12.3	24.2	50.8	49.1	15.9	
Level of Service	C	C		D	C	C	B	C	D	D	B	
Approach Delay (s)		28.9			29.9			31.0			25.2	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↑↑	↖	↖↗	↖↗	
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	258	30	0	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.80	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	204	134	206	351	383		467	1792	774	299	1733	164
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.00	0.03	0.54	0.54	0.10	0.61	0.61
Sat Flow, veh/h	658	594	915	1376	1702	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	258	30	0	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	658	0	1509	1376	1702	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	6.8	0.0	1.9	20.1	1.5	0.0	1.0	12.9	11.2	8.4	10.5	10.5
Cycle Q Clear(g_c), s	8.4	0.0	1.9	22.0	1.5	0.0	1.0	12.9	11.2	8.4	10.5	10.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	204	0	340	351	383		467	1792	774	299	938	958
V/C Ratio(X)	0.23	0.00	0.10	0.73	0.08		0.07	0.38	0.33	0.80	0.32	0.32
Avail Cap(c_a), veh/h	278	0	508	504	572		506	1792	774	446	938	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	33.8	42.5	33.6	0.0	10.5	14.6	14.2	48.6	10.4	10.4
Incr Delay (d2), s/veh	0.6	0.0	0.1	3.2	0.1	0.0	0.1	0.6	1.1	6.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.7	7.1	0.6	0.0	0.3	4.7	3.6	3.3	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	33.9	45.7	33.7	0.0	10.5	15.1	15.3	54.6	11.3	11.3
LnGrp LOS	D	A	C	D	C		B	B	B	D	B	B
Approach Vol, veh/h		81			288			966			851	
Approach Delay, s/veh		36.0			44.5			15.0			23.5	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	64.5		29.8	8.1	72.2		29.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	16.0	42.0		37.0	6.0	52.0		37.0				
Max Q Clear Time (g_c+I1), s	10.4	14.9		24.0	3.0	12.5		10.4				
Green Ext Time (p_c), s	0.4	5.7		0.8	0.0	3.4		0.6				

Intersection Summary




















HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	100	409	1	876	0	480	654	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	40.0	34.0	34.0		40.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	36.4%	30.9%	30.9%		36.4%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	35.0	28.0	28.0		35.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)		25.1			25.5	55.0	44.0	44.0		24.4	73.5	
Actuated g/C Ratio		0.23			0.23	0.50	0.40	0.40		0.22	0.67	
v/c Ratio		0.00			0.33	0.31	0.00	0.71		0.75	0.30	
Control Delay		0.0			36.2	13.7	26.0	33.6		37.8	7.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			36.2	13.7	26.0	33.6		37.8	7.7	
LOS		A			D	B	C	C		D	A	
Approach Delay					18.1			33.6			20.4	
Approach LOS					B			C			C	
Queue Length 50th (ft)		0			56	73	0	280		170	146	
Queue Length 95th (ft)		0			104	91	4	#377		215	174	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

01/18/2023

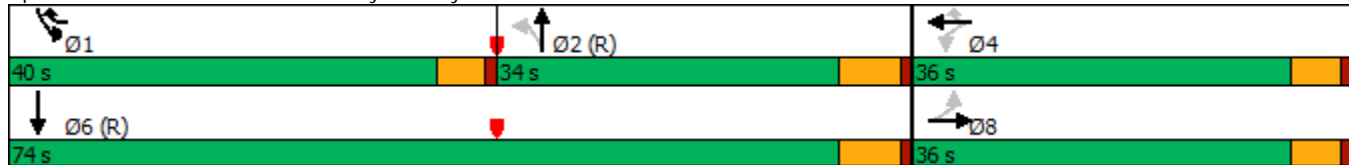


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		501			365	1576	289	1228		917	2154	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.27	0.26	0.00	0.71		0.52	0.30	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 58.4%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	100	409	1	876	480	654
v/c Ratio	0.00	0.33	0.31	0.00	0.71	0.75	0.30
Control Delay	0.0	36.2	13.7	26.0	33.6	37.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	36.2	13.7	26.0	33.6	37.8	7.7
Queue Length 50th (ft)	0	56	73	0	280	170	146
Queue Length 95th (ft)	0	104	91	4	#377	215	174
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	501	365	1576	289	1228	917	2154
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.27	0.26	0.00	0.71	0.52	0.30




















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		2885	3226	
Flt Permitted		0.94			0.76	1.00	0.40	1.00		0.95	1.00	
Satd. Flow (perm)		1577			1297	2614	726	3028		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	100	0	409	1	695	181	480	654	0
RTOR Reduction (vph)	0	2	0	0	0	26	0	17	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	100	383	1	859	0	480	654	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)		25.5			25.5	49.9	44.1	44.1		24.4	73.5	
Effective Green, g (s)		25.5			25.5	49.9	44.1	44.1		24.4	73.5	
Actuated g/C Ratio		0.23			0.23	0.45	0.40	0.40		0.22	0.67	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		365			300	1304	291	1213		639	2155	
v/s Ratio Prot						0.07		c0.28		c0.17	0.20	
v/s Ratio Perm		0.00			c0.08	0.08	0.00					
v/c Ratio		0.00			0.33	0.29	0.00	0.71		0.75	0.30	
Uniform Delay, d1		32.5			35.2	18.9	19.8	27.6		40.0	7.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.79	0.85	
Incremental Delay, d2		0.0			0.7	0.1	0.0	3.5		4.1	0.3	
Delay (s)		32.5			35.8	19.1	19.8	31.1		35.9	6.7	
Level of Service		C			D	B	B	C		D	A	
Approach Delay (s)		32.5			22.4			31.1			19.1	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			23.9									C
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			110.0						16.0			
Intersection Capacity Utilization			58.4%									B
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	100	0	409	1	695	181	480	654	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	91	15	57	259	0	909	467	1279	333	559	2425	0
Arrive On Green	0.16	0.00	0.16	0.16	0.00	0.16	0.51	0.51	0.51	0.19	0.74	0.00
Sat Flow, veh/h	269	96	364	1237	0	2622	791	2518	655	2937	3346	0
Grp Volume(v), veh/h	2	0	0	100	0	409	1	442	434	480	654	0
Grp Sat Flow(s),veh/h/ln	729	0	0	1237	0	1311	791	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	13.3	0.1	20.6	20.7	17.4	7.1	0.0
Cycle Q Clear(g_c), s	9.5	0.0	0.0	9.5	0.0	13.3	0.1	20.6	20.7	17.4	7.1	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	163	0	0	259	0	909	467	814	797	559	2425	0
V/C Ratio(X)	0.01	0.00	0.00	0.39	0.00	0.45	0.00	0.54	0.54	0.86	0.27	0.00
Avail Cap(c_a), veh/h	314	0	0	439	0	1238	467	814	797	934	2425	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	43.2	0.0	27.8	13.3	18.4	18.4	43.1	4.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.3	0.0	2.6	2.7	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.5	0.0	4.2	0.0	7.6	7.5	6.3	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	0.0	44.1	0.0	28.2	13.3	21.0	21.1	46.5	4.7	0.0
LnGrp LOS	D	A	A	D	A	C	B	C	C	D	A	A
Approach Vol, veh/h		2			509			877			1134	
Approach Delay, s/veh		39.5			31.3			21.0			22.4	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	25.9	61.9		22.2		87.8		22.2				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	35.0	28.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	19.4	22.7		15.3		9.1		11.5				
Green Ext Time (p_c), s	1.5	2.4		1.9		4.6		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	99	0	249	43	367	47	768	280	503	931	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	37.0	37.0		37.0	37.0	32.0	11.0	41.0	41.0	32.0	62.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	29.1%	10.0%	37.3%	37.3%	29.1%	56.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	27.0	6.0	36.0	36.0	27.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	29.1	29.1		29.1	29.1	57.6	48.3	42.4	42.4	23.5	62.1	
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.52	0.44	0.39	0.39	0.21	0.56	
v/c Ratio	0.14	0.25		0.77	0.10	0.46	0.18	0.61	0.40	0.78	0.55	
Control Delay	31.0	23.6		53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	23.6		53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2	
LOS	C	C		D	C	B	B	C	B	D	B	
Approach Delay		25.2			30.5			24.1			29.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	15	38		156	22	124	11	285	73	172	231	
Queue Length 95th (ft)	40	83		#253	50	182	m26	356	m143	225	295	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	227	436		355	489	845	257	1266	699	740	1703	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23		0.70	0.09	0.43	0.18	0.61	0.40	0.68	0.55	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.6
 Intersection LOS: C
 Intersection Capacity Utilization 67.3%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	29	99	249	43	367	47	768	280	503	931
v/c Ratio	0.14	0.25	0.77	0.10	0.46	0.18	0.61	0.40	0.78	0.55
Control Delay	31.0	23.6	53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	23.6	53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2
Queue Length 50th (ft)	15	38	156	22	124	11	285	73	172	231
Queue Length 95th (ft)	40	83	#253	50	182	m26	356	m143	225	295
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	227	436	355	489	845	257	1266	699	740	1703
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.70	0.09	0.43	0.18	0.61	0.40	0.68	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1437		1676	1682	1485	1437	3288	1417	3016	3014	
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.31	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	781	1437		1223	1682	1485	464	3288	1417	3016	3014	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	249	43	367	47	768	280	503	922	9
RTOR Reduction (vph)	0	19	0	0	0	25	0	0	154	0	0	0
Lane Group Flow (vph)	29	80	0	249	43	342	47	768	126	503	931	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		1		2		1	6
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	29.1	29.1		29.1	29.1	52.6	47.2	42.4	42.4	23.5	61.1	
Effective Green, g (s)	29.1	29.1		29.1	29.1	52.6	47.2	42.4	42.4	23.5	61.1	
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.48	0.43	0.39	0.39	0.21	0.56	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	206	380		323	444	777	241	1267	546	644	1674	
v/s Ratio Prot		0.06			0.03	0.09	0.01	c0.23		c0.17	0.31	
v/s Ratio Perm	0.04			c0.20		0.14	0.07		0.09			
v/c Ratio	0.14	0.21		0.77	0.10	0.44	0.20	0.61	0.23	0.78	0.56	
Uniform Delay, d1	30.9	31.5		37.4	30.5	19.0	18.5	27.1	22.8	40.8	15.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.93	0.95	1.78	1.00	1.00	
Incremental Delay, d2	0.3	0.3		10.8	0.1	0.4	0.3	1.8	0.8	6.1	1.3	
Delay (s)	31.2	31.8		48.2	30.6	19.4	17.6	27.7	41.5	46.9	17.1	
Level of Service	C	C		D	C	B	B	C	D	D	B	
Approach Delay (s)		31.7			31.0			30.8			27.5	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.70	C
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	67.3%	ICU Level of Service
Analysis Period (min)	15	C
c	Critical Lane Group	

HCM 6th Signalized Intersection Summary

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↗	↖	↗	↗	↗
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	249	43	0	47	768	280	503	922	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	222	259	148	337	441		318	1380	596	576	1776	17
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.00	0.03	0.42	0.42	0.19	0.57	0.57
Sat Flow, veh/h	650	1000	571	1296	1702	1490	1460	3313	1430	3066	3118	30
Grp Volume(v), veh/h	29	0	99	249	43	0	47	768	280	503	454	477
Grp Sat Flow(s),veh/h/ln	650	0	1571	1296	1702	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	3.9	0.0	5.5	20.7	2.1	0.0	2.0	19.4	15.6	17.5	19.9	19.9
Cycle Q Clear(g_c), s	6.0	0.0	5.5	26.2	2.1	0.0	2.0	19.4	15.6	17.5	19.9	19.9
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	222	0	407	337	441		318	1380	596	576	875	918
V/C Ratio(X)	0.13	0.00	0.24	0.74	0.10		0.15	0.56	0.47	0.87	0.52	0.52
Avail Cap(c_a), veh/h	242	0	457	378	495		347	1380	596	753	875	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	32.2	42.5	30.9	0.0	17.2	24.4	23.3	43.4	14.5	14.5
Incr Delay (d2), s/veh	0.3	0.0	0.3	6.6	0.1	0.0	0.2	1.3	2.1	9.0	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.1	7.2	0.9	0.0	0.7	7.5	5.4	7.0	6.4	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	32.5	49.2	31.0	0.0	17.3	25.6	25.4	52.4	16.7	16.6
LnGrp LOS	C	A	C	D	C		B	C	C	D	B	B
Approach Vol, veh/h		128			292			1095			1434	
Approach Delay, s/veh		32.7			46.5			25.2			29.2	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.7	50.8		33.5	8.8	67.7		33.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		32.0	6.0	57.0		32.0				
Max Q Clear Time (g_c+I1), s	19.5	21.4		28.2	4.0	21.9		8.0				
Green Ext Time (p_c), s	1.1	5.3		0.4	0.0	5.7		0.8				

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/28/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	37.0	37.0		37.0	37.0	30.0	43.0	43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	27.3%	39.1%	39.1%		27.3%	66.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	25.0	37.0	37.0		25.0	67.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)					26.3	50.7		48.3		19.4	72.7	
Actuated g/C Ratio					0.24	0.46		0.44		0.18	0.66	
v/c Ratio					0.54	0.43		0.48		0.69	0.30	
Control Delay					42.2	12.7		25.1		41.9	8.7	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					42.2	12.7		25.1		41.9	8.7	
LOS					D	B		C		D	A	
Approach Delay					19.5			25.1			20.6	
Approach LOS					B			C			C	
Queue Length 50th (ft)					99	86		176		127	127	
Queue Length 95th (ft)					167	115		254		m162	166	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					377	1428		1367		656	2132	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.44	0.39		0.48		0.54	0.30	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization	49.0%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/28/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.54	0.43	0.48	0.69	0.30
Control Delay	42.2	12.7	25.1	41.9	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	12.7	25.1	41.9	8.7
Queue Length 50th (ft)	99	86	176	127	127
Queue Length 95th (ft)	167	115	254	m162	166
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	377	1428	1367	656	2132
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.39	0.48	0.54	0.30




















Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		0.97	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		2885	3226	
Flt Permitted					0.76	1.00		1.00		0.95	1.00	
Satd. Flow (perm)					1298	2614		3106		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	167	0	556	0	594	59	351	629	0
RTOR Reduction (vph)	0	0	0	0	0	108	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	167	448	0	647	0	351	629	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)					26.3	45.7		48.3		19.4	72.7	
Effective Green, g (s)					26.3	45.7		48.3		19.4	72.7	
Actuated g/C Ratio					0.24	0.42		0.44		0.18	0.66	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					310	1204		1363		508	2132	
v/s Ratio Prot						0.07		c0.21		c0.12	0.19	
v/s Ratio Perm					c0.13	0.11						
v/c Ratio					0.54	0.37		0.47		0.69	0.30	
Uniform Delay, d1					36.6	22.2		21.9		42.5	7.9	
Progression Factor					1.00	1.00		1.00		0.85	0.97	
Incremental Delay, d2					1.8	0.2		1.2		3.4	0.3	
Delay (s)					38.4	22.4		23.1		39.5	7.9	
Level of Service					D	C		C		D	A	
Approach Delay (s)		0.0			26.1			23.1			19.2	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			22.4		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			49.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	556	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	385	0	373	0	934	65	1468	146	419	2237	0
Arrive On Green	0.00	0.00	0.00	0.21	0.00	0.21	0.00	0.50	0.50	0.14	0.69	0.00
Sat Flow, veh/h	0	1800	0	1440	0	2622	810	2946	292	2937	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	556	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1311	810	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.3	0.0	19.1	0.0	13.9	14.0	12.8	8.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.3	0.0	19.1	0.0	13.9	14.0	12.8	8.3	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	385	0	373	0	934	65	799	814	419	2237	0
V/C Ratio(X)	0.00	0.00	0.00	0.45	0.00	0.59	0.00	0.40	0.41	0.84	0.28	0.00
Avail Cap(c_a), veh/h	0	524	0	484	0	1137	65	799	814	667	2237	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.78	0.78	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	38.5	0.0	28.9	0.0	17.3	17.4	45.9	6.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	0.6	0.0	1.5	1.5	4.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.9	0.0	6.1	0.0	5.1	5.2	4.8	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	39.3	0.0	29.5	0.0	18.9	18.9	50.1	7.0	0.0
LnGrp LOS	A	A	A	D	A	C	A	B	B	D	A	A
Approach Vol, veh/h		0			723			653			980	
Approach Delay, s/veh		0.0			31.8			18.9			22.4	
Approach LOS					C			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.7	60.8		28.5		81.5		28.5				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	25.0	37.0		32.0		67.0		32.0				
Max Q Clear Time (g_c+I1), s	14.8	16.0		21.1		10.3		0.0				
Green Ext Time (p_c), s	0.9	3.6		2.5		4.4		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	31	0	337	30	507	30	850	327	304	762	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	42.0	42.0		42.0	42.0	21.0	11.0	47.0	47.0	21.0	57.0	
Total Split (%)	38.2%	38.2%		38.2%	38.2%	19.1%	10.0%	42.7%	42.7%	19.1%	51.8%	
Maximum Green (s)	37.0	37.0		37.0	37.0	16.0	6.0	42.0	42.0	16.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	30.3	30.3		33.9	33.9	53.9	52.1	46.1	46.1	15.0	59.5	
Actuated g/C Ratio	0.28	0.28		0.31	0.31	0.49	0.47	0.42	0.42	0.14	0.54	
v/c Ratio	0.21	0.08		0.84	0.06	0.67	0.10	0.62	0.43	0.74	0.48	
Control Delay	29.0	14.7		54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.0	14.7		54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5	
LOS	C	B		D	C	C	A	C	A	E	B	
Approach Delay		23.2			35.3			21.9			29.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	23	6		215	14	216	8	253	66	105	190	
Queue Length 95th (ft)	53	27		#354	36	331	m13	349	122	154	251	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	266	452		437	565	771	309	1378	760	444	1595	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.07		0.77	0.05	0.66	0.10	0.62	0.43	0.68	0.48	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.1
 Intersection LOS: C
 Intersection Capacity Utilization 68.8%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	31	337	30	507	30	850	327	304	762
v/c Ratio	0.21	0.08	0.84	0.06	0.67	0.10	0.62	0.43	0.74	0.48
Control Delay	29.0	14.7	54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	14.7	54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5
Queue Length 50th (ft)	23	6	215	14	216	8	253	66	105	190
Queue Length 95th (ft)	53	27	#354	36	331	m13	349	122	154	251
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	266	452	437	565	771	309	1378	760	444	1595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.07	0.77	0.05	0.66	0.10	0.62	0.43	0.68	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1308		1676	1682	1485	1437	3288	1417	3016	2944	
Flt Permitted	0.74	1.00		0.74	1.00	1.00	0.36	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	790	1308		1301	1682	1485	549	3288	1417	3016	2944	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	850	327	304	711	51
RTOR Reduction (vph)	0	13	0	0	0	31	0	0	167	0	4	0
Lane Group Flow (vph)	46	18	0	337	30	476	30	850	160	304	758	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	33.9	33.9		33.9	33.9	48.9	49.8	46.1	46.1	15.0	57.4	
Effective Green, g (s)	33.9	33.9		33.9	33.9	48.9	49.8	46.1	46.1	15.0	57.4	
Actuated g/C Ratio	0.31	0.31		0.31	0.31	0.44	0.45	0.42	0.42	0.14	0.52	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	243	403		400	518	727	278	1377	593	411	1536	
v/s Ratio Prot		0.01			0.02	c0.09	0.00	c0.26		c0.10	0.26	
v/s Ratio Perm	0.06			c0.26		0.23	0.05		0.11			
v/c Ratio	0.19	0.04		0.84	0.06	0.66	0.11	0.62	0.27	0.74	0.49	
Uniform Delay, d1	28.0	26.7		35.6	26.8	23.9	16.8	25.0	20.9	45.6	16.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.70	0.96	1.58	1.00	1.00	
Incremental Delay, d2	0.4	0.0		14.8	0.0	2.1	0.2	1.9	1.0	6.8	1.1	
Delay (s)	28.3	26.7		50.4	26.8	26.1	12.0	26.0	34.1	52.5	18.1	
Level of Service	C	C		D	C	C	B	C	C	D	B	
Approach Delay (s)		27.7			35.5			27.8			27.9	
Approach LOS		C			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.73	C
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	68.8%	15.0
Analysis Period (min)	15	ICU Level of Service
		C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑	↗	↖↗	↗↖	
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	337	30	0	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	240	162	257	428	474		358	1547	668	362	1623	116
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.00	0.03	0.47	0.47	0.12	0.56	0.56
Sat Flow, veh/h	658	583	924	1378	1702	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	337	30	0	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	658	0	1507	1378	1702	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	6.1	0.0	1.7	26.2	1.4	0.0	1.2	20.2	17.4	10.7	15.7	15.7
Cycle Q Clear(g_c), s	7.5	0.0	1.7	27.9	1.4	0.0	1.2	20.2	17.4	10.7	15.7	15.7
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	240	0	420	428	474		358	1547	668	362	857	882
V/C Ratio(X)	0.19	0.00	0.07	0.79	0.06		0.08	0.55	0.49	0.84	0.44	0.44
Avail Cap(c_a), veh/h	278	0	507	508	572		398	1547	668	446	857	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	29.2	39.5	29.2	0.0	14.5	21.0	20.3	47.5	14.2	14.2
Incr Delay (d2), s/veh	0.4	0.0	0.1	6.8	0.1	0.0	0.1	1.3	2.3	11.2	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.6	9.6	0.6	0.0	0.4	7.7	5.9	4.4	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	0.0	29.3	46.3	29.2	0.0	14.6	22.3	22.5	58.7	15.8	15.8
LnGrp LOS	C	A	C	D	C		B	C	C	E	B	B
Approach Vol, veh/h		77			367			1207			1066	
Approach Delay, s/veh		31.1			44.9			22.2			28.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	56.4		35.6	8.0	66.4		35.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	16.0	42.0		37.0	6.0	52.0		37.0				
Max Q Clear Time (g_c+I1), s	12.7	22.2		29.9	3.2	17.7		9.5				
Green Ext Time (p_c), s	0.3	6.8		0.7	0.0	4.4		0.5				

Intersection Summary




















HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	632	861	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	40.0	34.0	34.0		40.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	36.4%	30.9%	30.9%		36.4%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	35.0	28.0	28.0		35.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)		25.1			25.9	61.2	37.8	37.8		30.3	73.1	
Actuated g/C Ratio		0.23			0.24	0.56	0.34	0.34		0.28	0.66	
v/c Ratio		0.00			0.43	0.37	0.00	1.00		0.80	0.40	
Control Delay		0.0			38.7	12.7	30.0	66.3		31.6	7.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			38.7	12.7	30.0	66.3		31.6	7.4	
LOS		A			D	B	C	E		C	A	
Approach Delay					17.8			66.3			17.7	
Approach LOS					B			E			B	
Queue Length 50th (ft)		0			75	95	1	~456		212	172	
Queue Length 95th (ft)		0			132	113	5	#646		m218	m175	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

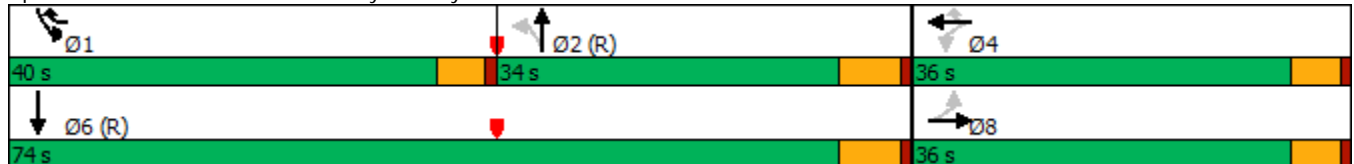
01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		499			365	1582	203	1059		922	2144	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.36	0.34	0.00	1.00		0.69	0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 33.7
 Intersection LOS: C
 Intersection Capacity Utilization 72.6%
 ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	632	861
v/c Ratio	0.00	0.43	0.37	0.00	1.00	0.80	0.40
Control Delay	0.0	38.7	12.7	30.0	66.3	31.6	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	38.7	12.7	30.0	66.3	31.6	7.4
Queue Length 50th (ft)	0	75	95	1	-456	212	172
Queue Length 95th (ft)	0	132	113	5	#646	m218	m175
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	499	365	1582	203	1059	922	2144
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.36	0.34	0.00	1.00	0.69	0.40




















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0	
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0	
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0		
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		0.97	0.95		
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00		
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1638			1629	2614	1710	3028		2885	3226		
Flt Permitted		0.94			0.76	1.00	0.33	1.00		0.95	1.00		
Satd. Flow (perm)		1571			1297	2614	592	3028		2885	3226		
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96	
Adj. Flow (vph)	1	0	1	131	0	538	1	844	219	632	861	0	
RTOR Reduction (vph)	0	2	0	0	0	15	0	18	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	131	523	1	1045	0	632	861	0	
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA		
Protected Phases		8			4	1		2		1	6		
Permitted Phases	8			4		4	2						
Actuated Green, G (s)		25.9			25.9	56.2	37.8	37.8		30.3	73.1		
Effective Green, g (s)		25.9			25.9	56.2	37.8	37.8		30.3	73.1		
Actuated g/C Ratio		0.24			0.24	0.51	0.34	0.34		0.28	0.66		
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)		369			305	1454	203	1040		794	2143		
v/s Ratio Prot						0.10		c0.34		c0.22	0.27		
v/s Ratio Perm		0.00			c0.10	0.10	0.00						
v/c Ratio		0.00			0.43	0.36	0.00	1.00		0.80	0.40		
Uniform Delay, d1		32.2			35.8	16.1	23.7	36.1		37.0	8.4		
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.72	0.75		
Incremental Delay, d2		0.0			1.0	0.2	0.0	29.0		3.5	0.3		
Delay (s)		32.2			36.7	16.3	23.8	65.1		30.3	6.7		
Level of Service		C			D	B	C	E		C	A		
Approach Delay (s)		32.2			20.3			65.0			16.6		
Approach LOS		C			C			E			B		
Intersection Summary													
HCM 2000 Control Delay			33.4									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			72.6%									ICU Level of Service	C
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	538	1	844	219	632	861	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	83	15	49	275	0	1126	343	1071	278	711	2323	0
Arrive On Green	0.19	0.00	0.19	0.19	0.00	0.19	0.42	0.42	0.42	0.24	0.71	0.00
Sat Flow, veh/h	179	80	259	1117	0	2622	652	2520	654	2937	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	538	1	537	526	632	861	0
Grp Sat Flow(s),veh/h/ln	518	0	0	1117	0	1311	652	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.2	0.1	31.8	31.9	22.9	11.3	0.0
Cycle Q Clear(g_c), s	14.0	0.0	0.0	14.0	0.0	16.2	0.1	31.8	31.9	22.9	11.3	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	146	0	0	275	0	1126	343	681	667	711	2323	0
V/C Ratio(X)	0.01	0.00	0.00	0.48	0.00	0.48	0.00	0.79	0.79	0.89	0.37	0.00
Avail Cap(c_a), veh/h	252	0	0	411	0	1374	343	681	667	934	2323	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.53	0.53	0.00
Uniform Delay (d), s/veh	37.0	0.0	0.0	42.0	0.0	22.5	18.2	27.3	27.3	40.2	6.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.3	0.0	0.3	0.0	9.0	9.2	4.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.3	0.0	5.0	0.0	13.0	12.8	8.4	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	0.0	0.0	43.3	0.0	22.8	18.2	36.3	36.5	45.0	6.4	0.0
LnGrp LOS	D	A	A	D	A	C	B	D	D	D	A	A
Approach Vol, veh/h		2			669			1064			1493	
Approach Delay, s/veh		37.1			26.8			36.4			22.8	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	31.6	52.7		25.6		84.4		25.6				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	35.0	28.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	24.9	33.9		18.2		13.3		16.0				
Green Ext Time (p_c), s	1.8	0.0		2.4		6.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	99	0	327	43	484	47	1012	370	662	1222	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	37.0	37.0		37.0	37.0	32.0	11.0	41.0	41.0	32.0	62.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	29.1%	10.0%	37.3%	37.3%	29.1%	56.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	27.0	6.0	36.0	36.0	27.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	31.0	31.0		31.0	31.0	62.5	43.4	37.5	37.5	26.5	60.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.57	0.39	0.34	0.34	0.24	0.55	
v/c Ratio	0.13	0.23		0.95	0.09	0.57	0.25	0.90	0.57	0.91	0.74	
Control Delay	30.8	23.4		76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.8	23.4		76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5	
LOS	C	C		E	C	B	B	D	B	E	C	
Approach Delay		25.0			40.7			32.8			35.9	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	15	38		223	22	190	14	392	112	234	353	
Queue Length 95th (ft)	40	83		#396	50	286	m#25	m#424	m#160	#337	445	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	227	436		355	489	859	191	1120	647	740	1651	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23		0.92	0.09	0.56	0.25	0.90	0.57	0.89	0.74	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 35.5 Intersection LOS: D
 Intersection Capacity Utilization 82.5% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	29	99	327	43	484	47	1012	370	662	1222
v/c Ratio	0.13	0.23	0.95	0.09	0.57	0.25	0.90	0.57	0.91	0.74
Control Delay	30.8	23.4	76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	23.4	76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5
Queue Length 50th (ft)	15	38	223	22	190	14	392	112	234	353
Queue Length 95th (ft)	40	83	#396	50	286	m25	m#424	m160	#337	445
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	227	436	355	489	859	191	1120	647	740	1651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.92	0.09	0.56	0.25	0.90	0.57	0.89	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1437		1676	1682	1485	1437	3288	1417	3016	3017	
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.22	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	781	1437		1223	1682	1485	333	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1012	370	662	1213	9
RTOR Reduction (vph)	0	19	0	0	0	10	0	0	165	0	0	0
Lane Group Flow (vph)	29	80	0	327	43	474	47	1012	205	662	1222	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		1		2		1	6
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	31.0	31.0		31.0	31.0	57.5	42.3	37.5	37.5	26.5	59.2	
Effective Green, g (s)	31.0	31.0		31.0	31.0	57.5	42.3	37.5	37.5	26.5	59.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.52	0.38	0.34	0.34	0.24	0.54	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	220	404		344	474	843	176	1120	483	726	1623	
v/s Ratio Prot		0.06			0.03	0.14	0.01	c0.31		c0.22	0.40	
v/s Ratio Perm	0.04			c0.27		0.18	0.09		0.14			
v/c Ratio	0.13	0.20		0.95	0.09	0.56	0.27	0.90	0.42	0.91	0.75	
Uniform Delay, d1	29.5	30.1		38.7	29.1	17.8	21.6	34.5	27.9	40.6	19.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.12	0.90	1.04	1.00	1.00	
Incremental Delay, d2	0.3	0.2		35.6	0.1	0.9	0.6	8.5	1.9	15.7	3.3	
Delay (s)	29.7	30.3		74.4	29.2	18.6	24.7	39.5	30.9	56.3	23.0	
Level of Service	C	C		E	C	B	C	D	C	E	C	
Approach Delay (s)		30.2			40.5			36.8			34.7	
Approach LOS		C			D			D			C	

Intersection Summary		
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.92	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	82.5%	15.0
Analysis Period (min)	15	ICU Level of Service
		E
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↖↖	↖	↖↖	↖↖	↖↖
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	327	43	0	47	1012	370	662	1213	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	243	291	166	381	495		213	1123	485	717	1682	12
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.00	0.03	0.34	0.34	0.23	0.54	0.54
Sat Flow, veh/h	650	1000	571	1296	1702	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	29	0	99	327	43	0	47	1012	370	662	596	626
Grp Sat Flow(s),veh/h/ln	650	0	1571	1296	1702	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	3.7	0.0	5.2	26.8	2.0	0.0	2.3	32.0	25.4	23.2	32.2	32.2
Cycle Q Clear(g_c), s	5.8	0.0	5.2	32.0	2.0	0.0	2.3	32.0	25.4	23.2	32.2	32.2
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	243	0	457	381	495		213	1123	485	717	827	868
V/C Ratio(X)	0.12	0.00	0.22	0.86	0.09		0.22	0.90	0.76	0.92	0.72	0.72
Avail Cap(c_a), veh/h	243	0	457	381	495		242	1123	485	753	827	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.52	0.52	0.52	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	29.5	42.1	28.4	0.0	22.9	34.6	32.4	41.2	19.2	19.2
Incr Delay (d2), s/veh	0.2	0.0	0.2	17.6	0.1	0.0	0.3	6.6	5.9	16.5	5.4	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.0	10.7	0.8	0.0	0.8	13.3	9.2	9.8	11.1	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.0	29.8	59.7	28.4	0.0	23.1	41.2	38.3	57.7	24.6	24.3
LnGrp LOS	C	A	C	E	C		C	D	D	E	C	C
Approach Vol, veh/h		128			370			1429			1884	
Approach Delay, s/veh		30.0			56.0			39.9			36.1	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.7	42.3		37.0	8.8	64.2		37.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		32.0	6.0	57.0		32.0				
Max Q Clear Time (g_c+I1), s	25.2	34.0		34.0	4.3	34.2		7.8				
Green Ext Time (p_c), s	0.5	1.4		0.0	0.0	7.5		0.8				

Intersection Summary




















HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	193	556	0	673	0	351	656	0
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	28.0	46.0	46.0		28.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	25.5%	41.8%	41.8%		25.5%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	23.0	40.0	40.0		23.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)					26.6	50.8		48.2		19.2	72.4	
Actuated g/C Ratio					0.24	0.46		0.44		0.17	0.66	
v/c Ratio					0.61	0.42		0.49		0.70	0.31	
Control Delay					45.2	11.6		25.1		42.7	9.0	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					45.2	11.6		25.1		42.7	9.0	
LOS					D	B		C		D	A	
Approach Delay					20.3			25.1			20.7	
Approach LOS					C			C			C	
Queue Length 50th (ft)					117	78		183		126	140	
Queue Length 95th (ft)					194	110		258		159	164	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					365	1410		1365		608	2122	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.53	0.39		0.49		0.58	0.31	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	21.8
Intersection LOS:	C
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/28/2022























Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	193	556	673	351	656
v/c Ratio	0.61	0.42	0.49	0.70	0.31
Control Delay	45.2	11.6	25.1	42.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	11.6	25.1	42.7	9.0
Queue Length 50th (ft)	117	78	183	126	140
Queue Length 95th (ft)	194	110	258	159	164
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	365	1410	1365	608	2122
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.39	0.49	0.58	0.31
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		0.97	0.95	
Frt					1.00	0.85		0.98		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3097		2885	3226	
Flt Permitted					0.76	1.00		1.00		0.95	1.00	
Satd. Flow (perm)					1298	2614		3097		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	193	0	556	0	604	69	351	656	0
RTOR Reduction (vph)	0	0	0	0	0	125	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	193	431	0	666	0	351	656	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)					26.6	45.8		48.2		19.2	72.4	
Effective Green, g (s)					26.6	45.8		48.2		19.2	72.4	
Actuated g/C Ratio					0.24	0.42		0.44		0.17	0.66	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					313	1207		1357		503	2123	
v/s Ratio Prot						0.06		c0.22		c0.12	0.20	
v/s Ratio Perm					c0.15	0.10						
v/c Ratio					0.62	0.36		0.49		0.70	0.31	
Uniform Delay, d1					37.2	22.0		22.1		42.7	8.1	
Progression Factor					1.00	1.00		1.00		0.85	0.98	
Incremental Delay, d2					3.6	0.2		1.3		3.5	0.3	
Delay (s)					40.7	22.2		23.4		40.0	8.2	
Level of Service					D	C		C		D	A	
Approach Delay (s)		0.0			27.0			23.4			19.3	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			22.8		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			51.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	193	0	556	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	385	0	373	0	933	65	1447	165	417	2237	0
Arrive On Green	0.00	0.00	0.00	0.21	0.00	0.21	0.00	0.50	0.50	0.14	0.69	0.00
Sat Flow, veh/h	0	1800	0	1440	0	2622	790	2901	331	2937	3346	0
Grp Volume(v), veh/h	0	0	0	193	0	556	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1311	790	1603	1628	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	13.4	0.0	19.1	0.0	14.5	14.5	12.8	8.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	13.4	0.0	19.1	0.0	14.5	14.5	12.8	8.7	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	0	385	0	373	0	933	65	800	812	417	2237	0
V/C Ratio(X)	0.00	0.00	0.00	0.52	0.00	0.60	0.00	0.42	0.42	0.84	0.29	0.00
Avail Cap(c_a), veh/h	0	507	0	471	0	1111	65	800	812	614	2237	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	39.3	0.0	29.0	0.0	17.4	17.5	46.0	6.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.6	0.0	1.6	1.6	5.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.7	0.0	6.1	0.0	5.3	5.4	4.8	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	40.4	0.0	29.6	0.0	19.0	19.0	51.4	7.0	0.0
LnGrp LOS	A	A	A	D	A	C	A	B	B	D	A	A
Approach Vol, veh/h		0			749			673			1007	
Approach Delay, s/veh		0.0			32.4			19.0			22.5	
Approach LOS					C			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.6	60.9		28.5		81.5		28.5				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	23.0	40.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	14.8	16.5		21.1		10.7		0.0				
Green Ext Time (p_c), s	0.8	3.8		2.5		4.6		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	31	0	337	30	507	30	860	327	304	789	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	44.0	44.0		44.0	44.0	21.0	17.0	45.0	45.0	21.0	49.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	19.1%	15.5%	40.9%	40.9%	19.1%	44.5%	
Maximum Green (s)	39.0	39.0		39.0	39.0	16.0	12.0	40.0	40.0	16.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	30.9	30.9		34.4	34.4	54.6	51.9	45.4	45.4	15.2	58.3	
Actuated g/C Ratio	0.28	0.28		0.31	0.31	0.50	0.47	0.41	0.41	0.14	0.53	
v/c Ratio	0.21	0.08		0.83	0.06	0.67	0.10	0.63	0.44	0.73	0.50	
Control Delay	28.1	14.1		52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.1	14.1		52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0	
LOS	C	B		D	C	C	A	C	A	E	B	
Approach Delay		22.5			34.3			21.4			30.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	23	6		215	14	221	6	257	69	105	200	
Queue Length 95th (ft)	51	26		321	35	323	m12	341	127	154	283	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

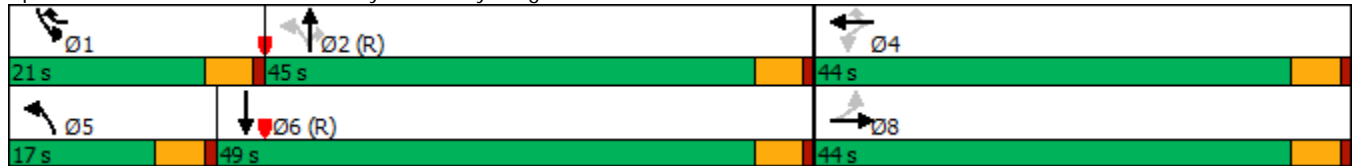


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	280	476		461	596	775	376	1356	746	449	1565	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.07		0.73	0.05	0.65	0.08	0.63	0.44	0.68	0.50	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 27.8
 Intersection LOS: C
 Intersection Capacity Utilization 69.1%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	31	337	30	507	30	860	327	304	789
v/c Ratio	0.21	0.08	0.83	0.06	0.67	0.10	0.63	0.44	0.73	0.50
Control Delay	28.1	14.1	52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	14.1	52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0
Queue Length 50th (ft)	23	6	215	14	221	6	257	69	105	200
Queue Length 95th (ft)	51	26	321	35	323	m12	341	127	154	283
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	280	476	461	596	775	376	1356	746	449	1565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.07	0.73	0.05	0.65	0.08	0.63	0.44	0.68	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑	↗	↖↗	↖↗	
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1308		1676	1682	1485	1437	3288	1417	3016	2947	
Flt Permitted	0.74	1.00		0.74	1.00	1.00	0.35	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	790	1308		1301	1682	1485	532	3288	1417	3016	2947	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	860	327	304	738	51
RTOR Reduction (vph)	0	13	0	0	0	25	0	0	162	0	4	0
Lane Group Flow (vph)	46	18	0	337	30	482	30	860	166	304	785	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	34.4	34.4		34.4	34.4	49.6	49.7	45.4	45.4	15.2	56.3	
Effective Green, g (s)	34.4	34.4		34.4	34.4	49.6	49.7	45.4	45.4	15.2	56.3	
Actuated g/C Ratio	0.31	0.31		0.31	0.31	0.45	0.45	0.41	0.41	0.14	0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	247	409		406	526	737	275	1357	584	416	1508	
v/s Ratio Prot		0.01			0.02	c0.09	0.00	c0.26		c0.10	0.27	
v/s Ratio Perm	0.06			c0.26		0.23	0.04		0.12			
v/c Ratio	0.19	0.04		0.83	0.06	0.65	0.11	0.63	0.28	0.73	0.52	
Uniform Delay, d1	27.6	26.3		35.1	26.5	23.5	16.9	25.7	21.5	45.4	17.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.65	0.90	1.27	1.00	1.00	
Incremental Delay, d2	0.4	0.0		13.4	0.0	2.1	0.2	2.1	1.1	6.5	1.3	
Delay (s)	28.0	26.4		48.5	26.5	25.6	11.1	25.2	28.4	51.9	19.2	
Level of Service	C	C		D	C	C	B	C	C	D	B	
Approach Delay (s)		27.3			34.5			25.7			28.3	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.73	C
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	69.1%	15.0
Analysis Period (min)	15	ICU Level of Service
		C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↖↖	↖	↖↖	↖↖	↖↖
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	337	30	0	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	241	163	258	429	475		347	1545	667	362	1625	112
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.00	0.03	0.47	0.47	0.12	0.56	0.56
Sat Flow, veh/h	658	583	924	1378	1702	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	337	30	0	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	658	0	1507	1378	1702	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	6.1	0.0	1.7	26.2	1.4	0.0	1.2	20.6	17.4	10.7	16.5	16.5
Cycle Q Clear(g_c), s	7.5	0.0	1.7	27.9	1.4	0.0	1.2	20.6	17.4	10.7	16.5	16.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	241	0	421	429	475		347	1545	667	362	856	881
V/C Ratio(X)	0.19	0.00	0.07	0.78	0.06		0.09	0.56	0.49	0.84	0.45	0.45
Avail Cap(c_a), veh/h	290	0	534	533	603		467	1545	667	446	856	881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	29.2	39.4	29.1	0.0	14.6	21.2	20.3	47.5	14.4	14.4
Incr Delay (d2), s/veh	0.4	0.0	0.1	6.1	0.1	0.0	0.1	1.3	2.3	11.2	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.6	9.5	0.6	0.0	0.4	7.8	5.9	4.4	5.4	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	0.0	29.3	45.5	29.1	0.0	14.7	22.5	22.6	58.7	16.2	16.1
LnGrp LOS	C	A	C	D	C		B	C	C	E	B	B
Approach Vol, veh/h		77			367			1217			1093	
Approach Delay, s/veh		31.0			44.2			22.3			28.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	56.3		35.7	8.0	66.3		35.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	16.0	40.0		39.0	12.0	44.0		39.0				
Max Q Clear Time (g_c+I1), s	12.7	22.6		29.9	3.2	18.5		9.5				
Green Ext Time (p_c), s	0.3	6.5		0.8	0.0	4.4		0.5				

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	143	538	1	1106	0	632	873	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	39.0	35.0	35.0		39.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	35.5%	31.8%	31.8%		35.5%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	34.0	29.0	29.0		34.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)		25.1			26.0	61.1	37.9	37.9		30.1	73.0	
Actuated g/C Ratio		0.23			0.24	0.56	0.34	0.34		0.27	0.66	
v/c Ratio		0.00			0.47	0.37	0.00	1.04		0.80	0.41	
Control Delay		0.0			39.8	12.8	30.0	75.7		31.6	7.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			39.8	12.8	30.0	75.7		31.6	7.3	
LOS		A			D	B	C	E		C	A	
Approach Delay					18.5			75.7			17.5	
Approach LOS					B			E			B	
Queue Length 50th (ft)		0			83	96	1	~488		215	184	
Queue Length 95th (ft)		0			144	117	5	#670		m211	m161	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

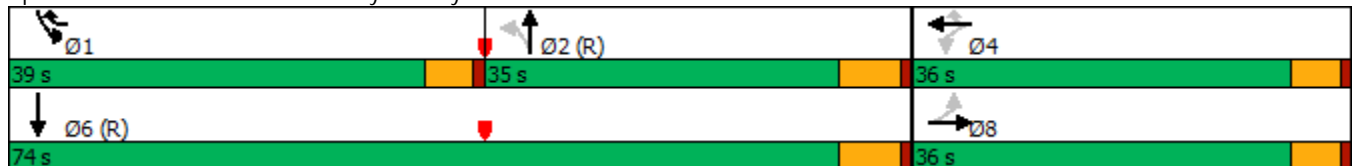
01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		498			365	1561	201	1062		896	2140	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.39	0.34	0.00	1.04		0.71	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 37.3
 Intersection LOS: D
 Intersection Capacity Utilization 74.9%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	143	538	1	1106	632	873
v/c Ratio	0.00	0.47	0.37	0.00	1.04	0.80	0.41
Control Delay	0.0	39.8	12.8	30.0	75.7	31.6	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	39.8	12.8	30.0	75.7	31.6	7.3
Queue Length 50th (ft)	0	83	96	1	-488	215	184
Queue Length 95th (ft)	0	144	117	5	#670	m211	m161
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	498	365	1561	201	1062	896	2140
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.39	0.34	0.00	1.04	0.71	0.41




















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3021		2885	3226	
Flt Permitted		0.93			0.76	1.00	0.33	1.00		0.95	1.00	
Satd. Flow (perm)		1569			1297	2614	585	3021		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	143	0	538	1	866	240	632	873	0
RTOR Reduction (vph)	0	2	0	0	0	15	0	20	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	523	1	1086	0	632	873	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)		26.0			26.0	56.1	37.9	37.9		30.1	73.0	
Effective Green, g (s)		26.0			26.0	56.1	37.9	37.9		30.1	73.0	
Actuated g/C Ratio		0.24			0.24	0.51	0.34	0.34		0.27	0.66	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		370			306	1451	201	1040		789	2140	
v/s Ratio Prot						0.10		c0.36		c0.22	0.27	
v/s Ratio Perm		0.00			c0.11	0.10	0.00					
v/c Ratio		0.00			0.47	0.36	0.00	1.04		0.80	0.41	
Uniform Delay, d1		32.1			36.1	16.2	23.7	36.0		37.2	8.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.72	0.73	
Incremental Delay, d2		0.0			1.1	0.2	0.0	40.1		3.6	0.3	
Delay (s)		32.1			37.2	16.3	23.7	76.1		30.3	6.6	
Level of Service		C			D	B	C	E		C	A	
Approach Delay (s)		32.1			20.7			76.1			16.5	
Approach LOS		C			C			E			B	
Intersection Summary												
HCM 2000 Control Delay			37.4									D
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			110.0							16.0		
Intersection Capacity Utilization			74.9%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	143	0	538	1	866	240	632	873	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	73	15	39	264	0	1126	340	1055	292	709	2322	0
Arrive On Green	0.19	0.00	0.19	0.19	0.00	0.19	0.43	0.43	0.43	0.24	0.71	0.00
Sat Flow, veh/h	128	80	208	1058	0	2622	645	2481	687	2937	3346	0
Grp Volume(v), veh/h	2	0	0	143	0	538	1	559	547	632	873	0
Grp Sat Flow(s),veh/h/ln	417	0	0	1058	0	1311	645	1603	1564	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.2	0.1	33.9	34.0	22.9	11.6	0.0
Cycle Q Clear(g_c), s	15.9	0.0	0.0	15.9	0.0	16.2	0.1	33.9	34.0	22.9	11.6	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	127	0	0	264	0	1126	340	682	665	709	2322	0
V/C Ratio(X)	0.02	0.00	0.00	0.54	0.00	0.48	0.00	0.82	0.82	0.89	0.38	0.00
Avail Cap(c_a), veh/h	232	0	0	399	0	1372	340	682	665	908	2322	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.50	0.50	0.00
Uniform Delay (d), s/veh	37.2	0.0	0.0	42.8	0.0	22.5	18.2	27.9	27.9	40.3	6.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.3	0.0	10.7	11.0	4.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.7	0.0	5.0	0.0	14.1	13.8	8.4	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	0.0	44.5	0.0	22.8	18.2	38.6	38.9	45.2	6.5	0.0
LnGrp LOS	D	A	A	D	A	C	B	D	D	D	A	A
Approach Vol, veh/h		2			681			1107			1505	
Approach Delay, s/veh		37.3			27.4			38.7			22.7	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	31.6	52.8		25.7		84.3		25.7				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	34.0	29.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	24.9	36.0		18.2		13.6		17.9				
Green Ext Time (p_c), s	1.7	0.0		2.5		6.7		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	99	0	327	43	484	47	1033	370	662	1234	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	16.0	41.0	41.0	33.0	58.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	32.7%	14.5%	37.3%	37.3%	30.0%	52.7%	
Maximum Green (s)	31.0	31.0		31.0	31.0	31.0	11.0	36.0	36.0	28.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)	30.7	30.7		30.7	30.7	30.7	44.4	37.5	37.5	26.8	59.5	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.40	0.34	0.34	0.24	0.54	
v/c Ratio	0.13	0.24		0.96	0.09	0.67	0.24	0.92	0.57	0.90	0.76	
Control Delay	31.6	24.0		80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.6	24.0		80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3	
LOS	C	C		E	C	B	B	D	B	E	C	
Approach Delay		25.7			37.8			33.4			35.7	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	15	39		226	22	26	14	402	114	230	356	
Queue Length 95th (ft)	40	84		#405	51	133	m22	m#421	m153	#326	467	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	220	423		344	474	730	250	1120	644	767	1633	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23		0.95	0.09	0.66	0.19	0.92	0.57	0.86	0.76	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	35.0
Intersection LOS:	D
Intersection Capacity Utilization	83.0%
ICU Level of Service	E
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	29	99	327	43	484	47	1033	370	662	1234
v/c Ratio	0.13	0.24	0.96	0.09	0.67	0.24	0.92	0.57	0.90	0.76
Control Delay	31.6	24.0	80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	24.0	80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3
Queue Length 50th (ft)	15	39	226	22	26	14	402	114	230	356
Queue Length 95th (ft)	40	84	#405	51	133	m22	m#421	m153	#326	467
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	220	423	344	474	730	250	1120	644	767	1633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.95	0.09	0.66	0.19	0.92	0.57	0.86	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1437		1676	1682	1485	1437	3288	1417	3016	3017	
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.21	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	781	1437		1223	1682	1485	315	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1033	370	662	1225	9
RTOR Reduction (vph)	0	19	0	0	0	313	0	0	161	0	0	0
Lane Group Flow (vph)	29	80	0	327	43	171	47	1033	209	662	1234	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1		6
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	30.7	30.7		30.7	30.7	30.7	43.3	37.5	37.5	26.8	58.5	
Effective Green, g (s)	30.7	30.7		30.7	30.7	30.7	43.3	37.5	37.5	26.8	58.5	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.39	0.34	0.34	0.24	0.53	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	401		341	469	414	183	1120	483	734	1604	
v/s Ratio Prot		0.06			0.03		0.01	c0.31		c0.22	0.41	
v/s Ratio Perm	0.04			c0.27		0.12	0.09		0.15			
v/c Ratio	0.13	0.20		0.96	0.09	0.41	0.26	0.92	0.43	0.90	0.77	
Uniform Delay, d1	29.7	30.3		39.0	29.3	32.3	21.0	34.8	28.0	40.3	20.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.13	0.88	0.98	1.00	1.00	
Incremental Delay, d2	0.3	0.2		37.5	0.1	0.7	0.5	9.6	1.8	14.3	3.6	
Delay (s)	30.0	30.5		76.5	29.4	33.0	24.1	40.4	29.4	54.6	24.0	
Level of Service	C	C		E	C	C	C	D	C	D	C	
Approach Delay (s)		30.4			49.5			37.0			34.7	
Approach LOS		C			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			38.3								HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			110.0								Sum of lost time (s)	15.0
Intersection Capacity Utilization			83.0%								ICU Level of Service	E
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↖↖	↖	↖↖	↖↖	↖↖
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	327	43	0	47	1033	370	662	1225	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	237	282	161	368	480		216	1147	495	723	1711	13
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.00	0.03	0.35	0.35	0.24	0.55	0.55
Sat Flow, veh/h	650	1000	571	1296	1702	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	29	0	99	327	43	0	47	1033	370	662	602	632
Grp Sat Flow(s),veh/h/ln	650	0	1571	1296	1702	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	3.8	0.0	5.3	25.7	2.0	0.0	2.3	32.6	25.1	23.1	32.1	32.1
Cycle Q Clear(g_c), s	5.8	0.0	5.3	31.0	2.0	0.0	2.3	32.6	25.1	23.1	32.1	32.1
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	237	0	443	368	480		216	1147	495	723	841	883
V/C Ratio(X)	0.12	0.00	0.22	0.89	0.09		0.22	0.90	0.75	0.92	0.72	0.72
Avail Cap(c_a), veh/h	237	0	443	368	480		311	1147	495	781	841	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.46	0.46	0.46	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	30.3	43.1	29.1	0.0	22.3	34.2	31.7	41.0	18.5	18.5
Incr Delay (d2), s/veh	0.2	0.0	0.3	22.2	0.1	0.0	0.2	5.8	4.8	14.9	5.2	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.1	11.3	0.9	0.0	0.8	13.4	9.0	9.6	11.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	30.5	65.4	29.2	0.0	22.5	40.0	36.5	55.8	23.7	23.5
LnGrp LOS	C	A	C	E	C		C	D	D	E	C	C
Approach Vol, veh/h		128			370			1450			1896	
Approach Delay, s/veh		30.7			61.2			38.5			34.9	
Approach LOS		C			E			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.9	43.1		36.0	8.8	65.2		36.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	28.0	36.0		31.0	11.0	53.0		31.0				
Max Q Clear Time (g_c+I1), s	25.1	34.6		33.0	4.3	34.1		7.8				
Green Ext Time (p_c), s	0.8	1.0		0.0	0.0	7.1		0.8				

Intersection Summary

HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX E: Crash Data

Node 4 Federal Way at Gate C

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Concrete Traffic Barrier	None

Node 5 Federal Way at Gate B

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2018	Turning Right	Angle Turning	Improper Turn
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention

Node 6 Federal Way at Silicon Lane

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Changing Lanes	Side Swipe Same	None
local	B Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Turning Right	Rear-End	None

Node 7 Gowan Road at Technology Way

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	Property Dmg Report	2018	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2019	Merging	Rear-End	Failed to Yield
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2019	Going Straight	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Head-On Turning	Failed to Obey Signal
state	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2021	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2021	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2021	Going Straight	Rear-End	Speed Too Fast For Conditions
state	B Injury Accident	2021	Starting in Traffic	Rear-End	Inattention
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close

Node 8 Gowan Road at Federal Way

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2017	Going Straight	Angle	None
local	A Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	A Injury Accident	2017	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Changing Lanes	Side Swipe Same	Improper Lane Change
local	Property Dmg Report	2017	Going Straight	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2018	Turning Left	Side Swipe Same	Improper Turn
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2018	Merging	Side Swipe Same	Improper Lane Change
state	C Injury Accident	2018	Merging	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Rear-End	None
state	C Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
state	Property Dmg Report	2019	Slowing in Traffic	Angle	Speed Too Fast For Conditions
local	Property Dmg Report	2019	Turning Right	Rear-End	Failed to Yield
local	B Injury Accident	2019	Left Turn on Red	Angle Turning	Alcohol Impaired
local	Property Dmg Report	2019	Going Straight	Angle	Distracted IN or ON Vehicle
local	B Injury Accident	2019	Turning Right	Rear-End Turning	Following Too Close
state	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2020	Going Straight	Rear-End	Asleep, Drowsy, Fatigued
local	Property Dmg Report	2020	Going Straight	Rear-End	Inattention
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2021	Turning Left	Same Direction Turning	Improper Turn
local	Property Dmg Report	2021	Changing Lanes	Side Swipe Same	Inattention
local	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal
state	B Injury Accident	2021	Left Turn on Red	Angle Turning	Inattention
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Node 9 Gowan Road at I-84 NB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
state	Fatal Accident	2017	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2017	Negotiating Curve	Side Swipe Same	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Negotiating Curve	Angle	Speed Too Fast For Conditions
state	B Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	B Injury Accident	2018	Going Straight	Rear-End	Alcohol Impaired
state	B Injury Accident	2019	Left Turn on Red	Angle Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Brakes
state	C Injury Accident	2019	Turning Left	Head-On Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2020	Slowing in Traffic	Traffic Sign Support	Speed Too Fast For Conditions
state	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2020	Turning Right	Head-On Turning	Inattention
state	B Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Turning Left	Head-On Turning	Failed to Yield

Node 10 Gowan Road at I-84 SB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	A Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
state	Property Dmg Report	2017	Turning Left	Curb	Alcohol Impaired
state	Property Dmg Report	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2018	Going Straight	Rear-End	Alcohol Impaired
state	C Injury Accident	2018	Negotiating Curve	Rear-End	Inattention
state	Property Dmg Report	2019	Turning Left	Separation of Units	Other
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	B Injury Accident	2020	Turning Left	Curb	Other
state	Property Dmg Report	2021	Turning Left	Side Swipe Same	Failed to Maintain Lane
state	Property Dmg Report	2021	Starting in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2021	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal

Node 14 Gowan Road ar Warm Spring					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	None
state	B Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2019	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2020	Going Straight	Angle	Inattention
state	C Injury Accident	2021	Turning Right	Angle Turning	Inattention

Node 15 Federal Way at Amity Road					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Right	Side Swipe Same	Improper Use of Turn Lane
local	Property Dmg Report	2018	Turning Left	Angle Turning	None
local	C Injury Accident	2018	Turning Left	Side Swipe Same	Failed to Yield
local	Property Dmg Report	2019	Turning Right	Same Direction Turning	Improper Turn
local	B Injury Accident	2019	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2019	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2019	Turning Left	Head-On Turning	None
local	Property Dmg Report	2020	Turning Right	Angle Turning	Failed to Yield
local	B Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Going Straight	Rear-End	Alcohol Impaired
local	Property Dmg Report	2021	Backing	Backed Into	Improper Backing
local	Property Dmg Report	2021	Turning Right	Side Swipe Same	Improper Turn
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2021	Going Straight	Head-On Turning	Other Vehicle Defect
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Stop Sign
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Intersection Crash Rates															
Int No.	Intersection	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Pk Hr Int. Vol.	DHV*	AADT*	K**	Daily Int. Vol. (V)***	Crash Rate (R)	Crashes by Type				
											Angle	Rear-End	Side Swipe	Head On	Obstacle
1	Eisenman Rd at I-84 SB Ramp	0	0/0/0	5	236	120	1000	12%	1967	0.00	0	0	0	0	0
2	Eisenman Rd at I-84 NB On-Ramp	0	0/0/0	5	198	120	1000	12%	1650	0.00	0	0	0	0	0
3	Memory Ln at Federal Way/I-84 NB Off-Ramp	1	0/1/0	5	182	120	1000	12%	1517	0.36	1	0	0	0	0
4	Federal Way at Gate C	1	0/1/0	5	240	204	1700	12%	2000	0.27	0	1	0	0	0
5	Federal Way at Gate B	2	2/0/0	5	820	1104	9200	12%	6833	0.16	1	1	0	0	0
6	Federal Way at Silcon Ln	3	1/2/0	5	1043	1620	13500	12%	8692	0.19	1	1	1	0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	5	1540	680	6800	10%	15400	0.50	1	10	3	0	0
8	Gowen Rd at Federal Way	33	22/11/0	5	3341	1450	14500	10%	33410	0.54	9	16	5	3	0
9	Gowen Rd at I-84 NB Ramp	16	5/10/1	5	2946	2200	22000	10%	29460	0.30	8	1	1	5	1
10	Gowen Rd at I-84 SB Ramp	15	12/3/0	5	2154	1800	18000	10%	21540	0.38	6	5	1	0	3
11	Technology Way at Circuit Ln	0	0/0/0	5	439	406	2900	14%	3136	0.00	0	0	0	0	0
13	Federal Way at Gate A	0	0/0/0	5	776	1104	9200	12%	6467	0.00	0	0	0	0	0
14	Gowen Rd at Warm Springs Ave	6	4/2/0	5	701	1075	5700	19%	3717	0.88	3	2	0	1	0
15	Federal Way at Amity Rd	29	18/11/0	5	2277	1050	10500	10%	22770	0.70	3	8	4	14	0
16	Federal Way at Bergeson Ave	13	9/4/0	5	3063	1200	12000	10%	30630	0.23	1	5	3	1	3

*Source: Idaho AADT ArcGIS map, 2021 volumes

**K = DHV / AADT

***V = Intersection Peak Volume / K

Crashes for spots (such as intersections) are normally expressed in terms of crashes per million entering vehicles (MEV). Use the following formula:

$$R = (A \times 10^6) / (365 \times T \times V)$$

where,
R = crash rate
A = number of reported crashes
T = time period of the analysis in years
V = daily entering volume at the intersection

Segment Crash Rates

Seg.	Segment Location	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Seg. Lnth (mi)	AADT (V)*	Crash Rate (R)
A	S Federal Way, btwn Gowen Rd and Memory Ln	11	9/2/0	5	2.51	8133	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	5	0.89	20000	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	5	0.56	18250	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	5	2.69	6800	44.93
E	Memory Ln, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	5	0.18	1000	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	5	0.59	2900	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	5	1.42	2900	13.31

*Source: Idaho AADT ArcGIS map, 2021 volumes

Crashes for roadway segments are normally expressed in terms of crashes per 100 million vehicle-miles (100MVM). Use the following formula:

$$R = (A \times 10^8) / (365 \times T \times V \times L)$$

where,
R = crash rate
A = number of reported crashes
T = time period of the analysis in years
V = AADT
L = Length of the segment in miles

APPENDIX F: Signal Timing Parameters

Timing Plans Used in Analysis - Source: ACHD Congestion Management Dept

4 Federal & Gigibit Ln (Gate C)

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	33		34		26		34			60 Free	1
PM Peak	15:30	18:30	33		34		26		34			60 Free	1

7 Gowen & Technology

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	11	50	45	20	50	20	45	20	30	165	70 1
PM Peak	15:30	18:30	13	20	45	20	30	20	65	20	50	155	70 1

8 Federal Way & Gowen

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	16	31	17	26	14	33	15	28	90	24 3 Lag: 1
PM Peak	15:30	18:30	3	45	44	46	45	14	75	43	48	180	35 1

9 Gowen & I-84 WB Ramps (NB)

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	15	30	75	0	0	0	105	0	25	130	27 1
PM Peak	16:00	18:00	15	30	75	0	0	0	105	0	25	130	27 1

10 Gowen & I-84 EB Ramps (SB)

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	11	0	90	0	130	20	70	0	0	220	27 1
PM Peak	16:00	18:00	13	0	120	0	70	20	100	0	0	190	84 1

15 Federal Way & Amity Road

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	21	40	0	21	21	40	0	28	110	50 2 Split: 8, 4
PM Peak	16:15	18:15	3	33	40	0	21	21	52	0	36	130	126 2 Split: 8, 4

16 Federal Way & Bergeson

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	19	43	0	35	15	47	0	13	110	36 6 Split: 4, 8 Lag: 1
PM Peak	16:15	18:15	3	27	43	0	39	18	52	0	21	130	74 2 Split: 4, 8

Controller Database Timing Sheet



Station: 190 - Federal Way & Amity-Scout 85.2.3 980 ATC (Standard-4/4/2022 9:28:01 AM)

Type: Scout Ethernet v85.2

Firmware: 85.2.194

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	0	6	5	10	0	6
Gap Ext	2.5	3	0	2.5	2.5	3	0	2.5
MAX 1	25	50	0	30	15	50	0	15
Max 2	35	60	0	40	25	60	0	15
Yel Clr	4	5	0	4	4	5	0	4
Red Clr	2	1	0	2	2	1	0	2
Walk	0	5	0	0	0	0	0	5
Ped Clr	0	26	0	0	0	0	0	25
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	0	0	0	0	0	0	0
Max Step	5	0	0	0	0	0	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	.	.	X	X	.	.
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	1
Startup	RED	WALK	RED	RED	RED	GREEN	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
Table - 1																																	
Cycle	110	0	130	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	50	0	126	0	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Split	1	0	3	4	5	0	0	0	0	0	0	0	0	14	15	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	31	0	
seqnc	2	0	2	2	2	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	21	40	0	21	21	40	0	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 3

Time	33	40	0	21	21	52	0	36
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON

Table - 4

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 5

Time	21	37	0	21	13	45	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 11

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 12

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 13

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 14

Time	35	10	0	20	10	35	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 15

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 19

Time	0	0	0	0	0	0	0	0
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 20								
Time	15	100	0	15	10	100	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	MIN	NON	NON	OMT	MIN	NON	NON

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	1	4	5	3	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																		
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	39	30	31	32	254	
Aux 1
Aux 2
Aux 3
Special 1
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 241 - Federal Way & Bergeson_Gekeler-Scout 85.3 (Standard-4/1/2022 7:31:17 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	5	0	10	5	10	0	5
Gap Ext	2.5	3	0	2	2	3	0	2
MAX 1	30	60	0	40	25	60	0	40
Max 2	35	45	0	45	35	45	0	45
Yel Clr	4	4	0	4	4	4	0	4
Red Clr	2	1.5	0	2	2	1.5	0	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	32	0	28	0	23	0	31
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	45	80	0	0	0	80	0	0
Max Step	5	10	0	0	0	10	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	0	1	2	2	0	1
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
Table - 1																																		
Cycle	110	0	130	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	36	0	74	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
seqnc	6	1	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	19	43	0	35	15	47	0	13
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3

Time	27	43	0	39	18	52	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON

Table - 4

Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 5

Time	21	43	0	42	21	43	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	45	45	0	50	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9

Time	45	45	0	5	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 12

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 13

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 14

Time	30	30	0	40	10	30	0	50
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 15

Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	0	0	0	0	0	0	0	0
------	---	---	---	---	---	---	---	---

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	25	100	0	20	15	100	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	25	40	0	25	10	40	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	MAX	MAX	NON	MAX	MAX	MAX	NON	MAX
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	5	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	1	4	5	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	6	9	15	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	30	0	15	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33			
Aux 1		
Aux 2		
Aux 3		
Special 1		
Special 2	
Special 3	
Special 4	
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 3322 - Federal Way & Gigabit IP (Standard-3/19/2020 4:23:00 PM)

Type: NTCIP 61.x TS2 Ethernet

Firmware:

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aux 1
Aux 2
Aux 3
Special 1	
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Pattern Plus																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Patterns																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Table - 1																																					
Cycle Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Phase Entries																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																					
Table - 1																																					
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Ped Clearance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Min Green	0	5	0	5	0	0	0	5	0	0	0	0	0	0																							
Passage	0	2	0	2	0	0	0	2	0	0	0	0	0	0																							
Max1	0	30	0	45	0	0	0	45	0	0	0	0	0	0																							
Max2	0	45	0	60	0	0	0	60	0	0	0	0	0	0																							
Yellow	0	4	0	4	0	0	0	4	0	0	0	0	0	0																							
Red	0	1	0	1	0	0	0	1	0	0	0	0	0	0																							
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	60	0	80	0	0	0	80	0	0	0	0	0	0	0	0
Dynamic Max Step	0	15	0	20	0	0	0	20	0	0	0	0	0	0	0	0
Startup	RED	RED	RED	GREEN	RED	RED	RED	GREEN	RED	RED	RED	RED	RED	RED	RED	RED
Enable	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Controller Database Timing Sheet



Station: 273 - Federal Way & Gowen-Scout 85.3 980 ATC (Standard-9/27/2022 11:08:39 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	6	8	5	5	8	8	5	10
Gap Ext	2	2	2	2	2	2	2	2
MAX 1	60	60	40	60	35	60	40	60
Max 2	80	100	80	100	80	100	80	100
Yel Clr	4	4	4	4	4	4	4	4
Red Clr	2	2	2	2	2	2	2	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	31	0	34	0	29	0	27
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	20	0	20	0	20
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	10	0	10	0	10
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.4	0	1.2	0	1.4	0	1.2
DyMaxLim	0	0	0	0	0	0	0	0
Max Step	0	0	0	0	0	0	0	0
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	.	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	X	.	X	.	X
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	7	7	1	1	3	3
C 2	6	6	8	8	2	2	4	4
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
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Table - 1																																
Cycle	90	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0
Offset	24	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	16	31	17	26	14	33	15	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3

Time	39	30	50	31	17	52	25	56
Coord Phase	.	.	X	.	.	.	.	.
Mode	NON	NON	MAX	NON	NON	NON	NON	MIN

Table - 4

Time	20	25	20	20	15	25	15	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 5

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	25	30	100	30	15	30	25	100
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	80	40	25	35	15	110	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 12

Time	65	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 13

Time	50	50	65	45	15	60	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 14

Time	40	30	30	50	15	50	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 15

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	10	10	10	100	20	10	20	100
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase
Mode	OMT	NON	OMT	MIN	NON	OMT	NON	MIN
Table - 20								
Time	25	70	35	40	45	25	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 25								
Time	30	40	40	30	20	40	20	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 28								
Time	41	44	18	47	15	70	18	47
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON

Table - 29

Time	0	70	40	30	15	70	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	NON	NON	NON	NON	MIN	OMT	NON

Table - 30

Time	40	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 31

Time	55	45	35	40	25	110	25	35
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 32

Time	65	55	65	70	15	70	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	.	X	.	.	X
Mon	X	.	.	X	X
Tue	X	.	.	X	X
Wed	X	.	.	X	X
Thu	X	.	.	X	.	.	.	X	X
Fri	X	.	.	X	X
Sat	.	X	.	.	X	.	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	10	10	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	8	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	29	32	29	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 275 - GOWEN & I-84 EB OFF RAMP-Scout 85.3 980 ATC (Standard-9/27/2022 11:11:23 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	0	5	0	6	5	10	0	0
Gap Ext	0	3	0	2.5	2	3	0	0
MAX 1	0	40	0	110	25	40	0	0
Max 2	0	20	0	100	20	20	0	0
Yel Clr	0	4	0	4	4	4	0	0
Red Clr	0	1.5	0	2	2	1.5	0	0
Walk	0	0	0	0	0	5	0	0
Ped Clr	0	0	0	0	0	17	0	0
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	60	0	20	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	15	0	10	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.5	0	1.8	0	2	0	0
DyMaxLim	0	70	0	140	35	70	0	0
Max Step	0	10	0	10	5	10	0	0
Enable P	.	X	.	X	X	X	.	.
Min Recall	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																
Cycle	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	90	0	0	120	150	0	0	0	0	
Offset	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	89	0	0	116	35	0	0	0	0	
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	0	25	0	65	0	25	0	65
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON

Table - 2

Time	0	36	0	44	0	36	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON

Table - 3

Time	0	43	0	42	0	43	0	42
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON

Table - 4

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 5

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	0	70	0	130	20	70	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	MIN	NON	NON	NON	NON

Table - 12

Time	0	80	0	60	20	80	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 13

Time	0	100	0	70	20	100	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 14

Time	0	60	0	40	20	60	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 15

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	0	0	0	0	0	0	0	0
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	80	0	40	11	69	0	40
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 24								
Time	0	53	0	37	11	42	0	37
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 25								
Time	0	70	0	30	15	45	0	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	0	60	0	60	15	250	0	45
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	0	90	0	30	15	75	0	30
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON
Table - 28								
Time	0	117	0	33	18	99	0	33
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	.	X
Mon	X	.	.	X
Tue	X	.	.	X
Wed	X	.	.	X
Thu	X	.	.	X
Fri	X	.	.	X
Sat	.	X	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X
Apr	X	X	X
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	13	14	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	11	11	13	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 444 - Gowen & I-84 WB Off Ramp (Standard-8/12/2021 9:56:14 AM)

Type: NTCIP 61.x TS2 Ethernet

Firmware: 61.04q

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Table - 1																																					
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aux 1	
Aux 2	
Aux 3	
Special 1	
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Coord Plus																
	Value															
Table - 1																
Mode	FRC															
Leave Before	TIMED															
Leave After	TIMED															
Recycle	NO_RECYCLE															
Stop In Walk	.															
External	.															
Auto Reset	.															
Latch Sec Foff	.															
Coord Easy Float	.															
Yield Value	0															
Coord NTCIP Yield Sign	+															
Closed Loop Active	.															
Shortway+	.															

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Table - 1																
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	15	15	0	0	0	0	0	0	0	0	0	0	0

Table - 2																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 4																
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	13	14	15	0	0	0	0	0	0	0	0	0	0

Table - 5																
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 6

Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0

Table - 7

Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0
Action	15	11	11	11	13	15	15	0	0	0	0	0	0	0	0	0

Table - 8

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 9

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 10

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Flashing Yellow Arrow

	Value															
--	-------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table - 1

Channel 1	13															
Channel 2	0															
Channel 3	0															
Channel 4	0															

Overlap Programming

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1

Included P1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	R-T/OTH	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	4	3.5	3.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.5	1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Overlap+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1

Conflict P1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conflict Ped 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LeadGreen	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA After Preempt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green Delay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	.	FL YEL4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA Delay	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
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Table - 1																																						
Short	10	10	10	0	0	0	0	0	0	0	10	10	10	10	0	0	0	0	0	0	0	0	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	
Long	25	25	25	17	17	17	17	17	17	17	25	25	25	25	17	17	17	17	17	17	17	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17		
Dwell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Early Yield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Offset	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN			
CNA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Flt
Min Veh
Min Ped
Ret Hold
CIC Plan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ph Opt Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ph Time Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Det Grp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Call Inh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Pattern Plus

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T		
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patterns

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Cycle Time	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	90	0	0	12 0	15 0	0	0	0	0	0	0	0	0
Offset Time	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	76	0	0	15	54	0	0	0	0	0	0	0	0
Split Number	1	2	3	0	0	0	0	0	0	0	11	12	13	14	15	0	0	0	0	0	0	0	23	24	25	26	27	28	0	0	31	32	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1	1	1

Phase Entries

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Walk	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
Min Green	5	10	0	0	0	5	0	10	0	0	0	0	0	0	0	0
Passage	4	3	0	0	0	3	0	2.5	0	0	0	0	0	0	0	0
Max1	30	75	0	0	0	75	0	25	0	0	0	0	0	0	0	0
Max2	40	20	0	0	0	20	0	40	0	0	0	0	0	0	0	0
Yellow	4	4	0	0	0	4	0	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	0	0	0	1.5	0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Startup	RED	GREEN	RED	RED	RED	WALK	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
Enable	X	X	.	.	.	X	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Reservice	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Walk Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Skip Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Delay	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Conf Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Ped Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Omit Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inhibit P1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Call Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Table - 1																																	
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Scheduler																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Time	12	25	0	53	0	37	0	53	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 2

Time	12	24	0	44	0	36	0	44	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 3

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	12	31	0	42	0	43	0	42	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Table - 4																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 5																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 6																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 7																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 8																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 9																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 10																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 11																
Time	30	130	0	0	0	130	0	20	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 12																
Time	30	90	0	0	0	90	0	25	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 284 - Hwy 21 & Technology_Grand Forest-Scout 85.3 (Standard-9/27/2022 10:53:12 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	5	5	5	10	5	10
Gap Ext	2	5	2	2	2	5	2	2
MAX 1	20	45	20	30	20	45	20	30
Max 2	30	55	30	40	30	55	30	40
Yel Clr	4	5	4	4	4	5	4	4
Red Clr	1	1	1	1	1	1	1	1
Walk	0	5	0	0	0	5	0	5
Ped Clr	0	15	0	0	0	17	0	20
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	60	40	50	40	60	40	50
Max Step	5	5	5	5	5	5	5	5
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
Table - 1																																			
Cycle	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
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Table - 1

Time	15	31	13	31	17	29	13	31
Coord Phase	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 4

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 5

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																			
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	254		
Aux 1
Aux 2
Aux 3
Special 1
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TECHNICAL MEMORANDUM

To: Lee Cooper, Micron

From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)

cc: Deborah E. Nelson, Givens Pursley, LLP

Date: April 6, 2023

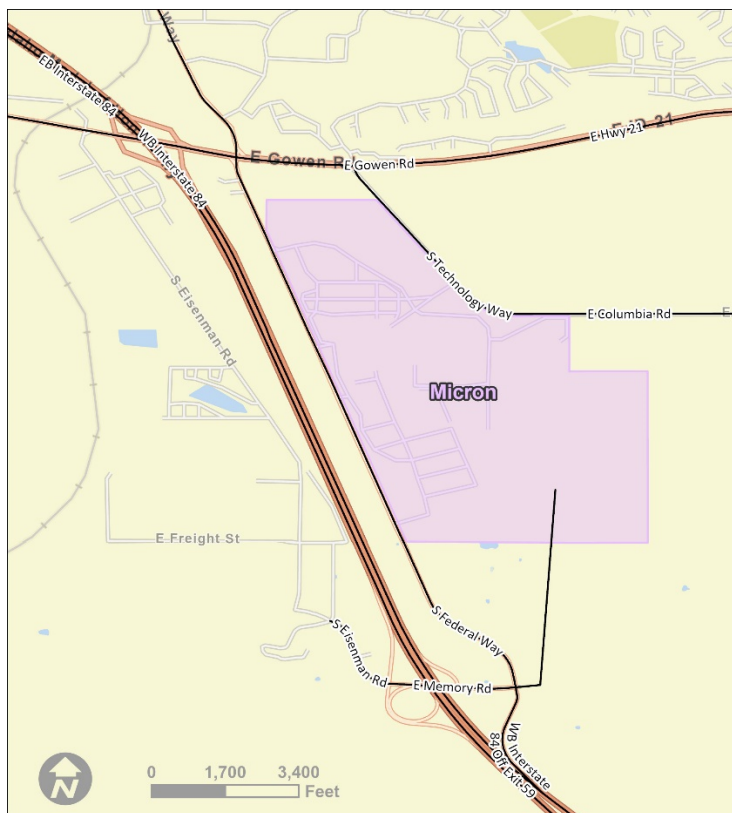
Re: Proposed Micron FAB1 Development, S Federal Way, Boise, ID
Construction Traffic Impact Assessment

At the request of ACHD and the City of Boise, NV5 examined the expected traffic loading during construction of a new fabrication facility surrounding the Micron campus. The assessment relies heavily on the traffic impact study completed for this site (dated November 8, 2022) and accepted by ACHD on November 14, 2022.

Background Information

A new manufacturing facility will be built on land adjacent to the existing Micron R&D campus in southeast Boise, ID. This will include multiple new and refurbished buildings, parking areas, physical plants, and other facilities. The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. The new buildings will be east of Federal Way, north of Memory Lane, and west of Columbia Road. When complete, the campus will have the same points of egress as are there today. Construction will take place through 2025. During construction, traffic will utilize a temporary road, which will come from the extension of Memory Lane.

Site Location and Study Area Map

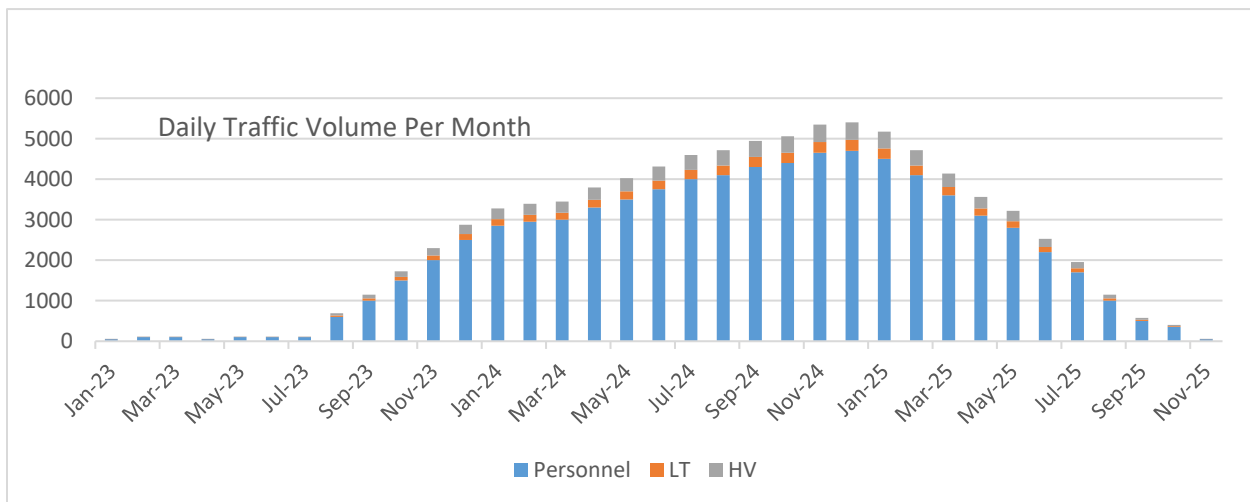


Construction Traffic Development

Micron’s architectural team developed a massing plan showing the expected number of construction workers needed for various stages of the overall project. The head count correlates to individual automobiles but based on the other similar construction projects, construction workers are often carpooled to the site in multiples of two, three or more people per vehicle. The construction management team will require car and vanpools of workers to limit the need for on-site parking. A conservative estimate, for the purpose of this effort is that the daily auto traffic volume will be about 50% of the headcount though the influence of car/vanpooling is likely to be higher and result in lower vehicular traffic.

Light trucks and heavy trucks are more difficult to estimate. The architectural team completed another similar project in 2021. Data were collected over time and averaged together for snapshot of the type of traffic that can be expected on site. In general, employee trips represented 87% of the daily volume. Light duty trucks (i.e., box trucks, delivery vehicles, etc.) were about 5% of the overall traffic volume. The remaining volume (8%) were heavy vehicles that hauled in equipment, construction materials, and carried out rock, earth, spoils, etc.

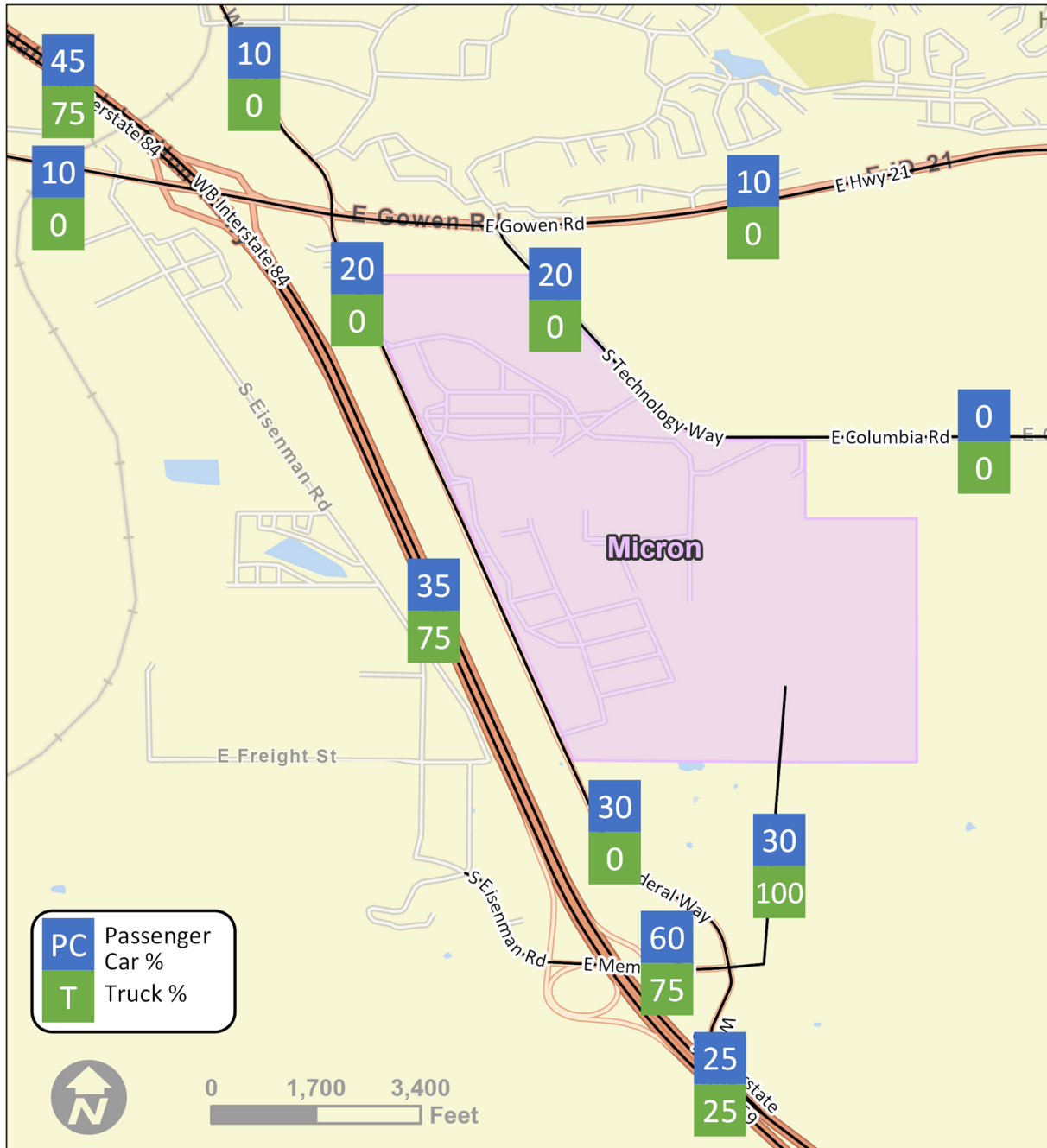
Based on the expected construction schedule, manpower loading, and the ratios of autos, light-duty trucks (LT) and heavy-duty trucks (HV), the following figure was developed to illustrate the ebb and flow of traffic over the course of the construction project. Based on the previous construction project, the peak hour traffic is approximately 21% of the daily volume and comprises a similar ratio of autos, light trucks, and heavy vehicles.



Trip Distribution and Trip Assignment

The anticipated directional distribution is based partially on the distribution assumptions in the Traffic Impact Study and partially on a reassessment of those assumptions with the availability of additional avenues of travel. For example, a new construction roadway will be built to east of the end of Eisenman Pkwy and then due north to the Micron Campus. This roadway is intended to bring trucks and personnel from I-84 and greatly reduce the need to travel along the existing corridors. Moreover, construction equipment (LT and HV) will be restricted from using Technology Way; therefore, the I-84 at Eisenman Pkwy interchange will be the most advantageous path for the construction project. The expected trip distribution is shown in the following figure.

Macro Area Trip Distribution – Autos and Trucks



Using the expected traffic volume for the three vehicle types and the distribution shown above, the volume on each segment of the surrounding road network was developed for each three month period from January 2023 through the end of 2025.

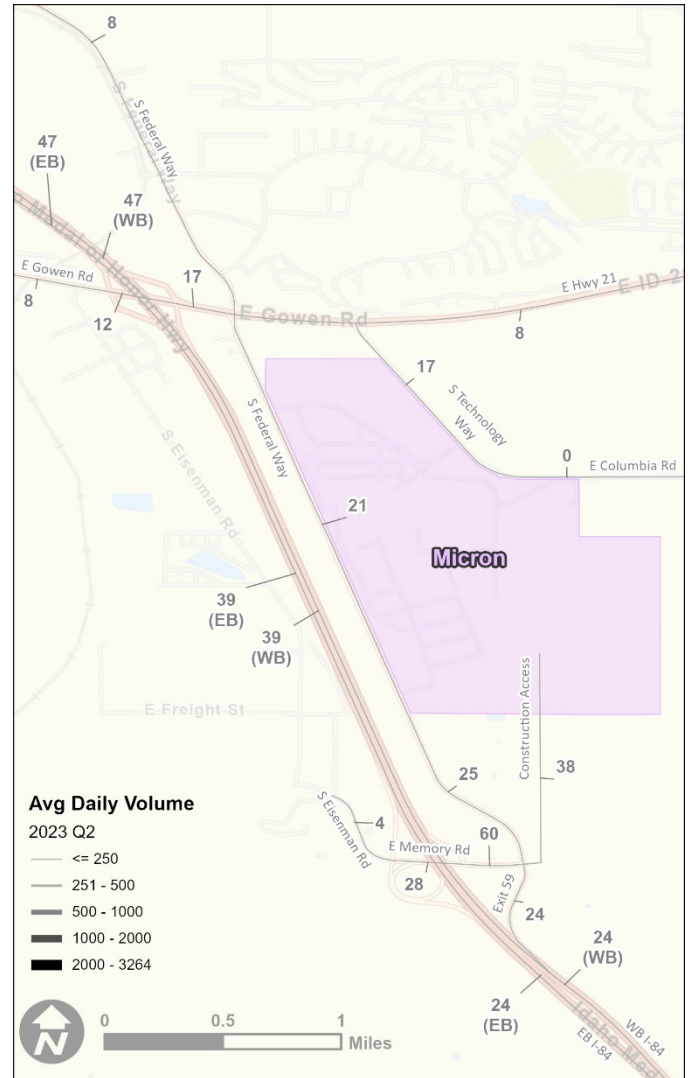
	2023				2024				2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Daily Auto:	83	83	567	2000	2933	3517	4133	4583	4067	2700	1067	200
Daily Light Trucks	5	5	32	115	169	202	238	263	234	155	61	12
Daily Heavy Trucks	8	8	52	184	270	323	380	422	374	248	98	19

			Daily FAB1 Construction Traffic														
			Distribution %			2023				2024				2025			
Road	From	To	Auto	LT	HV	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Technology Way	SH 21 (Gowen Rd)	Circuit Lane	20%			17	17	113	400	587	703	827	917	813	540	213	40
Columbia Rd	Circuit Lane	Amber Ridge Ave	0%			0	0	0	0	0	0	0	0	0	0	0	0
Federal Way	Amity Rd	SH 21 (Gowen Rd)	10%			8	8	57	200	293	352	413	458	407	270	107	20
Federal Way	SH 21 (Gowen Rd)	Silicon Ln	20%			17	17	113	400	587	703	827	917	813	540	213	40
Federal Way	Silicon Ln	Gigibit Ln	25%			21	21	142	500	733	879	1033	1146	1017	675	267	50
Federal Way	Gigibit Ln	Eisenman Rd	30%			25	25	170	600	880	1055	1240	1375	1220	810	320	60
I-84 WB Exit at Eisenman	Eisenman Rd	I-84 WB	25%	25%	25%	24	24	163	575	843	1011	1188	1317	1169	776	307	58
I-84 EB	Broadway Ave	SH 21 (Gowen Rd)	45%	75%	75%	47	47	318	1124	1649	1976	2323	2576	2286	1517	599	113
I-84 WB	SH 21 (Gowen Rd)	Broadway Ave	45%	75%	75%	47	47	318	1124	1649	1976	2323	2576	2286	1517	599	113
I-84 EB	SH 21 (Gowen Rd)	Eisenman Rd	35%	75%	75%	39	39	261	924	1356	1625	1910	2118	1879	1247	493	93
I-84 WB	Eisenman Rd	SH 21 (Gowen Rd)	35%	75%	75%	39	39	261	924	1356	1625	1910	2118	1879	1247	493	93
I-84 EB	Eisenman Rd	Blacks Creek Rd	25%	25%	25%	24	24	163	575	843	1011	1188	1317	1169	776	307	58
I-84 WB	Blacks Creek Rd	Eisenman Pkwy	25%	25%	25%	24	24	163	575	843	1011	1188	1317	1169	776	307	58
Temporary Construction Rd	Construction Site	Federal Way	30%	100%	100%	38	38	254	899	1319	1580	1858	2060	1828	1213	479	91
Eisenman Rd	Federal Way	I-84 WB On-Ramp	60%	75%	75%	60	60	403	1424	2089	2504	2943	3264	2896	1922	759	143
Eisenman Rd	I-84 WB On-Ramp	I-84 EB Ramp	30%	25%	25%	28	28	191	675	990	1186	1394	1546	1372	911	360	68
Eisenman Rd	I-84 EB Ramp	Blue Cloud Ln	5%			4	4	28	100	147	176	207	229	203	135	53	10
SH 21 (Gowen Rd)	East of Warm Springs Ave	Warm Springs Ave	5%			4	4	28	100	147	176	207	229	203	135	53	10
SH 21 (Gowen Rd)	Warm Springs Ave	Technology Way	10%			8	8	57	200	293	352	413	458	407	270	107	20
SH 21 (Gowen Rd)	Technology Way	Federal Way	10%			8	8	57	200	293	352	413	458	407	270	107	20
SH 21 (Gowen Rd)	Federal Way	I-84 WB Ramp	20%			17	17	113	400	587	703	827	917	813	540	213	40
SH 21 (Gowen Rd)	I-84 WB Ramp	I-84 EB Ramp	15%			12	12	85	300	440	528	620	687	610	405	160	30
SH 21 (Gowen Rd)	I-84 EB Ramp	Eisenman Pkwy	10%			8	8	57	200	293	352	413	458	407	270	107	20
SH 21 (Gowen Rd)	Eisenman Pkwy	Production St	10%			8	8	57	200	293	352	413	458	407	270	107	20
Warm Springs Ave	Higland Valley Rd	SH 21 (Gowen Rd)	5%			4	4	28	100	147	176	207	229	203	135	53	10

As can be seen by the preceding table, the volume of traffic on each road is the sum of products of daily volume by vehicle type and the distribution expected for that vehicle type. For each three-month period of the year, the traffic volumes were assigned to the road network and illustrated by variable width lines. Those images are shown on the following pages.

2023 - Q1

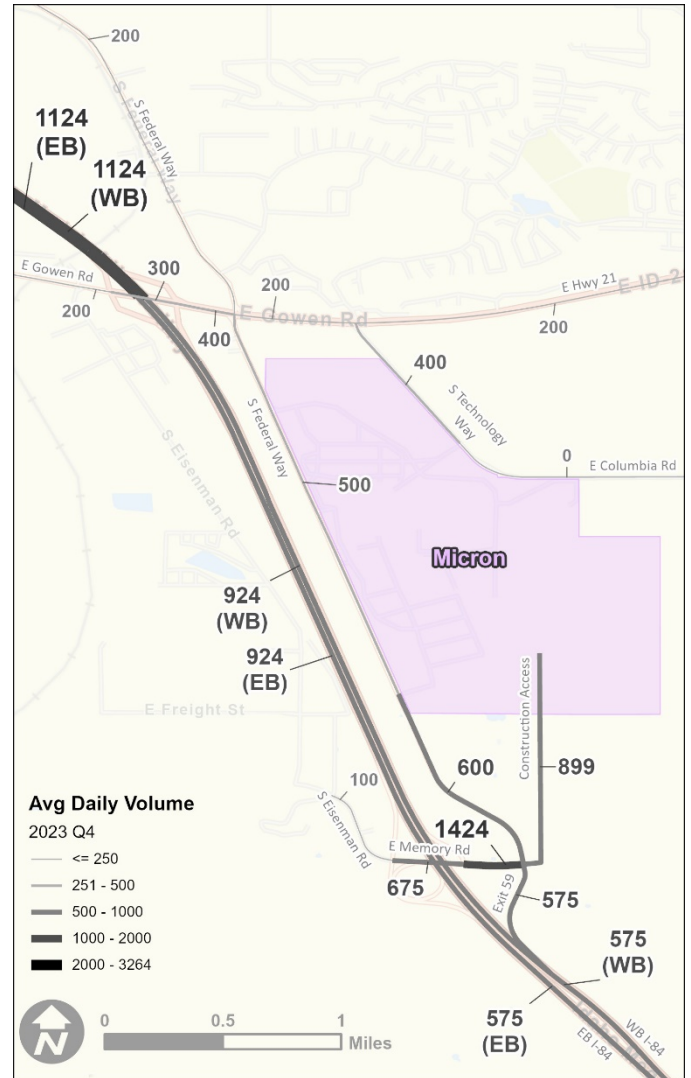
2023 - Q2



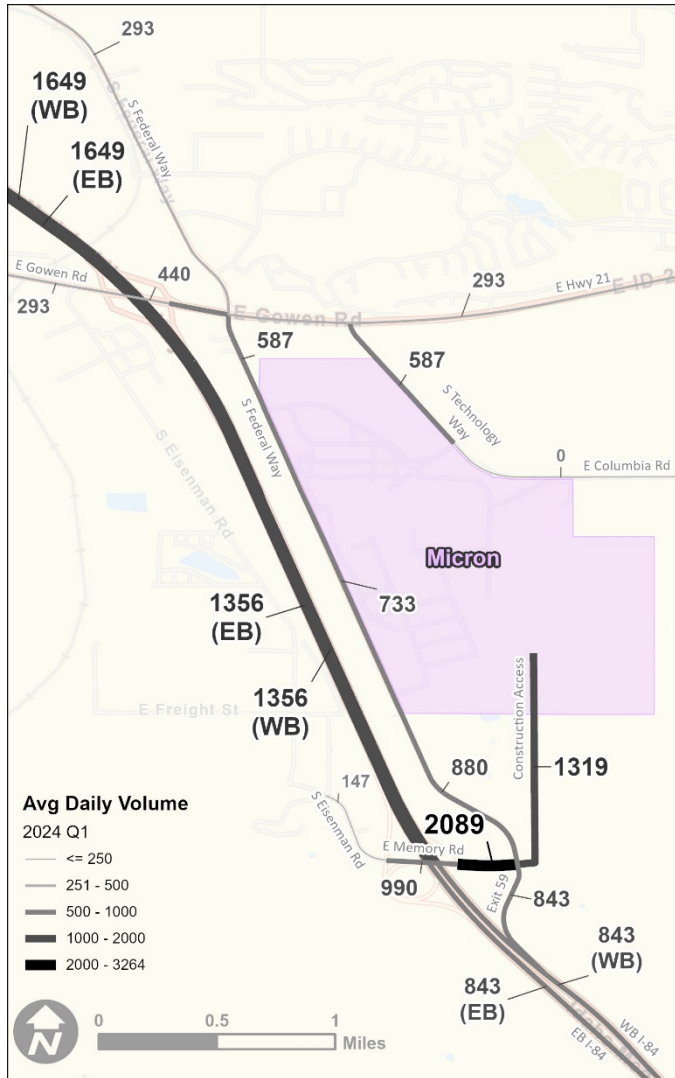
2023 - Q3



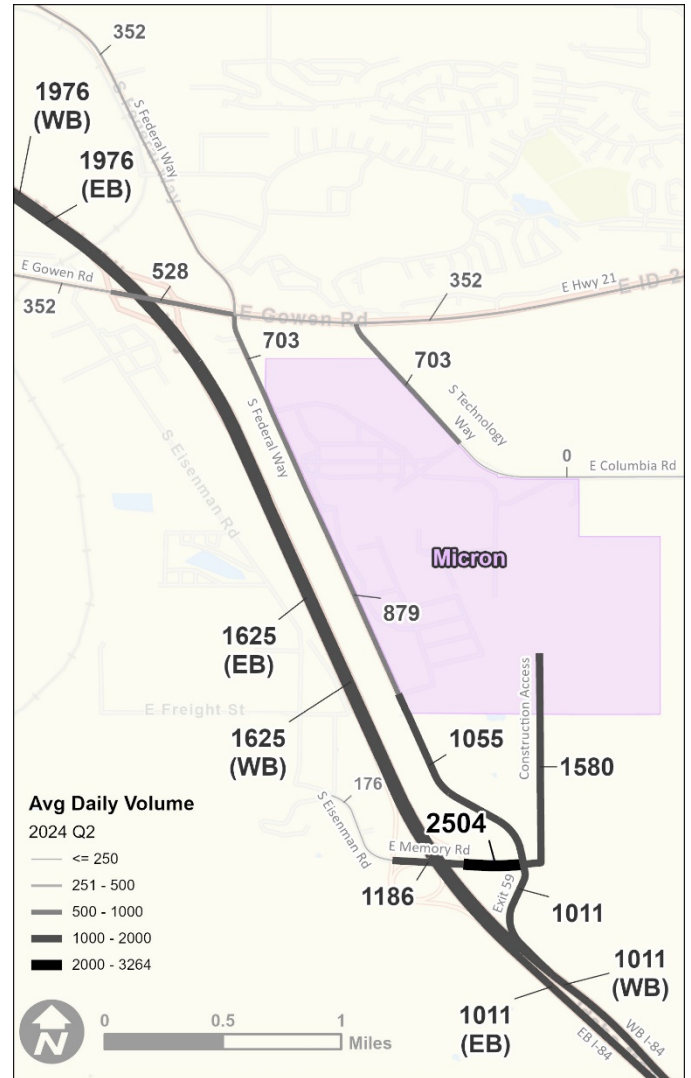
2023 - Q4



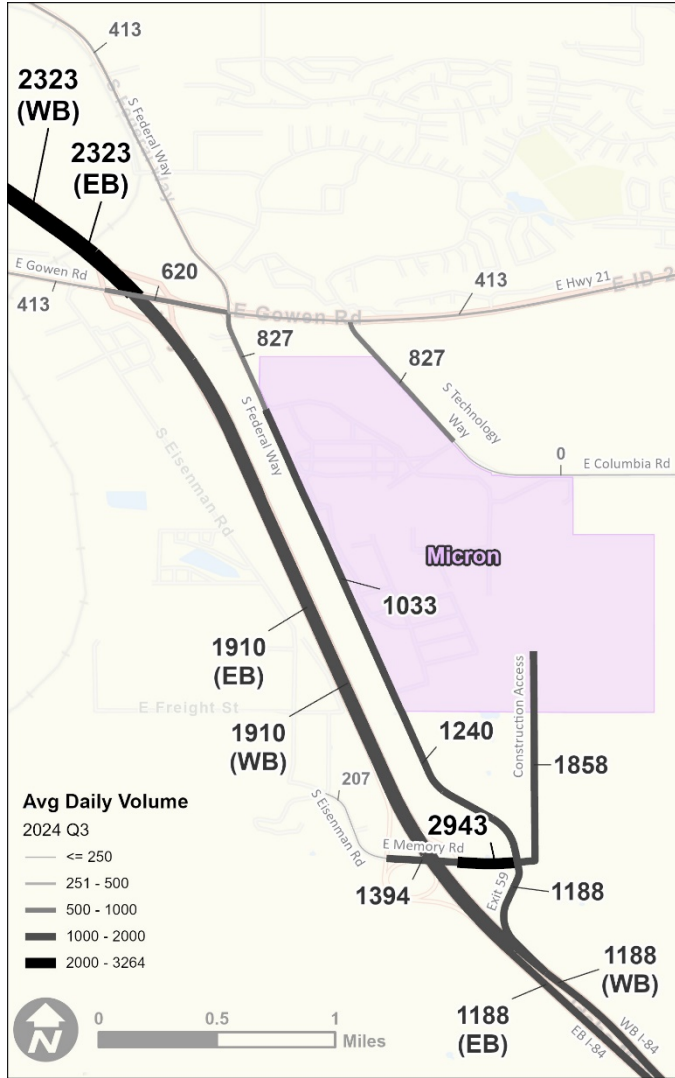
2024 - Q1



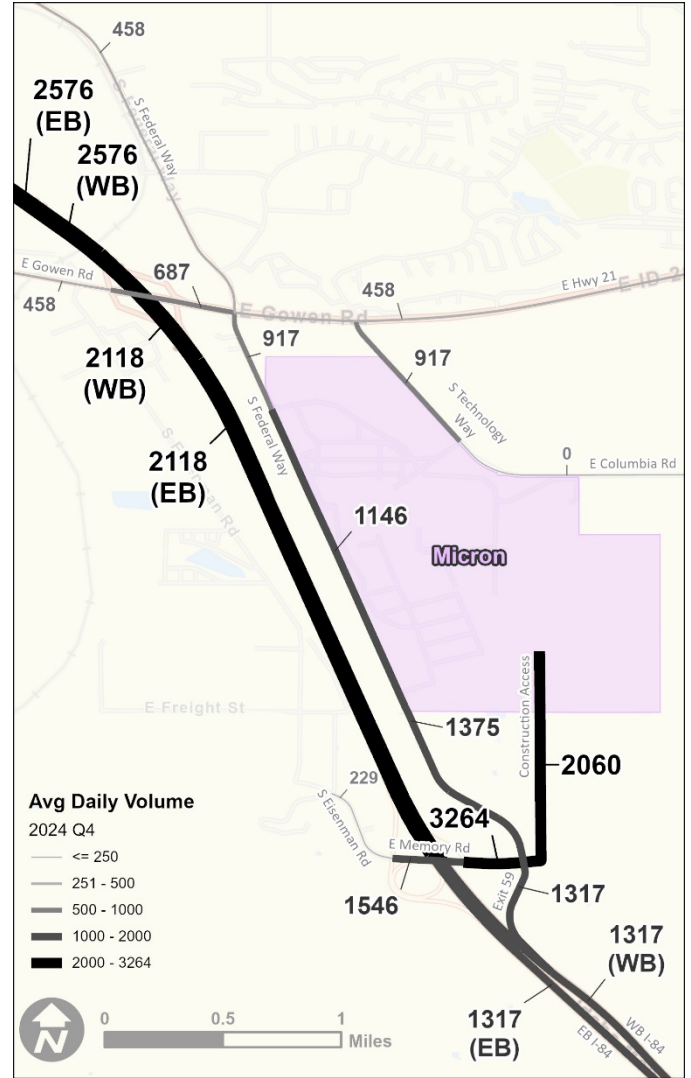
2024 - Q2



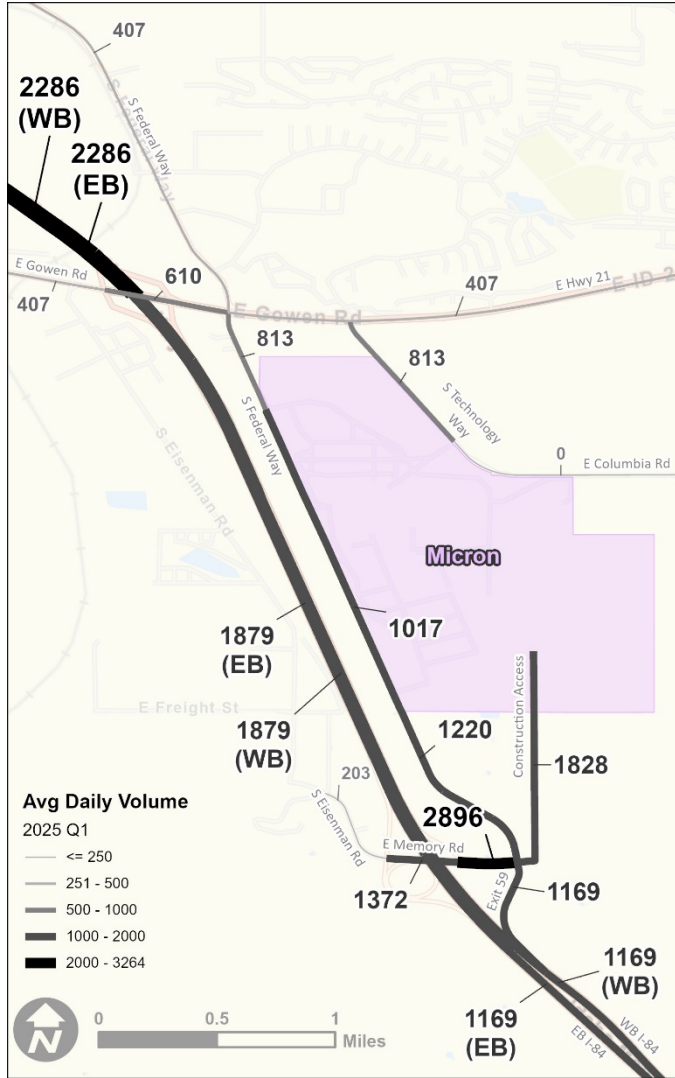
2024 - Q3



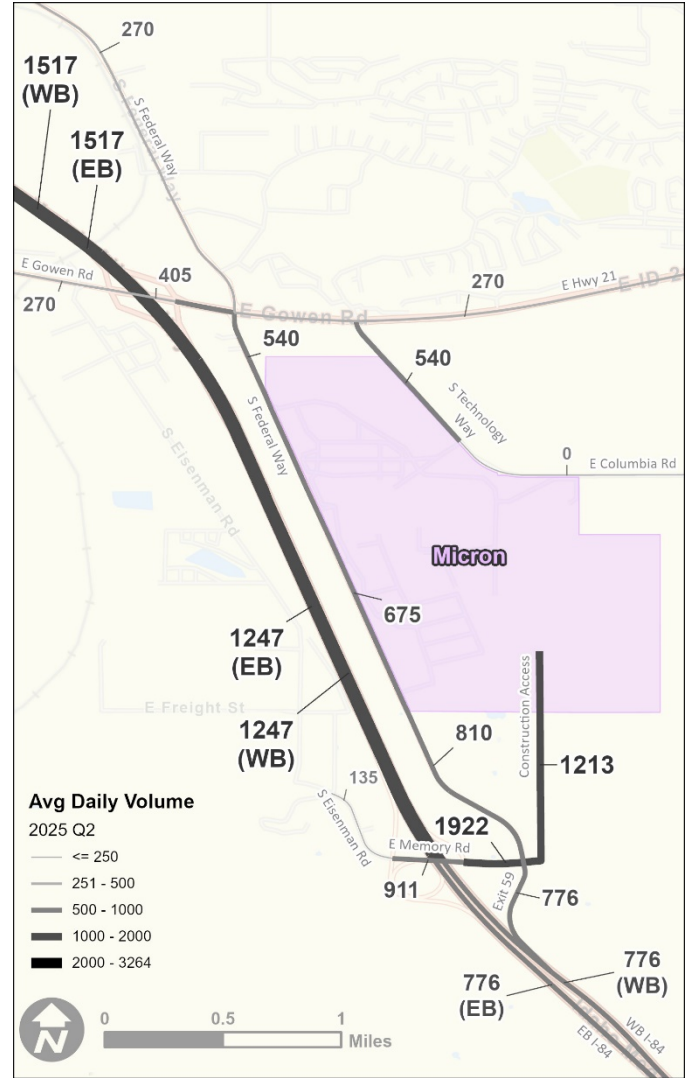
2024 - Q4



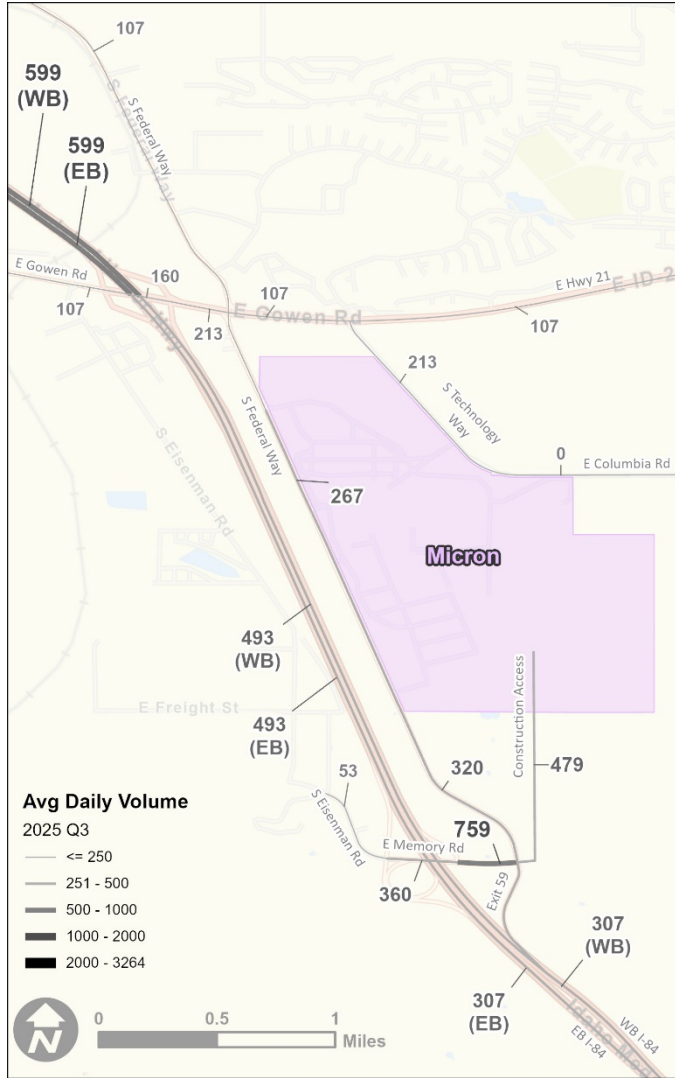
2025 - Q1



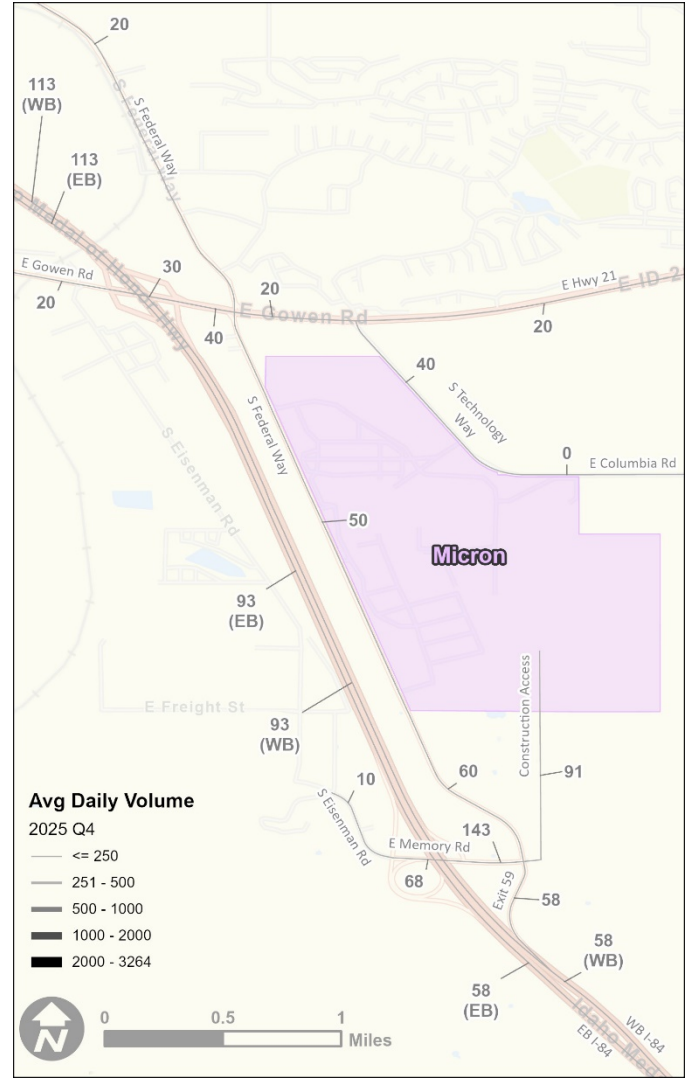
2025 - Q2



2025 - Q3



2025 - Q4



Conclusions

At the height of construction in the fourth quarter of 2024, there will be over 4500 auto, light-truck, and heavy vehicles trips per days associated with the new Micron fabrication facilities. Most of the trips will make use of the under-utilized Eisenman Road interchange. Heavy vehicles will be required to use the construction entrance from the eastern extension of Eisenman Road. Personal vehicle trips will be limited by the need to carpool/vanpool to the site due to limitations on parking imposed by Micron and the contractor.

TECHNICAL MEMORANDUM

To: Lee Cooper, Micron

From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)

cc: Christy Little, ACHD
Wendy Howell, ITD
Deborah E. Nelson, Givens Pursley, LLP

Date: April 25, 2023

Re: Traffic Impact Study 2030 Horizon Year Analysis
Proposed Micron FAB1 Development, S Federal Way, Boise, ID

A traffic impact study for the Micron FAB1 project was completed and accepted by ACHD November 8, 2022. Subsequently, ITD reviewed the study and requested changes to comply with their standard practices, The study was revised January 18, 2023. As part of the Environmental Assessment for the project, a horizon year analysis of 2030 is required. This memorandum includes additional LOS analysis and mitigation measures for the study intersections identified in the original traffic impact study.

Summary of 2025 Analysis and Recommendations

Per ACHD requirements, any intersection with an overall Volume-to-Capacity ratio (V/C) greater than 0.90 is considered to be substandard. For ITD, intersections on the state highway system that exhibit movements with LOS F or V/C ratios greater than 0.90 are considered insufficient. The following intersections were identified as needing improvements and the subsequent mitigation as shown below:

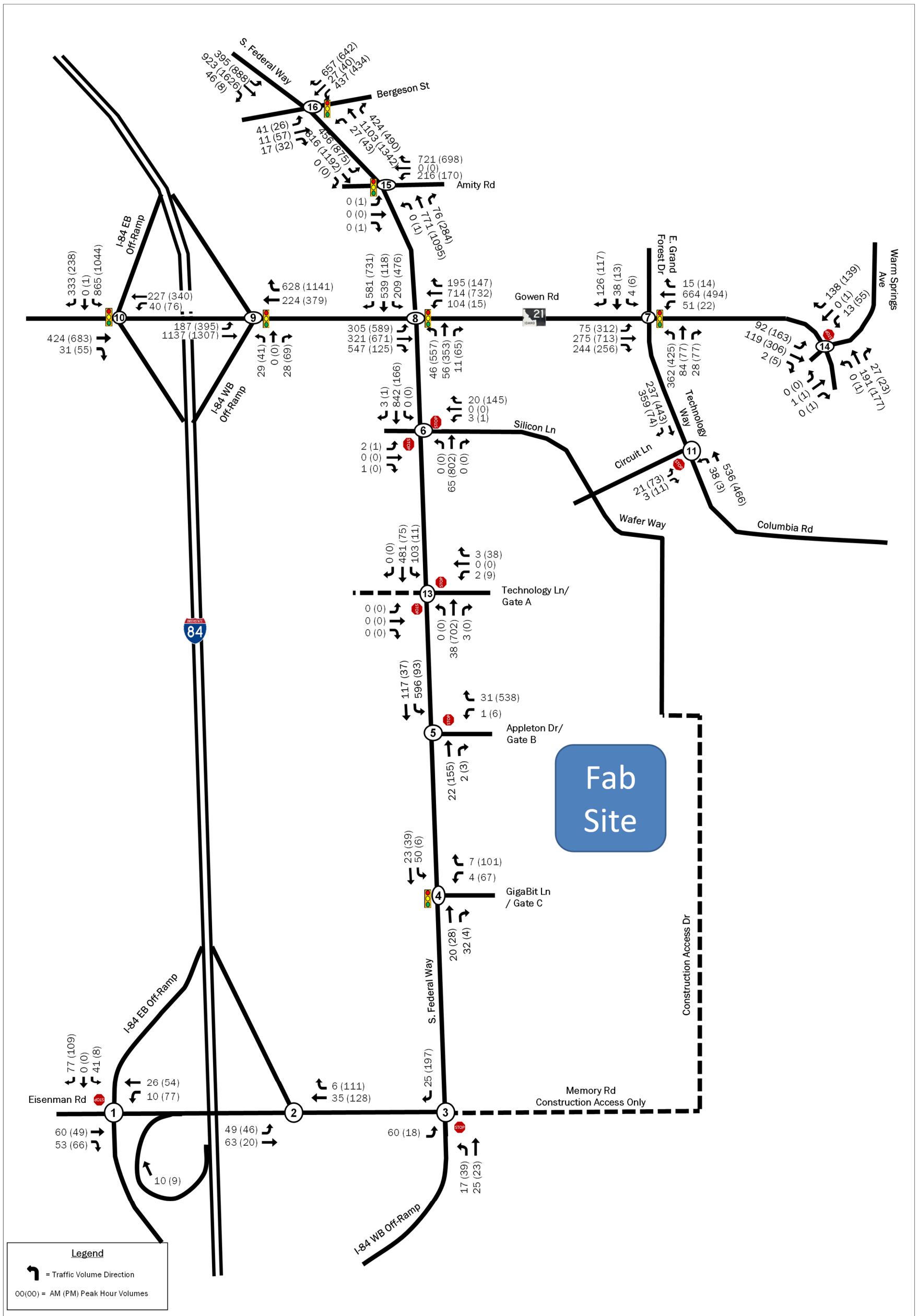
3. Memory Road (Eisenman Pkwy) & Federal Way / I-84 WB Off-Ramp (2025 Build Conditions)
 - Re-configure the southbound approach to the intersection to include a left turn lane
 - Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
5. Federal Way at Gate B (2025 Build Conditions)
 - Install a traffic signal <or> eliminate left turn movements out of Micron's campus
8. Gowen Road (SH 21) & S Federal Way (2022 Existing Conditions)
 - Add a southbound left turn lane
 - Add a westbound thru lane and replace the westbound right turn lane
 - Re-time traffic signal
10. Gowen Road (SH 21) & I-84 EB Ramp (2022 Existing Conditions)
 - Add a 3rd southbound left turn lane
 - Replace southbound right turn lane
 - Re-time traffic signal
15. Federal Way & Amity Way (2022 Existing Conditions)
 - Add a right-turn overlap signal for the westbound right turns
 - Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the southbound left turn signal for protected-only operation
 - Reconfigure the northbound left turn signal for permitted operation
 - Remove the split-phased operation and retime signal
16. Federal Way & Bergeson Avenue (2022 Existing Conditions)
 - Add a channelizing island for the westbound right turn movement
 - Add a right-turn overlap signal for the westbound right turn movement
 - Extend the left turn lane on Bergeson to a total of 500 feet

- Change the eastbound left-thru lane to an exclusive left turn lane
- Remove the split-phased operation and re-time the signal

2030 Horizon Year No-Build Analysis

As a part of the initial traffic impact study, COMPASS provided traffic growth projections for the various roadways surrounding the site from 2025 to 2030. The projections were used to grow traffic to a baseline, no-build 2030 volume. Refer to the traffic impact study dated January 18, 2023 for more details on how the growth projections were calculated. Figure 1 shows the 2030 no-build volume at the study intersections.

Figure 1. 2030 No-Build Volume



Using the same analysis methods as in the initial traffic impact study, the intersection levels of service were calculated along with V/C ratios, delay, and queuing. Table 1 shows the results.

Table 1: Intersection Level of Service Results – 2030 No-Build Conditions

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	8.0	0	0.07	A	8.2	4
			SBL	310	0.05	A	9.2	4	0.01	B	10.5	0
			SBR	-	0.09	A	9.2	6	0.13	A	9.6	10
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.04	A	8.1	2	0.05	A	8.9	4
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	2	0.05	A	9.0	2
			NBT	-	0.03	A	9.1	2	0.03	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	0.07	A	5.1	-	0.12	A	7.3	-
			WBL	-	0.14	B	10.2	6	0.26	A	7.5	18
			WBR	-	0.32	B	15.2	8	0.45	A	8.5	13
			NBT	-	0.05	A	4.0	7	0.07	A	5.4	10
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.07	A	4.2	14	0.01	A	5.5	4
			SBT	-	0.06	A	4.0	8	0.11	A	5.5	13
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	26.2	0
			WBL	-	0.02	F	58.0	0	0.01	B	12.1	0
			WBTR	-	0.03	A	8.5	2	0.70	C	16.9	118
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	C	24.9	0	0.01	C	18.2	0
			EBR	-	0.00	C	15.6	0	-	A	0.0	-
			WBL	-	0.01	B	12.6	0	0.01	C	18.4	0
			WBR	-	0.02	A	8.7	2	0.28	B	14.3	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.51	D	54.9	-	0.68	E	58.7	-
			EBL	155	0.19	A	7.2	51	0.58	A	9.3	180
			EBT	-	0.15	A	8.2	104	0.37	A	9.8	248
			EBR	415	-	A	0.0	43	-	A	0.0	39
			WBL	90	0.07	A	6.3	37	0.05	B	10.3	17
			WBTR	-	0.32	A	9.9	283	0.28	B	13.8	251
			NBL	520	1.22	F	186.6	348	1.33	F	226.3	389
			NBT	-	0.39	E	58.2	128	0.35	D	53.5	118
			NBR	240	-	A	0.0	0	-	A	0.0	33
			SBL	125	0.04	E	66.7	12	0.06	E	62.0	17
			SBTR	-	0.62	E	77.8	156	0.23	E	64.8	77

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
8	Gowen Rd at Federal Way	Signal	Overall	-	0.88	D	44.0	-	1.21	F	108.2	-
			EBL	420	0.51	D	37.6	187	1.01	F	106.9	544
			EBT	-	0.28	C	27.8	96	0.57	D	40.4	453
			EBR	390	-	A	0.0	351	-	A	0.0	48
			WBL	175	0.81	E	59.7	156	0.40	F	88.9	49
			WBT	-	0.91	D	42.8	332	1.06	F	110.0	735
			WBR	225	-	A	0.0	52	-	A	0.0	137
			NBL	495	0.41	D	44.2	31	0.94	F	88.9	464
			NBT	-	0.14	D	33.7	31	0.59	E	63.9	279
			NBR	150	0.05	D	33.2	0	0.21	E	57.6	17
			SBL	275	0.53	C	30.1	138	1.09	F	112.9	797
			SBT	-	0.82	D	41.0	211	0.18	E	56.8	101
SBR	255	1.06	F	64.3	508	1.34	F	215.9	1427			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.36	A	5.5	-	0.60	A	6.7	-
			EBL	335	0.25	A	3.4	40	0.55	A	3.7	108
			EBT	-	0.35	A	2.7	78	0.38	A	2.5	111
			WBT	-	0.12	B	13.2	21	0.19	A	6.4	100
			WBR	230	-	A	0.0	2	-	A	0.0	38
			NBLT	-	0.25	D	39.3	45	0.40	E	59.0	78
			NBR	310	0.30	D	40.0	0	0.81	E	74.0	49
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.46	D	54.6	-	0.62	E	59.4	-
			EBTR	-	0.19	B	21.1	253	0.34	C	24.8	258
			WBL	110	0.08	B	16.8	73	0.24	B	18.7	71
			WBT	-	0.13	B	16.1	162	0.21	B	17.2	137
			SBL	-	0.93	E	77.1	489	1.05	F	102.8	936
			SBTR	600	0.82	E	72.6	51	0.55	D	51.9	71
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.09	C	20.4	6	0.34	D	27.6	28
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.03	A	7.8	2	0.00	A	8.3	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	B	13.9	0	0.04	C	19.6	2
			WBR	-	0.00	A	8.4	0	0.07	B	11.3	4
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.07	A	7.5	4	0.01	A	9.3	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.08	A	7.9	4	0.13	A	8.1	10
			SBL	100	0.04	B	14.0	2	0.27	D	26.6	24
			SBR	-	0.19	B	10.4	14	0.19	B	10.4	14
15	Federal Way at Amity Rd	Signal	Overall	-	1.12	F	148.2	-	1.44	F	270.3	-
			EBLTR	-	0.00	A	0.0	-	0.46	F	126.3	0
			WBLT	-	0.96	F	93.2	337	0.90	E	91.3	309
			WBR	190	2.10	F	551.0	59	2.40	F	698.5	63
			NBL	130	0.00	A	0.0	482	0.00	B	14.1	3
			NBTR	-	0.52	B	16.9	463	0.96	D	54.9	1183
			SBL	420	1.03	F	38.7	213	2.36	F	645.3	661

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
			SBTR	-	0.37	A	4.6	159	0.57	A	11.2	342
16	Federal Way at Bergeson Ave	Signal	Overall	-	2.18	F	109.3	-	2.66	F	193.7	-
			EBLTR	-	0.67	E	62.9	46	0.71	E	69.4	71
			WBL	140	0.55	C	34.9	489	0.57	D	42.5	569
			WBT	-	0.00	A	0.0	494	0.00	A	0.0	589
			WBR	140	1.80	F	408.3	628	1.79	F	414.3	540
			NBL	100	0.28	C	31.3	9	0.46	C	33.7	8
			NBT	-	1.07	F	75.2	577	1.23	F	147.5	568
			NBR	160	0.95	D	50.9	35	1.04	F	67.3	16
			SBL	350	0.91	E	66.9	288	1.84	F	439.6	763
			SBTR	-	0.72	C	29.3	516	1.13	F	105.9	1222

Per ACHD and ITD evaluation criteria, the following intersections will be considered substandard and in need of improvements by 2030, irrespective of the FAB1 project.

- 7. Gowen Road (SH 21) at Technology Way/Grand Forest Dr
- 8. Gowen Road (SH 21) at Federal Way
- 10. Gowen Road (SH 21) at I-84 EB Ramp
- 15. Federal Way at Amity Rd
- 16. Federal Way at Bergeson Ave

All these intersections except Gowen Road at Technology Way were previously identified as needing improvement for existing and subsequent analysis scenarios. At that intersection, one option is to force all southbound traffic from Grand Forest Drive to turn right and eliminate a signal phase. Since there is another access to Gowen Road to the west and because the volume is relatively small, this is a possible improvement. Another possible improvement is a multi-lane roundabout. The resulting analyses of the 2030 No-Build volume with the 2022 recommended mitigation (and the aforementioned improvement at Intersection 7) are shown in Table 2.

Table 2: Intersection Level of Service Results – 2030 No-Build Volume with 2022 Mitigation

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
ITD Intersections												
7	Gowen Rd at Technology Way/Grand Forest Dr	- Prohibit SBL AND SBT -Retiming	Overall	-	0.42	C	20.7	-	0.70	C	20.3	-
			EBL	155	0.18	A	6.0	37	0.61	A	8.7	173
			EBT	-	0.15	A	7.1	81	0.39	B	9.3	244
			EBR	415	-	A	0.0	36	-	A	0.0	39
			WBL	90	0.07	A	5.3	27	0.05	B	10.2	16
			WBTR	-	0.33	A	8.5	214	0.29	B	13.8	241
			NBL	520	0.82	D	52.8	194	0.84	D	51.2	219
			NBT	-	0.35	D	46.2	107	0.28	D	43.3	96
			NBR	240	-	A	0.0	0	-	A	0.0	21
			SBL	-	-	-	-	-	-	-	-	-
			SBTR	-	-	-	-	-	-	-	-	-
Alternate Mitigation												
7	Gowen Rd at Technology	- Multi-lane Roundabout	Overall	-	-	A	9.3	-	-	C	16.9	-
			EB	-	-	A	5.4	20	-	A	8.3	60

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
	Way/Grand Forest Dr		WB	-	-	B	13.5	80	-	C	18.7	80
			NB	-	-	A	7.0	20	-	D	33.8	160
			SB	-	-	B	11.5	0	-	B	10.2	0
8	Gowen Rd at Federal Way	<ul style="list-style-type: none"> - Add SBL Lane - Add a WBT Lane - Replace WBR lane - Retiming 	Overall	-	0.77	C	33.6	-	1.17	F	94.4	-
			EBL	420	0.39	C	33.9	177	1.12	F	108.3	334
			EBT	-	0.27	C	27.1	88	0.75	C	31.7	323
			EBR	390	-	A	0.0	333	-	A	0.0	40
			WBL	175	0.72	D	51.3	145	0.37	D	47.3	30
			WBT	-	0.74	D	36.2	182	1.12	F	105.5	279
			WBR	225	-	A	0.0	51	-	A	0.0	54
			NBL	495	0.32	D	42.3	31	0.93	E	55.0	285
			NBT	-	0.12	D	32.0	30	0.52	C	29.4	146
			NBR	150	0.05	C	31.6	0	0.19	C	26.5	0
			SBL	275	0.68	C	43.8	100	0.99	E	72.3	261
SBT	-	0.78	D	38.1	207	0.19	C	29.4	57			
SBR	255	0.90	A	21.9	437	1.45	F	222.8	797			
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	0.37	D	36.2	-	0.52	C	34.1	-
			EBTR	-	0.20	B	15.6	120	0.30	B	16.8	304
			WBL	110	0.08	B	11.9	33	0.19	B	12.4	89
			WBT	-	0.13	A	11.0	71	0.20	B	10.9	170
			SBL	-	0.68	D	47.0	327	0.86	D	52.4	284
			SBTR	600	0.88	E	56.2	80	0.64	D	48.8	45
ACHD Intersections												
15	Federal Way at Amity Rd	<ul style="list-style-type: none"> - Right-turn overlap - Dual SB left turns - Remove the split-phase 	Overall	-	0.77	C	28.7	-	1.12	F	118.8	-
			EBLTR	-	0.00	A	0.0	0	0.02	D	33.6	0
			WBLT	-	0.53	D	36.3	240	0.62	D	42.2	189
			WBR	190	0.66	C	24.4	244	0.54	C	16.2	188
			NBL	130	0.00	A	0.0	0	0.00	C	26.7	5
			NBTR	-	0.74	B	35.9	397	1.56	F	302.1	1013
			SBL	420	0.90	D	51.2	204	1.00	F	47.8	468
SBTR	-	0.44	B	10.6	170	0.58	A	10.4	324			
16	Federal Way at Bergeson Ave	<ul style="list-style-type: none"> - Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase 	Overall	-	1.05	D	51.1	-	1.28	D	38.6	-
			EBL	-	0.16	C	25.8	51	0.12	D	39.2	48
			EBTR	-	0.06	C	23.4	26	0.20	D	37.9	106
			WBL	-	0.91	D	56.2	579	1.20	F	168.3	801
			WBT	200	0.05	C	23.4	35	0.08	D	36.3	61
			WBR	500	-	A	0.0	697	-	A	0.0	761
			NBL	100	0.15	C	22.5	9	0.52	C	38.4	48
			NBT	-	1.02	F	60.7	620	1.16	F	118.9	1030
			NBR	160	0.91	C	49.3	206	0.98	D	53.9	483
SBL	350	0.98	F	85.2	267	1.51	F	295.8	807			
SBTR	-	0.71	C	28.4	438	1.00	F	63.5	1135			

As can be seen above, Intersections 8, 15, and 16 will experience substandard conditions in 2030 with the proposed improvements and without any additional traffic from FAB1. Additional improvements were tested for each of the three intersections. They include the following:

8. Gowen Road (SH 21) & S Federal Way (2030 No-Build Conditions)

- Add a westbound left turn lane
- Add a second southbound right turn lane
- Re-time traffic signal

15. Federal Way at Amity Rd (2030 No-Build Conditions)

- Add northbound right turn lane
- Re-time traffic signal

16. Federal Way at Bergeson Ave (2030 No-Build Conditions)

- Convert to an R/Cut intersection by removing all side street movements except right turns
- All diverted movements will require a turnaround location north and south of the intersection

Table 3: Intersection Level of Service Results – 2030 No-Build Volume with 2030 Mitigation

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
ITD Intersections												
8	Gowen Rd at Federal Way	- Add WBL lanes - Add 2nd SBR lane - Retiming	Overall	-	0.66	C	30.5	-	0.86	D	47.6	-
			EBL	420	0.37	C	30.1	176	0.75	D	52.6	564
			EBT	-	0.25	B	18.9	97	0.51	C	29.9	403
			EBR	390	-	A	0.0	255	-	A	0.0	35
			WBL	175	0.44	D	49.5	40	0.15	E	71.5	22
			WBT	-	0.74	D	43.9	163	0.83	E	65.1	323
			WBR	225	-	A	0.0	0	-	A	0.0	60
			NBL	495	0.36	D	52.5	18	0.93	E	77.9	429
			NBT	-	0.09	C	33.4	14	0.59	D	53.2	209
			NBR	150	0.03	C	33.0	0	0.21	D	48.1	0
			SBL	275	0.26	C	30.4	55	0.66	D	45.1	185
			SBT	-	0.70	D	39.5	178	0.23	E	55.5	78
SBR	255	0.47	A	6.0	126	0.72	B	14.0	187			
ACHD Intersections												
15	Federal Way at Amity Rd	- Add NBR - Retiming	Overall	-	0.74	C	27.7	-	0.95	D	44.4	-
			EBLTR	-	0.00	A	0.0	0	0.03	D	51.5	0
			WBLT	-	0.53	D	36.3	240	0.85	F	86.9	293
			WBR	190	0.66	C	24.4	244	0.58	C	26.6	330
			NBL	130	0.00	A	0.0	0	0.00	C	28.3	5
			NBT	-	0.68	C	30.5	340	0.98	E	67.0	785
			NBR	130	0.16	C	22.1	10	0.61	D	42.0	183
			SBL	420	0.90	E	55.5	262	0.99	E	69.7	613
			SBTR	-	0.44	B	10.8	211	0.52	A	9.0	297
16	Federal Way at Bergeson Ave	-Convert to R/Cut w/only NBT, SBT, SBL signals -All other movements must turn	Overall	-	0.98	B	10.5	-	1.05	B	17.5	-
			EBL	-	-	-	-	-	-	-	-	-
			EBTR	-	-	-	-	-	-	-	-	-
			WBL	-	-	-	-	-	-	-	-	-
			WBT	-	-	-	-	-	-	-	-	-
			WBR	500	-	-	-	537	-	-	-	491

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
		right and double back	NBL	-	-	-	-	-	-	-	-	-
			NBT	-	0.52	A	6.7	848	0.78	C	21.6	1083
			NBR	160	-	A	0.0	382	-	A	0.0	635
			SBL	350	0.86	E	57.3	186	0.91	D	50.0	275
			SBT	-	0.49	A	0.7	437	0.78	A	2.4	0
			SBR	-	0.09	A	0.3	14	0.05	A	0.2	0

2030 Horizon Year Build Analysis

Using the 2030 No-build volume as a base, the new FAB1 traffic was added. In the traffic study, this volume was assumed to be present by 2025. Figure 2 shows the 2030 no-build volume at the study intersections.

Using the same analysis methods as before, and the improvements identified in the traffic study, the intersection levels of service were calculated along with V/C ratios, delay, and queuing. Table 4 shows the results of the 2030 Horizon Year Build analysis.

Figure 2. 2030 Build Volume

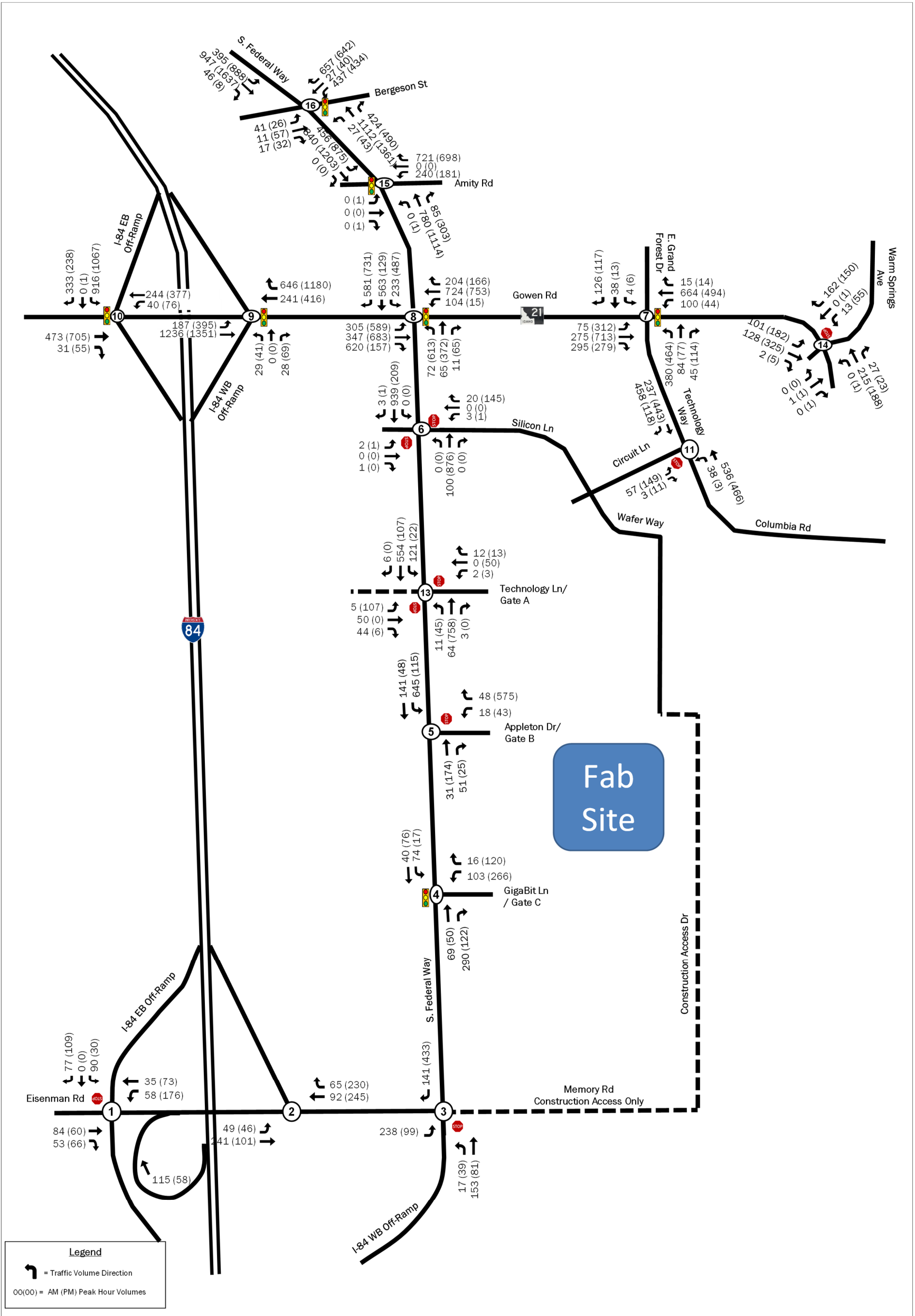


Table 4: Intersection Level of Service Results – 2030 Build Conditions

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.1	A	8.2	4	0.16	A	8.6	12
			SBL	310	0.1	B	10.8	10	0.06	B	14.2	6
			SBR	-	0.1	A	9.3	6	0.14	A	9.7	10
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.05	A	8.5	4	0.07	B	10.2	4
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.05	A	9.0	2
			NBT	-	0.02	A	9.9	14	0.10	A	9.4	6
4	Federal Way at Gate C	Signal	Overall	-	0.26	A	6.8	-	0.37	A	7.7	-
			WBL	-	0.50	A	9.1	33	0.62	A	8.3	77
			WBR	-	0.09	A	7.2	7	0.32	A	6.8	18
			NBT	-	0.18	A	5.4	22	0.16	A	7.1	25
			NBR	240	-	A	0.0	26	-	A	0.0	24
			SBL	225	0.12	A	5.9	24	0.03	A	7.3	12
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.02	E	36.9	2
			WBL	-	0.41	F	122.0	30	0.10	B	14.2	8
			WBTR	-	0.05	A	8.7	4	0.77	C	20.6	156
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
6	Federal Way at Sillcon Ln	Side Street Stop	EBL	-	0.02	D	28.9	0	0.01	C	19.8	0
			EBR	-	0.00	C	16.7	0	-	A	0.0	-
			WBL	-	0.01	B	13.3	0	0.01	C	20.1	0
			WBR	-	0.02	A	8.8	2	0.30	C	15.1	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.51	E	60.6	-	0.69	E	73.4	-
			EBL	155	0.19	A	7.2	51	0.58	A	9.2	180
			EBT	-	0.15	A	8.4	109	0.37	B	10.3	254
			EBR	415	-	A	0.0	48	-	A	0.0	42
			WBL	90	0.14	A	6.5	64	0.10	B	10.0	29
			WBTR	-	0.32	A	9.9	283	0.28	B	13.8	251
			NBL	520	1.28	F	210.8	371	1.45	F	279.0	434
			NBT	-	0.39	E	58.2	128	0.35	D	53.5	118
			NBR	240	-	A	0.0	0	-	A	0.0	56
			SBL	125	0.04	E	66.7	12	0.06	E	62.0	17
8	Gowen Rd at Federal Way	Signal	Overall	-	0.97	D	45.9	-	1.23	F	115.9	-
			EBL	420	0.54	D	38.8	187	1.01	F	106.9	544
			EBT	-	0.31	C	28.9	103	0.61	D	43.1	463
			EBR	390	-	A	0.0	471	-	A	0.0	53

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
			WBL	175	0.81	D	58.7	156	0.40	F	87.9	49
			WBT	-	0.91	D	42.6	340	1.18	F	153.6	766
			WBR	225	-	A	0.0	53	-	A	0.0	163
			NBL	495	0.53	D	44.7	43	0.96	F	92.6	545
			NBT	-	0.15	C	32.9	34	0.58	E	61.9	295
			NBR	150	0.05	D	32.3	0	0.20	E	55.2	17
			SBL	275	0.58	C	31.1	154	1.10	F	115.1	830
			SBT	-	0.84	D	42.2	225	0.19	E	57.0	109
			SBR	255	1.08	F	73.4	543	1.34	F	215.9	1427
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.39	A	5.5	-	0.62	A	6.7	-
			EBL	335	0.26	A	3.4	40	0.57	A	3.9	108
			EBT	-	0.38	A	2.8	88	0.39	A	2.5	116
			WBT	-	0.13	B	13.4	22	0.21	A	6.5	110
			WBR	230	-	A	0.0	2	-	A	0.0	48
			NBLT	-	0.25	D	39.3	45	0.40	E	59.0	78
			NBR	310	0.30	D	40.0	0	0.81	E	74.0	49
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.49	D	53.8	-	0.64	E	62.2	-
			EBTR	-	0.22	C	23.3	282	0.35	C	25.0	267
			WBL	110	0.09	B	18.6	73	0.24	B	18.8	71
			WBT	-	0.14	B	17.9	147	0.23	B	17.5	153
			SBL	-	0.93	E	75.7	529	1.07	F	110.5	970
			SBTR	600	0.77	E	68.0	51	0.55	D	51.9	71
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.25	C	23.5	18	0.70	E	48.3	28
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.03	A	7.8	2	0.00	A	8.3	0
13	Federal Way at Gate A	Side Street Stop	EBL	100	0.03	C	23.6	2	0.46	D	32.7	44
			EBTR	-	0.32	C	20.9	26	0.01	A	8.6	0
			WBL	-	0.01	C	20.8	0	0.02	D	26.1	2
			WBTR	-	0.01	A	8.5	0	0.30	D	27.5	24
			NBL	150	0.01	A	8.8	0	0.03	A	7.5	2
			SBL	475	0.09	A	7.6	6	0.03	A	9.6	2
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.09	A	8.0	6	0.15	A	8.2	10
			SBL	100	0.03	B	15.0	2	0.30	D	30.9	-
			SBR	-	0.20	B	10.9	18	0.21	B	10.6	0
15	Federal Way at Amity Rd	Signal	Overall	-	1.14	F	149.3	-	1.45	F	273.1	-
			EBLTR	-	0.00	A	0.0	0	0.46	F	126.3	0
			WBLT	-	1.07	F	124.0	384	0.95	F	105.1	336
			WBR	190	2.10	F	551.0	59	2.40	F	698.5	63
			NBL	130	0.00	A	0.0	0	0.00	B	14.1	3
			NBTR	-	0.53	B	17.1	499	0.99	E	60.7	1222
			SBL	420	1.05	F	44.6	464	2.39	F	669.4	656
			SBTR	-	0.38	A	4.7	228	0.57	B	11.3	224
16		Signal	Overall	-	2.18	F	109.7	-	2.67	F	196.1	-

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
	Federal Way at Bergeson Ave		EBLTR	-	0.67	E	62.9	46	0.71	E	69.4	71
		WBL	140	0.55	C	34.9	489	0.57	D	42.5	569	
		WBT	-	0.00	A	0.0	494	0.00	A	0.0	589	
		WBR	140	1.80	F	408.3	628	1.79	F	414.3	540	
		NBL	100	0.28	C	31.3	9	0.46	C	33.7	8	
		NBT	-	1.08	F	78.1	574	1.25	F	155.0	567	
		NBR	160	0.95	D	50.0	34	1.04	F	67.3	15	
		SBL	350	0.94	E	66.9	288	1.84	F	439.6	763	
		SBTR	-	0.74	C	30.1	537	1.13	F	108.9	1233	

Per ACHD and ITD evaluation criteria, the same intersections identified previously will be considered substandard and in need of additional improvements by 2030 with the new site volume. In addition, one intersection (5 Federal Way at Gate B) will require improvements even though it does not mean the requirements set forth by ACHD. The recommendation is to either install traffic signal or eliminate left movement out of Micron's campus.

7. Gowen Road (SH 21) & Technology Way (2030 No-Build Conditions)

- Prohibit southbound left and thru movements
 - Channelize southbound right turn movements
- < OR >

- Multi-lane Roundabout

8. Gowen Road (SH 21) & S Federal Way (2030 No-Build Conditions)

- Add a westbound left turn lane
- Add a second southbound right turn lane
- Re-time traffic signal

15. Federal Way at Amity Rd (2030 No-Build Conditions)

- Add a second westbound right turn lane
- Add northbound right turn lane
- Re-time traffic signal

16. Federal Way at Bergeson Ave (2030 No-Build Conditions)

- Convert to an R/Cut intersection by removing all side street movements except right turns
- All diverted movements will require a turnaround location north and south of the intersection

Table 5: Intersection Level of Service Results – 2030 Build Volume with 2022 Mitigation

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
ITD Intersections												
8	Gowen Rd at Federal Way	- Add SBL and WBL lanes - Add 2nd SBR lane - Add a WBT Lane - Replace WBR lane - Retiming	Overall	-	0.66	C	30.5	-	0.86	D	47.6	-
			EBL	420	0.37	C	30.1	176	0.75	D	52.6	564
			EBT	-	0.25	B	18.9	97	0.51	C	29.9	403
			EBR	390	-	A	0.0	255	-	A	0.0	35
			WBL	175	0.44	D	49.5	40	0.15	E	71.5	22
			WBT	-	0.74	D	43.9	163	0.83	E	65.1	323
			WBR	225	-	A	0.0	0	-	A	0.0	60
			NBL	495	0.36	D	52.5	18	0.93	E	77.9	429
			NBT	-	0.09	C	33.4	14	0.59	D	53.2	209
			NBR	150	0.03	C	33.0	0	0.21	D	48.1	0
			SBL	275	0.26	C	30.4	55	0.66	D	45.1	185
			SBT	-	0.70	D	39.5	178	0.23	E	55.5	78
SBR	255	0.47	A	6.0	126	0.72	B	14.0	187			
ACHD Intersections												
15	Federal Way at Amity Rd	- Dual WB right-turns w/overlap - Dual SB left turns - Add NBR - Remove split-phase	Overall	-	0.77	C	27.9	-	0.96	D	46.6	-
			EBLTR	-	0.00	A	0.0	0	0.03	D	51.5	0
			WBLT	-	0.59	D	37.9	289	0.90	F	97.6	322
			WBR	190	0.66	C	24.4	244	0.58	C	26.6	331
			NBL	130	0.00	A	0.0	0	0.00	C	28.3	5
			NBT	-	0.69	C	30.7	344	1.00	E	71.2	808
			NBR	130	0.18	C	22.4	11	0.65	D	43.7	201
			SBL	420	0.90	E	55.4	262	0.99	E	71.8	613
			SBTR	-	0.45	B	11.0	211	0.52	A	9.2	301
16	Federal Way at Bergeson Ave	-Convert to RCut w/only NBT, SBT, SBL signals -All other movements must turn right and double back	Overall	-	0.99	B	10.4	-	1.06	B	17.7	-
			EBL	-	-	-	-	-	-	-	-	-
			EBTR	-	-	-	-	-	-	-	-	-
			WBL	-	-	-	-	-	-	-	-	-
			WBT	-	-	-	-	-	-	-	-	-
			WBR	500	-	-	-	537	-	-	-	491
			NBL	-	-	-	-	-	-	-	-	-
			NBT	-	0.52	A	6.7	857	0.79	C	21.9	1102
			NBR	160	-	A	0.0	385	-	A	0.0	638
			SBL	350	0.86	E	57.3	186	0.91	D	50.0	275
			SBT	-	0.49	A	0.7	454	0.72	A	1.8	0
SBR	-	0.08	A	0.3	14	0.10	A	0.0	0			

As can be seen above, Intersections 8, 15, and 16 will continue to experience substandard conditions in 2030 with the proposed improvements and with additional traffic from FAB1. Additional improvements were tested for each of the three intersections. They include the following with the resulting LOS shown in Table 6:

- 8. Gowen Road (SH 21) & S Federal Way (2030 No-Build Conditions)
 - Add a westbound left turn lane

- Add a second southbound right turn lane
 - Re-time traffic signal
15. Federal Way at Amity Rd (2030 No-Build Conditions)
- Add a second westbound right turn lane
 - Add northbound right turn lane
 - Re-time traffic signal
16. Federal Way at Bergeson Ave (2030 No-Build Conditions)
- Convert to an R/Cut intersection by removing all side street movements except right turns
 - All diverted movements will require a turnaround location north and south of the intersection

Table 6: Intersection Level of Service Results – 2030 Build Volume with 2030 Mitigation

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
ITD Intersections												
8	Gowen Rd at Federal Way	- Add WBL lane - Add 2nd SBR lane - Retiming	Overall	-	0.66	C	30.5	-	0.86	D	47.6	-
			EBL	420	0.37	C	30.1	176	0.75	D	52.6	564
			EBT	-	0.25	B	18.9	97	0.51	C	29.9	403
			EBR	390	-	A	0.0	255	-	A	0.0	35
			WBL	175	0.44	D	49.5	40	0.15	E	71.5	22
			WBT	-	0.74	D	43.9	163	0.83	E	65.1	323
			WBR	225	-	A	0.0	0	-	A	0.0	60
			NBL	495	0.36	D	52.5	18	0.93	E	77.9	429
			NBT	-	0.09	C	33.4	14	0.59	D	53.2	209
			NBR	150	0.03	C	33.0	0	0.21	D	48.1	0
			SBL	275	0.26	C	30.4	55	0.66	D	45.1	185
			SBT	-	0.70	D	39.5	178	0.23	E	55.5	78
SBR	255	0.47	A	6.0	126	0.72	B	14.0	187			
A/CHD Intersections												
15	Federal Way at Amity Rd	- Add NBR - Re-time	Overall	-	0.77	C	27.9	-	0.96	D	46.6	-
			EBLTR	-	0.00	A	0.0	0	0.03	D	51.5	0
			WBLT	-	0.59	D	37.9	289	0.90	F	97.6	322
			WBR	190	0.66	C	24.4	244	0.58	C	26.6	331
			NBL	130	0.00	A	0.0	0	0.00	C	28.3	5
			NBT	-	0.69	C	30.7	344	1.00	E	71.2	808
			NBR	130	0.18	C	22.4	11	0.65	D	43.7	201
			SBL	420	0.90	E	55.4	262	0.99	E	71.8	613
			SBTR	-	0.45	B	11.0	211	0.52	A	9.2	301
16	Federal Way at Bergeson Ave	-Convert to R/Cut w/only NBT, SBT, SBL signals -All other movements must turn right and double back	Overall	-	0.99	B	10.4	-	1.06	B	17.7	-
			EBL	-	-	-	-	-	-	-	-	-
			EBTR	-	-	-	-	-	-	-	-	-
			WBL	-	-	-	-	-	-	-	-	-
			WBT	-	-	-	-	-	-	-	-	-
			WBR	500	-	-	-	537	-	-	-	491
			NBL	-	-	-	-	-	-	-	-	-
			NBT	-	0.52	A	6.7	857	0.79	C	21.9	1102
			NBR	160	-	A	0.0	385	-	A	0.0	638

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Q (ft)	V/C	LOS	Delay	Q (ft)
			SBL	350	0.86	E	57.3	186	0.91	D	50.0	275
			SBT	-	0.49	A	0.7	454	0.72	A	1.8	0
			SBR	-	0.08	A	0.3	14	0.10	A	0.0	0

As can be seen by the results on Table 6, the intersections, though measurably better, are still not able to fully meet the standards set forth by ACHD. The mitigation measures to address projected growth in the Federal Way corridor are significant. The FAB1 site will have nominal additional impacts on the traffic. If growth trends continue, Federal Way, north of Gowen Road will need to be a six-lane, divided arterial and the feeder roads (Amity Road and Bergeson Avenue) will need to likewise be widened near Federal Way.

Conclusions

The impact of future traffic growth in 2025 and a traffic from a new fabrication facility on the Micron Campus in southeast Boise was initially assessed in a traffic impact study submitted and reviewed by ACHD in November, 2022 and updated after review by ITD in January 2023. This memo includes assessment of the conditions in the horizon year of the project, 2030.

Table 7 includes a summary of mitigation measures to bring the area intersections into compliance with local guidelines. Or, in the case of two locations, to bring the intersections close to those guidelines. Table 8 shows the new site traffic at each intersection as a percentage of total volume.

Table 7: Intersection Mitigation Summary

ID	Intersection	Mitigation Measures				
		2022 Existing Traffic	2025 Traffic (No-Build)	2025 Traffic with Project	2030 Traffic (No-Build)	2030 Traffic with Project
3	Memory Rd & Federal Way/I-84 WB Off-Ramp	None	None	- Re-configure the southbound approach to the intersection to include a left turn Lane - Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane	No additional improvements	No additional improvements
5	Federal Way at Gate B	None	None	- Install traffic signal < OR > - Eliminate left movement out of Micron's campus	No additional improvements	No additional improvements
7	Gowen Rd at Technology Way/Grand Forest Dr	None	None	None	-Prohibit southbound left and right turns and channelize southbound right turns to a yield condition < OR > -Multi-lane Roundabout	No additional improvements
8	Gowen Rd at Federal Way	- Add southbound left turn lane - Add westbound thru lane - Replace westbound right turn lane - Retime signal	No additional improvements	No additional improvements	- Add westbound left turn lane - Add 2nd southbound right turn lane - Retime signal	No additional improvements
10	Gowen Rd at I-84 EB Ramp	- Add 3rd left turn lane on exit ramp -Replace southbound right turn lane on exit ramp	No additional improvements	No additional improvements	No additional improvements	No additional improvements

ID	Intersection	Mitigation Measures				
		2022 Existing Traffic	2025 Traffic (No-Build)	2025 Traffic with Project	2030 Traffic (No-Build)	2030 Traffic with Project
15	Federal Way at Amity Rd	<ul style="list-style-type: none"> - Add a right-turn overlap signal for the westbound right turns - Construct dual southbound left turn lanes - Add 1000 foot receiving lane east of the intersection - Reconfigure the southbound left turn signal for protected-only operation - Reconfigure the northbound left turn signal for permitted operation - Remove the split-phased operation and retime signal 	No additional improvements	No additional improvements	- Add northbound right turn lane	No additional improvements
16	Federal Way at Bergeson Ave	<ul style="list-style-type: none"> - Add a channelizing island for the westbound right turn movement - Add a right-turn overlap signal for the westbound right turn movement - Extend the left turn lane on Bergeson to a total of 500 feet - Change the eastbound left-thru lane to an exclusive left turn lane- Remove the split-phased operation and retime signal - Remove the split-phased operation and retime signal 	No additional improvements	No additional improvements	<ul style="list-style-type: none"> -Convert to RCut w/only northbound thru, southbound thru, and southbound left turn lanes -All other movements must turn right and double back at upstream/downstream location -May require U-turn areas 600-1000 feet north or south of intersection 	No additional improvements are feasible within existing corridor

Table 8: Percent of FAB1 Traffic at Study Intersections

No.	Intersection	2025		2030	
		AM	PM	AM	PM
1	Eisenman Rd at I-84 EB Ramp	52.1%	40.9%	45.9%	35.0%
2	Eisenman Rd at I-84 WB On-Ramp	71.2%	57.2%	65.8%	51.0%
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	80.8%	63.3%	76.6%	57.3%
4	Federal Way at Gate C	77.3%	62.7%	77.0%	62.4%
5	Federal Way at Gate B	17.7%	15.2%	17.6%	15.1%
6	Federal Way at Silicon Ln	12.9%	9.9%	12.4%	9.5%
7	Gowen Rd at Technology Way/Grand Forest Dr	8.5%	6.0%	6.4%	4.6%
8	Gowen Rd at Federal Way	6.6%	4.6%	5.2%	3.8%
9	Gowen Rd at I-84 WB Ramp	6.1%	3.7%	5.7%	3.5%
10	Gowen Rd at I-84 EB Ramp	6.2%	3.5%	5.7%	3.3%
11	Technology Way at Circuit Ln	16.3%	15.6%	10.2%	10.1%
13	Federal Way at Gate A	28.6%	25.7%	27.8%	24.8%
14	Gowen Rd at Warm Springs Ave	11.4%	7.3%	10.2%	6.4%
15	Federal Way at Amity Rd	3.0%	2.0%	2.1%	1.4%
16	Federal Way at Bergeson Ave	1.1%	0.8%	0.8%	0.5%

TECHNICAL MEMORANDUM

To: Wendy Howell, ITD

From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)

cc: Christy Little, ACHD
Heather Baldwin, Micron
Deborah E. Nelson, Givens Pursley, LLP

Date: May 31, 2023

Re: ITD-Specific Traffic Impact Analysis
Proposed Micron FAB1 Development, S Federal Way, Boise, ID

This memorandum provides ITD with additional analysis and mitigation measures for the intersections and roadways maintained by the State and found to have insufficient conditions. The initial TIS for the project was completed November 8, 2022 and subsequently accepted by ACHD. ITD provided review comments on that version of the report and requested additional analysis for those locations that exhibited less than acceptable conditions and which were not covered by ACHD's guidelines for mitigation. The TIS has been updated per ITD's comments and re-issued with a date of January 18, 2023.

The following intersections on the State Highway system that have or will have movements with LOS F or V/C ratios greater than 0.90 (numbered according to the TIS):

8. Gowen Road (SH 21) & S Federal Way
9. Gowen Road (SH 21) & I-84 WB Ramp
10. Gowen Road (SH 21) & I-84 EB Ramp

These intersections are the subject of this technical memo which is an adjunct to the TIS updated January 18, 2023. Tables 1, 2, and 3 reflect the subject intersection analysis results from the TIS. Those movements with red highlighted results indicate the need for improvement per ITD.

Table 1: Intersection Level of Service Results – Existing Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	Overall	-	0.49	C	30.5	-	0.79	E	62.9	-
			EBL	420	0.27	C	29.1	159	0.95	F	92.3	443
			EBT	-	0.21	C	23.8	80	0.51	D	37.6	383
			EBR	390	-	A	0.0	63	-	A	0.0	42
			WBL	175	0.55	D	44.0	78	0.35	F	93.3	34
			WBT	-	0.78	D	44.4	162	0.63	E	64.6	335
			WBR	225	-	A	0.0	14	-	A	0.0	43
			NBL	495	0.41	D	44.2	29	0.93	F	88.4	406
			NBT	-	0.18	D	36.6	27	0.46	D	53.7	248
			NBR	150	0.07	D	36.0	0	0.17	D	48.9	9
			SBL	275	0.35	C	32.4	77	0.65	D	45.4	285
			SBT	-	0.59	D	36.8	111	0.09	E	55.7	59
SBR	255	0.47	A	4.9	43	0.74	D	47.1	479			

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.34	A	5.4	-	0.54	A	7.8	-
			EBL	335	0.23	A	3.3	36	0.49	A	3.9	97
			EBT	-	0.32	A	2.6	67	0.34	A	2.7	100
			WBT	-	0.10	B	13.0	22	0.18	A	6.6	88
			WBR	230	-	A	0.0	0	-	A	0.0	18
			NBLT	-	0.26	D	39.1	39	0.40	E	57.6	64
			NBR	310	0.29	D	39.9	0	0.83	E	72.9	20
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.42	D	54.8	-	0.58	D	47.6	-
			EBTR	-	0.18	B	17.5	157	0.35	C	23.4	217
			WBL	110	0.07	B	13.7	45	0.21	B	17.7	64
			WBT	-	0.11	B	13.0	100	0.18	B	15.9	121
			SBL	-	0.92	F	80.9	598	0.96	E	79.9	761
			SBTR	600	0.82	E	77.5	75	0.50	D	51.9	66

Table 2: Intersection Level of Service Results – No-Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	Overall	-	0.61	C	31.1	-	0.88	E	66.9	-
			EBL	420	0.34	C	32.1	191	0.95	F	93.0	482
			EBT	-	0.24	C	25.2	90	0.51	D	37.4	408
			EBR	390	-	A	0.0	203	-	A	0.0	47
			WBL	175	0.64	D	46.8	103	0.35	F	92.5	39
			WBT	-	0.82	D	43.0	208	0.74	E	67.8	436
			WBR	225	-	A	0.0	34	-	A	0.0	76
			NBL	495	0.40	D	44.3	30	0.93	F	87.8	424
			NBT	-	0.18	D	36.5	29	0.52	E	59.8	265
			NBR	150	0.06	D	36.0	0	0.19	D	54.5	13
			SBL	275	0.42	C	30.6	98	0.78	D	49.2	391
			SBT	-	0.69	D	36.8	144	0.12	E	56.0	74
			SBR	255	0.65	A	7.8	101	0.94	E	71.1	794
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.34	A	5.4	-	0.55	A	6.4	-
			EBL	335	0.23	A	3.2	37	0.50	A	3.4	95
			EBT	-	0.32	A	2.5	70	0.35	A	2.3	97
			WBT	-	0.11	B	12.8	25	0.18	A	5.8	87
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
			NBR	310	0.28	D	40.1	0	0.79	E	73.0	48
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.42	E	55.2	-	0.57	D	50.6	-
			EBTR	-	0.17	B	18.6	234	0.31	C	23.9	235
			WBL	110	0.07	B	14.8	69	0.20	B	18.2	66
			WBT	-	0.11	B	14.1	150	0.19	B	16.9	127
			SBL	-	0.92	E	79.2	442	0.97	F	83.2	826
			SBTR	600	0.82	E	75.6	50	0.51	D	50.9	69

Table 3: Intersection Level of Service Results – Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	Overall	-	0.69	C	31.8	-	0.91	E	68.6	-
			EBL	420	0.35	C	32.7	171	0.96	F	93.0	482
			EBT	-	0.26	C	26.0	98	0.54	D	39.9	414
			EBR	390	-	A	0.0	348	-	A	0.0	50
			WBL	175	0.64	D	46.7	103	0.35	F	88.9	39
			WBT	-	0.82	D	42.8	213	0.82	E	73.7	475
			WBR	225	-	A	0.0	40	-	A	0.0	97
			NBL	495	0.52	D	44.6	42	0.95	F	91.1	507
			NBT	-	0.20	D	36.2	33	0.52	E	58.2	280
			NBR	150	0.06	D	35.5	0	0.18	D	52.7	13
			SBL	275	0.48	C	31.3	113	0.79	D	48.4	407
			SBT	-	0.74	D	38.2	157	0.14	E	56.2	83
SBR	255	0.67	A	8.3	134	0.94	E	71.1	794			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.37	A	5.4	-	0.56	A	6.4	-
			EBL	335	0.23	A	3.3	37	0.51	A	3.5	95
			EBT	-	0.35	A	2.6	78	0.36	A	2.3	102
			WBT	-	0.12	B	13.0	26	0.20	A	5.9	97
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
NBR	310	0.28	D	40.1	0	0.79	E	73.0	48			
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.46	D	53.8	-	0.59	D	52.2	-
			EBTR	-	0.20	C	20.6	262	0.32	C	24.2	241
			WBL	110	0.08	B	16.4	69	0.21	C	18.2	66
			WBT	-	0.13	B	15.7	162	0.22	C	17.3	143
			SBL	-	0.93	E	77.5	479	0.99	F	87.8	859
SBTR	600	0.77	E	70.9	50	0.51	D	50.1	69			

Gowen Road (SH 21) at Federal Way (signal)

The existing problems at the intersection are primarily the left turn movements and are seen during the PM peak hour. The higher volume left turns are the northbound lefts and the eastbound lefts. In the no-build condition (2025 volume without the site), the delay increases for the southbound right as well as the overall signal operations.

The intersection was somewhat recently upgraded to provide safer movements for pedestrians and bicyclists. There are dual left turn lanes in the northbound and the eastbound directions. It is possible to add a southbound left turn lane with minimal construction effort; however, adding a second turn lane would require that the phasing of the signal be changed from protected-permitted to protect-only. The difference in delay is minimal but the queue length would be halved. A second westbound left turn lane is unnecessary.

Because there are three receiving lanes on the west side of the intersection, it is possible to add a westbound through lane. This change, with some small signal timing split adjustments, would allow for LOS D operation on most of the movements but there may be impacts to the bicycle lanes.

Recommendation(s):

- Add a southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase
- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
 - Replace the westbound right turn lane
 - The bike lane on the west side of the intersection may have to be eliminated
- Re-time the traffic signal to account for the added capacity
- There appears to be sufficient right-of-way to accomplish the improvements.

See the illustration below for a conceptual layout of the mitigation recommendation.

Mitigation Concept Plan

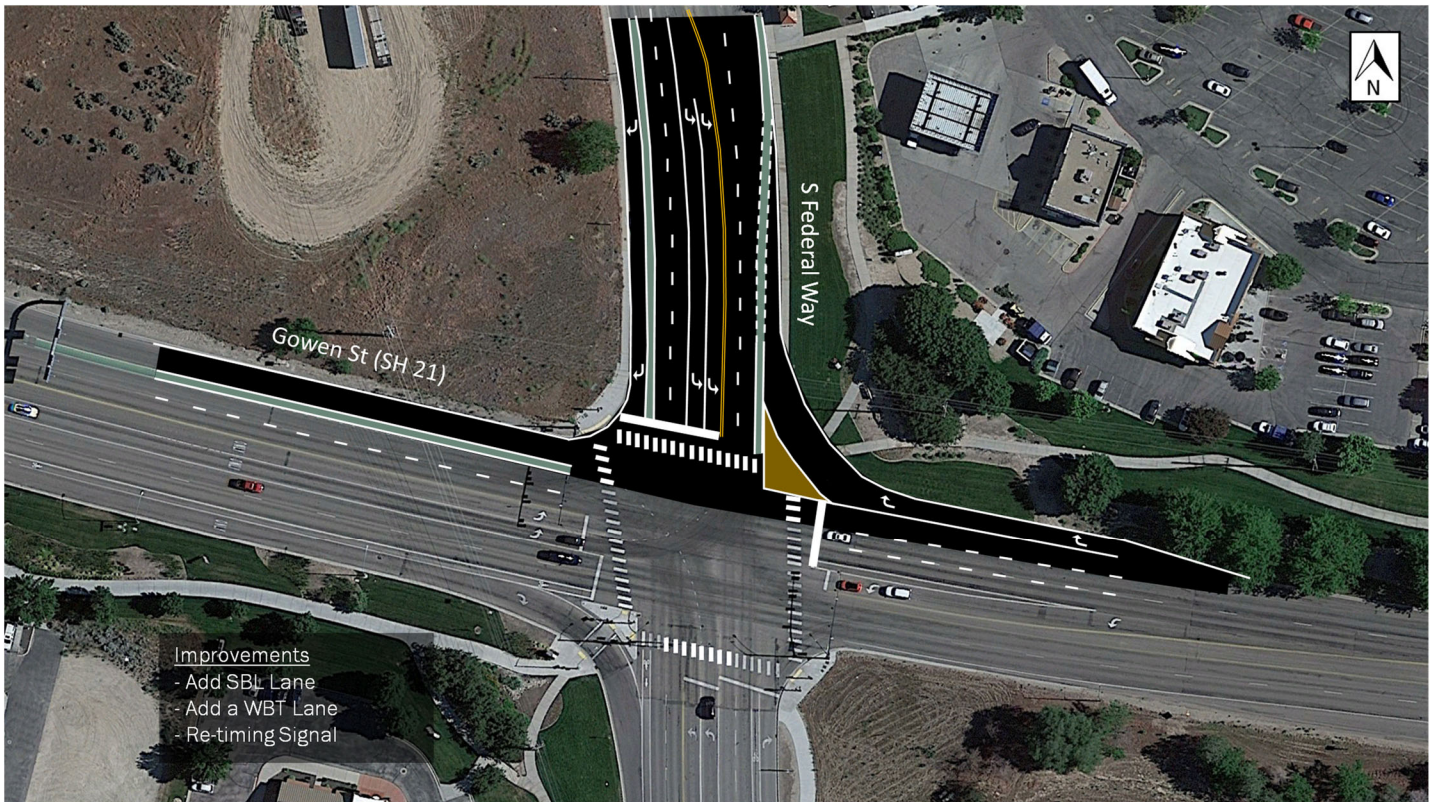


Table 4: Gowen Road (SH 21) at S Federal Way Level of Service Results – Mitigated Conditions

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Retiming	Overall	-	0.62	C	30.0	-	0.83	D	41.6	-
			EBL	420	0.33	C	31.9	161	0.66	C	27.2	318
			EBT	-	0.25	C	25.3	90	0.50	B	10.0	320
			EBR	390	-	A	0.0	328	-	A	0.0	35
			WBL	175	0.56	D	42.2	93	0.38	E	69.5	32
			WBT	-	0.79	D	40.1	210	0.78	E	58.4	231
			WBR	225	-	A	0.0	39	-	A	0.0	56
			NBL	495	0.42	D	42.4	42	0.90	E	60.0	331
			NBT	-	0.18	D	35.4	32	0.59	D	46.6	217
			NBR	150	0.06	C	34.7	0	0.20	D	41.4	0
			SBL	275	0.44	C	28.7	110	0.86	E	62.5	229
			SBT	-	0.70	D	36.5	154	0.23	D	50.0	53
SBR	255	0.64	A	7.1	116	0.93	D	36.9	536			

Gowen Road (SH 21) at I-84 WB Ramp (signal)

The only poor operations (i.e., LOS E) at this intersection are the northbound left and right turn movements coming off of the ramp. The volumes are low but the PM peak hour has somewhat long delays. The longer delays cause a small number of vehicles have to wait a long time between green cycles. Adjusting the signal timing does little to reduce the average delay because the low volume arrival rate means that each vehicle will have to wait nearly a full cycle before proceeding. The queues are not long and there is plenty of capacity to handle more traffic. No improvements are recommended.

Gowen Road (SH 21) at I-84 EB Ramp (signal)

The left turning traffic volume on the exit ramp is high, Traffic can often back up 600-800 feet on the ramp. This is concerning because the ramp is only 750 feet long and I-84 is an 80 MPH freeway, which requires more space for deceleration. More distance is needed to accommodate the queue and avoid impacting I-84.

The signal timing cycle length is 190 seconds in the AM and 220 seconds in the PM. This time is likely intended to clear the ramp so that it does not impede the I-84 mainline. However, a cycle length of this magnitude results in a long time between service intervals and contributes to a poor level of service. By contrast, a more reasonable 130 or 150 second cycle length would result in better LOS and provide more service intervals for the heavy ramp traffic.

It is possible to add a third left turn lane but that would improve the LOS with changes in timing. It would allow for more storage space and a more reasonable cycle length. However there is a loss of efficiency for each turn lane added – limiting the benefits of an additional lane. Building the additional space on the ramp will require both ITD and FHWA approval.

Another alternative is to add an additional thru lane in the westbound direction. This would provide more capacity for SH 21 and allow more green time for the ramp.

Recommendation(s):

- Retime the traffic signal to a more reasonable lower cycle-length
- Add a westbound through lane approximately 300 feet long that drops into S. Eisenman Road

- Rebuild the traffic signal as needed

See the illustration below Table 5 for a conceptual layout of the mitigation recommendation.

Table 5: Gowen Road (SH 21) at I-84 EB Ramp Level of Service Results – Mitigated Conditions

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
10	Gowen Rd at I-84 EB Ramp	Add WB Thru Lane	Overall	-	0.48	C	32.5	-	0.61	D	35.3	-
			EBTR	-	0.22	B	17.0	149	0.36	C	24.3	279
			WBL	110	0.08	B	12.9	39	0.23	B	18.3	78
			WBT	-	0.09	B	11.5	58	0.16	B	16.0	108
			SBL	-	0.88	D	44.4	376	0.91	D	51.0	500
			SBTR	600	0.73	D	40.7	54	0.47	D	36.4	47

Mitigation Concept Plan

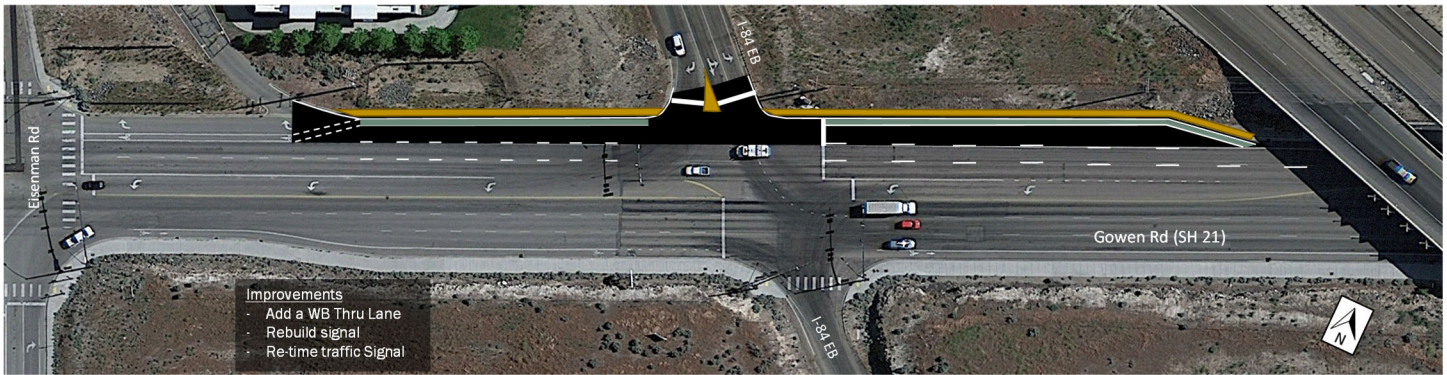


Table 6: Intersection Mitigation Summary

Int	Intersection	Recommended Improvements		
		2022 Existing Traffic	2025 Traffic (No-Build)	2025 Traffic with Project
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Replace WBR Lane - Re-time traffic signal	None	Retime signal
10	Gowen Rd at I-84 EB Ramp	- Add 3rd WBT Lane - Re-time traffic signal	None	Retime signal

































Table 7 shows the new site traffic at each intersection as a percentage of total volume.

Table 7: Relative Impact of Site Traffic on Affected Intersections

No.	Intersection	% of Site Traffic in 2025	
		AM	PM
8	Gowen Rd at Federal Way	6.6%	4.6%
9	Gowen Rd at I-84 WB Ramp	6.1%	3.7%
10	Gowen Rd at I-84 EB Ramp	6.2%	3.5%

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40				40
Link Distance (ft)		980			1988			2188				3433
Travel Time (s)		19.1			38.7			37.3				58.5
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.1	38.9	38.9	9.0	34.0	34.0	7.9	18.7	18.7	27.2	21.7	34.8
Actuated g/C Ratio	0.12	0.43	0.43	0.10	0.38	0.38	0.09	0.21	0.21	0.30	0.24	0.39
v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.19	0.10	0.02	0.15	0.37	0.46
Control Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
LOS	E	D	C	D	C	A	D	C	A	B	C	A
Approach Delay		40.3			20.8			29.3			16.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	92	98	212	37	76	0	13	13	0	19	70	4

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

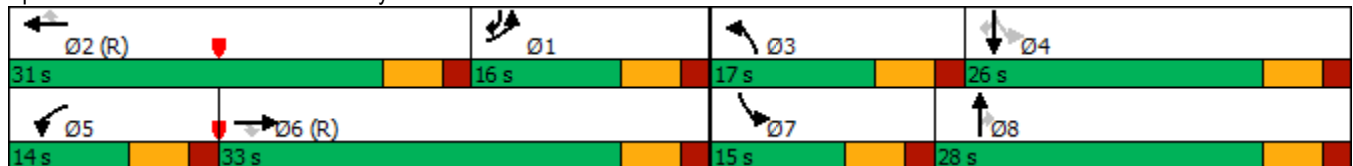


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#155	142	312	77	104	14	28	27	0	36	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1285	917	167	1749	673	413	769	587	787	883	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.12	0.08	0.02	0.15	0.34	0.46

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 28.2 Intersection LOS: C
 Intersection Capacity Utilization 59.0% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.19	0.10	0.02	0.15	0.37	0.46
Control Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Length 50th (ft)	92	98	212	37	76	0	13	13	0	19	70	4
Queue Length 95th (ft)	#155	142	312	77	104	14	28	27	0	36	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1285	917	167	1749	673	413	769	587	787	883	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.12	0.08	0.02	0.15	0.34	0.46

































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 			  		 	 		 	 		
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306	
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.66	1.00	1.00	
Satd. Flow (perm)	2860	2974	1500	1676	4636	1485	3100	2948	1530	2202	3353	1342	
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95	
Adj. Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322	
RTOR Reduction (vph)	0	0	288	0	0	85	0	0	9	0	0	188	
Lane Group Flow (vph)	287	302	226	68	469	43	51	61	3	116	299	134	
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	
Protected Phases	1	6		5	2		3	8		7	4	1	
Permitted Phases			6			2			8	4		4	
Actuated Green, G (s)	11.3	34.3	34.3	6.4	29.4	29.4	4.6	18.9	18.9	27.1	20.7	32.0	
Effective Green, g (s)	12.3	35.3	35.3	7.4	30.4	30.4	5.6	19.9	19.9	29.1	21.7	34.0	
Actuated g/C Ratio	0.14	0.39	0.39	0.08	0.34	0.34	0.06	0.22	0.22	0.32	0.24	0.38	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	390	1166	588	137	1565	501	192	651	338	793	808	506	
v/s Ratio Prot	c0.10	0.10		c0.04	0.10		c0.02	0.02		0.01	c0.09	0.04	
v/s Ratio Perm			c0.15			0.03			0.00	0.04		0.06	
v/c Ratio	0.74	0.26	0.38	0.50	0.30	0.09	0.27	0.09	0.01	0.15	0.37	0.26	
Uniform Delay, d1	37.3	18.5	19.6	39.5	22.0	20.3	40.2	27.9	27.3	21.4	28.5	19.4	
Progression Factor	1.43	1.75	5.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.5	1.8	2.8	0.5	0.3	0.7	0.1	0.0	0.1	0.3	0.3	
Delay (s)	59.8	32.9	117.7	42.3	22.4	20.7	41.0	27.9	27.4	21.5	28.7	19.6	
Level of Service	E	C	F	D	C	C	D	C	C	C	C	B	
Approach Delay (s)		79.4			24.1			33.2			23.6		
Approach LOS		E			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			47.6		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						20.0		
Intersection Capacity Utilization			59.0%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1248	1514		141	732		161	387	197	646	477	775
Arrive On Green	0.14	0.17	0.00	0.08	0.16	0.00	0.05	0.13	0.13	0.06	0.14	0.14
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	7.9	7.8	0.0	3.5	8.4	0.0	1.4	1.6	0.6	2.7	7.5	2.7
Cycle Q Clear(g_c), s	7.9	7.8	0.0	3.5	8.4	0.0	1.4	1.6	0.6	2.7	7.5	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1248	1514		141	732		161	387	197	646	477	775
V/C Ratio(X)	0.23	0.20		0.48	0.64		0.32	0.16	0.06	0.18	0.63	0.42
Avail Cap(c_a), veh/h	1248	1514		169	1353		419	765	390	799	786	899
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.00	0.98	0.98	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	22.0	0.0	39.4	35.6	0.0	41.2	34.8	34.4	30.4	36.4	2.9
Incr Delay (d2), s/veh	0.1	0.3	0.0	2.5	4.2	0.0	1.1	0.2	0.1	0.1	1.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.9	0.0	1.5	3.4	0.0	0.6	0.6	0.2	1.0	3.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	22.2	0.0	41.8	39.8	0.0	42.3	35.0	34.5	30.6	37.7	3.3
LnGrp LOS	C	C		D	D		D	D	C	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		23.9			40.0			38.0			21.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	43.6	19.1	9.6	17.8	12.5	50.1	10.7	16.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	9.9	10.4	3.4	9.5	5.5	9.8	4.7	3.6				
Green Ext Time (p_c), s	0.0	2.6	0.0	2.2	0.0	1.7	0.1	0.3				

Intersection Summary

HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		282			404			492				813
Travel Time (s)		5.5			7.9			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		41.0		15.0	56.0					74.0		74.0
Total Split (%)		31.5%		11.5%	43.1%					56.9%		56.9%
Maximum Green (s)		36.0		10.0	51.0					69.0		69.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		65.9		75.8	75.8					44.2		44.2
Actuated g/C Ratio		0.51		0.58	0.58					0.34		0.34
v/c Ratio		0.23		0.09	0.09					0.78		0.47
Control Delay		19.8		14.4	13.2					43.7		5.1
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		19.8		14.4	13.2					43.7		5.1
LOS		B		B	B					D		A
Approach Delay		19.8			13.3							33.0
Approach LOS		B			B							C
Queue Length 50th (ft)		84		13	27					323		0
Queue Length 95th (ft)		116		34	47					354		57
Internal Link Dist (ft)		202			324			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

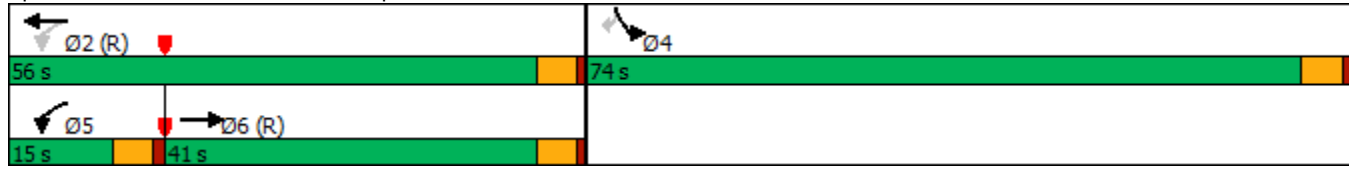
05/30/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2128		443	2449					1661		875
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.23		0.08	0.09					0.50		0.37

Intersection Summary	
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	27.0
Intersection LOS:	C
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

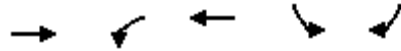
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.23	0.09	0.09	0.78	0.47
Control Delay	19.8	14.4	13.2	43.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	14.4	13.2	43.7	5.1
Queue Length 50th (ft)	84	13	27	323	0
Queue Length 95th (ft)	116	34	47	354	57
Internal Link Dist (ft)	202		324		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2128	443	2449	1661	875
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.08	0.09	0.50	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4192		1500	4200					3130		1366
Flt Permitted		1.00		0.41	1.00					0.95		1.00
Satd. Flow (perm)		4192		650	4200					3130		1366
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	463	35	37	211	0	0	0	0	832	0	321
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	212
Lane Group Flow (vph)	0	493	0	37	211	0	0	0	0	832	0	109
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		64.9		75.8	75.8					44.2		44.2
Effective Green, g (s)		64.9		75.8	75.8					44.2		44.2
Actuated g/C Ratio		0.50		0.58	0.58					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2092		417	2448					1064		464
v/s Ratio Prot		c0.12		0.00	c0.05					c0.27		
v/s Ratio Perm				0.05								0.08
v/c Ratio		0.24		0.09	0.09					0.78		0.24
Uniform Delay, d1		18.5		11.8	11.9					38.6		30.8
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.3		0.1	0.1					3.8		0.3
Delay (s)		18.7		11.9	12.0					42.4		31.0
Level of Service		B		B	B					D		C
Approach Delay (s)		18.7			12.0			0.0			39.2	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd
































05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2293	171	506	2658	0				950	0	414
Arrive On Green	0.00	0.56	0.56	0.03	0.62	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	4262	308	1527	4403	0				3170	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1421	0				1585	0	1383
Q Serve(g_s), s	0.0	7.3	7.4	1.3	2.5	0.0				32.4	0.0	27.5
Cycle Q Clear(g_c), s	0.0	7.3	7.4	1.3	2.5	0.0				32.4	0.0	27.5
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1610	854	506	2658	0				950	0	414
V/C Ratio(X)	0.00	0.20	0.20	0.07	0.08	0.00				0.88	0.00	0.78
Avail Cap(c_a), veh/h	0	1610	854	580	2658	0				1683	0	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.4	14.4	11.0	9.7	0.0				43.2	0.0	41.5
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				2.8	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.7	0.4	0.8	0.0				12.4	0.0	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.7	14.9	11.0	9.7	0.0				46.0	0.0	44.7
LnGrp LOS	A	B	B	B	A	A				D	A	D
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		14.8			9.9						45.6	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		86.1		43.9	8.7	77.4						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		51.0		69.0	10.0	36.0						
Max Q Clear Time (g_c+I1), s		4.5		34.4	3.3	9.4						
Green Ext Time (p_c), s		1.5		4.5	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				32.9								
HCM 6th LOS				C								

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.8	38.8	8.0	18.2	18.2	21.6	25.3	25.3	27.5	17.3	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.28	0.28	0.31	0.19	0.39
v/c Ratio	0.99	0.53	0.18	0.07	0.54	0.24	0.82	0.46	0.12	0.40	0.11	0.73
Control Delay	72.1	23.2	3.8	39.0	35.9	3.7	43.6	28.2	0.4	18.2	28.5	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.1	23.2	3.8	39.0	35.9	3.7	43.6	28.2	0.4	18.2	28.5	15.7
LOS	E	C	A	D	D	A	D	C	A	B	C	B
Approach Delay		42.2			30.7			35.1			17.7	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)	176	148	0	6	99	0	172	88	0	45	16	59

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

01/19/2023

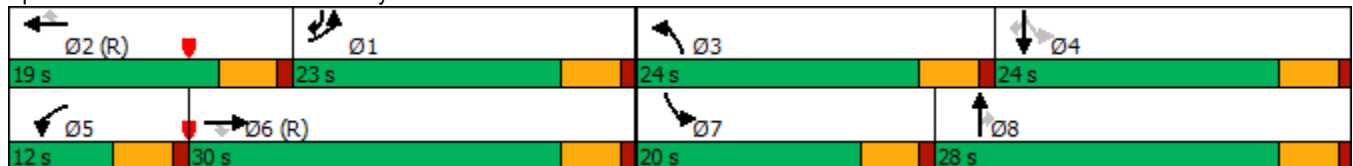


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#271	244	29	21	125	14	#239	126	0	66	33	105
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1282	729	148	938	416	743	899	609	880	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.53	0.18	0.07	0.54	0.24	0.82	0.43	0.12	0.33	0.10	0.73

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 33.4 Intersection LOS: C
 Intersection Capacity Utilization 59.3% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

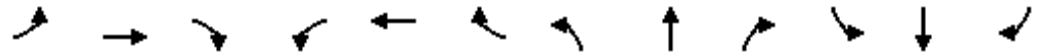
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
v/c Ratio	0.99	0.53	0.18	0.07	0.54	0.24	0.82	0.46	0.12	0.40	0.11	0.73
Control Delay	72.1	23.2	3.8	39.0	35.9	3.7	43.6	28.2	0.4	18.2	28.5	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.1	23.2	3.8	39.0	35.9	3.7	43.6	28.2	0.4	18.2	28.5	15.7
Queue Length 50th (ft)	176	148	0	6	99	0	172	88	0	45	16	59
Queue Length 95th (ft)	#271	244	29	21	125	14	#239	126	0	66	33	105
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1282	729	148	938	416	743	899	609	880	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.53	0.18	0.07	0.54	0.24	0.82	0.43	0.12	0.33	0.10	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↖	↖	↕↕↕	↖	↖↗	↕↕	↖	↖↗	↕↕	↖
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	4636	1485	3100	2948	1530	1761	3353	1342
Peak-hour factor, PHF	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
RTOR Reduction (vph)	0	0	80	0	0	86	0	0	50	0	0	82
Lane Group Flow (vph)	599	682	48	11	504	15	606	384	21	289	71	361
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	22.0	32.8	32.8	1.4	12.2	12.2	20.6	25.3	25.3	25.7	15.2	37.2
Effective Green, g (s)	23.0	33.8	33.8	2.4	13.2	13.2	21.6	26.3	26.3	27.7	16.2	39.2
Actuated g/C Ratio	0.26	0.38	0.38	0.03	0.15	0.15	0.24	0.29	0.29	0.31	0.18	0.44
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	730	1116	563	44	679	217	744	861	447	724	603	584
v/s Ratio Prot	c0.21	0.23		0.01	c0.11		c0.20	0.13		0.05	0.02	c0.16
v/s Ratio Perm			0.03			0.01			0.01	0.07		0.11
v/c Ratio	0.82	0.61	0.09	0.25	0.74	0.07	0.81	0.45	0.05	0.40	0.12	0.62
Uniform Delay, d1	31.6	22.8	18.1	42.9	36.8	33.1	32.3	25.9	22.9	23.7	30.9	19.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	2.5	0.3	3.0	7.2	0.6	6.8	0.4	0.0	0.4	0.1	2.0
Delay (s)	38.9	25.3	18.4	45.9	44.0	33.7	39.1	26.3	22.9	24.1	31.0	21.6
Level of Service	D	C	B	D	D	C	D	C	C	C	C	C
Approach Delay (s)		30.4			42.3			33.4			23.3	
Approach LOS		C			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	59.3%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	599	682	0	11	504	0	606	384	71	289	71	443
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	776	1219		50	781		693	834	425	816	567	591
Arrive On Green	0.27	0.40	0.00	0.03	0.17	0.00	0.22	0.28	0.28	0.11	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	599	682	0	11	504	0	606	384	71	289	71	443
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	17.1	15.7	0.0	0.6	9.0	0.0	16.8	9.6	3.2	6.4	1.6	11.0
Cycle Q Clear(g_c), s	17.1	15.7	0.0	0.6	9.0	0.0	16.8	9.6	3.2	6.4	1.6	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	776	1219		50	781		693	834	425	816	567	591
V/C Ratio(X)	0.77	0.56		0.22	0.65		0.87	0.46	0.17	0.35	0.13	0.75
Avail Cap(c_a), veh/h	776	1219		150	781		699	834	425	1034	748	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.96	0.96	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	20.7	0.0	42.6	35.0	0.0	33.9	26.9	24.6	25.7	31.8	7.0
Incr Delay (d2), s/veh	4.5	1.7	0.0	2.1	3.9	0.0	11.9	0.4	0.2	0.3	0.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	5.5	0.0	0.3	3.6	0.0	7.2	3.3	1.1	2.4	0.6	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	22.4	0.0	44.7	39.0	0.0	45.8	27.3	24.8	26.0	31.9	11.1
LnGrp LOS	C	C		D	D		D	C	C	C	C	B
Approach Vol, veh/h		1281			515			1061				803
Approach Delay, s/veh		28.3			39.1			37.7				18.3
Approach LOS		C			D			D				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.0	19.0	23.8	19.2	6.7	40.3	13.9	29.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	19.1	11.0	18.8	13.0	2.6	17.7	8.4	11.6				
Green Ext Time (p_c), s	0.0	0.9	0.1	1.1	0.0	2.6	0.5	2.0				

Intersection Summary

HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑↑					↖↖		↗
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		282			404			492				813
Travel Time (s)		5.5			7.9			6.1				10.1
Peak Hour Factor	0.76	0.76	0.76	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	859	0	74	330	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		54.0		17.0	71.0					79.0		79.0
Total Split (%)		36.0%		11.3%	47.3%					52.7%		52.7%
Maximum Green (s)		49.0		12.0	66.0					74.0		74.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		67.6		81.9	81.9					58.1		58.1
Actuated g/C Ratio		0.45		0.55	0.55					0.39		0.39
v/c Ratio		0.45		0.27	0.14					0.83		0.34
Control Delay		30.6		20.8	18.1					47.4		4.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		30.6		20.8	18.1					47.4		4.3
LOS		C		C	B					D		A
Approach Delay		30.6			18.5							39.4
Approach LOS		C			B							D
Queue Length 50th (ft)		207		34	56					452		0
Queue Length 95th (ft)		233		70	86					484		49
Internal Link Dist (ft)		202			324			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023

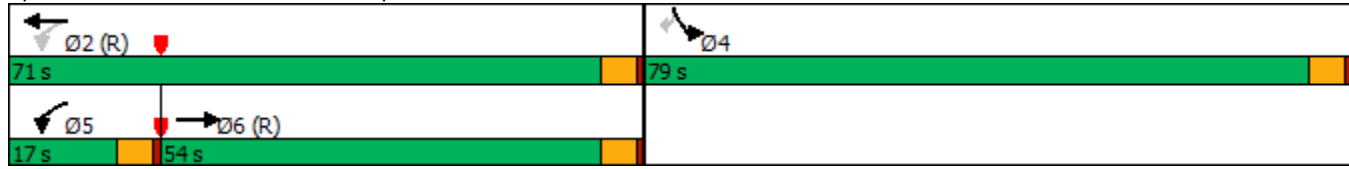


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1893		298	2292					1544		789
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.45		0.25	0.14					0.65		0.29

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	33.0
Intersection LOS:	C
Intersection Capacity Utilization	77.7%
ICU Level of Service	D
Analysis Period (min)	15

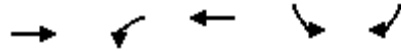
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	859	74	330	1003	229
v/c Ratio	0.45	0.27	0.14	0.83	0.34
Control Delay	30.6	20.8	18.1	47.4	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	20.8	18.1	47.4	4.3
Queue Length 50th (ft)	207	34	56	452	0
Queue Length 95th (ft)	233	70	86	484	49
Internal Link Dist (ft)	202		324		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	1893	298	2292	1544	789
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.25	0.14	0.65	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4187		1500	4200					3130		1366
Flt Permitted		1.00		0.24	1.00					0.95		1.00
Satd. Flow (perm)		4187		381	4200					3130		1366
Peak-hour factor, PHF	0.76	0.76	0.76	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	795	64	74	330	0	0	0	0	1003	0	229
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	140
Lane Group Flow (vph)	0	854	0	74	330	0	0	0	0	1003	0	89
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		67.7		81.9	81.9					58.1		58.1
Effective Green, g (s)		67.7		81.9	81.9					58.1		58.1
Actuated g/C Ratio		0.45		0.55	0.55					0.39		0.39
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1889		276	2293					1212		529
v/s Ratio Prot		c0.20		c0.02	0.08					c0.32		
v/s Ratio Perm				0.13								0.06
v/c Ratio		0.45		0.27	0.14					0.83		0.17
Uniform Delay, d1		28.4		17.4	16.8					41.4		30.1
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.8		0.5	0.1					4.8		0.2
Delay (s)		29.1		18.0	16.9					46.2		30.3
Level of Service		C		B	B					D		C
Approach Delay (s)		29.1			17.1			0.0			43.2	
Approach LOS		C			B			A			D	
Intersection Summary												
HCM 2000 Control Delay			34.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			77.7%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	795	64	74	330	0				1003	0	229
Peak Hour Factor	0.76	0.76	0.76	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2121	170	334	2495	0				1103	0	481
Arrive On Green	0.00	0.52	0.52	0.03	0.59	0.00				0.35	0.00	0.35
Sat Flow, veh/h	0	4238	328	1527	4403	0				3170	0	1383
Grp Volume(v), veh/h	0	561	298	74	330	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1421	0				1585	0	1383
Q Serve(g_s), s	0.0	17.4	17.5	3.3	5.2	0.0				45.3	0.0	19.4
Cycle Q Clear(g_c), s	0.0	17.4	17.5	3.3	5.2	0.0				45.3	0.0	19.4
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1498	793	334	2495	0				1103	0	481
V/C Ratio(X)	0.00	0.37	0.38	0.22	0.13	0.00				0.91	0.00	0.48
Avail Cap(c_a), veh/h	0	1498	793	404	2495	0				1564	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.6	21.7	16.3	14.0	0.0				46.7	0.0	38.2
Incr Delay (d2), s/veh	0.0	0.7	1.4	0.3	0.1	0.0				6.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.1	6.6	1.2	1.7	0.0				18.0	0.0	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.3	23.0	16.7	14.1	0.0				52.9	0.0	39.0
LnGrp LOS	A	C	C	B	B	A				D	A	D
Approach Vol, veh/h		859			404						1232	
Approach Delay, s/veh		22.6			14.6						50.3	
Approach LOS		C			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		92.8		57.2	10.1	82.7						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		66.0		74.0	12.0	49.0						
Max Q Clear Time (g_c+I1), s		7.2		47.3	5.3	19.5						
Green Ext Time (p_c), s		2.4		4.9	0.1	6.2						

Intersection Summary

































HCM 6th Ctrl Delay	35.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	  	 	 	 	 			
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.4	38.4	9.1	33.4	33.4	7.9	18.4	18.4	28.0	22.2	35.5
Actuated g/C Ratio	0.13	0.43	0.43	0.10	0.37	0.37	0.09	0.20	0.20	0.31	0.25	0.39
v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.18	0.10	0.02	0.21	0.48	0.61
Control Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
LOS	E	B	A	D	C	A	D	C	A	B	C	A
Approach Delay		24.1			22.1			29.5			19.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	87	47	34	46	97	0	13	13	0	26	95	36

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

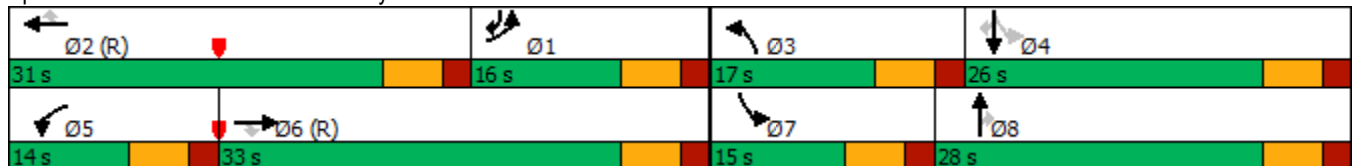


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	82	185	93	131	33	30	28	0	45	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1268	873	168	1718	665	413	760	583	747	891	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.12	0.08	0.02	0.20	0.44	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.3 Intersection LOS: C
 Intersection Capacity Utilization 63.2% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

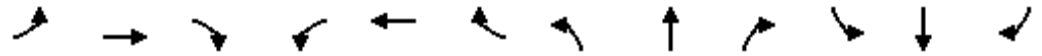
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.18	0.10	0.02	0.21	0.48	0.61
Control Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Length 50th (ft)	87	47	34	46	97	0	13	13	0	26	95	36
Queue Length 95th (ft)	#161	82	185	93	131	33	30	28	0	45	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1268	873	168	1718	665	413	760	583	747	891	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.12	0.08	0.02	0.20	0.44	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	4636	1485	3100	2948	1530	1907	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
RTOR Reduction (vph)	0	0	250	0	0	106	0	0	9	0	0	167
Lane Group Flow (vph)	301	317	289	84	578	52	49	59	2	153	394	257
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	11.5	33.8	33.8	6.5	28.8	28.8	4.5	16.6	16.6	30.3	21.2	32.7
Effective Green, g (s)	12.5	34.8	34.8	7.5	29.8	29.8	5.5	17.6	17.6	32.3	22.2	34.7
Actuated g/C Ratio	0.14	0.39	0.39	0.08	0.33	0.33	0.06	0.20	0.20	0.36	0.25	0.39
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	397	1149	580	139	1535	491	189	576	299	828	827	517
v/s Ratio Prot	c0.11	0.11		c0.05	0.12		0.02	0.02		c0.02	0.12	c0.07
v/s Ratio Perm			c0.19			0.04			0.00	0.05		0.12
v/c Ratio	0.76	0.28	0.50	0.60	0.38	0.11	0.26	0.10	0.01	0.18	0.48	0.50
Uniform Delay, d1	37.3	18.9	21.0	39.8	23.0	20.9	40.3	29.7	29.2	19.6	28.9	21.0
Progression Factor	0.94	0.89	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	0.6	2.9	7.2	0.7	0.4	0.7	0.1	0.0	0.1	0.4	0.8
Delay (s)	43.0	17.4	17.9	47.0	23.7	21.3	41.0	29.8	29.2	19.7	29.4	21.8
Level of Service	D	B	B	D	C	C	D	C	C	B	C	C
Approach Delay (s)		24.3			25.6			34.4			24.5	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.52	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 20.0
Intersection Capacity Utilization	63.2%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↖	↖	↕↕↕	↖	↖↗	↕↕	↖	↖↗	↕↕	↖
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1085	1408		150	855		158	449	229	731	579	740
Arrive On Green	0.12	0.15	0.00	0.09	0.18	0.00	0.05	0.15	0.15	0.07	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	8.5	8.3	0.0	4.3	10.4	0.0	1.4	1.5	0.6	3.5	9.9	3.9
Cycle Q Clear(g_c), s	8.5	8.3	0.0	4.3	10.4	0.0	1.4	1.5	0.6	3.5	9.9	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1085	1408		150	855		158	449	229	731	579	740
V/C Ratio(X)	0.28	0.23		0.56	0.68		0.31	0.13	0.05	0.21	0.68	0.57
Avail Cap(c_a), veh/h	1085	1408		169	1353		419	765	390	856	786	824
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	23.8	0.0	39.3	34.3	0.0	41.2	33.2	32.7	28.6	34.9	4.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.0	4.0	0.0	1.1	0.1	0.1	0.1	1.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.2	0.0	1.9	4.1	0.0	0.5	0.5	0.2	1.3	4.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	24.2	0.0	42.3	38.3	0.0	42.3	33.3	32.8	28.7	36.4	4.7
LnGrp LOS	C	C		D	D		D	C	C	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		26.3			38.8			37.0			21.3	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.6	21.4	9.5	20.5	13.0	47.0	11.5	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.5	12.4	3.4	11.9	6.3	10.3	5.5	3.5				
Green Ext Time (p_c), s	0.0	3.1	0.0	2.6	0.0	1.8	0.1	0.2				

Intersection Summary

HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑↑					↖↖		↖
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		282			404			492				813
Travel Time (s)		5.5			7.9			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		39.0		15.0	54.0					76.0		76.0
Total Split (%)		30.0%		11.5%	41.5%					58.5%		58.5%
Maximum Green (s)		34.0		10.0	49.0					71.0		71.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		63.5		73.5	73.5					46.5		46.5
Actuated g/C Ratio		0.49		0.57	0.57					0.36		0.36
v/c Ratio		0.23		0.09	0.09					0.78		0.48
Control Delay		21.2		15.6	14.3					42.0		4.8
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		21.2		15.6	14.3					42.0		4.8
LOS		C		B	B					D		A
Approach Delay		21.2			14.5							31.7
Approach LOS		C			B							C
Queue Length 50th (ft)		82		14	30					335		0
Queue Length 95th (ft)		128		37	52					363		56
Internal Link Dist (ft)		202			324			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023

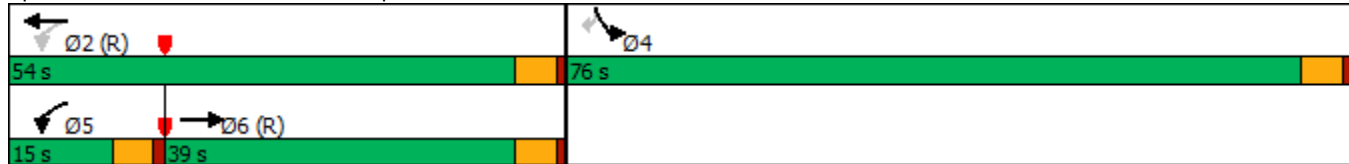


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2052		441	2375					1709		898
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.23		0.09	0.09					0.51		0.37

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	26.8
Intersection LOS:	C
Intersection Capacity Utilization	52.9%
ICU Level of Service	A
Analysis Period (min)	15

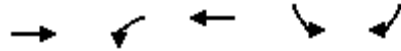
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.23	0.09	0.09	0.78	0.48
Control Delay	21.2	15.6	14.3	42.0	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	15.6	14.3	42.0	4.8
Queue Length 50th (ft)	82	14	30	335	0
Queue Length 95th (ft)	128	37	52	363	56
Internal Link Dist (ft)	202		324		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2052	441	2375	1709	898
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.09	0.09	0.51	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4194		1500	4200					3130		1366
Flt Permitted		1.00		0.42	1.00					0.95		1.00
Satd. Flow (perm)		4194		669	4200					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	437	32	39	221	0	0	0	0	872	0	336
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	216
Lane Group Flow (vph)	0	464	0	39	221	0	0	0	0	872	0	120
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		62.5		73.5	73.5					46.5		46.5
Effective Green, g (s)		62.5		73.5	73.5					46.5		46.5
Actuated g/C Ratio		0.48		0.57	0.57					0.36		0.36
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2016		416	2374					1119		488
v/s Ratio Prot		c0.11		0.00	c0.05					c0.28		
v/s Ratio Perm				0.05								0.09
v/c Ratio		0.23		0.09	0.09					0.78		0.25
Uniform Delay, d1		19.7		12.8	13.0					37.2		29.4
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.3		0.1	0.1					3.5		0.3
Delay (s)		20.0		12.9	13.0					40.7		29.7
Level of Service		B		B	B					D		C
Approach Delay (s)		20.0			13.0			0.0			37.6	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

































05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2240	162	507	2600	0				993	0	433
Arrive On Green	0.00	0.54	0.54	0.03	0.61	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	4272	299	1527	4403	0				3170	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1421	0				1585	0	1383
Q Serve(g_s), s	0.0	7.0	7.1	1.4	2.8	0.0				33.9	0.0	28.7
Cycle Q Clear(g_c), s	0.0	7.0	7.1	1.4	2.8	0.0				33.9	0.0	28.7
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1569	833	507	2600	0				993	0	433
V/C Ratio(X)	0.00	0.19	0.20	0.08	0.09	0.00				0.88	0.00	0.78
Avail Cap(c_a), veh/h	0	1569	833	581	2600	0				1731	0	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.2	15.2	11.7	10.4	0.0				42.3	0.0	40.5
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				2.8	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.3	2.6	0.5	0.9	0.0				12.9	0.0	20.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.5	15.8	11.8	10.5	0.0				45.1	0.0	43.5
LnGrp LOS	A	B	B	B	B	A				D	A	D
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		15.6			10.7						44.6	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		84.3		45.7	8.8	75.5						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		49.0		71.0	10.0	34.0						
Max Q Clear Time (g_c+I1), s		4.8		35.9	3.4	9.1						
Green Ext Time (p_c), s		1.6		4.8	0.0	3.0						
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40				40
Link Distance (ft)		980			1988			2188				3433
Travel Time (s)		19.1			38.7			37.3				58.5
Peak Hour Factor	0.90	0.90	0.90	0.25	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	691	129	44	592	119	590	373	69	367	91	563
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	33.7	33.7	8.0	17.9	17.9	21.9	24.0	24.0	29.0	17.4	35.0
Actuated g/C Ratio	0.21	0.37	0.37	0.09	0.20	0.20	0.24	0.27	0.27	0.32	0.19	0.39
v/c Ratio	1.01	0.62	0.20	0.30	0.64	0.29	0.78	0.47	0.12	0.47	0.14	0.92
Control Delay	75.3	28.7	4.3	44.1	38.0	5.7	41.6	29.4	0.5	18.9	29.0	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.3	28.7	4.3	44.1	38.0	5.7	41.6	29.4	0.5	18.9	29.0	34.1
LOS	E	C	A	D	D	A	D	C	A	B	C	C
Approach Delay		46.3			33.3			34.4			28.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	~180	191	0	24	119	0	167	87	0	59	22	100

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

01/19/2023

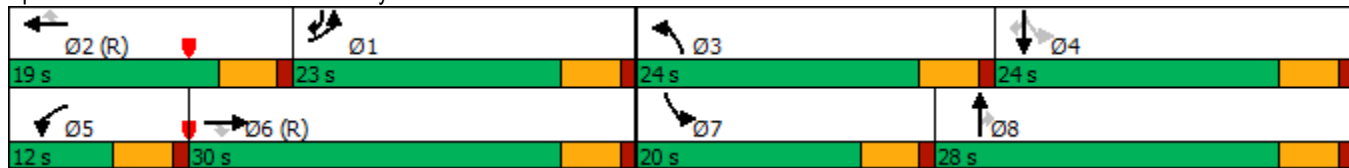


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#292	#264	33	15	159	32	#255	136	0	86	42	#248
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1115	653	148	923	412	752	859	592	883	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.62	0.20	0.30	0.64	0.29	0.78	0.43	0.12	0.42	0.12	0.92

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 36.7 Intersection LOS: D
 Intersection Capacity Utilization 70.0% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	607	691	129	44	592	119	590	373	69	367	91	563
v/c Ratio	1.01	0.62	0.20	0.30	0.64	0.29	0.78	0.47	0.12	0.47	0.14	0.92
Control Delay	75.3	28.7	4.3	44.1	38.0	5.7	41.6	29.4	0.5	18.9	29.0	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.3	28.7	4.3	44.1	38.0	5.7	41.6	29.4	0.5	18.9	29.0	34.1
Queue Length 50th (ft)	~180	191	0	24	119	0	167	87	0	59	22	100
Queue Length 95th (ft)	#292	#264	33	15	159	32	#255	136	0	86	42	#248
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1115	653	148	923	412	752	859	592	883	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.62	0.20	0.30	0.64	0.29	0.78	0.43	0.12	0.42	0.12	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

































95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	4636	1485	3100	2948	1530	1780	3353	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.25	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	691	129	44	592	119	590	373	69	367	91	563
RTOR Reduction (vph)	0	0	85	0	0	99	0	0	50	0	0	85
Lane Group Flow (vph)	607	691	44	44	592	20	590	373	19	367	91	478
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	20.0	29.7	29.7	4.2	13.9	13.9	20.9	24.1	24.1	27.2	15.2	35.2
Effective Green, g (s)	21.0	30.7	30.7	5.2	14.9	14.9	21.9	25.1	25.1	29.2	16.2	37.2
Actuated g/C Ratio	0.23	0.34	0.34	0.06	0.17	0.17	0.24	0.28	0.28	0.32	0.18	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	667	1014	511	96	767	245	754	822	426	781	603	554
v/s Ratio Prot	c0.21	0.23		0.03	c0.13		c0.19	0.13		0.07	0.03	c0.20
v/s Ratio Perm			0.03			0.01			0.01	0.08		0.16
v/c Ratio	0.91	0.68	0.09	0.46	0.77	0.08	0.78	0.45	0.05	0.47	0.15	0.86
Uniform Delay, d1	33.6	25.5	20.1	41.0	35.9	31.8	31.8	26.8	23.7	23.2	31.1	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.6	3.7	0.3	3.4	7.4	0.6	5.3	0.4	0.0	0.4	0.1	13.1
Delay (s)	50.2	29.2	20.5	44.5	43.3	32.4	37.1	27.2	23.7	23.7	31.2	37.1
Level of Service	D	C	C	D	D	C	D	C	C	C	C	D
Approach Delay (s)		37.3			41.7			32.6			31.8	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			35.6				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			70.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↑↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	607	691	0	44	592	0	590	373	69	367	91	563
Peak Hour Factor	0.90	0.90	0.90	0.25	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	655	992		106	781		681	914	466	937	721	597
Arrive On Green	0.22	0.33	0.00	0.06	0.17	0.00	0.22	0.31	0.31	0.13	0.21	0.21
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	607	691	0	44	592	0	590	373	69	367	91	563
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	18.4	17.9	0.0	2.3	10.9	0.0	16.3	8.9	3.0	7.6	2.0	15.9
Cycle Q Clear(g_c), s	18.4	17.9	0.0	2.3	10.9	0.0	16.3	8.9	3.0	7.6	2.0	15.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	655	992		106	781		681	914	466	937	721	597
V/C Ratio(X)	0.93	0.70		0.41	0.76		0.87	0.41	0.15	0.39	0.13	0.94
Avail Cap(c_a), veh/h	655	992		150	781		699	914	466	1106	748	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.93	0.93	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	26.3	0.0	40.6	35.8	0.0	34.0	24.8	22.7	22.2	28.6	7.9
Incr Delay (d2), s/veh	18.8	3.8	0.0	2.4	6.4	0.0	11.0	0.3	0.1	0.3	0.1	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	6.7	0.0	1.0	4.5	0.0	6.9	3.0	1.0	2.8	0.8	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	30.2	0.0	42.9	42.1	0.0	45.0	25.1	22.9	22.4	28.6	31.2
LnGrp LOS	D	C		D	D		D	C	C	C	C	C
Approach Vol, veh/h		1298			636			1032			1021	
Approach Delay, s/veh		40.8			42.2			36.3			27.8	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.2	19.0	23.5	23.3	9.7	33.6	15.3	31.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	20.4	12.9	18.3	17.9	4.3	19.9	9.6	10.9				
Green Ext Time (p_c), s	0.0	0.5	0.2	0.4	0.0	2.0	0.6	2.0				

Intersection Summary

HCM 6th Ctrl Delay	36.5
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑↑					↖↖		↗
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		282			404			492				813
Travel Time (s)		5.5			7.9			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	77	346	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		63.9		78.4	78.4					61.6		61.6
Actuated g/C Ratio		0.43		0.52	0.52					0.41		0.41
v/c Ratio		0.43		0.26	0.16					0.82		0.34
Control Delay		32.4		22.5	20.0					44.7		3.9
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		32.4		22.5	20.0					44.7		3.9
LOS		C		C	B					D		A
Approach Delay		32.4			20.4							37.1
Approach LOS		C			C							D
Queue Length 50th (ft)		186		37	63					466		0
Queue Length 95th (ft)		265		77	96					491		48
Internal Link Dist (ft)		202			324			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023

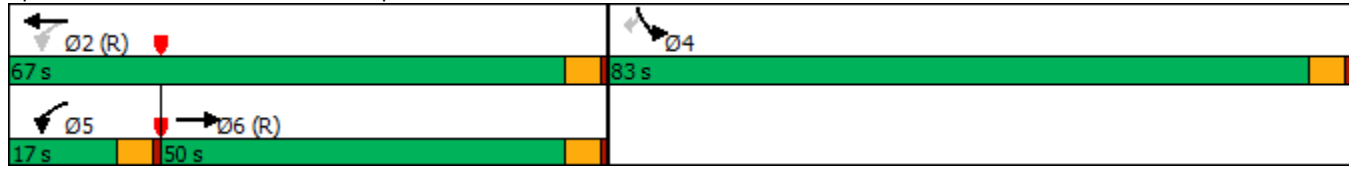


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1788		311	2196					1627		825
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.43		0.25	0.16					0.65		0.29

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	32.8
Intersection LOS:	C
Intersection Capacity Utilization	80.5%
ICU Level of Service	D
Analysis Period (min)	15

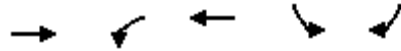
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	77	346	1052	240
v/c Ratio	0.43	0.26	0.16	0.82	0.34
Control Delay	32.4	22.5	20.0	44.7	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	22.5	20.0	44.7	3.9
Queue Length 50th (ft)	186	37	63	466	0
Queue Length 95th (ft)	265	77	96	491	48
Internal Link Dist (ft)	202		324		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	1788	311	2196	1627	825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.25	0.16	0.65	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4187		1500	4200					3130		1366
Flt Permitted		1.00		0.27	1.00					0.95		1.00
Satd. Flow (perm)		4187		428	4200					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	703	57	77	346	0	0	0	0	1052	0	240
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	141
Lane Group Flow (vph)	0	755	0	77	346	0	0	0	0	1052	0	99
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		63.8		78.4	78.4					61.6		61.6
Effective Green, g (s)		63.8		78.4	78.4					61.6		61.6
Actuated g/C Ratio		0.43		0.52	0.52					0.41		0.41
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1780		292	2195					1285		560
v/s Ratio Prot		c0.18		c0.02	0.08					c0.34		
v/s Ratio Perm				0.12								0.07
v/c Ratio		0.42		0.26	0.16					0.82		0.18
Uniform Delay, d1		30.2		19.0	18.6					39.2		28.1
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.7		0.5	0.2					4.2		0.2
Delay (s)		31.0		19.5	18.8					43.4		28.2
Level of Service		C		B	B					D		C
Approach Delay (s)		31.0			18.9			0.0			40.6	
Approach LOS		C			B			A				D

Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

































05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	77	346	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2044	165	355	2425	0				1155	0	504
Arrive On Green	0.00	0.50	0.50	0.04	0.57	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	4236	330	1527	4403	0				3170	0	1383
Grp Volume(v), veh/h	0	496	264	77	346	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1421	0				1585	0	1383
Q Serve(g_s), s	0.0	15.5	15.7	3.6	5.7	0.0				47.4	0.0	20.0
Cycle Q Clear(g_c), s	0.0	15.5	15.7	3.6	5.7	0.0				47.4	0.0	20.0
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1445	764	355	2425	0				1155	0	504
V/C Ratio(X)	0.00	0.34	0.35	0.22	0.14	0.00				0.91	0.00	0.48
Avail Cap(c_a), veh/h	0	1445	764	422	2425	0				1648	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.7	22.7	17.2	15.2	0.0				45.4	0.0	36.7
Incr Delay (d2), s/veh	0.0	0.6	1.2	0.3	0.1	0.0				6.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.4	5.9	1.3	1.9	0.0				18.7	0.0	16.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.3	24.0	17.6	15.3	0.0				51.4	0.0	37.4
LnGrp LOS	A	C	C	B	B	A				D	A	D
Approach Vol, veh/h		760			423						1292	
Approach Delay, s/veh		23.5			15.7						48.8	
Approach LOS		C			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		90.4		59.6	10.4	79.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		7.7		49.4	5.6	17.7						
Green Ext Time (p_c), s		2.6		5.3	0.1	5.3						
Intersection Summary												
HCM 6th Ctrl Delay				35.4								
HCM 6th LOS				D								

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.0	38.0	9.1	33.0	33.0	8.6	18.3	18.3	10.6	19.4	31.7
Actuated g/C Ratio	0.13	0.42	0.42	0.10	0.37	0.37	0.10	0.20	0.20	0.12	0.22	0.35
v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.26	0.12	0.02	0.47	0.58	0.69
Control Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
LOS	E	B	B	D	C	A	D	C	A	D	C	B
Approach Delay		25.4			22.2			31.4			27.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	88	52	61	46	99	0	21	15	0	50	104	52

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

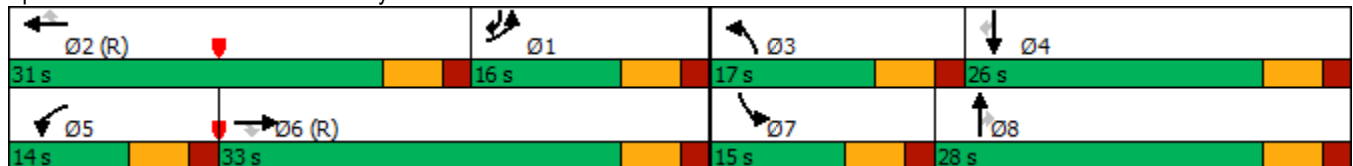


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	90	#328	93	133	39	42	32	0	82	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1256	864	168	1699	659	413	753	580	376	836	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.19	0.09	0.02	0.47	0.50	0.69

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.5 Intersection LOS: C
 Intersection Capacity Utilization 68.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.26	0.12	0.02	0.47	0.58	0.69
Control Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Length 50th (ft)	88	52	61	46	99	0	21	15	0	50	104	52
Queue Length 95th (ft)	#161	90	#328	93	133	39	42	32	0	82	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1256	864	168	1699	659	413	753	580	376	836	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.19	0.09	0.02	0.47	0.50	0.69

































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
RTOR Reduction (vph)	0	0	241	0	0	111	0	0	9	0	0	138
Lane Group Flow (vph)	301	345	376	84	589	57	78	69	2	178	419	286
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Actuated Green, G (s)	11.5	34.6	34.6	6.5	29.6	29.6	6.5	15.3	15.3	9.6	18.4	29.9
Effective Green, g (s)	12.5	35.6	35.6	7.5	30.6	30.6	7.5	16.3	16.3	10.6	19.4	31.9
Actuated g/C Ratio	0.14	0.40	0.40	0.08	0.34	0.34	0.08	0.18	0.18	0.12	0.22	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	397	1176	593	139	1576	504	258	533	277	375	722	475
v/s Ratio Prot	0.11	0.12		c0.05	0.13		0.03	0.02		c0.06	0.12	c0.08
v/s Ratio Perm			c0.25			0.04			0.00			0.13
v/c Ratio	0.76	0.29	0.63	0.60	0.37	0.11	0.30	0.13	0.01	0.47	0.58	0.60
Uniform Delay, d1	37.3	18.6	21.9	39.8	22.5	20.4	38.8	30.9	30.2	37.1	31.7	23.8
Progression Factor	0.94	0.89	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.8	0.6	4.9	7.2	0.7	0.5	0.7	0.1	0.0	1.0	1.2	2.2
Delay (s)	42.9	17.1	21.4	47.0	23.1	20.8	39.5	31.0	30.2	38.0	32.8	26.0
Level of Service	D	B	C	D	C	C	D	C	C	D	C	C
Approach Delay (s)		25.3			25.1			35.1			30.9	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			27.5				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			68.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘	↑↑	↗	↘	↑↑↑	↗	↗↘	↑↑	↗	↗↘	↑↑	↗
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1034	1363		150	867		185	450	229	281	601	725
Arrive On Green	0.12	0.15	0.00	0.09	0.19	0.00	0.06	0.15	0.15	0.09	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	8.5	9.1	0.0	4.3	10.5	0.0	2.2	1.8	0.6	4.8	10.5	4.2
Cycle Q Clear(g_c), s	8.5	9.1	0.0	4.3	10.5	0.0	2.2	1.8	0.6	4.8	10.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1034	1363		150	867		185	450	229	281	601	725
V/C Ratio(X)	0.29	0.25		0.56	0.68		0.42	0.15	0.05	0.63	0.70	0.58
Avail Cap(c_a), veh/h	1034	1363		169	1353		419	765	390	358	786	800
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	24.9	0.0	39.3	34.2	0.0	40.9	33.3	32.7	39.7	34.7	4.1
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.0	4.0	0.0	1.5	0.2	0.1	2.4	1.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.5	0.0	1.9	4.2	0.0	0.8	0.6	0.2	1.9	4.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	25.3	0.0	42.3	38.2	0.0	42.4	33.4	32.8	42.1	36.5	5.1
LnGrp LOS	C	C		D	D		D	C	C	D	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		27.3			38.7			37.8			24.4	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	21.7	10.3	21.1	13.0	45.6	12.8	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.5	12.5	4.2	12.5	6.3	11.1	6.8	3.8				
Green Ext Time (p_c), s	0.0	3.1	0.1	2.6	0.0	1.9	0.1	0.3				

Intersection Summary

HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑↑					↖↖		↖
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		282			404			492				813
Travel Time (s)		5.5			7.9			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		39.0		15.0	54.0					76.0		76.0
Total Split (%)		30.0%		11.5%	41.5%					58.5%		58.5%
Maximum Green (s)		34.0		10.0	49.0					71.0		71.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		60.7		70.8	70.8					49.2		49.2
Actuated g/C Ratio		0.47		0.54	0.54					0.38		0.38
v/c Ratio		0.27		0.10	0.10					0.78		0.46
Control Delay		23.4		17.1	15.7					40.2		4.4
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		23.4		17.1	15.7					40.2		4.4
LOS		C		B	B					D		A
Approach Delay		23.4			15.9							30.7
Approach LOS		C			B							C
Queue Length 50th (ft)		97		15	34					352		0
Queue Length 95th (ft)		149		39	58					376		54
Internal Link Dist (ft)		202			324			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023

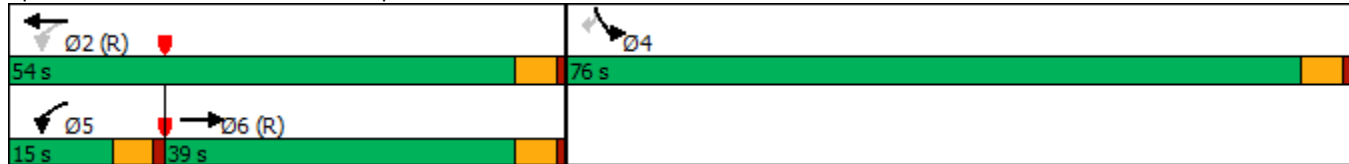


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1965		403	2286					1709		898
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.27		0.10	0.10					0.54		0.37

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	26.9
Intersection LOS:	C
Intersection Capacity Utilization	53.5%
ICU Level of Service	A
Analysis Period (min)	15

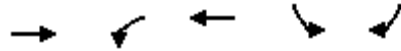
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.27	0.10	0.10	0.78	0.46
Control Delay	23.4	17.1	15.7	40.2	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	17.1	15.7	40.2	4.4
Queue Length 50th (ft)	97	15	34	352	0
Queue Length 95th (ft)	149	39	58	376	54
Internal Link Dist (ft)	202		324		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	1965	403	2286	1709	898
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.10	0.10	0.54	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4203		1500	4200					3130		1366
Flt Permitted		1.00		0.39	1.00					0.95		1.00
Satd. Flow (perm)		4203		616	4200					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	491	32	39	239	0	0	0	0	927	0	336
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	209
Lane Group Flow (vph)	0	519	0	39	239	0	0	0	0	927	0	127
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		59.7		70.8	70.8					49.2		49.2
Effective Green, g (s)		59.7		70.8	70.8					49.2		49.2
Actuated g/C Ratio		0.46		0.54	0.54					0.38		0.38
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1930		376	2287					1184		516
v/s Ratio Prot		c0.12		0.00	c0.06					c0.30		
v/s Ratio Perm				0.05								0.09
v/c Ratio		0.27		0.10	0.10					0.78		0.25
Uniform Delay, d1		21.7		14.1	14.3					35.7		27.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.3		0.1	0.1					3.5		0.3
Delay (s)		22.0		14.2	14.4					39.1		27.9
Level of Service		C		B	B					D		C
Approach Delay (s)		22.0			14.4			0.0			36.2	
Approach LOS		C			B			A				D

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

































05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2184	141	466	2523	0				1050	0	458
Arrive On Green	0.00	0.52	0.52	0.03	0.59	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	4308	269	1527	4403	0				3170	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1421	0				1585	0	1383
Q Serve(g_s), s	0.0	8.2	8.3	1.5	3.2	0.0				35.9	0.0	27.9
Cycle Q Clear(g_c), s	0.0	8.2	8.3	1.5	3.2	0.0				35.9	0.0	27.9
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1517	808	466	2523	0				1050	0	458
V/C Ratio(X)	0.00	0.22	0.23	0.08	0.09	0.00				0.88	0.00	0.73
Avail Cap(c_a), veh/h	0	1517	808	539	2523	0				1731	0	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.7	16.7	12.8	11.5	0.0				41.1	0.0	38.4
Incr Delay (d2), s/veh	0.0	0.3	0.7	0.1	0.1	0.0				3.3	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	3.1	0.5	1.0	0.0				13.7	0.0	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.0	17.3	12.9	11.5	0.0				44.4	0.0	40.7
LnGrp LOS	A	B	B	B	B	A				D	A	D
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		17.1			11.7						43.4	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		81.9		48.1	8.8	73.2						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		49.0		71.0	10.0	34.0						
Max Q Clear Time (g_c+I1), s		5.2		37.9	3.5	10.3						
Green Ext Time (p_c), s		1.7		5.1	0.0	3.3						
Intersection Summary												
HCM 6th Ctrl Delay				32.5								
HCM 6th LOS				C								

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

05/02/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	40.0	55.0	55.0	12.0	27.0	27.0	41.0	32.0	32.0	31.0	22.0	40.0
Total Split (%)	30.8%	42.3%	42.3%	9.2%	20.8%	20.8%	31.5%	24.6%	24.6%	23.8%	16.9%	30.8%
Maximum Green (s)	35.0	50.0	50.0	7.0	22.0	22.0	36.0	27.0	27.0	26.0	17.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	35.0	61.3	61.3	7.0	26.1	26.1	31.7	28.2	28.2	20.6	17.1	52.1
Actuated g/C Ratio	0.27	0.47	0.47	0.05	0.20	0.20	0.24	0.22	0.22	0.16	0.13	0.40
v/c Ratio	0.79	0.50	0.21	0.13	0.66	0.34	0.86	0.62	0.16	0.75	0.23	0.90
Control Delay	50.2	25.9	3.7	62.2	53.2	9.4	59.2	50.4	0.7	77.4	41.9	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	25.9	3.7	62.2	53.2	9.4	59.2	50.4	0.7	77.4	41.9	39.8
LOS	D	C	A	E	D	A	E	D	A	E	D	D
Approach Delay		33.4			45.4			52.4			53.7	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	245	173	0	10	184	0	270	152	0	167	41	258

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

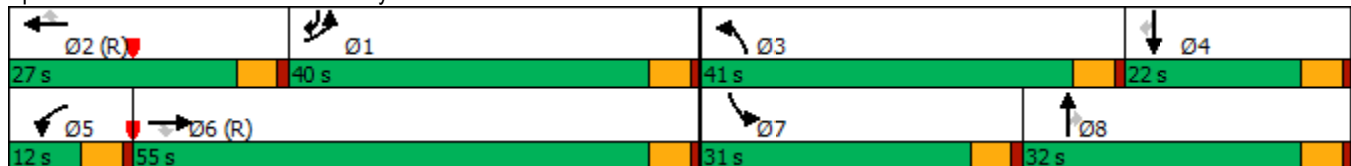
05/02/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	318	320	35	32	231	56	331	217	0	229	53	#536
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	770	1403	794	90	932	413	858	686	466	638	494	623
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.50	0.21	0.13	0.66	0.34	0.76	0.57	0.15	0.59	0.21	0.90

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 45.1 Intersection LOS: D
 Intersection Capacity Utilization 74.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

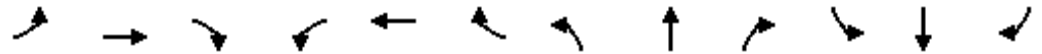
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

05/02/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
v/c Ratio	0.79	0.50	0.21	0.13	0.66	0.34	0.86	0.62	0.16	0.75	0.23	0.90
Control Delay	50.2	25.9	3.7	62.2	53.2	9.4	59.2	50.4	0.7	77.4	41.9	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	25.9	3.7	62.2	53.2	9.4	59.2	50.4	0.7	77.4	41.9	39.8
Queue Length 50th (ft)	245	173	0	10	184	0	270	152	0	167	41	258
Queue Length 95th (ft)	318	320	35	32	231	56	331	217	0	229	53	#536
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	770	1403	794	90	932	413	858	686	466	638	494	623
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.50	0.21	0.13	0.66	0.34	0.76	0.57	0.15	0.59	0.21	0.90

































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

05/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	4636	1485	3100	2948	1530	3190	3353	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
RTOR Reduction (vph)	0	0	90	0	0	115	0	0	54	0	0	82
Lane Group Flow (vph)	607	704	74	12	616	25	652	394	15	379	103	481
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Actuated Green, G (s)	38.0	58.4	58.4	2.8	23.2	23.2	31.7	28.2	28.2	20.6	17.1	55.1
Effective Green, g (s)	38.0	58.4	58.4	2.8	23.2	23.2	31.7	28.2	28.2	20.6	17.1	55.1
Actuated g/C Ratio	0.29	0.45	0.45	0.02	0.18	0.18	0.24	0.22	0.22	0.16	0.13	0.42
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	836	1336	673	36	827	265	755	639	331	505	441	568
v/s Ratio Prot	0.21	0.24		0.01	c0.13		c0.21	0.13		0.12	0.03	c0.25
v/s Ratio Perm			0.05			0.02			0.01			0.11
v/c Ratio	0.73	0.53	0.11	0.33	0.74	0.09	0.86	0.62	0.05	0.75	0.23	0.85
Uniform Delay, d1	41.3	25.8	20.7	62.7	50.6	44.6	47.1	46.0	40.3	52.2	50.6	33.6
Progression Factor	0.95	0.93	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.32	0.82	1.20
Incremental Delay, d2	3.0	1.4	0.3	5.4	6.0	0.7	10.1	1.8	0.1	5.8	0.3	10.4
Delay (s)	42.5	25.5	17.3	68.1	56.6	45.3	57.1	47.8	40.3	74.6	41.5	51.0
Level of Service	D	C	B	E	E	D	E	D	D	E	D	D
Approach Delay (s)		31.6			54.8			52.8			58.6	
Approach LOS		C			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			47.4		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					20.0		
Intersection Capacity Utilization			74.6%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

05/02/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	607	704	0	12	616	0	652	394	69	379	103	563
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	922	1410		32	793		721	667	340	443	440	608
Arrive On Green	0.53	0.78	0.00	0.02	0.17	0.00	0.23	0.22	0.22	0.14	0.13	0.13
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	607	704	0	12	616	0	652	394	69	379	103	563
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	19.6	10.9	0.0	0.9	16.4	0.0	26.2	15.3	4.8	14.9	3.6	17.0
Cycle Q Clear(g_c), s	19.6	10.9	0.0	0.9	16.4	0.0	26.2	15.3	4.8	14.9	3.6	17.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	922	1410		32	793		721	667	340	443	440	608
V/C Ratio(X)	0.66	0.50		0.38	0.78		0.90	0.59	0.20	0.86	0.23	0.93
Avail Cap(c_a), veh/h	922	1410		91	793		871	667	340	644	440	608
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	8.8	0.0	63.0	51.7	0.0	48.7	45.2	41.1	54.8	50.7	16.6
Incr Delay (d2), s/veh	1.6	1.2	0.0	6.5	6.8	0.0	11.3	1.4	0.3	7.7	0.3	20.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	2.8	0.0	0.4	6.8	0.0	11.2	5.7	1.8	6.4	1.5	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	10.0	0.0	69.5	58.4	0.0	60.0	46.6	41.4	62.5	50.9	36.9
LnGrp LOS	C	B		E	E		E	D	D	E	D	D
Approach Vol, veh/h		1311			628			1115			1045	
Approach Delay, s/veh		18.0			58.6			54.1			47.6	
Approach LOS		B			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	46.2	27.0	34.8	22.0	7.5	65.7	22.9	34.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	35.0	22.0	36.0	17.0	7.0	50.0	26.0	27.0				
Max Q Clear Time (g_c+I1), s	21.6	18.4	28.2	19.0	2.9	12.9	16.9	17.3				
Green Ext Time (p_c), s	2.0	1.4	1.6	0.0	0.0	5.5	0.9	1.8				

Intersection Summary













HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		282			404			492				813
Travel Time (s)		5.5			7.9			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	77	387	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		62.6		77.2	77.2					62.8		62.8
Actuated g/C Ratio		0.42		0.51	0.51					0.42		0.42
v/c Ratio		0.45		0.28	0.18					0.82		0.34
Control Delay		33.7		23.4	20.8					44.1		3.8
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		33.7		23.4	20.8					44.1		3.8
LOS		C		C	C					D		A
Approach Delay		33.7			21.3							36.8
Approach LOS		C			C							D
Queue Length 50th (ft)		198		38	72					475		0
Queue Length 95th (ft)		279		78	108					500		47
Internal Link Dist (ft)		202			324			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

05/30/2023

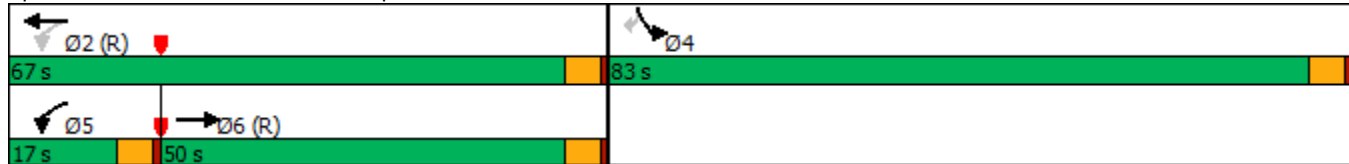


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1752		299	2162					1627		825
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.45		0.26	0.18					0.66		0.29

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	33.0
Intersection LOS:	C
Intersection Capacity Utilization	81.9%
ICU Level of Service	D
Analysis Period (min)	15

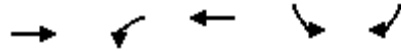
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	77	387	1077	240
v/c Ratio	0.45	0.28	0.18	0.82	0.34
Control Delay	33.7	23.4	20.8	44.1	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	23.4	20.8	44.1	3.8
Queue Length 50th (ft)	198	38	72	475	0
Queue Length 95th (ft)	279	78	108	500	47
Internal Link Dist (ft)	202		324		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	1752	299	2162	1627	825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.26	0.18	0.66	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4189		1500	4200					3130		1366
Flt Permitted		1.00		0.26	1.00					0.95		1.00
Satd. Flow (perm)		4189		408	4200					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	728	57	77	387	0	0	0	0	1077	0	240
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	140
Lane Group Flow (vph)	0	780	0	77	387	0	0	0	0	1077	0	100
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		62.6		77.2	77.2					62.8		62.8
Effective Green, g (s)		62.6		77.2	77.2					62.8		62.8
Actuated g/C Ratio		0.42		0.51	0.51					0.42		0.42
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		1748		279	2161					1310		571
v/s Ratio Prot		c0.19		c0.02	0.09					c0.34		
v/s Ratio Perm				0.12								0.07
v/c Ratio		0.45		0.28	0.18					0.82		0.18
Uniform Delay, d1		31.3		19.7	19.5					38.6		27.4
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.8		0.5	0.2					4.3		0.1
Delay (s)		32.1		20.2	19.6					42.9		27.5
Level of Service		C		C	B					D		C
Approach Delay (s)		32.1			19.7			0.0			40.1	
Approach LOS		C			B			A			D	

Intersection Summary

HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

05/30/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑					↑↑		↑
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	77	387	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2016	157	341	2391	0				1180	0	515
Arrive On Green	0.00	0.49	0.49	0.04	0.56	0.00				0.37	0.00	0.37
Sat Flow, veh/h	0	4248	320	1527	4403	0				3170	0	1383
Grp Volume(v), veh/h	0	512	273	77	387	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1421	0				1585	0	1383
Q Serve(g_s), s	0.0	16.4	16.6	3.7	6.6	0.0				48.4	0.0	19.8
Cycle Q Clear(g_c), s	0.0	16.4	16.6	3.7	6.6	0.0				48.4	0.0	19.8
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1421	752	341	2391	0				1180	0	515
V/C Ratio(X)	0.00	0.36	0.36	0.23	0.16	0.00				0.91	0.00	0.47
Avail Cap(c_a), veh/h	0	1421	752	408	2391	0				1648	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.6	23.6	17.9	15.9	0.0				44.8	0.0	35.8
Incr Delay (d2), s/veh	0.0	0.7	1.4	0.3	0.1	0.0				6.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	6.3	1.3	2.2	0.0				19.1	0.0	16.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.3	25.0	18.3	16.0	0.0				51.0	0.0	36.4
LnGrp LOS	A	C	C	B	B	A				D	A	D
Approach Vol, veh/h		785			464						1317	
Approach Delay, s/veh		24.6			16.4						48.4	
Approach LOS		C			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		89.2		60.8	10.5	78.7						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		8.6		50.4	5.7	18.6						
Green Ext Time (p_c), s		2.9		5.4	0.1	5.5						
Intersection Summary												
HCM 6th Ctrl Delay				35.3								
HCM 6th LOS				D								



DISTRICT 3 OPERATIONAL PROCEDURES

DATE: November 13, 2020

SUBJECT: **DEVELOPMENT PROPORTIONATE SHARE CONTRIBUTION**

FOR SPECIAL ATTENTION OF: DISTRICT 3 EMPLOYEES

DATE OF REVIEW:

The Idaho Transportation Department’s (ITD) responsibility is to ensure each State highway properly addresses safety and mobility. New development growth, both on and off the State highway system, contributes to increased congestion. District 3 has defined an equitable program for improving public facilities needed to serve new growth and development and to protect the public safety of the citizens of the state of Idaho.

Area of Interest

Application of the program will be generally applied to any development within a five (5) mile connection to the State highway system. Depending on the size of the development and available connectivity to the State highway system, District 3 may request information regarding developments beyond the prescribed five mile connection distance.

Analysis Requirements

A Traffic Impact Study (TIS) is required by *Idaho Administrative Code (IDAPA) 39.03.42* for any new or expanded development that at full buildout meets or exceeds any of the below described thresholds and is requesting a direct connection to the State highway system. District 3 will apply these same TIS requirement thresholds to any development within the above described area of interest.

- Generates 100 or more peak hour trips; or
- Meets or exceeds the following land use threshold values; or

LAND USE TYPE	THRESHOLD VALUE
Residential	100 Dwelling Units
Retail	35,000 square feet
Office	50,000 square feet
Industrial	70,000 square feet
Lodging	100 rooms
School (K-12)	All (Sections 67-6508 & 67-6519, Idaho Code)

- Connects to a public road / State highway intersection with known safety, capacity and/or congestion concerns.



Developments not meeting any of the above thresholds at full buildout will be asked to provide some or all of the following data and analysis.

- Trip generation numbers
- Trip Distribution Percentage Diagram (request from COMPASS if in Ada or Canyon County)
- Intersection site traffic turning volumes
- Left and right turn lane warrants
- Vehicle turning movement diagrams

State Highway System Mitigation Improvements

Intersection mitigation improvements are required for any individual movement exceeding LOS F or volume to capacity ratio (v/c) of 0.9 or greater. Roadway mitigation improvements are required for any roadway segment analysis exceeding LOS E.

Left and right turn lanes will be required at any non-signalized intersection meeting the ITD Traffic Manual's Left and Right Turn Lane Warrants.

For developments on or near corridors **with** ITD approved corridor plans:

- 1.) When a development meets or exceeds the TIS thresholds described under *Analysis Requirements* the development is required to provide a TIS.
 - a. TIS shall identify any mitigation improvements at public road intersections.
Proportionate share contributions shall be calculated at public road intersections requiring mitigation improvements.
 - b. TIS shall identify any specific improvements required for direct access approaches (new or existing) to the State highway system.
- 2.) For all developments defined within ITD's area of interest, but do not meet or exceed the TIS thresholds:
 - a. ITD will identify the development's area of impact on the State highway system.
 - b. The development will provide at a minimum:
 - Trip Generation Summary Table
 - Trip Distribution Patterns
 - Total Traffic Volume Diagrams
 - c. Based on the provided information, ITD will calculate the development's proportionate share contribution for future identified improvements per the associated corridor plan.



For developments on or near corridors **without** ITD approved corridor plans:

- 1.) When a development meets or exceeds the TIS thresholds described under *Analysis Requirements* the development is required to provide a TIS.
 - a. TIS shall identify any mitigation improvements at public road intersections. Proportionate share contributions shall be calculated at public road intersections requiring mitigation improvements.
 - b. TIS shall identify any specific improvements required for direct access approaches (new or existing) to the State highway system.

- 2.) For all developments defined within ITD’s area of interest, but do not meet or exceed the TIS thresholds.
 - a. ITD will identify the development’s area of impact on the State highway system and may request the development to provide:
 - Left and right turn lane warrants
 - Vehicle turning movement diagrams
 - b. Based on the provided information ITD will calculate the development’s proportionate share contribution for identified mitigation improvements.

Projects programmed in accordance with an intergovernmental ITD/Agency agreement may collect proportionate share to fund the joint project. Otherwise, proportionate share contributions cannot include any improvements currently funded/programmed by ITD.

Mitigation Improvement Location	Development Contribution
Private approaches, private roads and new public road connections to the State highway system.	Design and construct 100% of the improvements.
Existing public road / State highway intersections; State highway road segments.	Pay a proportionate share of the mitigation improvement cost. If ITD determines the development impact results in an immediate safety concern, the developer is responsible to design and construct 100% of the mitigation improvement. ITD will work with the development to determine low cost interim solutions where feasible.

Proportionate shares contributions will either be paid directly to ITD or held in an intergovernmental agreement between ITD and the local land use agency for application to a future project. ITD may require the developer to construct a mitigation improvement(s) in lieu of holding the financial contribution, if the proportionate share can fully cover the design/construction cost.

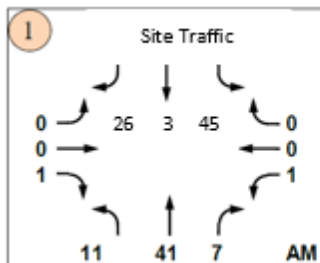


Determination of Proportionate Share Percentage

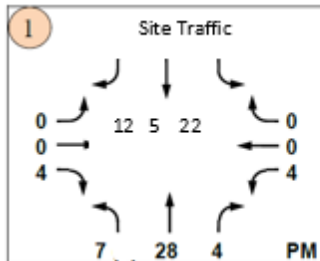
1.) Intersections/Roadways covered by a District 3 Planning Document

Proportionate share shall be calculated by comparing the number of site trips through an intersection/roadway segment at full build out with the total number of trips forecasted when the improvement is warranted.

Example: Development impacts the intersection of Fisher Parkway and SH-44. ITD has identified that signalization of Fisher Parkway is warranted by 2045.



2045 Fisher Parkway (AM)
SH-44 = 3,934
Fisher Parkway = 284



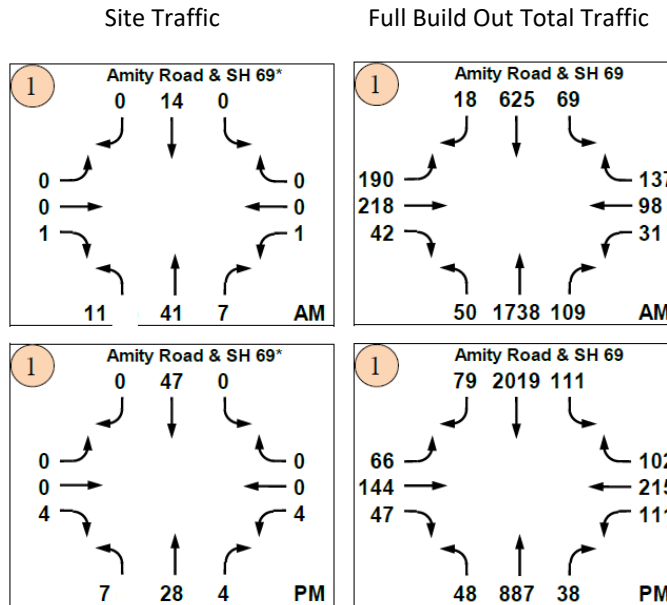
2045 Fisher Parkway (PM)
SH-44 = 4,414
Fisher Parkway = 497

AM Site = 135	AM Total = 4,218	AM % = 3.20
PM Site = 86	PM Total = 4,911	PM % = 1.75
Proportionate Share for Fisher Parkway Signal		Avg % = 2.48

2.) Intersections/Roadways not covered by a District 3 Planning Document

Proportionate share shall be calculated by comparing the number of site trips through an intersection at full build out with the forecasted total number of trips at full buildout.

Example: Development impacts the intersection of Amity Road and SH-69. TIS states widening on SH-69 is needed.



AM Site = 75	AM Total = 3,325	AM % = 2.26
PM Site = 94	PM Total = 3,867	PM % = 2.43
Proportionate Share for SH-69 Widening thru Amity Rd Intersection		Avg % = 2.34

Determination of Proportionate Share Contribution Cost Estimate

ITD shall provide a conceptual cost estimate for any proportionate share mitigation improvements. The conceptual cost estimate will be based on conservative assumptions for roadway base depth. Conceptual cost estimate will include estimated right-of-way (R/W) costs, if additional R/W is required to construct the improvement, ITD is willing to adjust cost estimate based on actual surveyed data if provided by the developer. See Appendix A for conceptual cost estimate unit prices.

The developer’s proportionate share percentage shall be multiplied by the conceptual improvement cost to calculate the development’s proportionate share contribution.

Proportionate share contributions shall either be required in full prior to occupancy of any structures or at a pro-rated amount per each unit if residential, or per square footage of commercial development. Proportionate shares costs shall be held either within an Intergovernmental ITD/Agency agreement or by ITD as defined in the section below.

Intergovernmental ITD/Agency Agreement

Per *Idaho Statute 67-8204A*, the legislature finds that governmental entities are authorized to enter into agreements with the ITD for system improvements. ITD shall establish jurisdiction-wide intergovernmental agreements to hold development proportionate share contributions. ITD and the partnering agency will jointly identify future projects to be funded from the development contributions.



For agencies that will not enter into an interagency agreement, ITD will utilize available financial mechanisms to hold development contributions internal to ITD. Development contribution funds shall be used within 10 years of receipt; otherwise shall be returned to the developer.

This Memo on Development Proportionate Share Contribution is applicable until amended or superseded by new ITD policy. Proportionate share contributions are not an impact fee, they are costs associated to mitigate for development impacts to the State highway system.

J. CALEB LAKEY, P.E.

District 3 Administrator

Oversight: Engineering
Original Issue Date: November 13, 2019
Revised Date: November 13, 2020



APPENDIX A – Conceptual Cost Estimate Unit Price Values

Intersection Widening - Conceptual Cost Estimate

Estimated By: _____ Date: _____
 Checked By: _____ Date: _____

Location: _____
 Scope: _____

Item Description	Quantity	Unit Price	Cost	Source
SECTION 1				
201-010A CLEARING & GRUBBING	0.00 ACRE	\$ 6,833.00	\$ -	KN 18872
203-015A REM OF BITUMINOUS SURF	0.00 SY	\$ 9.67	\$ -	KN 18872
203-130A REMOVAL OF PAV MARKINGS	0.00 FT	\$ 1.00	\$ -	KN 18852
205-005A EXCAVATION	0.00 CY	\$ 15.25	\$ -	KN 18872
301-005A GRANULAR SUBBASE	0.00 TON	\$ 15.90	\$ -	KN 18872
303-022A 3/4" AGGR TY B FOR BASE	0.00 TON	\$ 18.30	\$ -	KN 18872
401-020A CSS-1 DIL EMUL ASPH FOR TACK COAT	0.00 GAL	\$ 3.48	\$ -	KN 18872
405-435A SUPERPAVE HMA PAV INCL ASPH&ADD CL SP-3	0.00 TON	\$ 70.00	\$ -	KN 18872
614-015A SIDEWALK	0.00 SY	\$ 80.00	\$ -	KN 20294
614-025A CURB RAMP	0.00 SY	\$ 193.50	\$ -	KN 19965
615-492A CURB & GUTTER TYPE 2	0.00 FT	\$ 50.00	\$ -	KN 20294
621-005A SEED BED PREPARATION	0.00 ACRE	\$ 1,529.67	\$ -	KN 18872
621-010A SEEDING	0.00 ACRE	\$ 1,663.33	\$ -	KN 18872
615-651A TRAFFIC SEPARATOR TYPE 1	0.00 FT	\$ 20.00	\$ -	KN 19965 KN 20798
630-020A TRANSVERSE, WORD, SYMBOL, ARROW PAV MKG – WATERBORNE	0.00 SF	\$ 3.40	\$ -	KN 13962
630-025A LONGITUDINAL PAVEMENT MARKING	0.00 FT	\$ 1.05	\$ -	KN 18872
656-005A TRAF SIGNAL INSTALLATION	0.00 LS	\$ 229,000.00	\$ -	KN 18872
675-005A SURVEY	1.00 LS	\$ -	\$ -	KN 18872
Traffic Control	1.00 LS	\$ -	\$ -	KN 18872
Miscellaneous Minor Items	5%		\$ -	
Mobilization	10%		\$ -	
SECTION 1 Sub-Total			\$ -	
SECTION 2				
CN Change Order / Quantity Variance	5%		\$ -	
CN Non-Bid Items	3.5%		\$ -	
SECTION 2 Sub-Total			\$ -	
SUMMARY				
Sub-Total: SECTION 1 & SECTION 2			\$ -	
Contingency - Scoping Level	30%		\$ -	
TOTAL CONSTRUCTION COST			\$ -	



Summary of Project Costs		Amount
Construction		\$ -
Design Services	10%	\$ -
Construction Services	12%	\$ -
Right-of-Way	0.00 ACRES	\$ -
Total Cost		\$ -

Appendix B

ITD Planning Documents to be used in Proportionate Share Contribution Calculations

- US 20/26 Corridor Study (Eagle Road to Caldwell)
 - Strip Maps <https://apps.itd.idaho.gov/apps/us2026CorridorStudy/Strip-Maps.pdf>
- SH-44 Traffic and Access Report
 - Document https://itd.idaho.gov/wp-content/uploads/2019/02/ID-44_Corridor_Traffic_Access_Report.pdf
- SH-55 South Corridor Plan
 - Appendices https://apps.itd.idaho.gov/Apps/d3/55_Corridor/Idaho55SouthCorridorPlanAppendices.pdf
- SH-55 Pearl Lane to Middleton Road Traffic Report
 - Hard copy available upon request
- SH-69 Overland Road to Kuna Traffic Study
 - Hard copy available upon request
- US-20/American Legion Blvd Access Technical Memorandum (8/3/2018)
 - Hard copy available upon request

TRAFFIC IMPACT STUDY FOR

FAB1 MANUFACTURING FACILITY

DATE:

October 17, 2022

LOCATION:

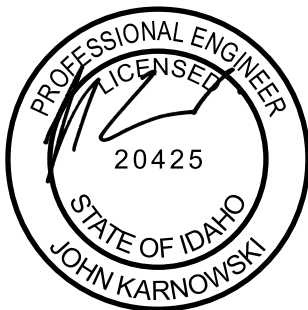
Boise, ID

PREPARED FOR:

Micron

PREPARED BY:

NV5
690 S. Industry Way, Suite 10
Meridian, ID 83642



EXECUTIVE SUMMARY

A new advanced memory fabrication facility, called FAB1, will be located on the Micron R&D campus along S. Federal Way in Boise, ID. FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot “clean” room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots.

The following study scenarios were included:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Project Build with Existing Roadway Conditions

FAB1 will include 2,750 employees of Micron and onsite vendors and, for the purposes of estimating number of trips, is considered a manufacturing land use. The new development will produce 6,174 trips per day with 11% occurring between 7:00 and 8:00 am and 10% occurring between 4:00 and 5:00 pm.

The traffic impact study was conducted in accordance with the approved scoping memorandum and the ACHD Policy Manual. The study network included 12 intersections and four (4) road segments. New traffic counts were collected to set a baseline for the analysis. Traffic growth was estimated using COMPASS’s model output. The expected distribution of auto traffic is approximately 25% to the south via I-84, 10% to the east on SH 21, 10% to the west on Gowen Road and the remaining 55% to the north and west via either Federal Way or I-84. FAB1’s parking lots will be close to the existing Gate C (aka Gigabit Lane). The intersection of Gigabit Lane and S Federal Way will be the primary employee access for the site. Secondary access and parking for utility areas is located on the north side of the campus. Construction traffic will access the site via an extension of Memory Lane Rd and the Eisenman exit from I-84. All roads internal to the Micron campus are private roads.

For the **existing traffic conditions**, five intersections were found to have capacity deficiencies.

- Gowen Rd at Technology Way/Grand Forest Drive
The side streets movements have excessive delays and have a level of service of E. The recommended mitigation includes:
 - Signal timing and phasing changes
- Gowen Rd at S Federal Way
The southbound, northbound, and westbound left turn lanes have high delays in the PM peak hour. The following mitigation is recommended:
 - Add southbound left turn lane by restriping the existing gore area and adding a

protected-only signal phase

- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
- There appears to be sufficient right-of-way to accomplish the improvements
- Gowen Rd at I-84 EB Ramp

The ramp traffic will frequently queue to near the I-84 mainline lanes. To avoid impacts to the I-84 traffic, the following improvements are recommended:

 - Add third left turn lane on the exit ramp
 - Re-time the traffic signal to account for the added road capacity
 - There appears to be sufficient right-of-way to accomplish the improvements
- Federal Way at Amity Road

The typical commute pattern includes a heavy westbound right turn in the morning and a heavy southbound left turn in the evening. The high volume of traffic results in a level of service F in both the AM and PM for the westbound right and a level of service E in the PM for the southbound left. The recommended improvements include:

 - Convert the westbound dual right turns lanes into a single free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
 - Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the left turn traffic signal for protected-only operation
 - Re-time the traffic signal to account for the added road capacity
 - There not appear to be sufficient right-of-way to accomplish the improvements
- Federal Way at Bergeson Avenue

Similar commute patterns as Amity Road exist along Bergeson Avenue. The westbound right turn volume is high. There is a short acceleration lane but it does not allow for a free-flow movement and therefore long delays for right turning vehicles heading toward Boise. That movement experiences a level of service F in the both the morning and evening peak hours. While there is a delay for the southbound left turn (LOS E), the recommended improvements, combined with the necessary signal re-timing, will bring the intersection to acceptable levels of service.

 - Channelize the westbound right turn lane into a free-flow right turn lane
 - Add 1000 feet receiving lane north of the intersection
 - Re-time the traffic signal to account for the added road capacity
 - There does not appear to be sufficient right-of-way to accomplish the improvements

When general growth in traffic volume is added to the existing conditions (i.e., **background growth**), the aforementioned conditions will worsen but no additional intersections will be negatively impacted. One intersection will become congested enough that additional mitigation at this intersection may be necessary.

- Gowen Rd at Technology Way/Grand Forest Drive
The intersection delay will be high enough that signal timing will no longer be sufficient. The following is recommended.
 - Construct a multi-lane roundabout to provide enough capacity to accommodate the background traffic as well as the new site traffic.
 - There is not sufficient right-of-way to accomplish the improvements.
 - The right of way and the construction would be the responsibility of ITD.

For the **build-out** of the site, the new traffic will negatively impact the unsignalized Gate B at S Federal Way intersection. While a traffic signal is not likely to be warranted with the new traffic, the delays for the left turning traffic leaving the Micron campus will be high. The following is recommended:

- Install traffic signal
- < OR >
- Eliminate left turns leaving Micron's Campus

Memory Lane will be extended to the east through a temporary easement to provide construction access to the site. A detailed analysis of construction traffic is not a part of this study. However, since the road does not currently exist, the intersection with S Federal Way will need to be modified. The following is the recommended configuration to accommodate the construction traffic:

- Re-configure the southbound approach to the intersection to include a left turn lane
 - Restripe the existing flush median
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane

The recommendations for mitigation to the impacts identified above are summarized in the table that follows. In general, the impacts from the site are manageable by the roadway network. S Federal Way is primarily utilized by Micron's current operations with a few additional businesses nearby. The four-lane road has capacity to spare and can accommodate the additional load from FAB1. Similarly, the interchange of Eisenman Road and I-84 is underutilized and, based on the proximity of FAB1, should be the primary access point of choice for employees, delivery vehicles, and contractors.

Intersection Mitigation Summary

Int	Intersection	Control	Recommended Improvements		
			2022 Existing Traffic	2025 Traffic (No-Build)	2025 Traffic with Project
3	Memory Ln & Federal Way/I-84 WB Off-Ramp	Side Street Stop	None	None	- Re-configure the southbound approach to the intersection to include a left turn lane - Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
5	Federal Way at Gate B	Side Street Stop	None	None	Install traffic signal < OR > Eliminate left movement out of Micron's campus
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Signal timing and phasing changes	Construct a multi-lane roundabout with EB and SB by-pass lanes	No additional improvements
8	Gowen Rd at Federal Way	Signal	- Add southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase - Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping - Re-time the traffic signal to account for the added road capacity	No additional improvements	No additional improvements
10	Gowen Rd at I-84 EB Ramp	Signal	- Add third left turn lane on the exit ramp - Re-time the traffic signal to account for the added road capacity	No additional improvements	No additional improvements
15	Federal Way at Amity Rd	Signal	- Convert the westbound dual right turns lanes into a single free-flow right turn lane - Add 1000 foot receiving lane north of the intersection - Construct dual southbound left turn lanes - Add 1000 foot receiving lane east of the intersection - Reconfigure the left turn traffic signal for protected-only operation	No additional improvements	No additional improvements
16	Federal Way at Bergeson Ave	Signal	- Channelize the westbound right turn lane into a free-flow right turn lane - Add 1000 foot receiving lane north of the intersection - Re-time the traffic signal to account for the added road capacity	No additional improvements	No additional improvements

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Proposed Development

The Micron R&D facility located along S. Federal Way in Boise, ID will be the site of a new Fab (a an advanced memory fabrication facility). The facility, called FAB1, will utilize both undeveloped and developed area within Micron's larger campus. In conjunction with FAB1, a new childcare facility will be constructed along S. Federal Way, opposite Gate A. The childcare facility is not part of this study but is considered in the future build traffic volume and analysis. A separate, limited traffic study was conducted for the childcare facility.

FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot "clean" room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots. FAB1 will support approximately 2000 new Micron employees plus 750 new onsite vendor/contractor employees. For the purposes of this study, the entire FAB1 development will be considered a manufacturing facility with 2,750 employees.

FAB1 is expected to commence limited operation in the end of the second quarter of 2024, and be fully operational with the full complement of employees by 2025.

The following intersections and road segments (as illustrated in Figure 1) are included in this study:

- Intersections
 1. Eisenman Rd & I-84 EB Ramp
 2. Eisenman Rd & I-84 WB On-Ramp
 3. Memory Ln & S Federal Way/I-84 WB Off-Ramp
 4. S Federal Way & Gate C / Gigabit Ln (signal)
 5. S Federal Way & Gate B
 6. S Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & S Federal Way (signal)
 9. Gowen Road & I-84 WB Ramp (signal)
 10. Gowen Road & I-85 EB Ramp (signal)
 11. Technology Ln & Circuit Way
 12. ~~Memory Ln & Construction Access Road~~ (not studied)
 13. S Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)

- Segments
 - A. S Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn S Federal Way and Technology Way
 - C. Memory Lane, Btwn I-84 WB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way

Figure 1 shows the general location of the Fab on Micron's campus. The site plan is shown in Figure 2.

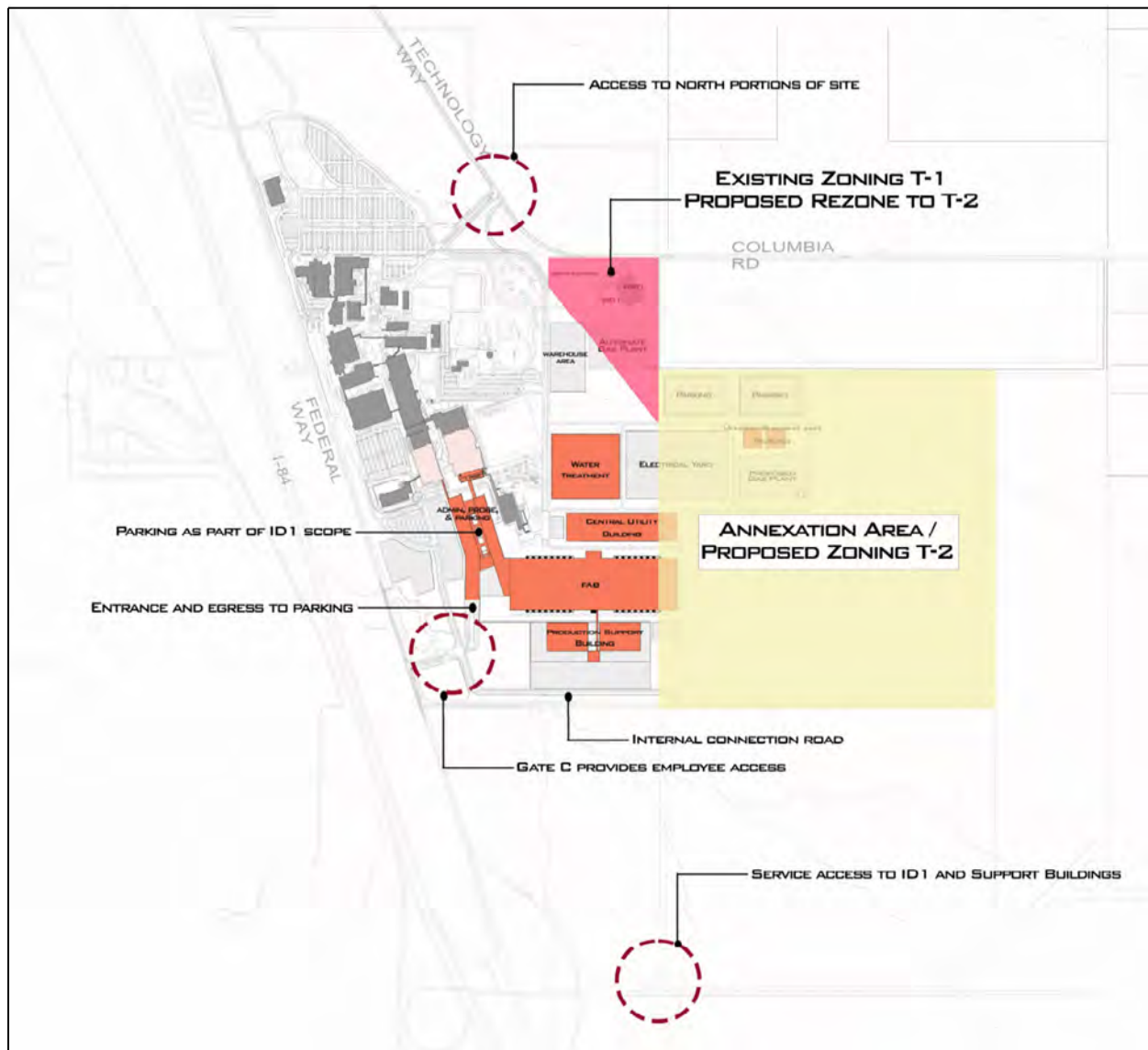
Figure 1. Vicinity Map



Traffic Impact Study for
FAB1 - Micron
NV5-3122133.00



Figure 2. Site Plan



***See Appendix A for a more detailed site plan

Existing Conditions

A.1. Transportation Facilities

A.1.1. Roadways

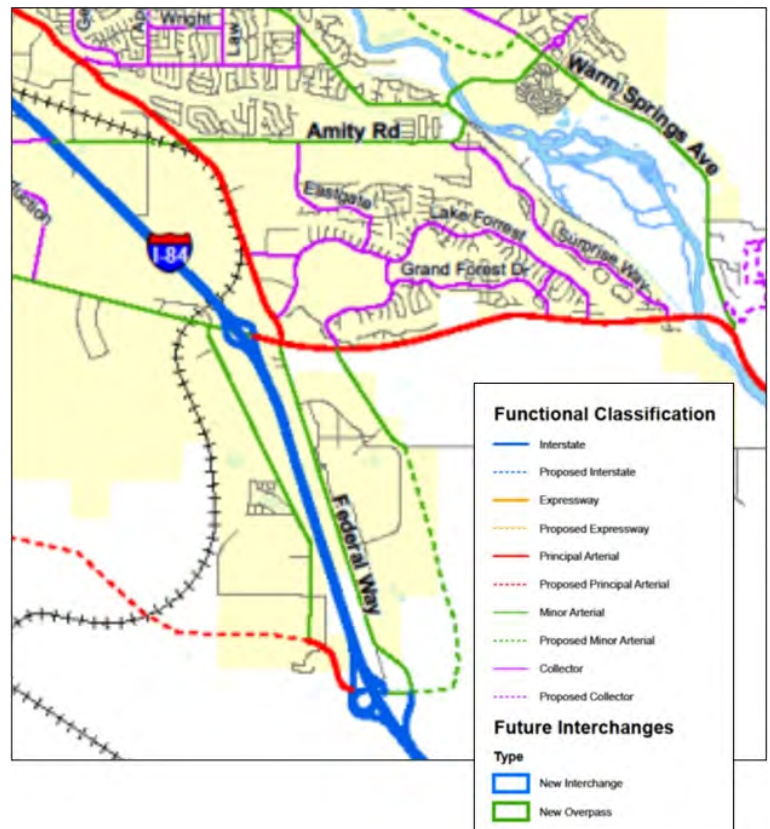
S. FEDERAL WAY is a four-lane arterial with a posted speed limit that varies between 35 and 45 MPH within the vicinity of the study area. The section of S. Federal Way that is south of Gate B is a two-lane divided roadway, and the section between Gate B and Technology Lane has a center two-way left-turn lane. S. Federal Way originates as the north leg of its intersection with Memory Lane and the I-84 westbound exit ramp, and heads in a primarily northerly direction, before ending at US 20/26.

The speed limit of S. Federal Way changes to 40 MPH north of its intersection with E. Gowen Road. S. Federal Way is classified as a Minor Arterial roadway south of its intersection with E. Gowen Road. To the north, it is classified as a Principal Arterial roadway. Land uses within the study area are primarily industrial, with residential and commercial uses north of E. Gowen Road.

E. GOWEN ROAD (SH 21) is a four-lane undivided principal arterial with a posted speed limit of 35 MPH near the Micron Campus. The roadway narrows to a two-lane roadway east of its intersection with Technology Way / Grand Forest Drive and the speed limit eventually increases to 55 MPH. Land uses in the study area are industrial, commercial, residential, and undeveloped.

MEMORY LANE / EISENMAN ROAD is a four-lane undivided Minor Arterial and has a posted speed limit of 35 MPH. Memory Lane originates as the west leg of the intersection with S. Federal Way and the I-84 westbound exit ramp and runs west to its intersection with the I-84 westbound ramp where it becomes S. Eisenman Road. There are no developed uses along Memory Lane but there is a new convenience store at the corner in the northwest corner of Eisenman Road and the I-84 EB off ramp.

AMITY ROAD is a two-lane undivided Minor Arterial with a posted speed limit of 45 MPH. The road runs east from its intersection with S. Federal Way towards Warm Springs Avenue. Land uses along its length are residential and industrial.



E. WARM SPRINGS AVENUE is a two-lane undivided Minor Arterial roadway with a posted speed limit of 45 MPH. The road runs north from its intersection with SR 21 to the Riverland East and Barber Valley neighborhoods.

E. GRAND FOREST DRIVE AND E. BERGESON STREET are collector roads that lead to several residential developments. They both have a posted speed limit of 30 MPH.

S. GIGABIT LANE (AKA GATE C), TECHNOLOGY LANE (AKA GATE A), SILICON LANE, AND CIRCUIT LANE are private roadways accessing the Micron Facilities.

Table 1: Roadway Classification

Roadway	Segment	Functional Classification
Gowen Rd (SH 21)	I-84 to Warm Springs Rd	Principal Arterial
S. Federal Way	Bergeson Rd to Gowen Rd	Principal Arterial
S. Federal Way	Gowen Rd to Memory Ln	Minor Arterial
Technology Way	Gowen Rd to Circuit Ln	Minor Arterial
Amity Rd	S. Federal Way to Surprise Way	Minor Arterial
Bergeson Rd	S. Federal Way to Apple St	Collector
Grand Forest Dr	Gowen Rd to Gowen Rd	Collector
Warm Springs Rd	Gowen Rd to Eckert Rd	Minor Arterial
Eisenman Rd / Memory Ln	I-84 to S. Federal Way	Minor Arterial
Columbia Rd	Circuit Ln to End	Unclassified / Local Road

A.1.2. Transit Service

There are no fixed-route transit services in the study area that would serve the Micron campus.

A.1.3. Bicycle and Pedestrian Facilities

There are sidewalks/multi-use paths on the south side of Gowen Road (SH 21), west of S. Federal Way; on the north side of Gowen Road between S. Federal Way and Technology Way; on both sides of Federal Way, north of Gowen Road; and, on the east side of S. Federal Way, south of Gowen Road for 1.25 miles.

Gowen Road has bike lanes west of S. Federal Way. S. Federal Way has bike lanes north of Gowen Road and for a few hundred feet south of Gowen Road. Technology Way features a southbound bike lane between Gowen Road and Circuit Lane.

A.1.1. Geometrics

The specific roadway lanes, traffic control, and turn bay lengths are shown in Figure 3. The future

extension of Memory Lane and the Fab construction access road are shown on the plan for context. Similarly, the access to the new childcare center opposite Gate A is shown.

A.2. Traffic Volume

Daily (24-hour) counts, and intersection turning movement counts were recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Counts were taken on September 22, 2022 for all locations except at intersection 13. Those counts were taken April 26, 2022 as part of the aforementioned childcare center traffic study. A single common peak hour was determined for all intersections; the AM Peak Hour is 7:00 to 8:00 am and the PM Peak Hour is between 4:00 and 5:00p. There are small deviations in the peak hour times from the chosen peak hour along S Federal Way in the vicinity of the Micron campus but the differences are not significant.

There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low. For the purposes of this study, and to be conservative in the results, the site traffic for the new Fab is assumed to be concentrated in the typical AM and PM peak hours.

Existing traffic volumes are shown in Figure 4. The peak hour volumes are shown in Table 2 and the segment volumes are shown in Table 3.

Table 2: Existing Peak Hour Turning Movement Volume

DIR	Intersection Number															
	1		2		3		4		5		6		7		8	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	27	5	0	0	0	1	50	6	596	93	0	0	4	6	110	251
SBT	0	0	0	0	0	0	21	36	108	34	778	153	38	13	284	62
SBR	50	71	0	0	16	128	0	0	4	0	3	1	126	117	306	385
NBL	0	0	0	0	11	25	0	0	0	0	0	0	142	167	43	515
NBT	0	0	0	0	16	15	18	26	20	144	60	742	33	30	51	326
NBR	0	0	0	0	0	0	32	4	2	3	0	0	11	30	10	60
EBL	0	0	32	30	39	12	0	0	0	2	2	1	51	212	270	521
EBT	39	32	41	13	1	0	0	0	0	0	0	0	187	484	284	593
EBR	34	43	0	0	0	0	0	0	0	0	1	0	166	174	483	111
WBL	7	50	0	0	0	0	4	67	1	6	3	1	29	13	60	9
WBT	17	35	23	83	1	1	0	0	0	0	0	0	384	286	413	423
WBR	0	0	4	72	0	0	7	101	31	538	20	145	9	8	113	85

DIR	Intersection Number													
	9		10		11		13		14		15		16	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	0	0	765	923	0	0	103	11	10	44	240	461	208	468
SBT	0	0	0	0	93	174	445	69	0	1	430	628	486	857
SBR	0	0	295	211	141	29	0	0	111	112	0	0	46	8
NBL	26	36	0	0	12	1	0	0	0	0	0	1	27	43
NBT	0	0	0	0	169	147	35	649	1	1	406	577	581	707
NBR	25	61	0	0	0	0	3	0	0	1	40	150	223	258
EBL	165	349	0	0	21	73	0	0	74	131	0	1	41	26
EBT	1005	1156	375	604	0	0	0	0	95	246	0	0	11	57
EBR	0	0	28	49	3	11	0	0	2	4	0	1	17	32
WBL	0	0	35	67	0	0	2	9	0	1	114	90	230	229
WBT	198	335	200	300	0	0	0	0	153	142	0	0	27	40
WBR	555	1009	0	0	0	0	3	38	22	18	380	368	346	338

Table 3: Segment ADTs

Road Segment	ADT*	%HV
Federal Way, South of Silicon Way	8,000	4.2%
Gowen Road, Btwn Federal Way and Technology Way	6,800	7.6%
Memory Ln, Btwn I-84 NB On-Ramp and Federal Way	1,000	unk
Technology Way, Btwn Gowen Road and Circuit Way	2,900	4.8%
Columbia Road, east of Circuit Way	3,350	0.4%

*Values rounded to nearest significant digit

Figure 3. Roadway Geometrics

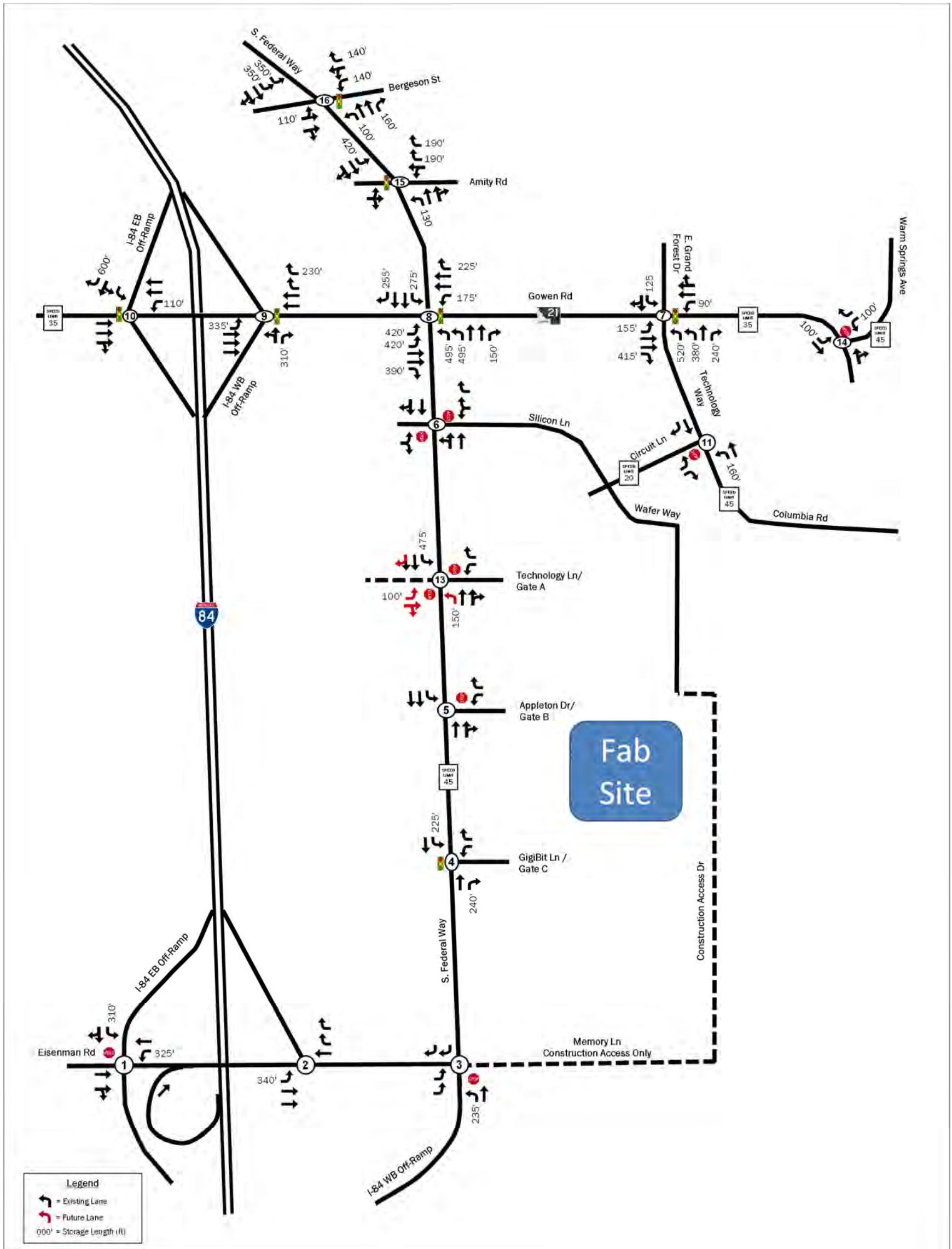
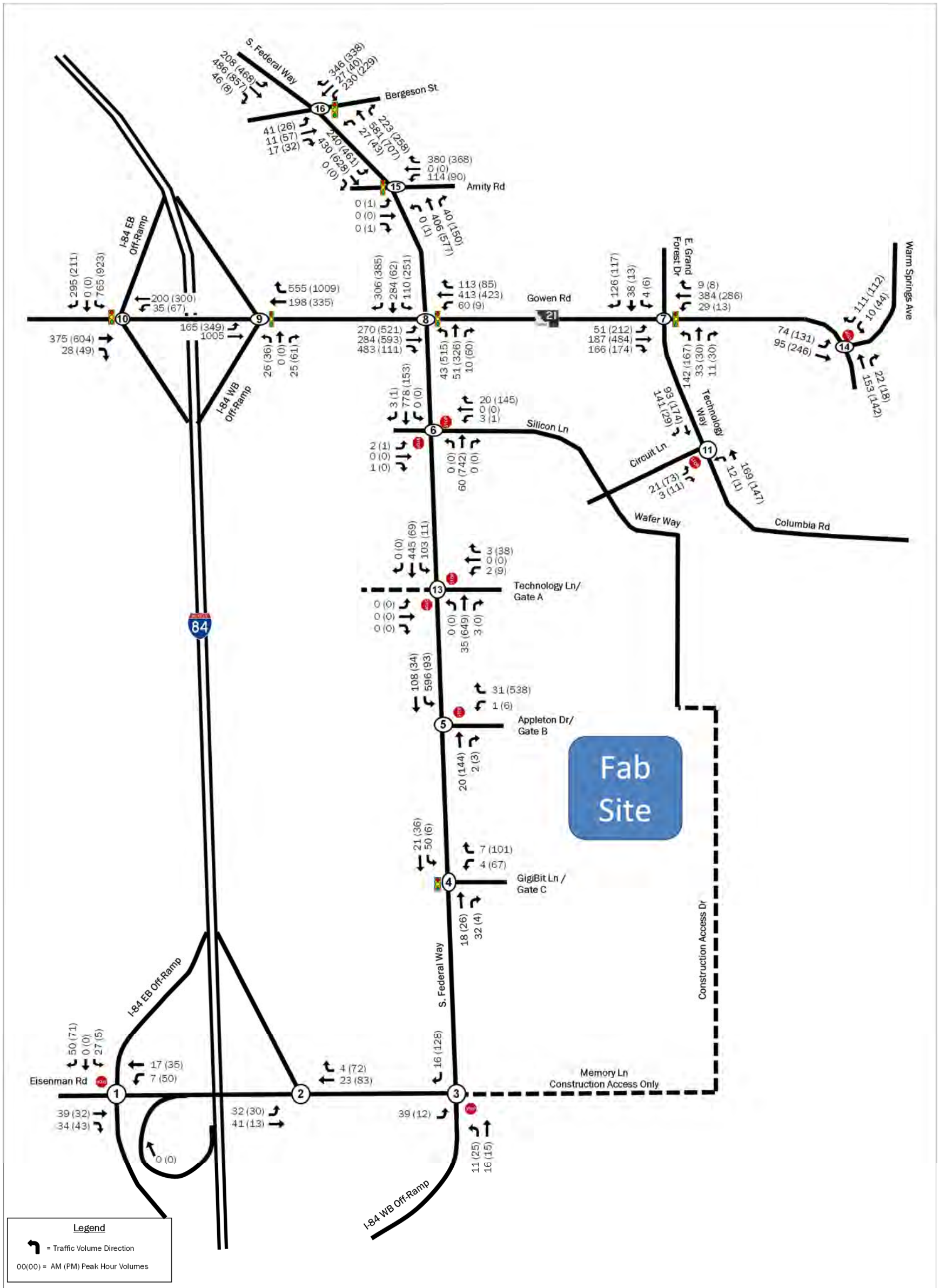


Figure 4. Existing Traffic Volumes (2022)



A.3. Existing Levels of Service

The LOS is based on the Highway Capacity Manual (6th Ed.), as calculated in the software Synchro® 11. Table 4 shows the criteria used to determine level of service for signalized, unsignalized, and roundabout intersections. Table 5 shows the level of service criteria for segments as outlined in ACHD standard 7106.4. The values shown are one-way, peak hour volumes.

Table 4: Level of Service Criteria

Level of Service	Average Control Delay		
	Signal	Stop Control	Roundabout
A	0 - 10	0 - 10	0 - 10
B	>10 - 20	>10 - 15	>10 - 15
C	>20 - 35	>15 - 25	>15 - 25
D	>35 - 55	>25 - 35	>25 - 35
E	>55 - 80	>35 - 50	>35 - 50
F	>80	>50	>50

Table 5: ACHD Segment Capacity Guidelines

Functional Classification		Lanes	Volume Thresholds	
			D	E
Princ. Arterials	No Left-turn Lane	1	600	690
	Continuous TWTL	1	770	880
		2	1,680	1,780
		3	2,560	2,720
	Median Control, Channelized Left-turn Lanes	1	850	920
		2	1,860	1,960
3		2,800	3,000	
Minor Arterials	No Left-turn Lane	1	540	575
	Continuous TWTL	1	675	720
		2	1,395	1,540
		3	2,155	2,370
	Median Control, Channelized Left-turn Lanes	1	710	770
		2	1,465	1,670
3		2,270	2,530	
Coltrs.	No Left-turn Lane	1	425	525
	Continuous TWTL	1	530	660
		2	1,080	1,250

Many of the analysis parameters are established by ACHD. These are shown in Appendix D. The results of the existing conditions analysis are shown in Table 6. Movements that appear highlighted in red are LOS F and those in orange are LOS E. Table 7 shows the segment analysis for the roadways that are proximate to the development.

Table 6: Intersection Level of Service Results – Existing Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.06	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	B	10.2	0
			SBR	-	0.07	A	9.1	4	0.11	A	9.4	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	N/A	-	No HCM Results				No HCM Results			
3	Memory Ln at Federal Way/I-84 WB Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	-	A	5.3	-	-	A	7.8	-
			WBL	-	0.16	A	9.3	5	0.35	A	7.3	16
			WBR	-	0.32	B	11.8	4	0.59	A	8.8	1
			NBT	-	0.04	A	4.1	7	0.08	A	6.1	11
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.09	A	4.4	13	0.01	A	6.2	4
			SBT	-	0.07	A	4.2	7	0.16	A	6.4	12
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	25.3	0
			WBL	-	0.02	F	57.4	2	0.01	B	11.9	0
			WBT	-	0.04	A	8.5	2	0.69	C	16.6	116
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.03	C	22.9	2	0.01	C	21.6	0
			EBR	-	0.01	B	14.9	0	-	A	0.0	-
			WBL	-	0.01	B	12.2	0	0.01	C	21.1	0
			WBR	-	0.02	A	8.7	2	0.27	B	13.8	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	-	C	22.3	-	-	B	17.4	-
			EBL	155	0.11	A	5.1	38	0.40	A	5.9	120
			EBT	-	0.11	A	6.2	73	0.28	A	7.1	163
			EBR	415	-	A	0.0	23	-	A	0.0	21
			WBL	90	0.04	A	5.0	24	0.03	A	7.2	12
			WBTR	-	0.21	A	7.1	152	0.17	A	9.1	123
			NBL	520	0.78	E	73.1	111	0.80	E	69.2	119
			NBT	-	0.22	E	60.4	59	0.20	E	56.3	54
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
			SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49
8	Gowen Rd at Federal Way	Signal	Overall	-	-	C	29.1	-	-	D	50.2	-
			EBL	420	0.26	C	28.3	150	0.90	E	71.2	343
			EBT	-	0.21	C	23.1	71	0.45	C	27.9	337

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			EBR	390	-	A	0.0	55	-	A	0.0	41
			WBL	175	0.48	D	41.8	77	0.24	E	74.5	30
			WBT	-	0.74	D	41.6	160	0.53	D	47.6	319
			WBR	225	-	A	0.0	14	-	A	0.0	0
			NBL	495	0.32	D	42.3	28	0.88	E	63.5	313
			NBT	-	0.17	D	35.6	27	0.50	D	47.4	182
			NBR	150	0.06	D	35.1	0	0.18	D	43.1	0
			SBL	275	0.32	C	30.4	75	0.63	D	44.3	212
			SBT	-	0.56	D	35.8	109	0.11	D	51.5	51
			SBR	255	0.44	A	4.3	37	0.76	D	46.0	354
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	-	A	5.4	-	-	A	6.7	-
			EBL	335	0.23	A	3.0	34	0.49	A	3.3	92
			EBT	-	0.32	A	2.5	65	0.35	A	2.4	99
			WBT	-	0.10	B	12.7	21	0.17	A	5.9	95
			WBR	230	-	A	0.0	0	-	A	0.0	25
			NBLT	-	0.26	D	39.1	39	0.39	E	58.7	72
			NBR	310	0.29	D	39.1	0	0.78	E	70.5	48
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	-	D	54.8	-	-	D	48.2	-
			EBTR	-	0.18	B	17.5	157	0.32	C	22.9	219
			WBL	110	0.07	B	13.7	45	0.19	B	17.4	61
			WBT	-	0.11	B	13.0	100	0.17	B	15.8	116
			SBL	-	0.92	F	80.9	598	0.96	E	79.9	761
			SBTR	600	0.82	E	77.5	75	0.50	D	51.9	66
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	11.3	2	0.17	B	12.6	12
			EBR	-	-	A	0.0	0	-	A	0.0	-
			NBL	160	0.01	A	7.4	0	0.00	A	7.6	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	C	16.4	0	0.08	D	26.0	4
			WBR	-	0.01	A	8.5	0	0.11	B	12.5	8
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.10	A	7.5	6	0.02	B	10.0	2
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.07	A	7.9	4	0.12	A	8.0	8
			SBL	100	0.02	B	12.6	2	0.17	C	19.5	12
			SBR	-	0.15	B	10.1	10	0.15	B	10.0	10
15	Federal Way at Amity Rd	Signal	Overall	-	-	D	45.6	-	-	D	54.7	-
			EBLTR	-	0.00	A	0.0	-	0.12	E	67.4	-
			WBLT	-	0.54	D	45.5	142	0.50	D	54.7	135
			WBR	190	1.17	F	147.3	24	1.34	F	228.6	24
			NBL	130	0.00	A	0.0	0	0.00	A	9.1	3
			NBTR	-	0.26	A	8.8	194	0.48	B	17.7	474
			SBL	420	0.39	A	5.1	140	0.92	B	17.8	510
16	Federal Way at	Signal	Overall	-	-	D	35.5	-	-	D	47.7	-
			EBLTR	-	0.56	E	57.1	45	0.64	E	65.2	68

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
	Bergeson Ave		WBL	140	0.29	C	31.1	265	0.32	D	38.2	332
			WBT	-	0.00	A	0.0	283	0.00	A	0.0	354
			WBR	140	0.93	E	65.2	71	0.95	E	78.3	77
			NBL	100	0.14	C	26.2	16	0.20	C	24.7	13
			NBT	-	0.58	C	31.0	128	0.69	D	36.3	172
			NBR	160	0.52	C	31.6	8	0.58	D	35.0	9
			SBL	350	0.47	D	42.3	119	0.99	F	89.8	339
			SBTR	-	0.41	C	20.3	214	0.64	C	28.1	466

Table 7: Segment Level of Service Results – Existing Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Threshold		Pk Dir Vol*	LOS
					LOS D	LOS E		
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	1,395	1,540	778	>D
B	Gowen Road, Btwn S Federal Way and Technology Way	Principal Arterial	2	Continuous LT Lane	1,680	1,780	870	>D
C	Memory Ln, Btwn Federal Way and I-84	Minor Arterial	2	Continuous LT Lane	1,395	1,540	155	>D
D	Technology Way, Btwn Gowen Road and Circuit Way	Minor Arterial	1	No LT Lane	540	575	234	>D

*Highest peak hour volume in one direction

A.4. Existing Conditions Mitigation

Gowen Road & Technology Way (signal)

The signal timing at the intersection favors Gowen Road. As such, the traffic on Technology Way and Grand Forest Drive tends to suffer with LOS E. The volume to capacity ratio (V/C) is still less than 0.90 so some capacity still exists. The more problematic movement is the northbound left turn in the PM peak hour. The Grand Forest Drive side of the intersection, while experiencing somewhat high delays, has manageable queues and adequate V/C ratios.

There are already dual northbound left turn lanes on Technology Way. It is impractical to add another turn lane since the efficiency of a third turn lane is only 60% of a single left turn lane and there is no receiving lane on SH 21. Changes in signal timing could improve the substandard movements to LOS E but will not bring all the movements to LOS D. The signal phasing could be changed to a split-phased operation and reserve all unused green time allocated to Grand Forest Drive for the Technology Way approach. In this way, more time can be allocated to the northbound left turn movement when traffic on Grand Forest Drive traffic is minimal. Moreover, since there is a limited number of thru movements and left turns coming from Grand Forest Drive, there will be fewer actuations on the north side of the road. This can be modeled in Synchro by eliminating the Grand Forest Drive left and thru movements since they would only sporadically occur during the peak hour;

however, the results are only a an approximately of the expected conditions (See Appendix E – Mitigation Section)

Recommendation(s):

- Implement traffic signal timing and phasing changes
- No ROW is required to implement this change

Gowen Road & Federal Way (signal)

The existing problems at the intersections are primarily the left turn movements and are seen during the PM peak hour. The higher volume left turns are the northbound lefts and the eastbound lefts. In the no-build condition (2025 volume without the site), the delay increases for the southbound right as well as the overall signal operations.

The intersection was somewhat recently upgraded to provide safer movements for pedestrians and bicyclists. There are dual left turn lanes in the northbound and the eastbound directions. It is possible to add a southbound left turn lane with minimal construction effort; however, adding a second turn lane would require that the phasing of the signal be changed from protected-permitted to protect-only. The difference in delay is minimal but the queue length would be halved. A second westbound left turn lane is unnecessary.

Because there are three receiving lanes on the west side of the intersection, it is possible to add a westbound through lane. This change, with some small signal timing split adjustments, would allow for LOS D operation on all movements but there would impacts to the bicycle lanes.

Recommendation(s):

- Add a southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase
- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
 - The bike lane on the west side of the intersection may have to be eliminated
- Re-time the traffic signal to account for the added capacity
- There appears to be sufficient right-of-way to accomplish the improvements.

Gowen Road & I-84 WB Ramp (signal)

The only poor operations at this intersection are the northbound left and right turn movements coming off of the ramp. The volumes are low but the PM peak hour has somewhat long delays. The longer than acceptable average delays cause a small number of vehicles have to wait a long time between green cycles. Adjusting the signal timing does little to reduce the average delay because the low arrival rate means that each vehicle will have to wait nearly a full cycle before proceeding. The queues are not long and there is plenty of capacity to handle more traffic. No improvements are recommended.

Gowen Road & I-85 EB Ramp (signal)

The left turning traffic volume on the exit ramp is high, Traffic can often back up 600 feet on the ramp. This is concerning because the ramp is only about 750 feet long and I-84 is an 80 MPH freeway, which requires more space for deceleration. More distance is needed to accommodate the queue and avoid impacting I-84.

The signal timing cycle length is 190 seconds in the AM and 220 seconds in the PM. This time is likely intended to clear the ramp so that it does not impede the I-84 mainline. However, a cycle length of this magnitude results in a long time between service intervals and contributes to a poor level of service. By contrast, a more reasonable 110 or 120 second cycle length would result in LOS D or better.

It is possible to add a third left turn lane but that would not improve the LOS without changes in timing. It would allow for more storage space and a more reasonable cycle length. However, as mentioned previously for the Gowen Road & Technology Way intersection, there is a loss of efficiency for each turn lane added – limiting the benefits of an additional lane. Building the additional space on the ramp will require both ITD and FHWA approval.

Recommendation(s):

- Retime the traffic signal to a more reasonable lower cycle-length
- Add a lane on the exit ramp to provide more storage and triple left turns
 - The additional left turn could be a re-purposing of the right turn lane plus additional pavement to add back the right turn lane
- There appears to be sufficient right-of-way to accomplish the improvement.

Federal Way & Amity Road (signal)

Amity Road is uniquely situated in an area that funnels traffic from the east towards Federal Way. There is a large volume of traffic in the AM Peak hour that turns right onto Federal Way towards Boise and the surrounding communities and performs the reverse pattern in the PM Peak hour.

One possible geometric improvement is to create a free-flow right turn lane in the westbound direction. This would mean adding a receiving lane on Federal Way, north of the intersection for at least 1000 feet. The improvement would require significant work since there is a sidewalk along the east side of Federal Way and a business with limited offset space from the sidewalk. The road would need to be widened on the west side, which would extend the construction limits. However, adding the free-flow right turn would allow for acceptable levels of service in the AM Peak Hour. (See Appendix E – Mitigation Section)

For the PM Peak hour, adding a southbound left turn lane in the existing gore area is feasible. However, while there are two receiving lanes on Amity Road, one lane is short. This will have the

effect of creating an uneven distribution of traffic in the dual left turn lanes. There should be a minimum of 1000 feet of two lanes heading east on Amity Road to make the dual left turns effective.

Recommendation(s):

- Convert the westbound dual right turns lanes to a single free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
- Construct dual southbound left turn lanes
 - Restripe the existing gore to allow for two left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the southbound left turn signal for protected-only operation
- There does not appear to be sufficient right-of-way to accomplish the improvement.
 - Additional right-of-way is needed on the east and west sides of Federal Way
 - Additional right-of-way is needed along Amity Road.

Federal Way and Bergeson Street (signal)

Similar to Amity Road, Bergeson Street serves a residential area of south Boise with commuter traffic heading towards Federal Way and then north. Unlike the Amity Road intersection, the Bergeson Street intersection already features dual southbound left turn lanes. There is no more room to add additional lanes. In the westbound direction, the right turn lane has a short receiving lane / merge area on Federal Way but the effect on LOS is minimal.

One improvement is to extend the westbound left to northbound Federal Way acceleration lane and provide a free-flow right turn lane. This would provide acceptable levels of service for all movements except the eastbound left turn. (See Appendix E – Mitigation Section). The eastbound left turn is a minor volume movement and no mitigation is recommended for that deficiency.

Recommendation(s):

- Channelize the westbound right turn lane into a free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
- There does not appear to be sufficient right-of-way to accomplish the improvement.
 - Additional right-of-way on the east side of Federal Way may be needed.

Table 8: Intersection Level of Service Results – Mitigation for Existing Conditions

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	C	22.3	-	-	B	17.4	-
			EBL	155	0.10	A	3.0	14	0.37	A	3.5	85
			EBT	-	0.10	A	3.9	38	0.27	A	4.4	125
			EBR	415	-	A	0.0	0	-	A	0.0	16
			WBL	90	0.04	A	3.0	8	0.03	A	4.4	9
			WBTR	-	0.19	A	4.5	91	0.15	A	5.7	99
			NBL	520	0.65	E	58.6	59	0.74	E	57.7	109
			NBT	-	0.28	E	55.2	26	0.24	E	52.3	54
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49			
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Retiming	Overall	-	-	C	28.3	-	-	D	50.2	-
			EBL	420	0.26	C	25.5	155	0.68	C	31.1	257
			EBT	-	0.21	C	22.2	142	0.50	C	20.6	233
			EBR	390	-	A	0.0	312	-	A	0.0	26
			WBL	175	0.48	D	41.8	77	0.21	D	44.8	21
			WBT	-	0.74	D	39.8	104	0.62	D	38.4	126
			WBR	225	-	A	0.0	14	-	A	0.0	15
			NBL	495	0.32	D	42.3	28	0.88	D	46.1	238
			NBT	-	0.17	D	35.0	27	0.48	C	27.9	124
			NBR	150	0.06	D	34.5	0	0.17	C	25.2	0
			SBL	275	0.32	C	30.6	36	0.34	C	27.2	63
			SBT	-	0.56	D	37.7	109	0.13	C	32.9	32
SBR	255	0.44	A	3.3	37	0.69	A	9.1	96			
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	D	48.2	-
			EBTR	-	0.18	B	13.2	73	0.30	B	14.1	185
			WBL	110	0.07	B	13.5	11	0.17	B	10.2	52
			WBT	-	0.11	B	9.9	33	0.16	A	8.8	95
			SBL	-	0.92	D	49.9	270	0.85	E	55.1	346
			SBTR	600	0.82	E	59.1	75	0.65	D	51.9	61
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	21.4	-	-	D	54.7	-
			EBLTR	-	0.00	A	0.0	6	0.01	D	53.0	-
			WBLT	-	0.64	E	59.0	151	0.59	E	60.3	121
			WBR	190	-	A	0.0	0	-	A	0.0	38
			NBL	130	0.00	A	0.0	0	0.46	A	7.7	2
			NBTR	-	0.25	A	8.8	131	0.46	B	15.4	350
			SBL	420	0.76	E	59.7	102	0.84	D	54.3	238
			SBTR	-	0.17	A	3.6	63	0.26	A	5.2	165
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	29.8	-	-	D	47.7	-
			EBLTR	-	0.54	E	56.0	34	0.58	D	53.9	52
			WBL	140	0.75	D	51.8	303	0.75	D	51.2	316

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			WBT	-	0.00	A	0.0	315	0.00	A	0.0	330
			WBR	140	-	A	0.0	90	-	A	0.0	87
			NBL	100	0.13	C	28.4	36	0.29	C	29.0	50
			NBT	-	0.65	D	35.7	265	0.73	D	35.9	319
			NBR	160	0.58	D	37.0	50	0.62	D	35.9	77
			SBL	350	0.21	C	23.8	125	0.55	C	31.4	365
			SBTR	-	0.30	A	9.4	224	0.51	C	13.7	388

A.5. Safety Analysis

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) was reviewed and is summarized at each of the study intersections and road segments. (See Table 9.) Appendix F includes a more detailed account of crash types at each intersection and road segment. None of the study intersections have crash rates higher than 1.0. No mitigation has been identified.

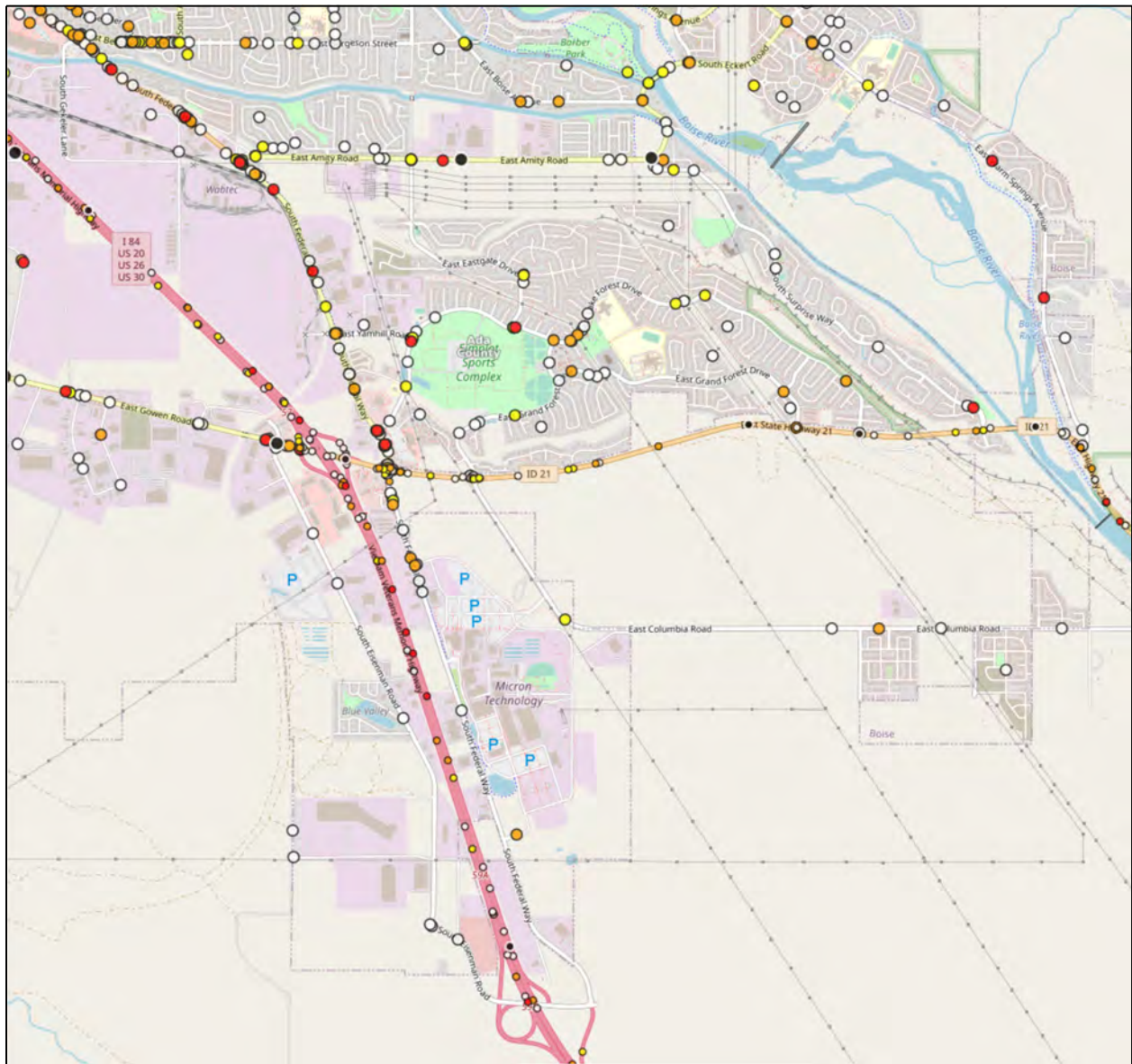
Table 9: Accident Summary

Int No.	Intersection	Total* Crashes	PDO/Inj/Fatal	Crash Rates
1	Eisenman Rd at I-84 EB Ramp	0	0/0/0	0.00
2	Eisenman Rd at I-84 WB On-Ramp	0	0/0/0	0.00
3	Memory Ln at Federal Way/I-84 WB Off-Ramp	1	0/1/0	0.36
4	Federal Way at Gate C	1	0/1/0	0.27
5	Federal Way at Gate B	2	2/0/0	0.16
6	Federal Way at Silicon Ln	3	1/2/0	0.19
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	0.50
8	Gowen Rd at Federal Way	33	22/11/0	0.54
9	Gowen Rd at I-84 WB Ramp	16	5/10/1	0.30
10	Gowen Rd at I-84 EB Ramp	15	12/3/0	0.38
11	Technology Way at Circuit Ln	0	0/0/0	0.00
13	Federal Way at Gate A	0	0/0/0	0.00
14	Gowen Rd at Warm Springs Ave	6	4/2/0	0.88
15	Federal Way at Amity Rd	29	18/11/0	0.70
16	Federal Way at Bergeson Ave	13	9/4/0	0.23

Seg.	Segment	Total* Crashes	PDO/Inj/Fatal	Crash Rates
A	S Federal Way, btwn Gowen Rd and Memory Ln	11	9/2/0	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	44.93
E	Memory Ln, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	13.31

*Total number of crashes between 2017 and 2021

Figure 5. Illustration of Crashes within Study Area



A.6. Data Sources

Traffic counts were collected by Quality Counts, Inc. under contract to NV5. Roadway geometrics were observed by a site visit and field measurements. Level of Service criteria is from in the Highway Capacity Manual, 6th Ed, as shown in Table 4. Segment LOS is from ACHD 7106.4.1 Table 2. Crash data is reported by the Idaho Local Highway Technical Assistance Council. Annual average daily volume used in the calculation of crash rates are provided by ITD AADT on-line reference.

Background Conditions

B.1. Planned Roadway and Approved Development Projects

There is a planned connector road in the Integrated Five-Year Work Plan (IFYWP) for 2022-2026. The road would go between Memory Lane and Columbia Road. The alignment of the road has not been determined and no plans current exist. The road was not considered for this traffic study. There is also in the IFYWP a future widening of Amity Road but the date of such a widening appears to be well into the future.

B.2. Background Data

Future 2025 turning movement conditions were forecast utilizing localized growth rates as provided by COMPASS. Table 10 shows the growth changes from the COMPASS model. Figure 6 shows the recommended annual growth rates for each corridor. These annual rates were applied to existing traffic counts for three years to determine future year background traffic conditions. No other background projects were considered.

Table 10: Growth Rates

Location	2025	2030	Calculated Growth	COMPASS Rate*	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	826	859	0.79%	2.5%	1.08
SH 21 w/o Federal Way	3535	3674	0.77%	1.6%	1.05
SH 21 e/o Federal Way	1747	2332	5.95%	8.0%	1.26
SH 21 e/o Technology Way	1095	1379	4.72%	5.4%	1.17
SH 21 w/o Warm Springs	666	697	0.91%	2.9%	1.09
Federal Way s/o SH 21	1582	1579	-0.04%	1.0%	1.03
Federal Way n/o Yamhill Rd	1011	1403	6.77%	9.6%	1.32
Technology Way, s/o SH 21	824	1314	9.78%	15.1%	1.52
Columbia Rd e/o Circuit Way	593	1023	11.52%	19.7%	1.72
Eisenman Rd/Memory Ln	-	-	-	6.1%	1.19

*This is the rate used in the study

Figure 6. Annual Growth Rates

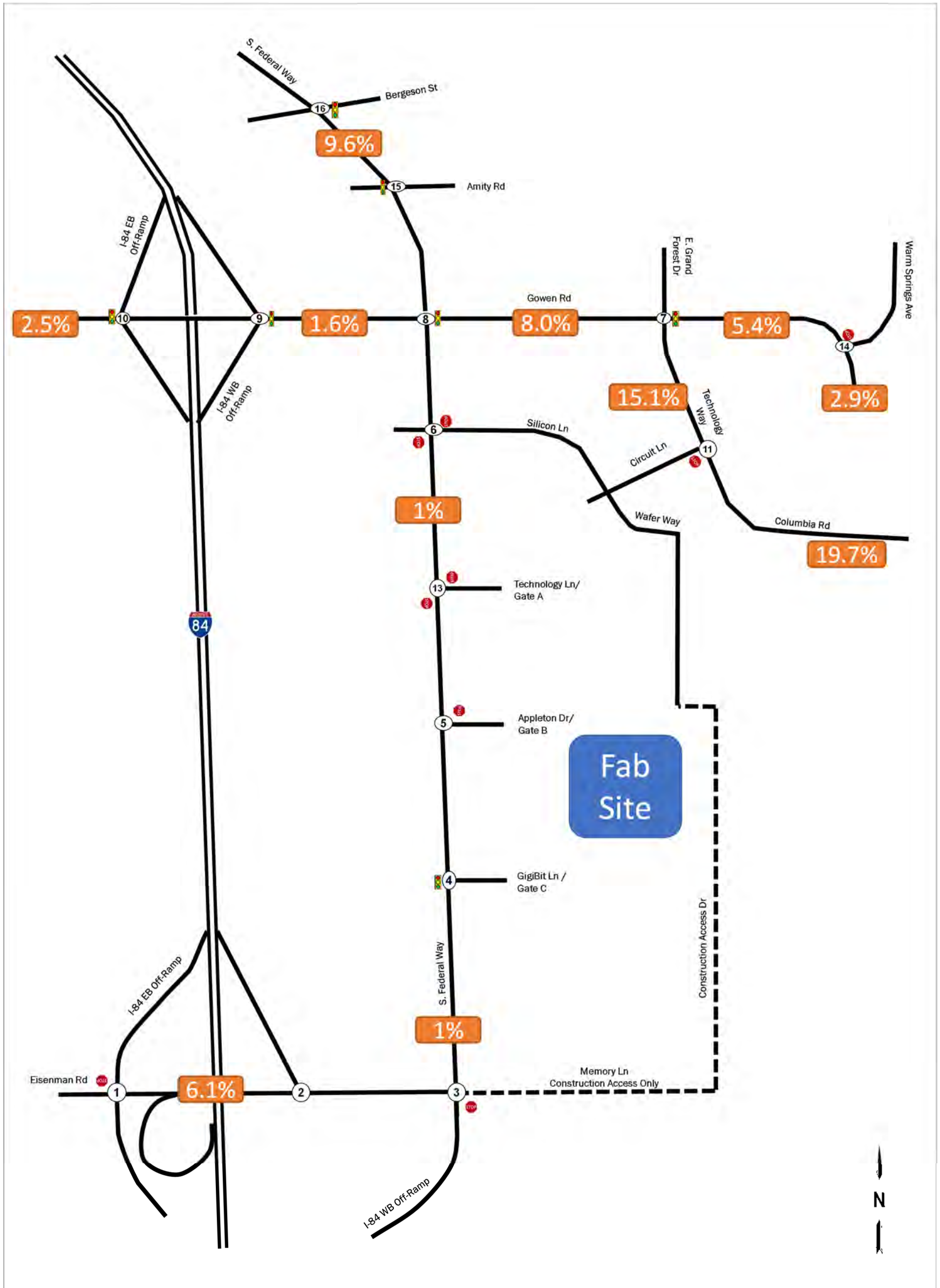
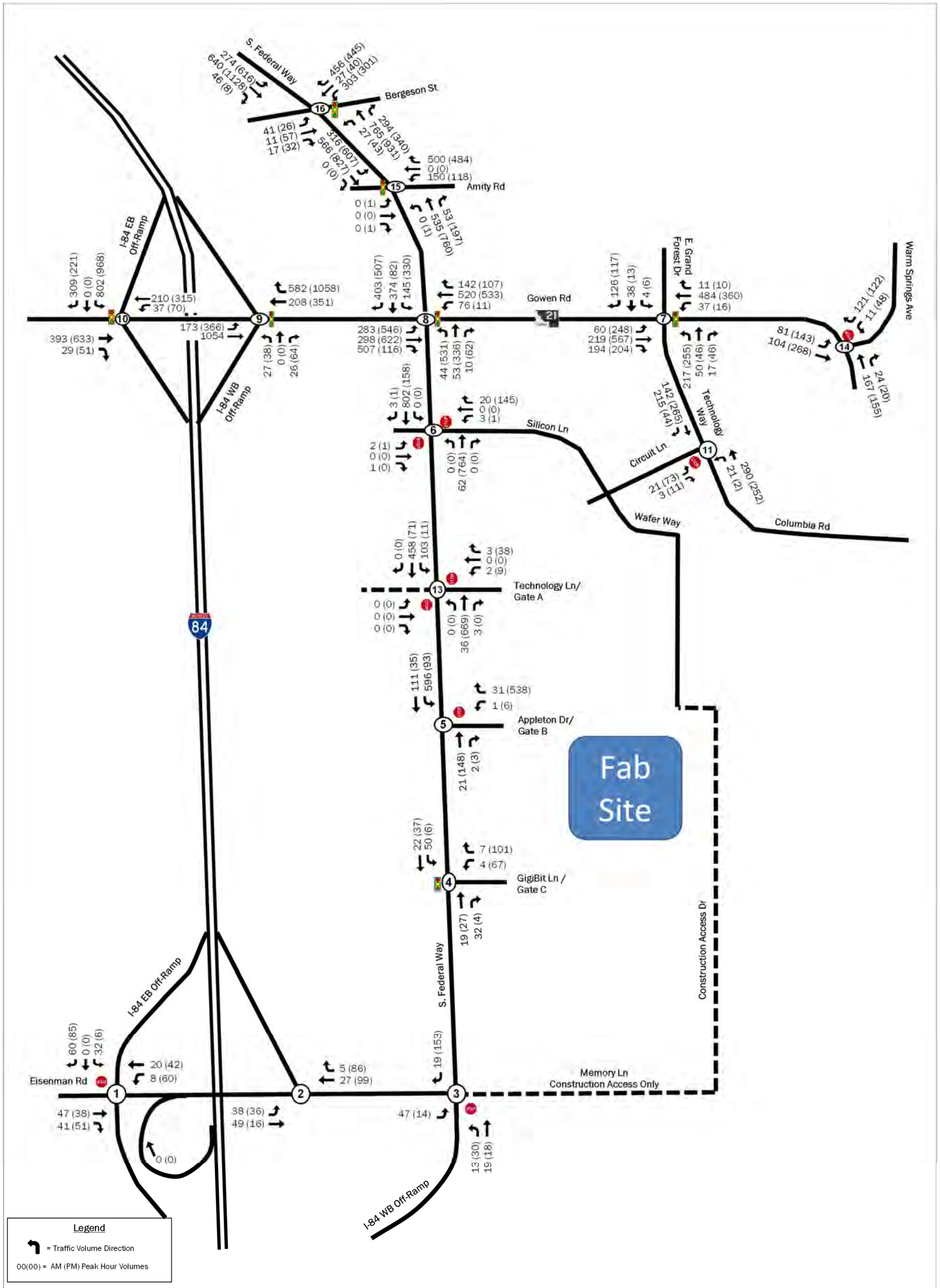


Figure 7. Existing + Background Growth Traffic Volumes (2025)



B.3. Background Levels of Service

The existing plus background growth levels of services for intersections are shown in Table 11. The segment analysis is shown in Table 12.

Table 11: Intersection Level of Service Results – Background Growth Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.05	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	B	10.0	0
			SBR	-	0.07	A	9.1	4	0.10	A	9.4	6
2	Eisenman Rd at I-84 WB On-Ramp	No-control	N/A	-	No HCM Results				No HCM Results			
3	Memory Ln at Federal Way/I-84 WB Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	-	A	5.1	-	-	A	7.3	-
			WBL	-	0.14	B	10.2	6	0.26	A	7.5	18
			WBR	-	0.32	B	15.2	8	0.45	A	8.5	13
			NBT	-	0.04	A	4.0	7	0.07	A	5.4	10
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.07	A	4.2	14	0.01	A	5.5	4
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	-	D	25.6	0
			WBL	-	0.02	F	57.3	0	0.01	B	12.0	0
			WBT	-	0.03	A	8.5	2	0.70	C	16.7	118
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	C	23.5	0	0.01	C	21.8	0
			EBR	-	0.00	C	15.1	0	-	A	0.0	-
			WBL	-	0.01	B	12.3	0	0.01	C	21.4	0
			WBR	-	0.02	A	8.7	2	0.27	B	13.9	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	-	C	26.9	-	-	C	22.7	-
			EBL	155	0.12	A	6.0	43	0.43	A	7.3	147
			EBT	-	0.11	A	7.2	83	0.30	A	8.6	200
			EBR	415	-	A	0.0	39	-	A	0.0	37
			WBL	90	0.05	A	5.7	29	0.30	A	8.9	14
			WBTR	-	0.23	A	8.2	192	0.19	B	11.2	160
			NBL	520	0.84	F	81.1	166	0.86	E	77.5	194
			NBT	-	0.26	E	58.5	84	0.23	D	53.2	77
NBR	240	-	A	0.0	0	-	A	0.0	0			

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	SBL	125	0.04	E	66.8	12	0.06	E	62.3	17
			SBTR	-	0.63	E	78.3	156	0.23	E	65.2	77
			Overall	-	-	C	29.5	-	-	E	56.4	-
			EBL	420	0.32	C	31.3	161	0.91	E	72.3	380
			EBT	-	0.23	C	24.5	82	0.47	C	27.9	358
			EBR	390	-	A	0.0	185	-	A	0.0	45
			WBL	175	0.56	D	42.2	93	0.26	E	73.9	34
			WBT	-	0.79	D	40.3	205	0.65	D	50.7	458
			WBR	225	-	A	0.0	33	-	A	0.0	22
			NBL	495	0.31	D	42.3	30	0.87	E	63.5	334
			NBT	-	0.16	D	35.6	28	0.49	D	48.1	191
			NBR	150	0.06	D	35.1	0	0.18	D	43.9	0
			SBL	275	0.39	C	28.5	96	0.83	E	58.6	285
			SBT	-	0.65	D	35.6	142	0.14	D	51.9	62
SBR	255	0.62	A	6.7	91	0.98	E	79.0	552			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	-	A	5.2	-	-	A	6.1	-
			EBL	335	0.23	A	2.9	35	0.49	A	3.1	92
			EBT	-	0.32	A	2.4	68	0.35	A	2.2	94
			WBT	-	0.11	B	12.6	24	0.18	A	5.6	86
			WBR	230	-	A	0.0	2	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
NBR	310	0.27	D	39.4	0	0.75	E	69.7	48			
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	-	E	55.2	-	-	D	50.8	-
			EBTR	-	0.17	B	18.6	234	0.31	C	23.8	234
			WBL	110	0.07	B	14.8	69	0.20	B	18.1	64
			WBT	-	0.11	B	14.1	150	0.18	B	16.8	122
			SBL	-	0.92	E	79.2	442	0.97	F	83.2	826
SBTR	600	0.82	E	75.6	50	0.51	D	50.9	69			
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	13.1	4	0.18	C	15.0	14
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	B	13.7	0	0.04	C	18.7	2
			WBR	-	0.00	A	8.4	0	0.07	B	11.1	4
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.07	A	7.5	4	0.01	A	9.2	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.07	A	7.8	4	0.11	A	7.9	8
			SBL	100	0.02	B	12.4	2	0.17	C	18.7	12
			SBR	-	0.16	B	10.1	12	0.16	A	9.9	12
15	Federal Way at Amity Rd	Signal	Overall	-	-	E	62.5	-	-	F	93.0	-
			EBLTR	-	0.00	A	0.0	-	0.12	E	67.4	-
			WBLT	-	0.63	D	48.8	198	0.58	E	57.5	176
			WBR	190	1.37	F	229.0	52	1.57	F	326.3	56
			NBL	130	0.00	A	0.0	0	0.00	B	13.1	3

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
16	Federal Way at Bergeson Ave	Signal	NBTR	-	0.33	B	10.9	270	0.66	C	28.2	729
			SBL	420	0.59	A	6.2	183	1.20	F	123.5	595
			SBTR	-	0.25	A	3.8	160	0.38	A	8.9	208
			Overall	-	-	D	51.5	-	-	E	76.3	-
			EBLTR	-	0.56	E	57.2	46	0.63	E	65.3	70
			WBL	140	0.38	C	32.0	347	0.40	D	39.2	422
			WBT	-	0.00	A	0.0	361	0.00	A	0.0	443
			WBR	140	1.21	F	153.4	213	1.23	F	171.8	144
			NBL	100	0.16	C	27.1	13	0.27	C	26.8	12
			NBT	-	0.78	C	34.5	246	0.86	D	39.4	291
			NBR	160	0.65	D	35.2	33	0.73	D	36.9	25
SBL	350	0.60	D	44.3	163	1.23	F	185.2	498			
SBTR	-	0.51	C	22.2	293	0.80	D	36.0	764			

Table 12: Segment Level of Service Results – Background Growth Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Threshold		Pk Dir Vol*	LOS
					LOS D	LOS E		
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	1,395	1,540	806	>D
B	Gowen Road, Btwn S Federal Way and Technology Way	Principal Arterial	2	Continuous LT Lane	1,680	1,780	1019	>D
C	Memory Ln, Btwn Federal Way and I-84	Minor Arterial	2	Continuous LT Lane	1,395	1,540	185	>D
D	Technology Way, Btwn Gowen Road and Circuit Way	Minor Arterial	1	No LT Lane	540	575	325	>D

*Highest peak hour volume in one direction

B.4. Background Growth Conditions Mitigation

Gowen Road & Technology Way (signal)

As background traffic continues to grow on Technology Way, signal timing will not be able to achieve acceptable operations. A multi-lane roundabout would result in acceptable levels of service. The recommended configuration should include two lanes within the roundabout, an eastbound by-pass lane and a southbound by-pass lane. The roundabout will need to be large to accommodate the number of lanes and large trucks on both SH 21 and on Technology Way – an approximately 135 to 150-foot inscribed circle. However, the resulting LOS would be C or better for all movements. (See Appendix E – Mitigation Section)

Recommendation(s):

- Implement traffic signal timing and phasing changes as traffic growth continues.

- Program a multi-lane roundabout to be constructed with EB and SB by-pass lanes once background growth and site traffic volumes reach levels where signal timing changes will no longer be adequate

The right-of-way to construct such a large roundabout would exceed the space available.

Table 13 shows the results of mitigation from both the existing conditions improvements (see Section A.4) and the background growth conditions improvements.

Table 13: Intersection Level of Service Results – Mitigation for Background Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	B	13.4	-	
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	28.3	-	C	33.0	-	
			EBL	420	0.28	C	28.6	161	0.85	D	41.9	275
			EBT	-	0.23	C	24.2	82	0.59	C	24.9	246
			EBR	390	-	A	0.0	185	-	A	0.0	29
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.3	131	0.76	D	42.1	159
			WBR	225	-	A	0.0	33	-	A	0.0	32
			NBL	495	0.31	D	42.3	30	0.87	D	45.0	255
			NBT	-	0.13	D	33.3	28	0.42	C	25.7	135
			NBR	150	0.05	D	32.8	0	15.00	C	23.4	0
			SBL	275	0.21	C	28.7	45	0.38	C	23.3	81
SBT	-	0.68	D	36.4	142	0.13	C	29.4	40			
SBR	255	0.57	A	4.7	91	0.90	C	22.7	209			
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.8	-	C	34.3	-	
			EBTR	-	0.18	B	14.0	105	0.28	B	14.8	207
			WBL	110	0.07	B	10.6	29	0.29	B	15.2	56
			WBT	-	0.11	A	9.7	61	0.17	A	10.8	105
			SBL	-	0.68	D	48.9	311	0.86	D	54.1	357
SBTR	600	0.87	E	58.0	80	0.65	D	50.7	61			
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	22.7	-	C	26.9	-	
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.67	E	57.9	195	0.62	E	59.4	159
			WBR	190	-	A	0.0	106	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.62	B	11.0	2
			NBTR	-	0.33	B	13.3	263	0.62	C	23.7	635
			SBL	420	0.81	E	57.2	188	0.87	D	53.1	296
SBTR	-	0.24	A	3.8	134	0.35	A	6.4	231			
16			Overall	-	-	C	29.8	-	D	36.7	-	

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
	Federal Way at Bergeson Ave	Add Free-flow WBR	EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
WBL			140	0.80	D	54.8	384	0.80	D	53.8	392	
WBT			-	0.00	A	0.0	393	0.00	A	0.0	406	
WBR			140	-	A	0.0	115	-	A	0.0	111	
NBL			100	0.15	C	29.0	37	0.37	C	31.9	50	
NBT			-	0.82	D	42.0	371	0.92	D	47.6	497	
NBR			160	0.73	D	43.6	118	0.78	D	43.9	163	
SBL			350	0.28	C	26.0	194	0.74	D	37.6	500	
			SBTR	-	0.39	A	11.3	307	0.67	C	18.6	642

B.5. Data Sources

COMPASS supplied the forecasts for 2025 and 2030 PM peak hour traffic. No other approved developments were provided or incorporated into the projections for 2025 'no-build' analysis.

Projected Traffic

C.1. Project Trip Generation

The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” using an independent variable of number of employees is the appropriate land-use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions. The land-use does not include separate values for pass-by traffic or internal trips and was not accounted for in this study.

Table 14: Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

C.2. Trip Distribution and Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home cities of current employees are shown in Figure 8. Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 10 through 13.

Figure 8. Existing Employee Home Origins

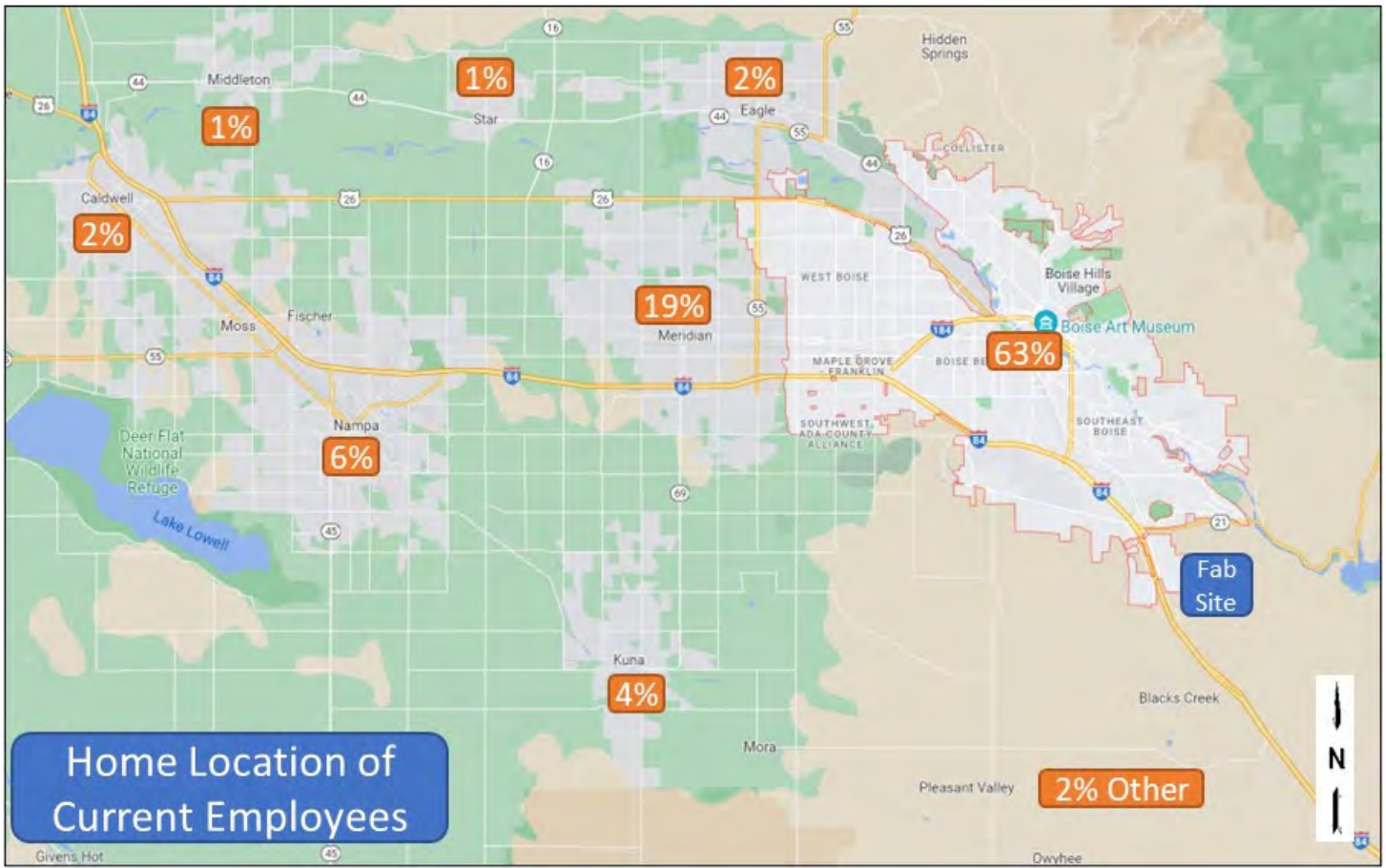


Figure 9. Macro Area Trip Distribution – Autos and Trucks



Figure 10. Auto Trip Distribution

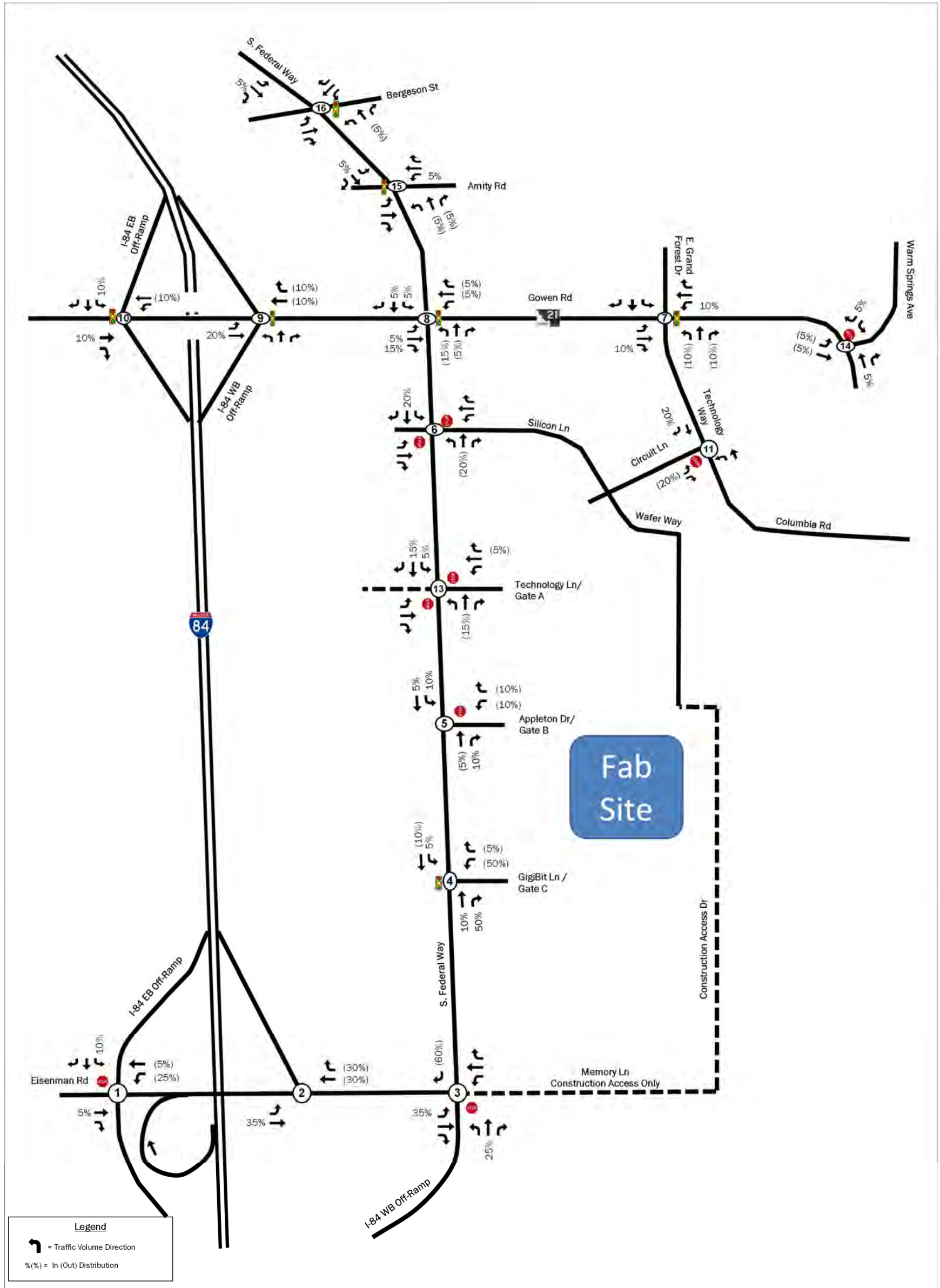


Figure 11. Truck Trip Distribution

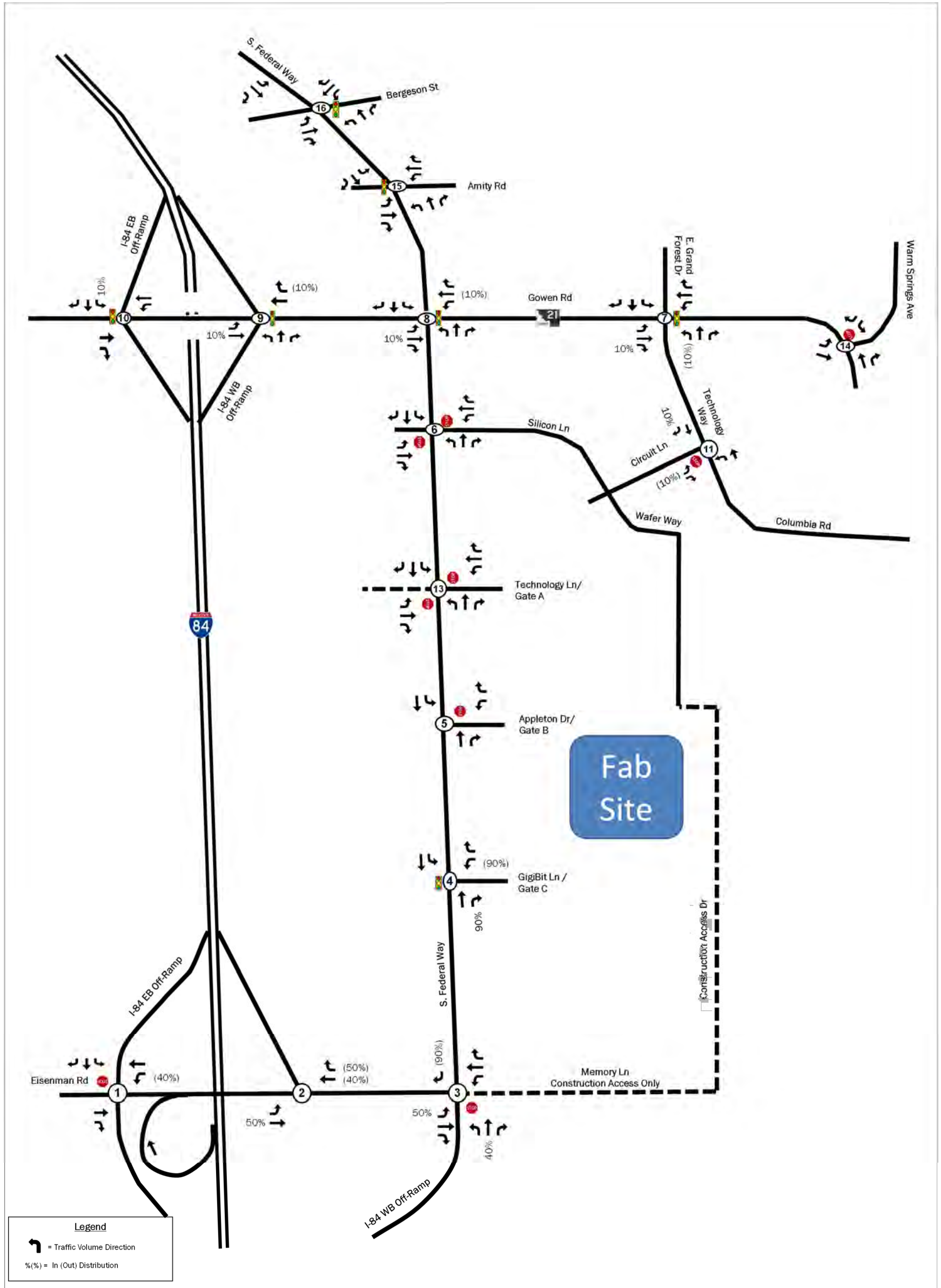


Figure 12. Site Trips

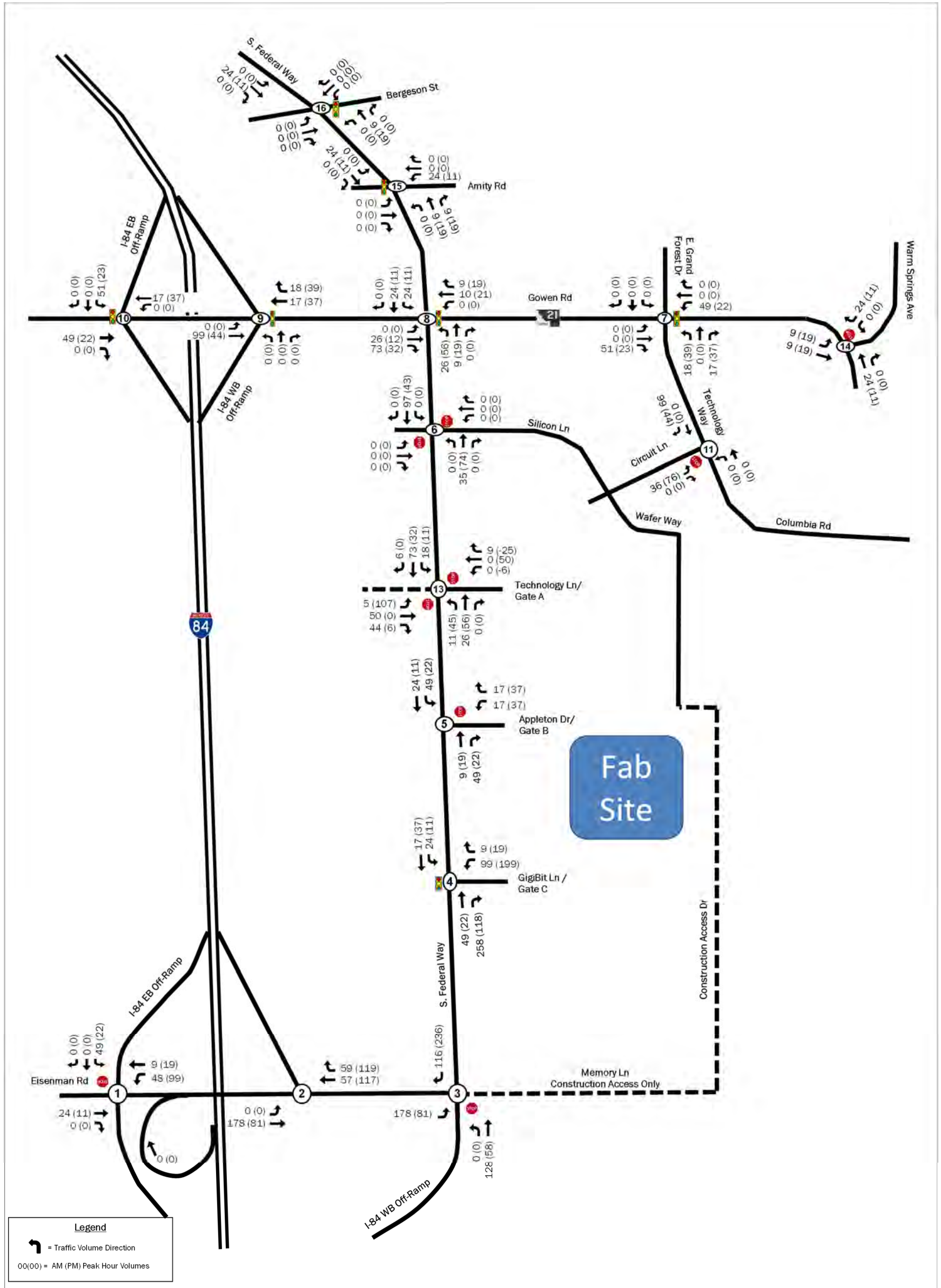
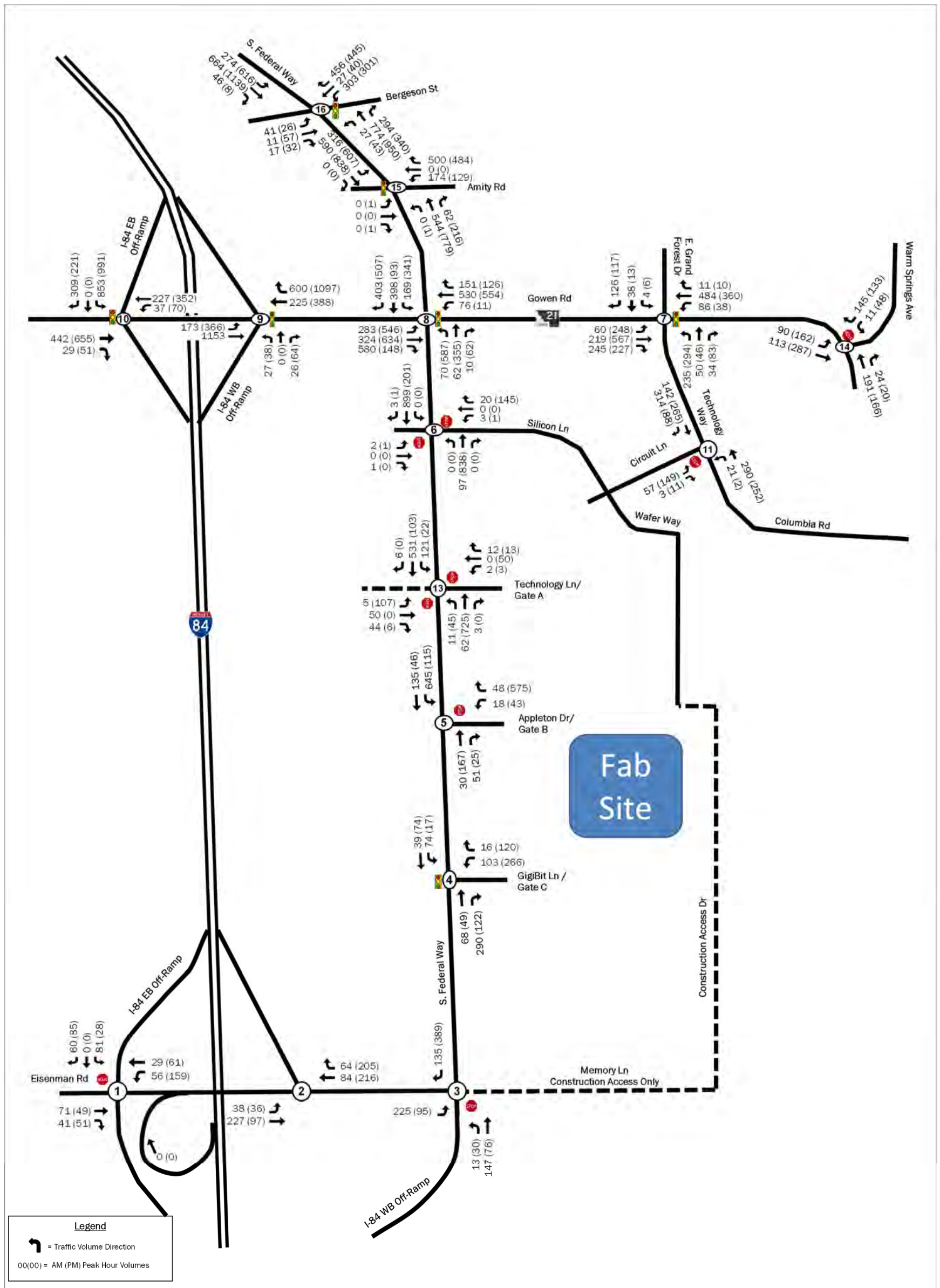


Figure 13. Existing + Background + Site Traffic (2025)



Traffic Analyses

D.1. Build Condition Capacity Analysis

The results of build conditions capacity for intersection (2022 volumes plus background growth plus site traffic) are shown in Table 15 and include the analysis of the volumes shown in Figure 13.

Table 15: Intersection Level of Service Results – Full Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.05	A	8.1	4	0.14	A	8.4	10
			SBL	310	0.12	B	10.6	8	0.07	B	13.2	4
			SBR	-	0.07	A	9.1	4	0.11	A	9.5	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	N/A	-	No HCM Results				No HCM Results			
3	Memory Ln at Federal Way/I-84 WB Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.9	14	0.09	A	9.4	6
4	Federal Way at Gate C	Signal	Overall	-	-	A	6.9	-	-	A	7.7	-
			WBL	-	0.50	A	9.1	33	0.62	A	8.3	77
			WBR	-	0.09	A	7.2	7	0.32	A	6.8	18
			NBT	-	0.18	A	5.4	22	0.15	A	7.1	24
			NBR	240	-	A	0.0	26	-	A	0.0	24
			SBL	225	0.12	A	5.9	24	0.03	A	7.2	12
			SBT	-	0.11	A	5.2	14	0.26	A	7.5	33
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	0.41	F	122.0	30	0.11	B	14.1	8
			WBT	-	0.05	A	8.7	4	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	D	27.3	0	0.00	C	19.1	0
			EBR	-	0.00	C	16.2	0	-	A	0.0	0
			WBL	-	0.01	B	13.0	0	0.00	C	19.3	0
			WBR	-	0.02	A	8.8	2	0.29	B	14.7	24
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	-	C	27.5	-	-	C	26.4	-
			EBL	155	0.12	A	6.3	43	0.44	A	7.7	144
			EBT	-	0.12	A	7.7	86	0.31	A	9.6	201
			EBR	415	-	A	0.0	44	-	A	0.0	37
			WBL	90	0.11	A	6.0	56	0.07	A	9.1	26
			WBTR	-	0.23	A	8.5	192	0.20	B	11.8	157
			NBL	520	0.86	F	83.3	192	0.92	F	88.0	267

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			NBT	-	0.25	E	57.7	84	0.21	D	52.2	83
			NBR	240	-	A	0.0	0	-	A	0.0	15
			SBL	125	0.04	E	66.8	12	0.06	E	62.3	19
			SBTR	-	0.63	E	77.3	156	0.23	E	65.2	82
8	Gowen Rd at Federal Way	Signal	Overall	-	-	C	30.0	-	-	E	57.1	-
			EBL	420	0.33	C	31.9	161	0.91	E	72.1	380
			EBT	-	0.25	C	25.3	90	0.49	C	30.2	366
			EBR	390	-	A	0.0	328	-	A	0.0	51
			WBL	175	0.56	D	42.2	93	0.26	E	73.7	34
			WBT	-	0.79	D	40.1	210	0.73	E	55.0	485
			WBR	225	-	A	0.0	39	-	A	0.0	44
			NBL	495	0.42	D	42.4	42	0.89	E	63.6	361
			NBT	-	0.18	D	35.4	32	0.48	D	45.9	202
			NBR	150	0.06	C	34.7	0	0.17	D	41.6	0
			SBL	275	0.44	C	28.7	110	0.86	E	59.0	364
			SBT	-	0.70	D	36.5	154	0.16	D	52.1	71
SBR	255	0.64	A	7.1	116	0.98	E	79.0	592			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	-	A	5.2	-	-	A	6.1	-
			EBL	335	0.23	A	3.0	35	0.51	A	3.2	92
			EBT	-	0.35	A	2.5	76	0.36	A	2.2	99
			WBT	-	0.12	B	12.8	27	0.19	A	5.6	95
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
NBR	310	0.27	D	39.4	0	0.75	E	69.7	48			
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	-	D	53.8	-	-	D	52.5	-
			EBTR	-	0.20	C	20.6	262	0.32	C	24.2	243
			WBL	110	0.08	B	16.4	69	0.20	C	18.3	64
			WBT	-	0.13	B	15.7	162	0.21	C	17.2	136
			SBL	-	0.93	E	77.5	479	0.99	F	87.9	859
SBTR	600	0.77	E	70.9	50	0.51	D	50.6	69			
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.14	B	13.9	10	0.38	C	17.9	34
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	EBL	100	0.03	C	22.7	2	0.48	D	32.4	48
			EBTR	-	0.31	C	20.2	26	0.01	A	8.6	0
			WBL	-	0.01	C	20.3	0	0.02	C	24.6	2
			WBTR	-	0.01	A	8.5	0	0.29	D	25.8	24
			NBL	150	0.01	A	8.7	0	0.03	A	7.5	2
SBL	475	0.09	A	7.6	6	0.03	A	9.5	2			
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.08	A	7.9	4	0.13	A	8.0	10
			SBL	100	0.03	B	13.0	2	0.19	C	20.8	14
			SBR	-	0.20	B	10.5	14	0.17	B	10.1	12
15		Signal	Overall	-	-	E	61.8	-	-	F	95.0	-

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM				
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)	
16	Federal Way at Amity Rd		EBLTR	-	0.00	A	0.0	0	0.12	E	67.4	0	
			WBLT	-	0.73	D	54.5	245	0.64	E	60.0	162	
			WBR	190	1.37	F	229.0	52	1.57	F	326.3	51	
			NBL	130	0.00	A	0.0	0	0.00	B	13.1	3	
			NBTR	-	0.34	B	11.0	279	0.69	C	29.6	603	
			SBL	420	0.60	A	6.4	188	1.23	F	138.0	625	
			SBTR	-	0.26	A	3.9	168	0.38	A	9.0	293	
		Federal Way at Bergeson Ave	Signal	Overall	-	-	D	51.3	-	-	E	76.3	-
				EBLTR	-	0.56	E	57.2	46	0.63	E	65.3	65
				WBL	140	0.38	C	32.0	347	0.40	D	39.2	356
				WBT	-	0.00	A	0.0	361	0.00	A	0.0	375
				WBR	140	1.21	F	153.4	214	1.23	F	171.8	188
				NBL	100	0.17	C	27.2	13	0.28	C	27.0	13
				NBT	-	0.74	C	34.6	245	0.88	D	39.9	190
	NBR	160	0.65	D	35.1	13	0.73	D	36.9	7			
	SBL	350	0.60	D	44.3	163	1.26	F	185.2	479			
	SBTR	-	0.53	C	22.6	307	0.81	D	36.6	675			

Table 16: Segment Level of Service Results – Full Build Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Threshold		Pk Dir Vol*	LOS
					LOS D	LOS E		
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	1,395	1,540	902	>D
B	Gowen Road, Btwn S Federal Way and Technology Way	Principal Arterial	2	Continuous LT Lane	1,680	1,780	1042	>D
C	Memory Ln, Btwn Federal Way and I-84	Minor Arterial	2	Continuous LT Lane	1,395	1,540	421	>D
D	Technology Way, Btwn Gowen Road and Circuit Way	Minor Arterial	1	No LT Lane	540	575	439	>D

*Highest peak hour volume in one direction

D.2. Build Conditions Mitigation

Eisenman Rd at I-84 WB On-Ramp

The intersection geometry is unique to the traffic conditions. There is currently no east side of the intersection so the eastbound left turning traffic (i.e., traffic heading north on S Federal Way) can move unimpeded. Only the northbound traffic coming from I-84 is stopped and that volume is projected to be manageable. HCM 6th Ed. does not include the ability to analyze the intersection in its current form but can if a dummy link is added to the east side of the intersection.

If Memory Lane is to be used as a construction traffic route for FAB1, the intersection at S Federal Way will need to be reconfigured. At a minimum, the southbound movement on S Federal Way will

need a left turn lane. Memory Lane Ext will need one lane leaving and one lane entering the construction area. The analysis of construction period traffic is not included in this study but will be a separate effort. The intersection may need to be signalized if the construction traffic analysis shows a significant and sustained volume of traffic to/from the construction site.

Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

S Federal Way & Gate B

Gate B is the next closest access point for the parking lots on the southern end of the Micron campus. Currently, during shift change, there is a large volume of traffic leaving Gate B but almost all of it makes a right turn and heads north on S Federal Way. Conversely, in the AM peak hour, there is a large volume of southbound left turning vehicles entering the site. The intersection is stop controlled and already experiences some delays for left-out traffic. The additional load from FAB1 traffic will overburden the intersection. A traffic signal may be needed but does not meet the required MUTCD volume criteria. (See Section D.3. for a signal warrant discussion.)

Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

Table 17 shows the results of mitigation from the existing conditions improvements (see Section A.4) the background growth conditions improvements (see Section B.4) and the build conditions improvements.

Table 17: Intersection Level of Service Results – Mitigation for Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
4	Federal Way at Gate C	No WBL at Gate 5	Overall	-	-	A	6.9	-	-	A	7.8	-
			WBL	-	0.54	A	9.2	38	0.65	A	8.3	91
			WBR	-	0.08	A	7.1	7	0.29	A	6.8	18
			NBT	-	0.18	A	5.5	23	0.16	A	7.1	26
			NBR	240	-	A	0.0	27	-	A	0.0	26
			SBL	225	0.12	A	6.0	25	0.03	A	7.2	13
			SBT	-	0.12	A	5.3	15	0.27	A	7.5	36
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	-	-	-	-	-	-	-	-
			WBR	-	0.52	A	8.7	30	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	-	B	13.4	-
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	29.9	-	-	D	37.6	-
			EBL	420	0.29	C	29.5	161	0.88	C	45.7	275
			EBT	-	0.25	C	25.3	90	0.62	C	25.9	252
			EBR	390	-	A	0.0	328	-	A	0.0	44
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.2	133	0.79	D	43.3	169
			WBR	225	-	A	0.0	39	-	A	0.0	47
			NBL	495	0.42	D	42.4	42	0.93	D	53.9	296
			NBT	-	0.15	C	33.4	32	0.47	C	27.1	145
			NBR	150	0.05	C	32.8	0	0.16	C	24.4	0
			SBL	275	0.63	C	42.1	82	0.77	C	42.0	144
			SBT	-	0.70	D	36.5	154	0.14	C	29.3	44
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	C	33.9	-
			EBTR	-	0.20	B	14.3	123	0.30	B	15.3	218
			WBL	110	0.08	B	10.7	31	0.18	B	11.2	57
			WBT	-	0.12	A	9.9	70	0.19	A	10.1	120
			SBL	-	0.72	D	49.5	324	0.86	D	53.6	363
			SBTR	600	0.87	E	57.5	77	0.64	D	49.8	60
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot	Overall	-	-	C	23.5	-	-	C	28.7	-
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.70	E	57.9	220	0.64	E	58.9	173
			WBR	190	-	A	0.0	103	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.68	B	12.5	2

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
		signal phase	NBTR	-	0.35	B	13.3	281	0.68	C	27.9	702
			SBL	420	0.81	E	57.2	188	0.88	D	53.1	319
			SBTR	-	0.26	A	3.8	148	0.39	A	7.1	263
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	33.7	-	-	D	37.4	-
			EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
			WBL	140	0.80	D	54.8	384	0.80	D	53.8	392
			WBT	-	0.00	A	0.0	393	0.00	A	0.0	406
			WBR	140	-	A	0.0	115	-	A	0.0	111
			NBL	100	0.16	C	29.1	37	0.37	C	31.9	50
			NBT	-	0.83	D	42.6	376	0.93	D	50.2	515
			NBR	160	0.73	D	43.6	120	0.78	D	43.9	167
			SBL	350	0.28	C	26.0	194	0.74	D	37.6	500
SBTR	-	0.40	A	11.5	322	0.68	C	18.8	653			

Conclusions and Recommendations

E.1. Capacity Analysis Conclusions

An analysis of the v/c ratios, LOS, delay, and expected queuing results in a series of conclusions for each intersection. These are described in detail below.

Table 18: LOS Comparison of LOS for Select Intersections

ID	Intersection	Mvmnt	Existing		No-Build		Build	
			AM	PM	AM	PM	AM	PM
5	Federal Way at Gate B	EBLTR	A	D	A	D	A	D
		WBL	F	B	F	B	F	B
		WBT	A	C	A	C	A	C
		NBL	A	A	A	A	A	A
		SBL	A	A	A	A	A	A
7	Gowen Rd at Technology Way/Grand Forest Dr	Overall	C	B	C	C	C	C
		EBL	A	A	A	A	A	A
		EBT	A	A	A	A	A	A
		EBR	A	A	A	A	A	A
		WBL	A	A	A	A	A	A
		WBTR	A	A	A	B	A	B
		NBL	E	E	F	E	F	F
		NBT	E	E	E	D	E	D
		NBR	A	A	A	A	A	A
		SBL	E	E	E	E	E	E
8	Gowen Rd at Federal Way	Overall	C	D	C	E	C	E
		EBL	C	E	C	E	C	E
		EBT	C	C	C	C	C	C
		EBR	A	A	A	A	A	A
		WBL	D	E	D	E	D	E
		WBT	D	D	D	D	D	E
		WBR	A	A	A	A	A	A
		NBL	D	E	D	E	D	E
		NBT	D	D	D	D	D	D
		NBR	D	D	D	D	C	D
		SBL	C	D	C	E	C	E
		SBT	D	D	D	D	D	D
		SBR	A	D	A	E	A	E
9	Gowen Rd at I-84 WB Ramp	Overall	A	A	A	A	A	A
		EBL	A	A	A	A	A	A
		EBT	A	A	A	A	A	A
		WBT	B	A	B	A	B	A
		WBR	A	A	A	A	A	A
		NBLT	D	E	D	E	D	E
		NBR	D	E	D	E	D	E
		Overall	D	D	E	D	D	D
10	Gowen Rd at I-84 EB Ramp	EBTR	B	C	B	C	C	C
		WBL	B	B	B	B	B	C
		WBT	B	B	B	B	B	C
		SBL	F	E	E	F	E	F
		SBTR	E	D	E	D	E	D
		Overall	D	D	E	F	E	F
15	Federal Way at Amity Rd	EBLTR	A	E	A	E	A	E
		WBLT	D	D	D	E	D	E
		WBR	F	F	F	F	F	F
		NBL	A	A	A	B	A	B
		NBTR	A	B	B	C	B	C
		SBL	A	B	A	F	A	F
16	Federal Way at Bergeson Ave	SBTR	A	A	A	A	A	A
		Overall	D	D	D	E	D	E
		EBLTR	E	E	E	E	E	E
		WBL	C	D	C	D	C	D
		WBT	A	A	A	A	A	A
		WBR	E	E	F	F	F	F
		NBL	C	C	C	C	C	C
		NBT	C	D	C	D	C	D
		NBR	C	D	D	D	D	D
		SBL	D	F	D	F	D	F
		SBTR	C	C	C	D	C	D

E.1.1. Eisenman Road & I-84 EB Ramp

The intersection has ample capacity to accommodate the future traffic.

E.1.2. Eisenman Road & I-84 WB On-Ramp

While HCM 6th Ed. lacks the research to make the capacity calculations, an evaluation of the volume of traffic shows that the intersection can accommodate the future traffic. The additional westbound traffic on Eisenman Road should pose no significant delay for eastbound left turning traffic.

E.1.3. Memory Lane & S Federal Way/I-84 WB Off-Ramp

Build Conditions Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

E.1.4. S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

E.1.5. S Federal Way & Gate B

Build Conditions Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

E.1.6. S Federal Way & Silicon Way

The intersection has ample capacity to accommodate the future traffic.

E.1.7. Gowen Road & Technology Way (signal)

Existing Conditions Recommendation(s):

- Implement traffic signal timing and phasing changes as traffic growth continues.

Background Conditions Recommendation(s):

- Program a multi-lane roundabout to be constructed with EB and SB by-pass lanes once background growth and site traffic volumes reach levels where signal timing changes will no longer be adequate

E.1.8. Gowen Road & Federal Way (signal)**Existing Conditions Recommendation(s):**

- Add a southbound left turn lane by restriping the existing gore area and adding a protected-only signal phase
- Add a westbound thru lane by removing the channelizing island in the northeast corner and restriping
 - The bike lane on the west side of the intersection may have to be eliminated
- Re-time the traffic signal to account for the added capacity

E.1.9. Gowen Road & I-84 WB Ramp (signal)

The only poor operations at this intersection are the northbound left and right turn movements coming off of the ramp. The volumes are low but the PM peak hour has somewhat long delays. The longer than acceptable average delays cause a small number of vehicles have to wait a long time between green cycles. Adjusting the signal timing does little to reduce the average delay because the low arrival rate means that each vehicle will have to wait nearly a full cycle before proceeding. The queues are not long and there is plenty of capacity to handle more traffic. **No improvements are recommended.**

E.1.10. Gowen Road & I-85 EB Ramp (signal)**Existing Conditions Recommendation(s):**

- Retime the traffic signal to a more reasonable lower cycle-length
- Add a lane on the exit ramp to provide more storage and triple left turns
 - The additional left turn could be a re-purposing of the right turn lane plus additional pavement to add back the right turn lane

E.1.11. Technology Lane & Circuit Way

The intersection has ample capacity to accommodate the future traffic.

~~**E.1.12. Memory Lane Ext & Construction Access Road (not studied)**~~

E.1.13. Federal Way & Gate A / Childcare Center

This intersection was studied in detail in a separate report for the childcare center development. While the new Fab traffic will contribute more traffic on S Federal Way, it will not be enough to justify a traffic signal once the new childcare center is operational. There is additional land yet to be developed on the west side of S Federal Way that will share the access point. This intersection should be monitored for the need for a traffic signal as more development occurs. **No improvements are recommended.**

E.1.14. Gowen Road & Warm Springs Avenue

The intersection has ample capacity to accommodate the future traffic.

E.1.15. Federal Way & Amity Road (signal)

Existing Conditions Recommendation(s):

- Convert the westbound dual right turns lanes to a single free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection
- Construct dual southbound left turn lanes
 - Restripe the existing gore to allow for two left turn lanes
 - Add 1000 foot receiving lane east of the intersection
 - Reconfigure the southbound left turn signal for protected-only operation

E.1.16. Federal Way and Bergeson Street (signal)

Existing Conditions Recommendation(s):

- Channelize the westbound right turn lane into a free-flow right turn lane
 - Add 1000 foot receiving lane north of the intersection

E.2. Mitigation Capacity Analysis Results

Table 19 shows the results of the capacity analysis (LOS only) for the mitigation measures referenced above.

Table 19: LOS of Mitigation Measures

Int	Mitigation	Mvmt	EX		NoB		Build	
			A	P	A	P	A	P
4. Federal Way at Gate C	No WBL at Gate 5	Overall	N/A				A	A
		WBL	N/A				A	A
		WBR	N/A				A	A
		NBT	N/A				A	A
		NBR	N/A				A	A
		SBL	N/A				A	A
		SBT	N/A				A	A
5. Federal Way at Gate B	Side Street Stop	EBLTR	N/A				A	D
		WBL	N/A				-	-
		WBR	N/A				A	C
		NBL	N/A				A	A
		SBL	N/A				A	A
7. Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	C	B	C	B	B	B
		EBL	A	A	A	A	A	A
		EBT	A	A	A	A	A	A
		EBR	A	A	A	A	A	A
		WBL	A	A	A	A	A	A
		WBTR	A	A	A	A	A	A
		NBL	E	E	E	E	E	D
		NBT	E	E	E	D	E	D
		NBR	A	A	A	A	A	A
		SBL	E	E	E	E	E	E
SBTR	E	E	E	E	E	E		
7. Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	N/A		A	B	A	B
		EB	N/A		A	B	A	B
		WB	N/A		B	B	B	B
		NB	N/A		A	C	A	C
		SB	N/A		A	A	A	A
8. Gowen Rd at Federal Way	- Add SBL Lane	Overall	C	D	C	C	C	D
		EBL	C	C	C	D	C	C
		EBT	C	C	C	C	C	C
		EBR	A	A	A	A	A	A
		WBL	D	D	D	D	D	D
		WBT	D	D	D	D	D	D
		WBR	A	A	A	A	A	A
	- Add a WBT Lane	NBL	D	D	D	D	D	D
		NBT	D	C	D	C	C	C
		NBR	D	C	D	C	C	C
	- Re-time	SBL	C	C	C	C	C	C
		SBT	D	C	D	C	D	C
		SBR	A	A	A	C	A	C
10. Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	D	D	D	C	D	C
		EBTR	B	B	B	B	B	B
		WBL	B	B	B	B	B	B
		WBT	B	A	A	A	A	A
		SBL	D	E	D	D	D	D
		SBTR	E	D	E	D	E	D
		SBTR	E	D	E	D	E	D
15. Federal Way at Amity Rd	- Add Free-flow WBR	Overall	C	D	C	C	C	C
		EBLTR	A	D	A	A	A	A
		WBLT	E	E	E	E	E	E
	- Add 2nd SBL Lane and Prot signal phase	WBR	A	A	A	A	A	A
		NBL	A	A	A	B	A	B
		NBTR	A	B	B	C	B	C
SBL	E	D	E	D	E	D		
SBTR	A	A	A	A	A	A		
16. Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	C	D	C	D	C	D
		EBLTR	E	D	E	D	E	D
		WBL	D	D	D	D	D	D
		WBT	A	A	A	A	A	A
		WBR	A	A	A	A	A	A
		NBL	C	C	C	C	C	C
		NBT	D	D	D	D	D	D
		NBR	D	D	D	D	D	D
		SBL	C	C	C	D	C	D
SBTR	A	C	A	C	A	C		

E.3. Driveway Analysis

All the site access points are existing. No additional analysis is required.

E.4. Parking Requirements

In order to construct the new Fab and associated office, utility, warehouses, and other ancillary building, the existing parking lot on the south side of the campus will be removed. New parking structures and surface parking lots are planned to be built and have been identified on the site plan. Approximately 3,800 parking spaces will be removed and approximately 7,100 parking spaces will be added with the project (a net change of about 3,300), which will sufficiently serve the new 2,750 employees.

E.5. Signal Warrant Analysis

The intersection of S Federal Way and Gate B may benefit from a traffic signal. It would reduce the delay for traffic turning left out of the site. Eight hours of traffic volume on the minor street side were not available; however, an analysis of the major street traffic shows that there is not enough traffic to meet the minimum criteria in the 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD, 2009). Even if the site traffic met the minimum threshold for eight hours of the day, the combination of the main street and minor street traffic would not trigger a need.

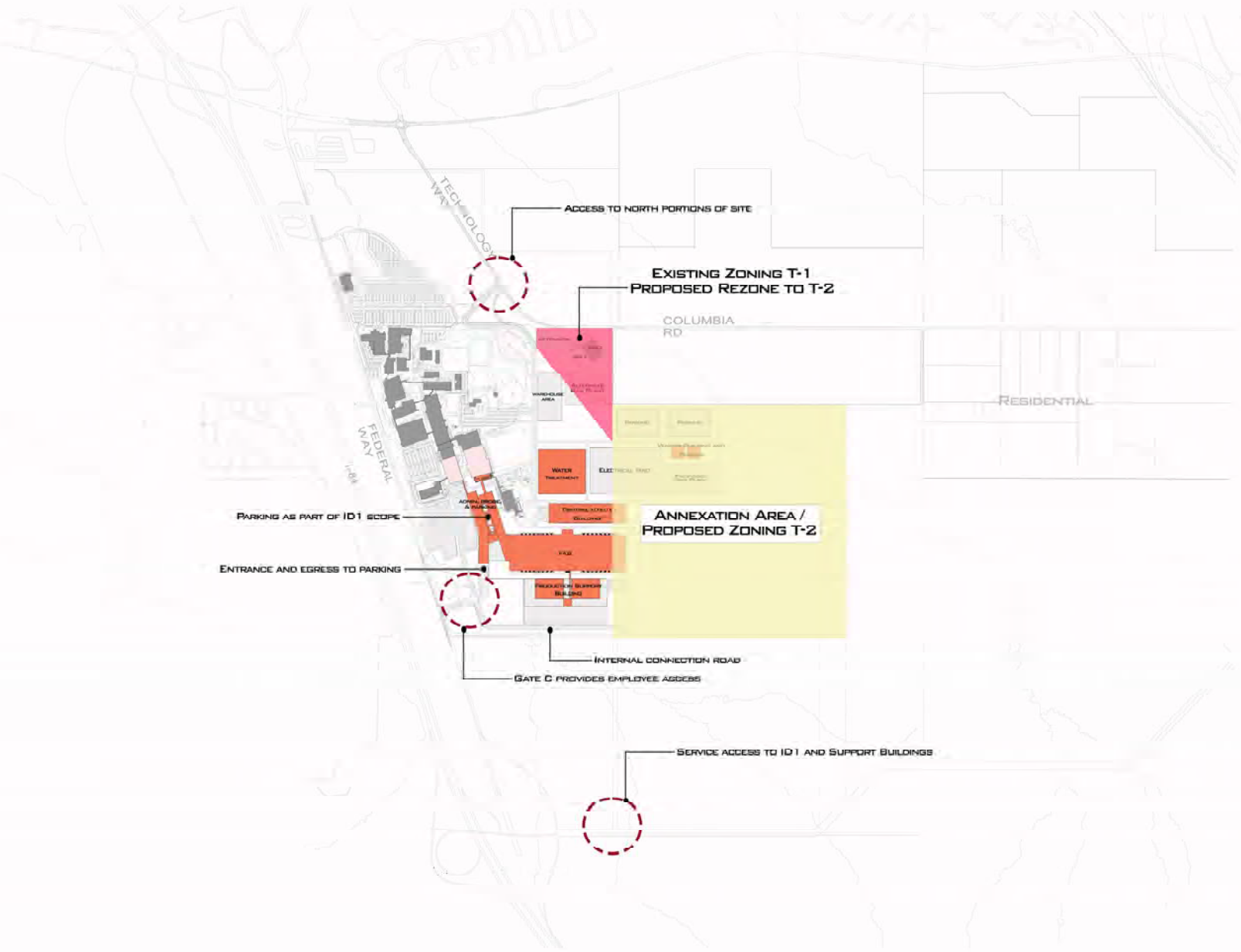
Table 20: Signal Warrant Analysis Summary

Hour Beginning	S Federal Way	Gate B	WARRANT 1 Major Street Condition Met? (Major>600)	WARRANT 1 Minor Street Condition Met? (Minor>150)
	Combined Volume	Approach Volume w/ Right Turns		
5:00 AM	682		YES	
6:00 AM	494		NO	
7:00 AM	909	84	YES	NO
8:00 AM	852		YES	
9:00 AM	473		NO	
10:00 AM	252		NO	
11:00 AM	337		NO	
12:00 PM	375		NO	
1:00 PM	291		NO	
2:00 PM	301		NO	
3:00 PM	419		NO	
4:00 PM	374	655	NO	YES
5:00 PM	696		YES	
6:00 PM	440		NO	
7:00 PM	173		NO	
Number of Hours Needed			8	8
Number of Hours Met			4	1
Warrant Satisfied?			NO	

Data Source: S Federal Way base volume from signal warrant study conducted for Gate A and the proposed childcare center; the base volume was multiplied by the growth factor for S Federal Way as shown in Table 7. The peak hour volumes are from Figure 13.

APPENDIX

APPENDIX A: Site Plan



REV	DESCRIPTION	DATE

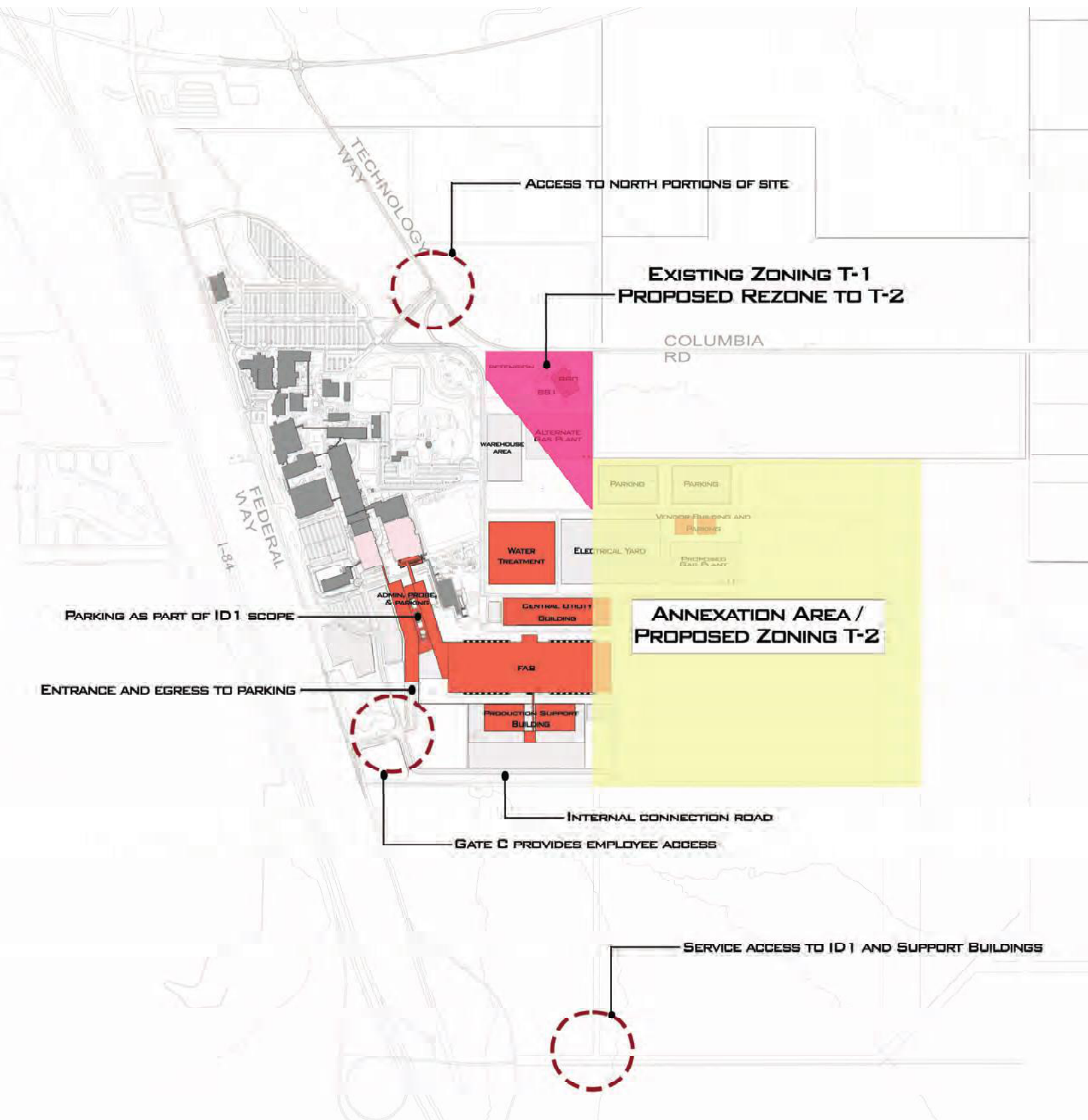
MICRON TRITON
SITE PLAN

ISSUED FOR CONSTRUCTION
ISSUE TYPE

NOTE
This drawing is the property of Boise Facilities Engineering and is to be used only for the project and site identified herein. It is to be returned to the owner upon completion of the project. All other uses are prohibited. The user agrees to indemnify and hold Boise Facilities Engineering harmless from any claims, damages, or losses, including reasonable attorneys' fees, arising out of or resulting from any use of this drawing other than the project and site identified herein.

TITLE BLOCK	DATE
BY	DATE
CHECKED	DATE
DESIGNED	DATE
DRAWN	DATE
PROJECT NO.	





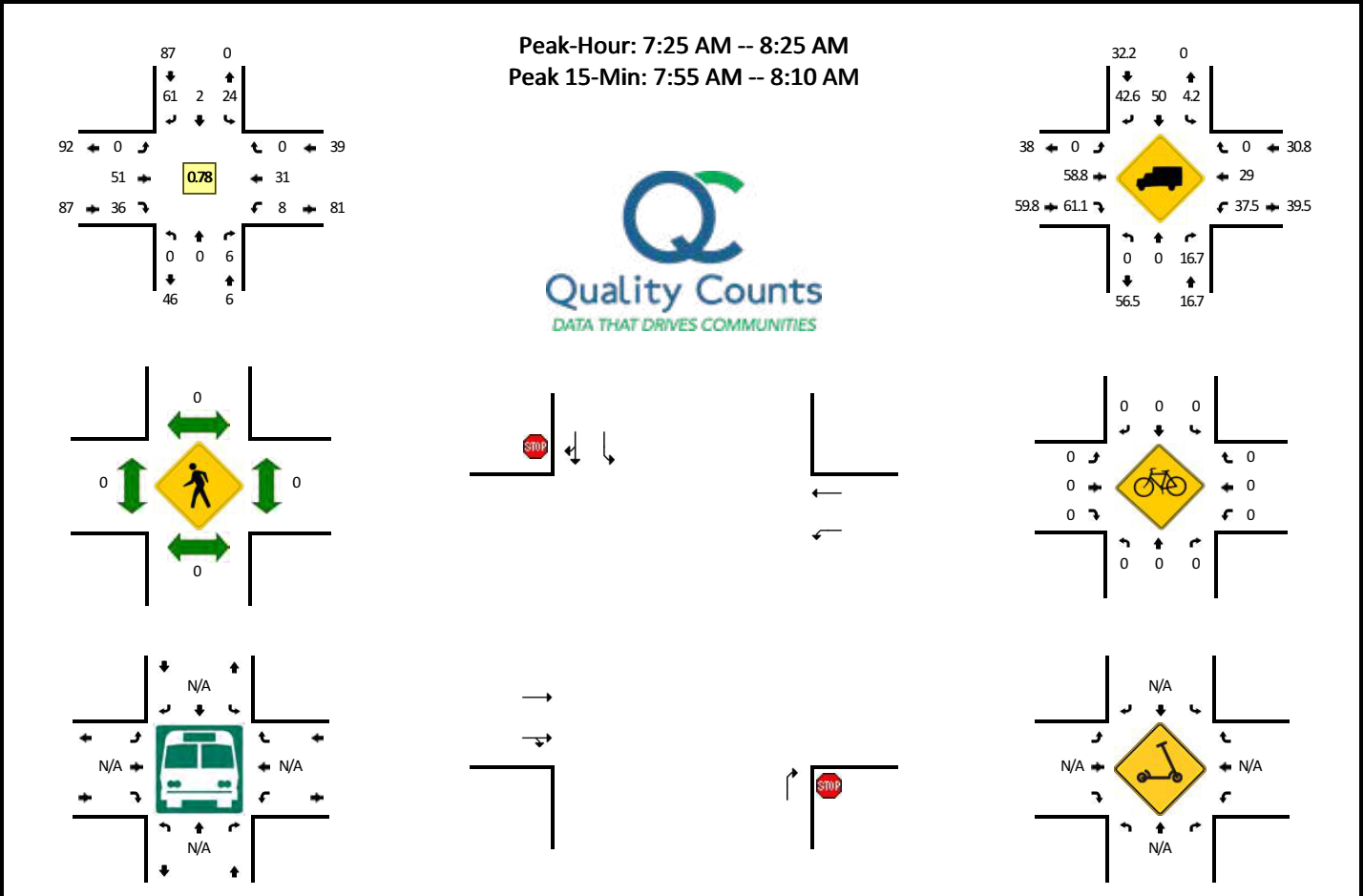
APPENDIX B: Traffic Counts

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952601
DATE: Thu, Sep 22 2022

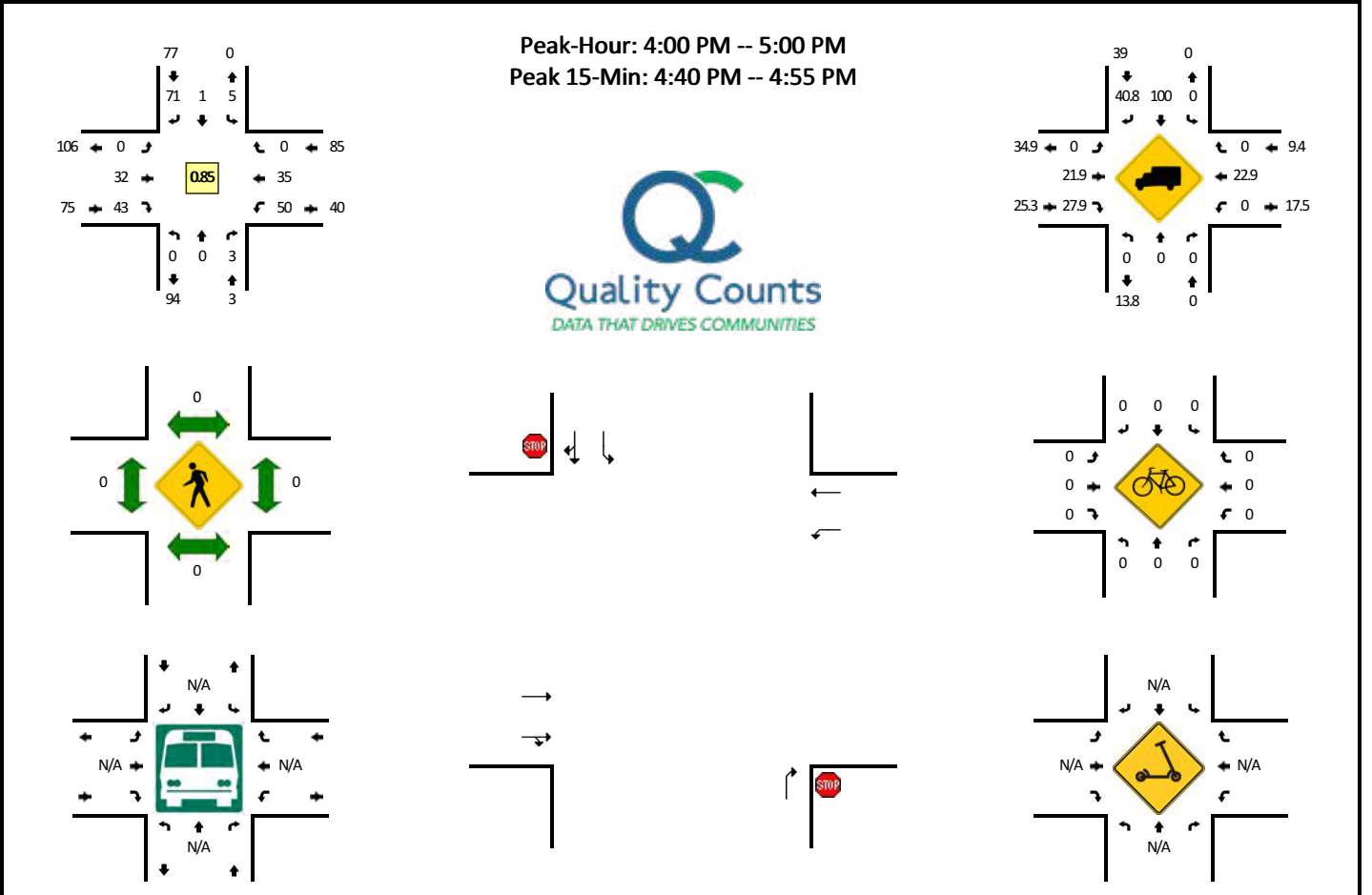


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	1	0	0	4	4	0	1	2	0	0	16	
7:05 AM	0	0	0	0	0	0	4	0	0	2	3	0	1	0	0	0	10	
7:10 AM	0	0	0	0	2	0	2	0	0	5	1	0	0	0	0	0	10	
7:15 AM	0	0	1	0	4	0	6	0	0	1	3	0	1	0	0	0	16	
7:20 AM	0	0	1	0	4	0	1	0	0	1	3	0	1	1	0	0	12	
7:25 AM	0	0	0	0	1	0	5	0	0	3	2	0	0	1	0	0	12	
7:30 AM	0	0	0	0	2	0	3	0	0	4	1	0	0	7	0	0	17	
7:35 AM	0	0	0	0	3	0	11	0	0	6	1	0	0	0	0	0	21	
7:40 AM	0	0	2	0	3	2	3	0	0	1	5	0	1	1	0	0	18	
7:45 AM	0	0	0	0	2	0	4	0	0	5	3	0	1	1	0	0	16	
7:50 AM	0	0	1	0	0	0	2	0	0	2	1	0	0	3	0	0	9	
7:55 AM	0	0	1	0	2	0	8	0	0	5	7	0	1	1	0	0	25	182
8:00 AM	0	0	0	0	3	0	12	0	0	2	1	0	1	2	0	0	21	187
8:05 AM	0	0	0	0	2	0	4	0	0	5	4	0	3	6	0	0	24	201
8:10 AM	0	0	2	0	3	0	0	0	0	6	5	0	0	3	0	0	19	210
8:15 AM	0	0	0	0	2	0	1	0	0	5	3	0	0	3	0	0	14	208
8:20 AM	0	0	0	0	1	0	8	0	0	7	3	0	1	3	0	0	23	219
8:25 AM	0	0	0	0	0	0	4	0	0	2	3	0	0	1	0	0	10	217
8:30 AM	0	0	0	0	1	0	5	0	0	0	5	0	1	1	0	0	13	213
8:35 AM	0	0	0	0	1	1	2	0	0	3	2	0	0	3	0	0	12	204
8:40 AM	0	0	0	0	2	0	2	0	0	4	6	0	0	4	0	0	18	204
8:45 AM	0	0	1	0	1	0	3	0	0	1	5	0	1	1	0	0	13	201
8:50 AM	0	0	0	0	1	0	8	0	0	5	3	0	1	3	0	0	21	213
8:55 AM	0	0	0	0	0	0	2	0	0	3	5	0	0	4	0	0	14	202
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	28	0	96	0	0	48	48	0	20	36	0	0	280	
Heavy Trucks	0	0	0	0	0	0	52	0	0	24	32	0	4	12	0	0	124	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952602
DATE: Thu, Sep 22 2022

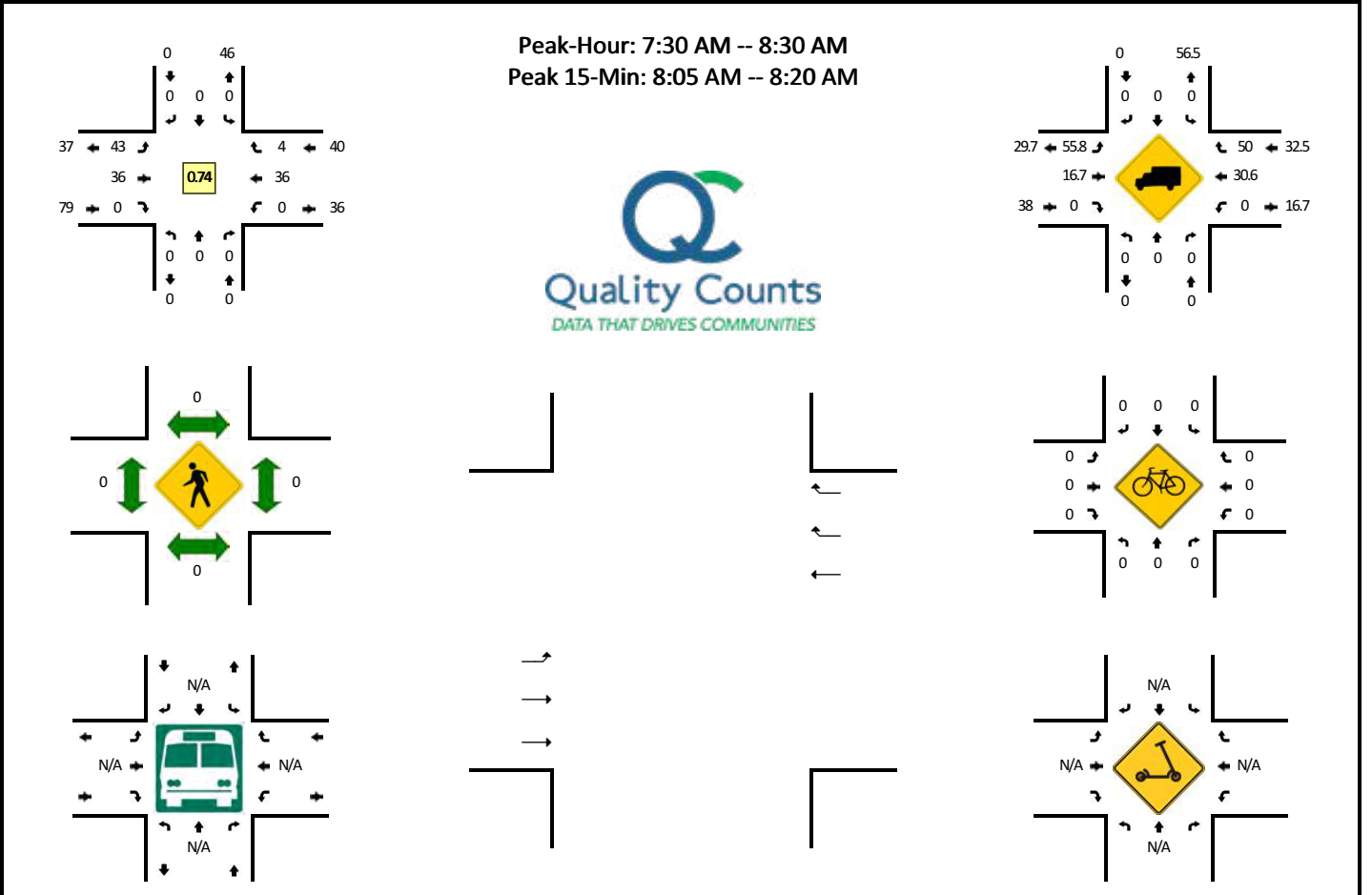


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	8	0	0	1	5	0	4	5	0	0	23	
4:05 PM	0	0	0	0	0	0	4	0	0	3	3	0	6	2	0	0	18	
4:10 PM	0	0	0	0	1	0	6	0	0	4	1	0	5	6	0	0	23	
4:15 PM	0	0	0	0	1	0	5	0	0	3	2	0	5	1	0	0	17	
4:20 PM	0	0	0	0	1	0	3	0	0	1	10	0	8	1	0	0	24	
4:25 PM	0	0	0	0	1	0	2	0	0	3	2	0	3	2	0	0	13	
4:30 PM	0	0	0	0	0	0	4	0	0	2	3	0	4	1	0	0	14	
4:35 PM	0	0	0	0	1	1	2	0	0	4	3	0	2	5	0	0	18	
4:40 PM	0	0	0	0	0	0	10	0	0	1	4	0	3	3	0	0	21	
4:45 PM	0	0	1	0	0	0	8	0	0	3	2	0	6	3	0	0	23	
4:50 PM	0	0	1	0	0	0	10	0	0	4	5	0	2	5	0	0	27	
4:55 PM	0	0	1	0	0	0	9	0	0	3	3	0	2	1	0	0	19	240
5:00 PM	0	0	0	0	3	0	1	0	0	4	9	0	1	2	0	0	20	237
5:05 PM	0	0	0	0	1	0	7	0	0	1	4	0	2	3	0	0	18	237
5:10 PM	0	0	0	0	0	1	8	0	0	5	2	0	0	3	0	0	19	233
5:15 PM	0	0	0	0	0	0	3	0	0	7	1	0	1	1	0	0	13	229
5:20 PM	0	0	0	0	0	0	3	0	0	5	5	0	2	4	0	0	19	224
5:25 PM	0	0	0	0	0	1	7	0	0	3	2	0	2	1	0	0	16	227
5:30 PM	0	0	0	0	1	0	8	0	0	2	4	0	1	4	0	0	20	233
5:35 PM	0	0	0	0	0	0	3	0	0	2	1	0	0	2	0	0	8	223
5:40 PM	0	0	0	0	0	0	2	0	0	4	7	0	0	2	0	0	15	217
5:45 PM	0	0	0	0	0	0	6	0	0	2	2	0	1	2	0	0	13	207
5:50 PM	0	0	0	0	0	0	4	0	0	2	4	0	1	4	0	0	15	195
5:55 PM	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	5	181
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	8	0	0	0	112	0	0	32	44	0	44	44	0	0	284	
Heavy Trucks	0	0	0	0	0	0	48	0	0	0	8	0	0	4	0	0	60	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952603
DATE: Thu, Sep 22 2022

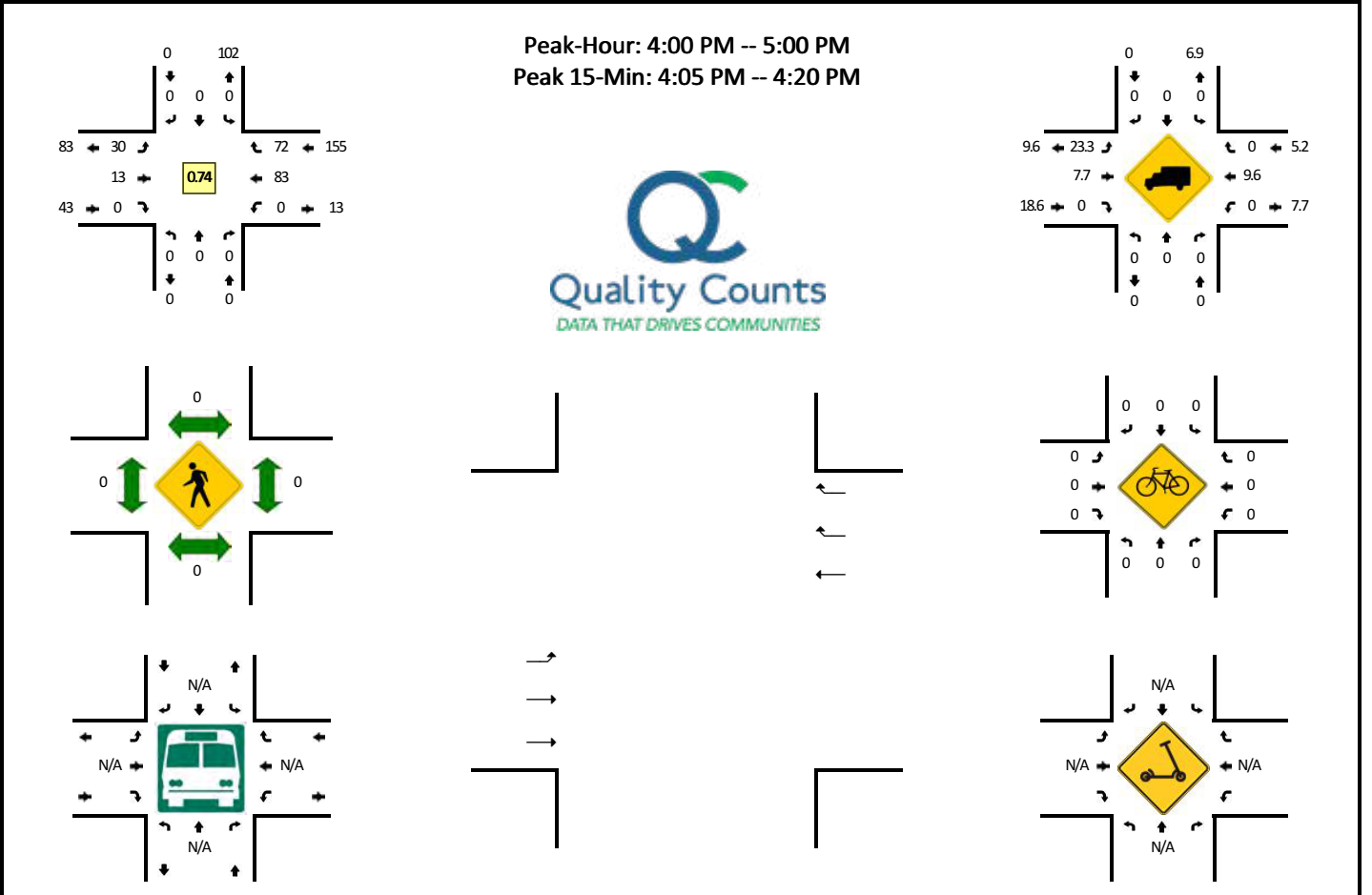


5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	0	0	0	0	0	0	2	5	0	0	0	3	1	0	0	11	
7:05 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4	
7:10 AM	0	0	0	0	0	0	0	0	1	5	0	0	0	0	1	2	0	9	
7:15 AM	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	6	
7:20 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	0	2	1	0	10	
7:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	0	5	
7:30 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	7	0	0	12	
7:35 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	8	
7:40 AM	0	0	0	0	0	0	0	0	2	6	0	0	0	0	2	0	0	10	
7:45 AM	0	0	0	0	0	0	0	0	4	2	0	0	0	0	1	0	0	7	
7:50 AM	0	0	0	0	0	0	0	0	4	1	0	0	0	0	4	0	0	9	
7:55 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	1	0	0	9	
8:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	1	0	6	100
8:05 AM	0	0	0	0	0	0	0	0	3	4	0	0	0	0	9	0	0	16	95
8:10 AM	0	0	0	0	0	0	0	0	6	5	0	0	0	0	3	1	0	15	
8:15 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	3	0	0	9	
8:20 AM	0	0	0	0	0	0	0	0	4	3	0	1	0	0	3	1	0	12	107
8:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	1	0	6	113
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	4	116
8:35 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	0	0	7	
8:40 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4	0	0	8	
8:45 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	3	1	0	9	
8:50 AM	0	0	0	0	0	0	0	0	1	1	0	1	0	0	2	1	0	6	
8:55 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	4	1	0	11	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	0	0	0	0	0	0	56	40	0	0	0	60	4	0	160		
Heavy Trucks	0	0	0	0	0	0	0	0	40	8	0	0	0	20	0	0	68		
Buses																			
Pedestrians		0			0				0	0			0				0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Scoters																			

Comments:

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952604
DATE: Thu, Sep 22 2022

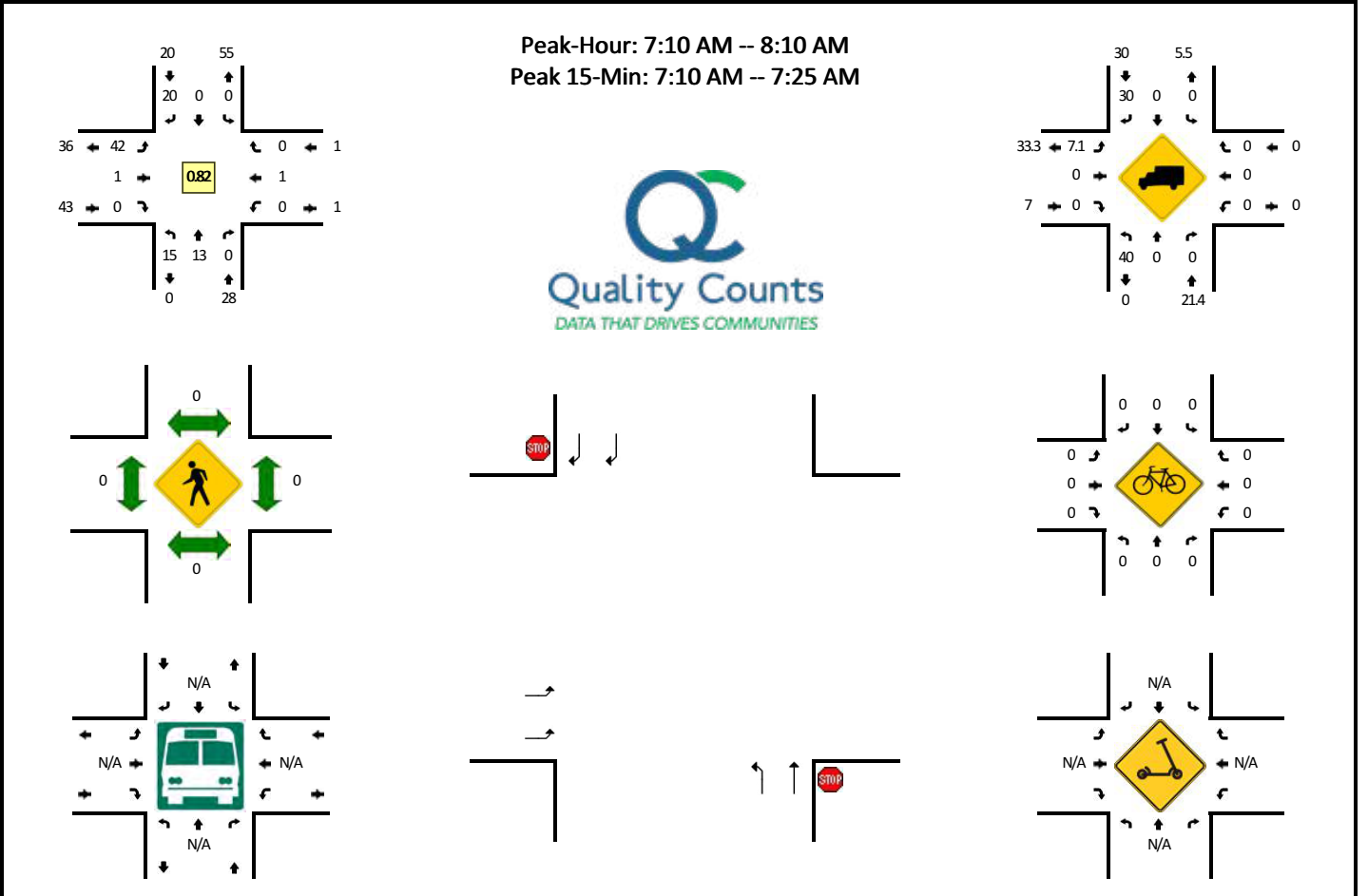


5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	10	4	0	17	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	9	0	17	
4:10 PM	0	0	0	0	0	0	0	0	6	2	0	0	0	10	14	0	32	
4:15 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	6	8	0	18	
4:20 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	9	5	0	16	
4:25 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	3	5	0	12	
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	7	2	0	10	
4:35 PM	0	0	0	0	0	0	0	0	5	1	0	0	0	5	4	0	15	
4:40 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	7	5	0	14	
4:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	8	9	0	20	
4:50 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	7	2	0	15	
4:55 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	3	5	0	12	198
5:00 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	3	2	0	12	193
5:05 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	6	4	0	12	188
5:10 PM	0	0	0	0	0	0	0	0	4	1	0	0	0	2	3	0	10	166
5:15 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	1	3	0	10	158
5:20 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	7	1	0	13	155
5:25 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	147
5:30 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	5	2	0	11	148
5:35 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	3	0	7	140
5:40 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	2	2	0	8	134
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	3	0	7	121
5:50 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	5	0	0	8	114
5:55 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3	105
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	0	0	32	16	0	0	0	96	124	0	268	
Heavy Trucks	0	0	0	0	0	0	0	0	8	4	0	0	0	12	0	0	24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952605
DATE: Thu, Sep 22 2022

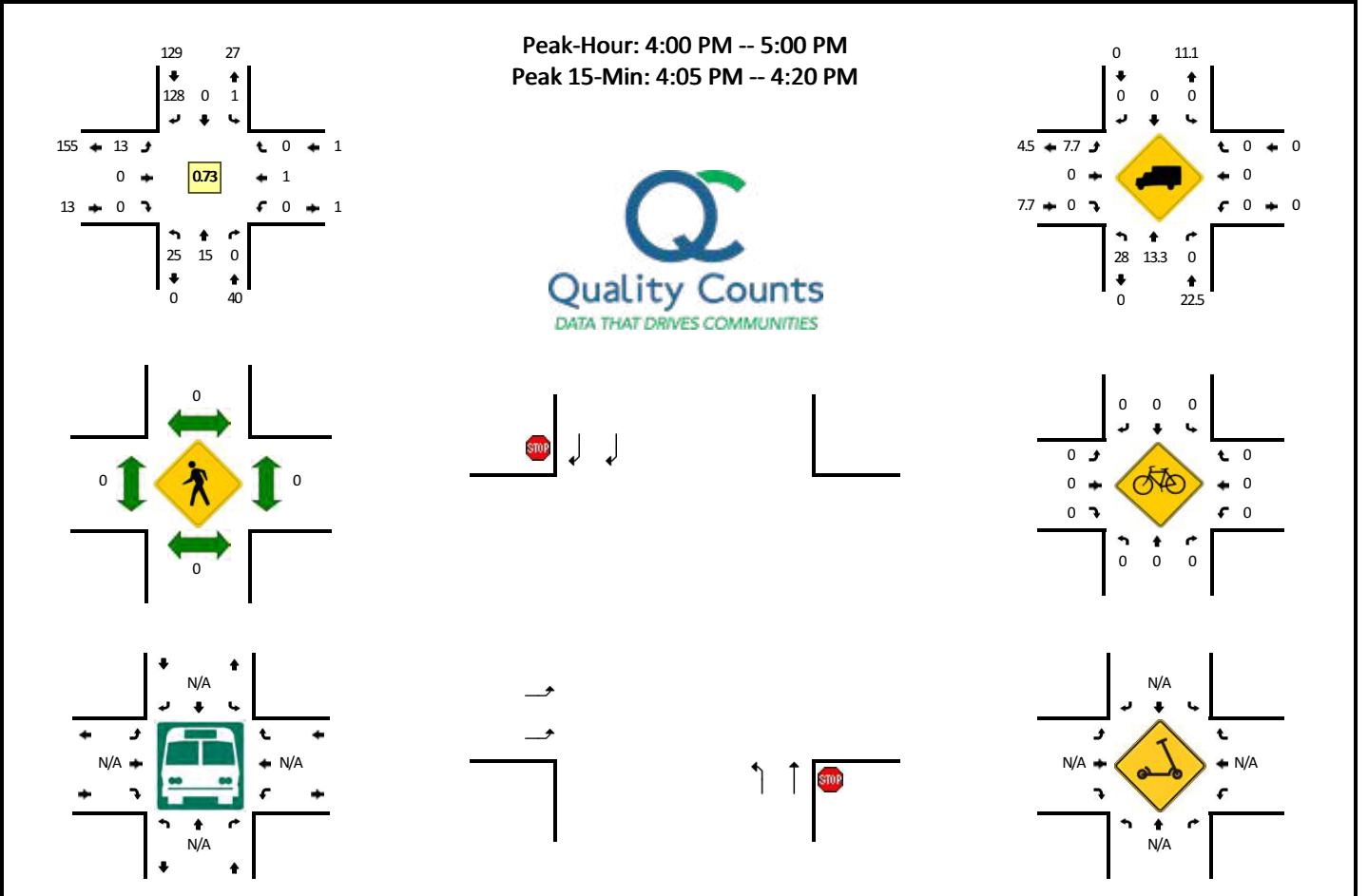


5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	2	0	0	0	0	3	0	5	0	0	0	0	0	0	0	11	
7:05 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	
7:10 AM	0	0	0	0	0	0	2	0	3	1	0	0	0	1	0	0	7	
7:15 AM	0	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	10	
7:20 AM	1	2	0	0	0	0	2	0	6	0	0	0	0	0	0	0	11	
7:25 AM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	
7:30 AM	3	2	0	0	0	0	4	0	1	0	0	0	0	0	0	0	10	
7:35 AM	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	
7:40 AM	1	1	0	0	0	0	1	0	6	0	0	0	0	0	0	0	9	
7:45 AM	1	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	5	
7:50 AM	2	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	8	
7:55 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	84
8:00 AM	1	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	7	80
8:05 AM	4	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	14	92
8:10 AM	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	6	91
8:15 AM	2	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	8	89
8:20 AM	2	1	0	0	0	0	2	0	3	0	0	0	0	0	0	0	8	86
8:25 AM	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	86
8:30 AM	1	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
8:35 AM	2	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	81
8:40 AM	2	1	0	0	0	0	2	0	2	0	0	0	0	0	0	0	7	79
8:45 AM	2	2	0	0	0	0	2	0	3	0	0	0	0	0	0	0	9	83
8:50 AM	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4	79
8:55 AM	1	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	6	82
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	28	0	0	0	0	16	0	56	4	0	0	0	4	0	0	112	
Heavy Trucks	4	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952606
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	1	0	0	1	0	8	0	1	0	0	0	0	0	0	0	16	
4:05 PM	2	4	0	0	0	0	15	0	0	0	0	0	0	0	0	0	21	
4:10 PM	3	0	0	0	0	0	20	0	1	0	0	0	0	1	0	0	25	
4:15 PM	1	0	0	0	0	0	13	0	3	0	0	0	0	0	0	0	17	
4:20 PM	2	0	0	0	0	0	12	0	1	0	0	0	0	0	0	0	15	
4:25 PM	0	1	0	0	0	0	8	0	1	0	0	0	0	0	0	0	10	
4:30 PM	0	2	0	0	0	0	9	0	0	0	0	0	0	0	0	0	11	
4:35 PM	4	3	0	0	0	0	5	0	1	0	0	0	0	0	0	0	13	
4:40 PM	2	1	0	0	0	0	10	0	1	0	0	0	0	0	0	0	14	
4:45 PM	2	1	0	0	0	0	15	0	0	0	0	0	0	0	0	0	18	
4:50 PM	2	1	0	0	0	0	7	0	1	0	0	1	0	0	0	0	12	
4:55 PM	2	1	0	0	0	0	6	0	2	0	0	0	0	0	0	0	11	183
5:00 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	172
5:05 PM	2	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0	11	162
5:10 PM	2	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	7	144
5:15 PM	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	132
5:20 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	124
5:25 PM	1	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	119
5:30 PM	3	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	8	116
5:35 PM	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	108
5:40 PM	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	99
5:45 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	88
5:50 PM	2	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
5:55 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	72
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	16	0	0	0	0	192	0	16	0	0	0	0	4	0	0	252	
Heavy Trucks	12	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	16	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

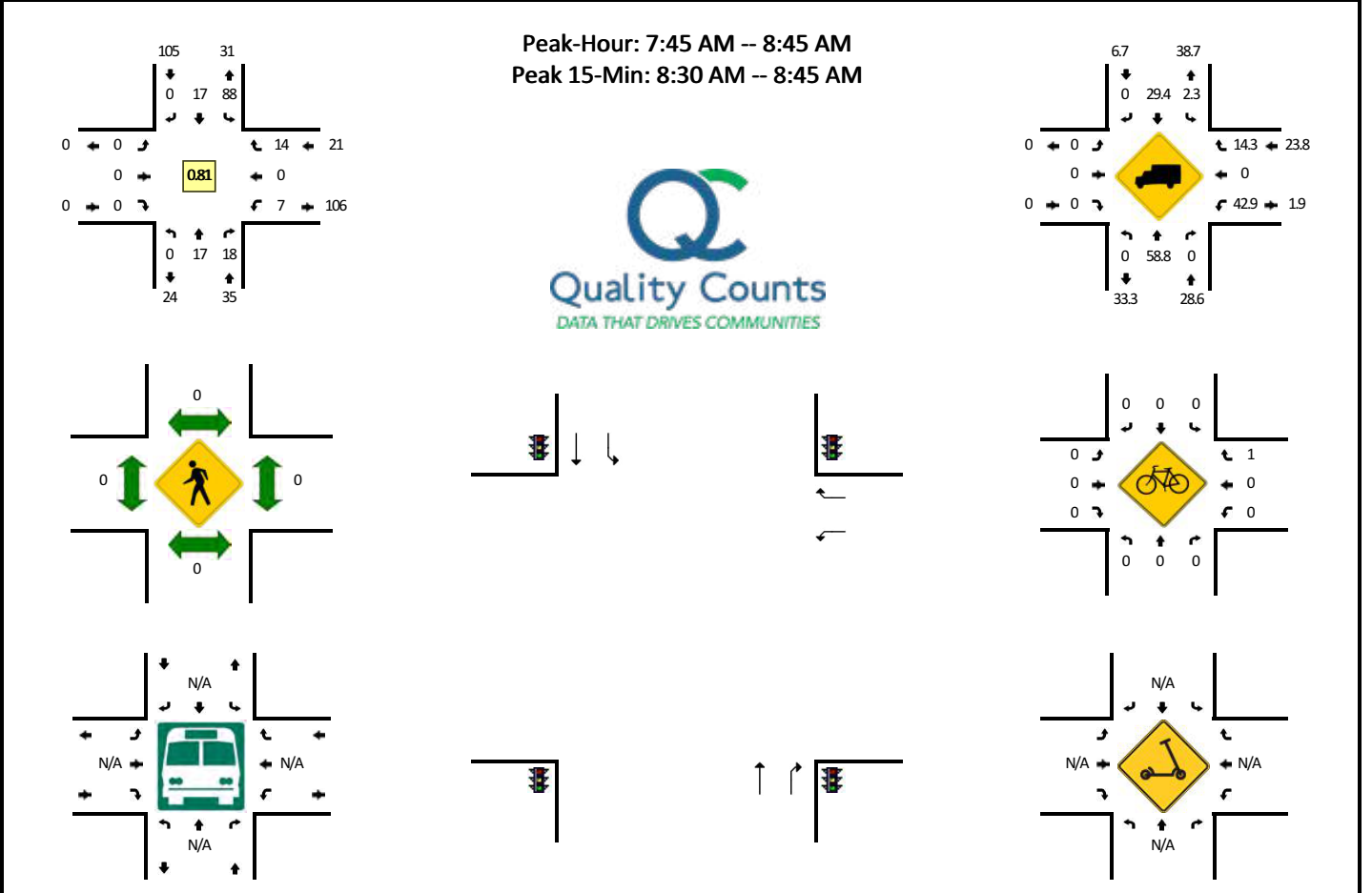
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952607
DATE: Thu, Sep 22 2022

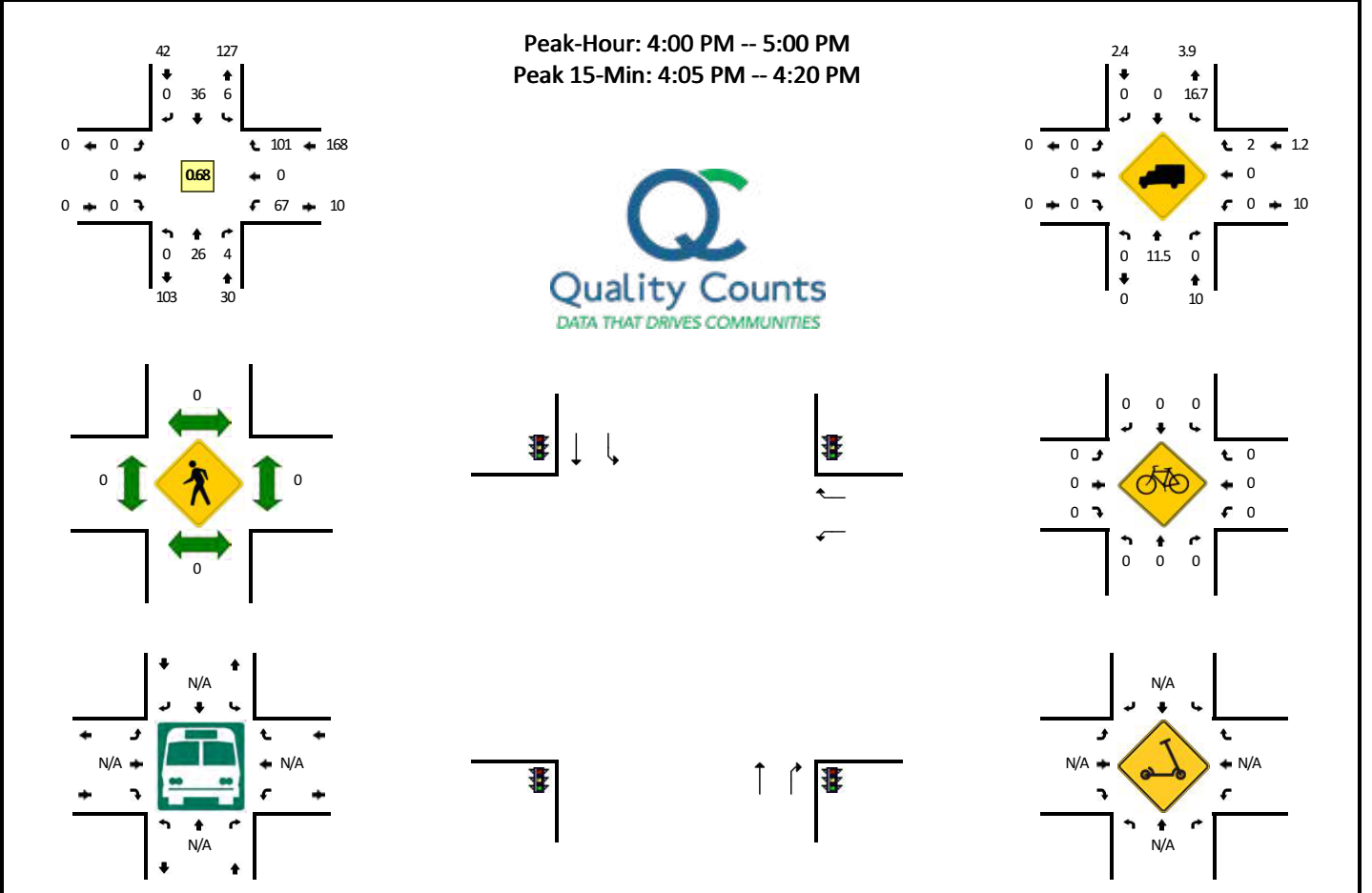


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	7	0	6	1	0	0	0	0	0	0	2	0	1	0	18	
7:05 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	4	
7:10 AM	0	1	2	0	2	1	0	0	0	0	0	0	0	0	2	0	8	
7:15 AM	0	4	2	0	4	1	0	0	0	0	0	0	0	0	0	0	11	
7:20 AM	0	3	4	0	5	2	0	0	0	0	0	0	0	0	0	0	14	
7:25 AM	0	1	0	0	4	2	0	0	0	0	0	0	0	0	0	0	7	
7:30 AM	0	3	1	0	4	5	0	0	0	0	0	0	1	0	0	0	14	
7:35 AM	0	1	2	0	3	1	0	0	0	0	0	0	0	0	0	0	7	
7:40 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
7:45 AM	0	2	4	0	6	2	0	0	0	0	0	0	0	0	2	0	16	
7:50 AM	0	1	1	0	5	2	0	0	0	0	0	0	0	0	1	0	10	
7:55 AM	0	1	4	0	11	0	0	0	0	0	0	0	1	0	1	0	18	133
8:00 AM	0	2	0	0	5	1	0	0	0	0	0	0	0	0	0	0	8	123
8:05 AM	0	1	4	0	8	3	0	0	0	0	0	0	0	0	4	0	20	139
8:10 AM	0	0	2	0	10	2	0	0	0	0	0	0	0	0	0	0	14	145
8:15 AM	0	1	1	0	4	1	0	0	0	0	0	0	1	0	0	0	8	142
8:20 AM	0	3	1	0	6	1	0	0	0	0	0	0	0	0	0	0	11	139
8:25 AM	0	1	0	0	4	0	0	0	0	0	0	0	0	0	1	0	6	138
8:30 AM	0	2	0	0	8	1	0	0	0	0	0	0	1	0	1	0	13	137
8:35 AM	0	1	1	0	9	3	0	0	0	0	0	0	1	0	4	0	19	149
8:40 AM	0	2	0	0	12	1	0	0	0	0	0	0	3	0	0	0	18	161
8:45 AM	0	4	3	0	5	1	0	0	0	0	0	0	1	0	0	0	14	159
8:50 AM	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	3	152
8:55 AM	0	0	1	0	3	1	0	0	0	0	0	0	1	0	2	0	8	142
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	20	4	0	116	20	0	0	0	0	0	0	20	0	20	0	200	
Heavy Trucks	0	12	0	0	0	12	0	0	0	0	0	0	8	0	0	0	32	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952608
DATE: Thu, Sep 22 2022

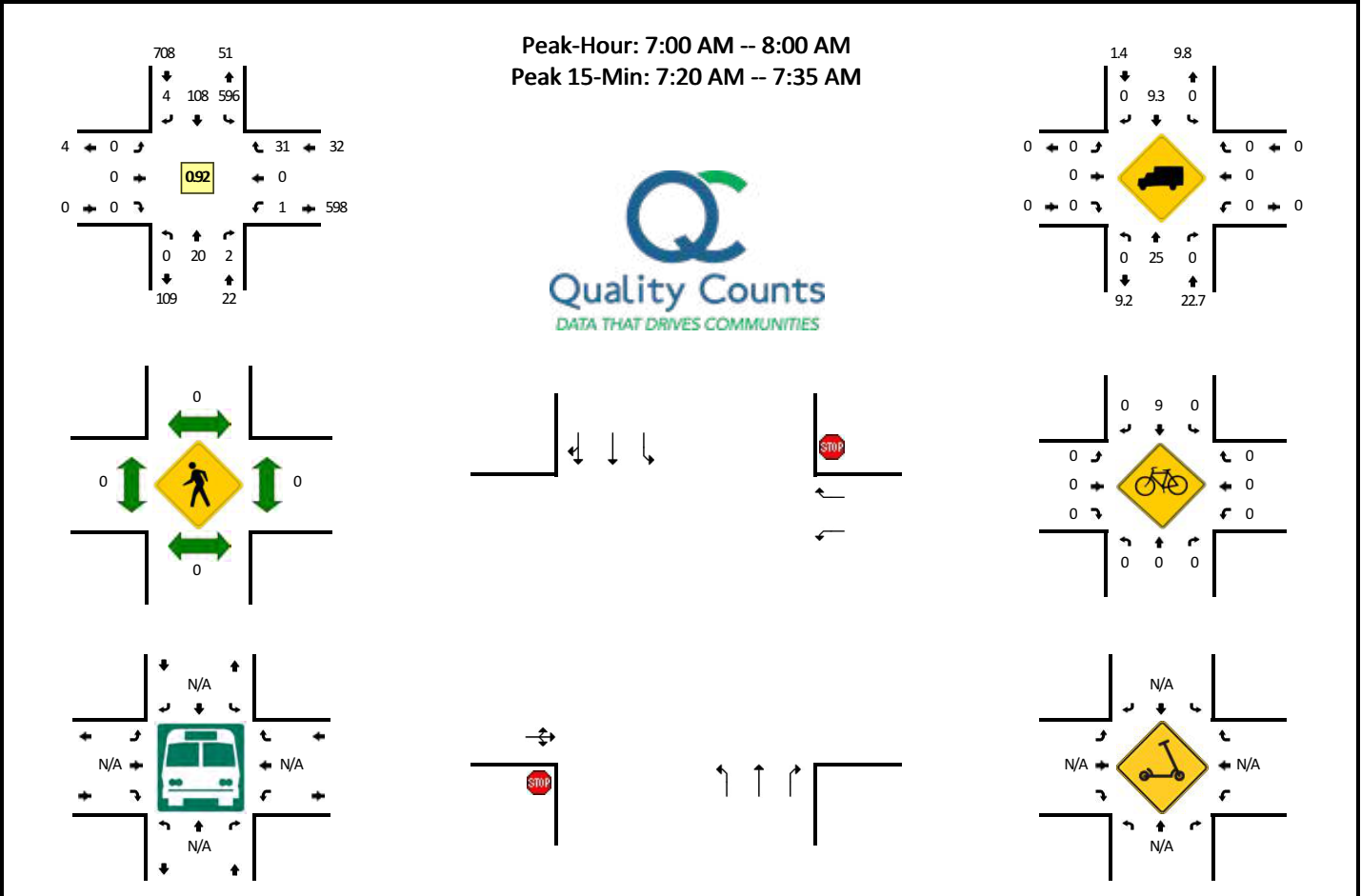


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	1	0	0	4	0	0	0	0	0	0	6	0	9	0	21	
4:05 PM	0	5	0	0	0	8	0	0	0	0	0	0	7	0	13	0	33	
4:10 PM	0	3	0	0	1	5	0	0	0	0	0	0	7	0	12	0	28	
4:15 PM	0	3	0	0	1	3	0	0	0	0	0	0	11	0	9	0	27	
4:20 PM	0	0	0	0	0	2	0	0	0	0	0	0	7	0	8	0	17	
4:25 PM	0	1	0	0	0	2	0	0	0	0	0	0	5	0	11	0	19	
4:30 PM	0	3	1	0	1	3	0	0	0	0	0	0	5	0	2	0	15	
4:35 PM	0	2	2	0	1	0	0	0	0	0	0	0	3	0	7	0	15	
4:40 PM	0	1	0	0	0	5	0	0	0	0	0	0	4	0	10	0	20	
4:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	7	0	7	0	17	
4:50 PM	0	0	0	0	0	2	0	0	0	0	0	0	3	0	9	0	14	
4:55 PM	0	6	0	0	2	0	0	0	0	0	0	0	2	0	4	0	14	240
5:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	4	0	4	0	11	230
5:05 PM	0	1	1	0	1	2	0	0	0	0	0	0	1	0	7	0	13	210
5:10 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	7	189
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	4	0	9	171
5:20 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	6	0	9	163
5:25 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	9	0	14	158
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	6	0	9	152
5:35 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	5	0	10	147
5:40 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	0	1	0	5	132
5:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	2	0	6	121
5:50 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	0	5	112
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	100
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	44	0	0	8	64	0	0	0	0	0	0	100	0	136	0	352	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																	0	

Comments:

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952609
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	2	0	0	61	11	0	0	0	0	0	0	0	0	3	0	77	
7:05 AM	0	3	0	0	58	6	1	0	0	0	0	0	0	0	1	0	69	
7:10 AM	0	1	0	0	50	8	0	0	0	0	0	0	0	0	1	0	60	
7:15 AM	0	2	1	0	42	6	0	0	0	0	0	0	0	0	2	0	53	
7:20 AM	0	2	0	0	62	9	0	0	0	0	0	0	0	0	5	0	78	
7:25 AM	0	0	0	0	57	13	0	0	0	0	0	0	0	0	3	0	73	
7:30 AM	0	1	0	0	42	11	0	0	0	0	0	0	0	0	2	0	56	
7:35 AM	0	3	0	0	42	9	0	0	0	0	0	0	0	0	4	0	58	
7:40 AM	0	1	0	0	50	4	1	0	0	0	0	0	0	0	1	0	57	
7:45 AM	0	3	0	0	49	9	1	0	0	0	0	0	1	0	3	0	66	
7:50 AM	0	1	1	0	41	9	0	0	0	0	0	0	0	0	3	0	55	
7:55 AM	0	1	0	0	42	13	1	0	0	0	0	0	0	0	3	0	60	762
8:00 AM	0	5	0	0	42	9	0	0	0	0	0	0	0	0	6	0	62	747
8:05 AM	0	2	0	0	36	14	0	0	0	0	0	0	0	0	4	0	56	734
8:10 AM	0	3	0	0	33	5	0	0	0	0	0	0	1	0	1	0	43	717
8:15 AM	0	2	0	0	25	7	0	0	1	0	0	0	0	0	3	0	38	702
8:20 AM	0	2	0	0	29	7	0	0	0	0	0	0	0	0	0	0	38	662
8:25 AM	0	2	0	0	18	1	0	0	0	0	0	0	0	0	4	0	25	614
8:30 AM	0	2	0	0	29	10	0	0	0	0	0	0	0	0	4	0	45	603
8:35 AM	0	7	0	0	20	6	0	0	0	0	0	0	0	0	3	0	36	581
8:40 AM	0	3	0	0	21	11	0	0	0	0	0	0	0	0	2	0	37	561
8:45 AM	0	6	0	0	9	3	0	0	0	0	0	0	0	0	3	0	21	516
8:50 AM	0	0	0	0	6	3	0	0	0	0	0	1	0	0	0	0	10	471
8:55 AM	0	1	0	0	18	6	0	0	0	0	0	0	0	0	3	0	28	439
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	12	0	0	644	132	0	0	0	0	0	0	0	0	40	0	828	
Heavy Trucks	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0					0			0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

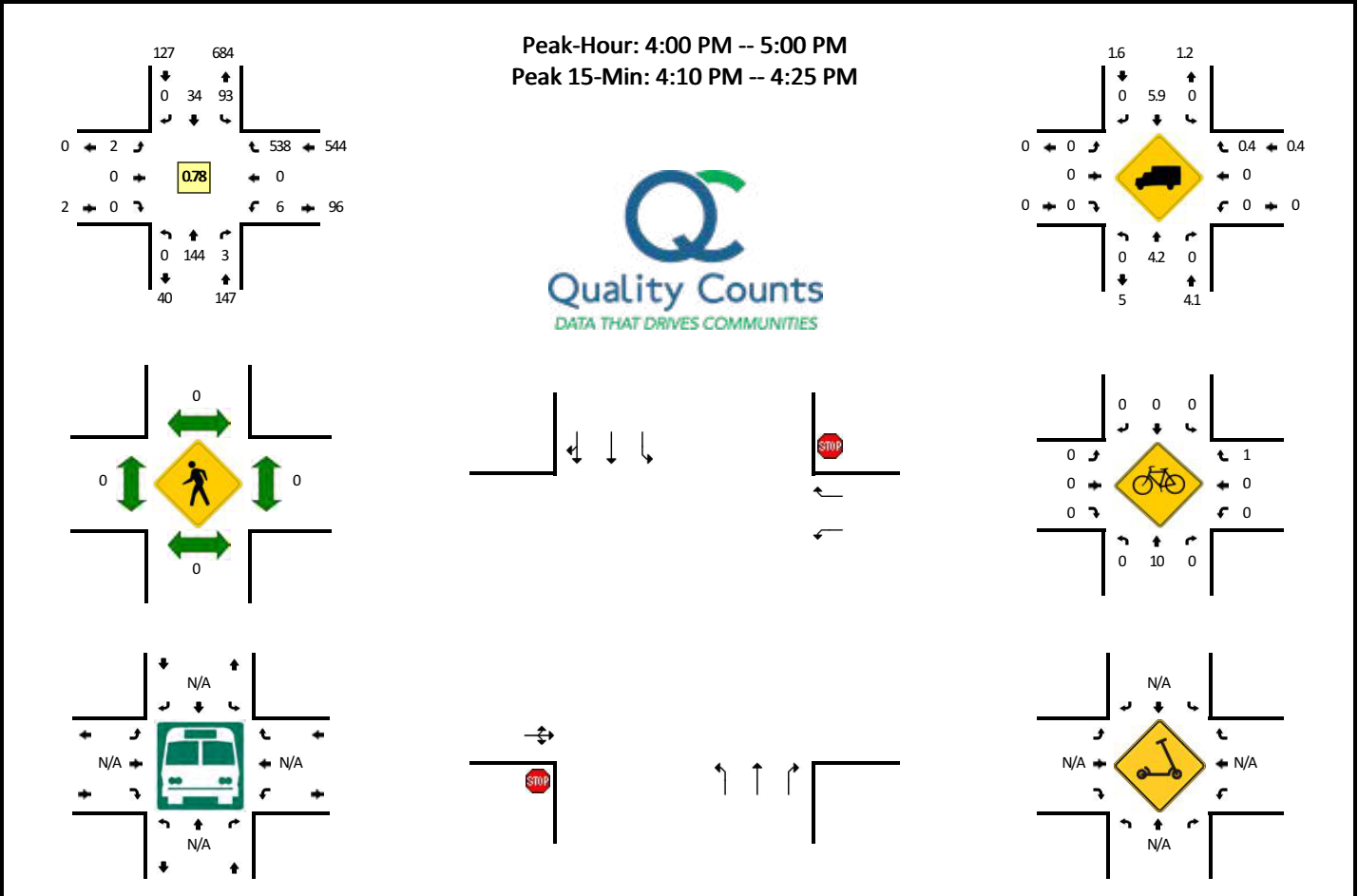
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952610
DATE: Thu, Sep 22 2022

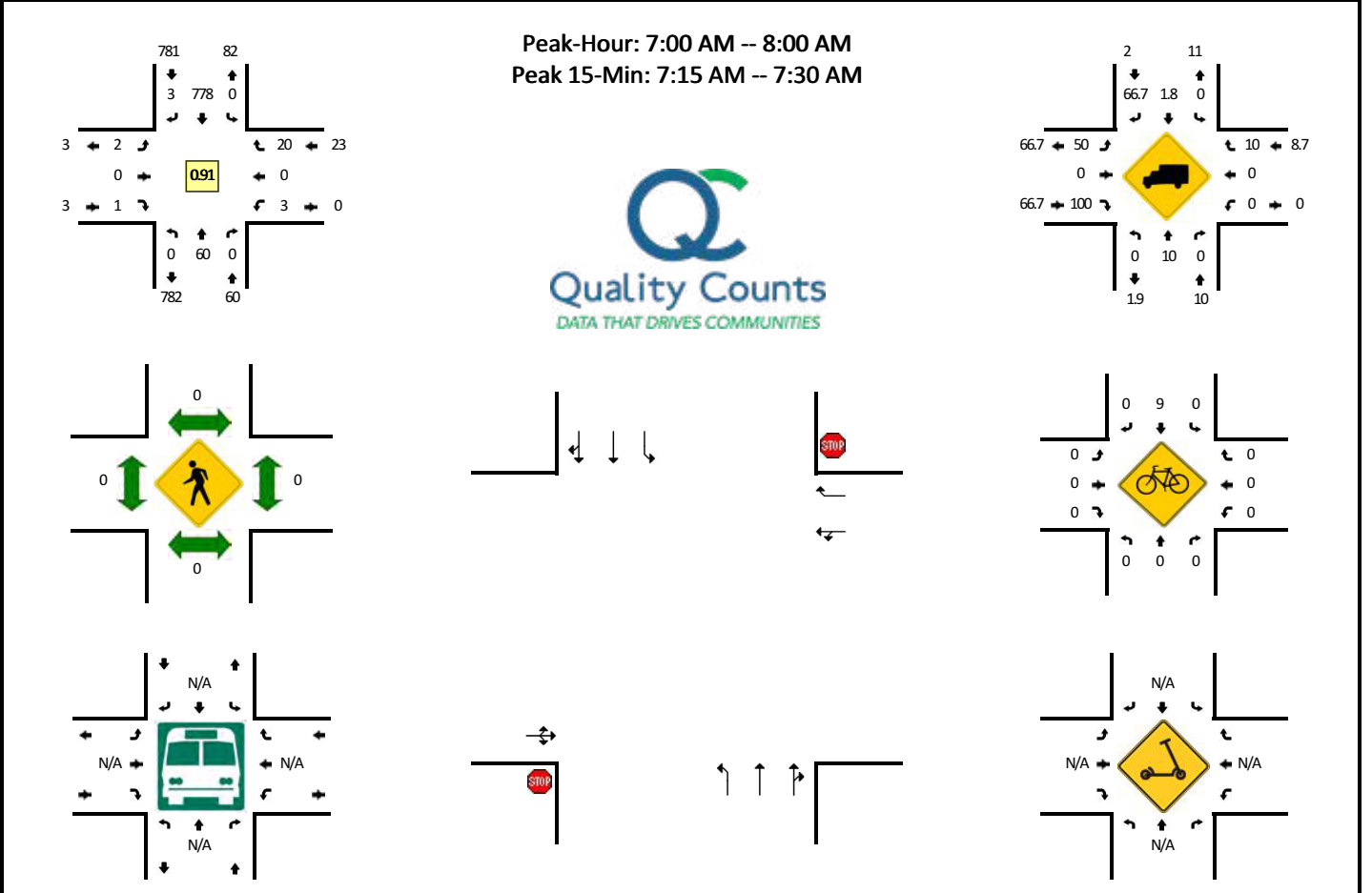


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	11	0	0	10	3	0	0	1	0	0	0	1	0	39	0	65	
4:05 PM	0	15	0	0	4	5	0	0	0	0	0	0	1	0	51	0	76	
4:10 PM	0	22	0	0	5	4	0	0	1	0	0	0	2	0	60	0	94	
4:15 PM	0	16	0	0	6	4	0	0	0	0	0	0	1	0	62	0	89	
4:20 PM	0	12	0	0	3	2	0	0	0	0	0	0	0	0	64	0	81	
4:25 PM	0	14	0	0	8	3	0	0	0	0	0	0	0	0	39	0	64	
4:30 PM	0	7	0	0	9	3	0	0	0	0	0	0	0	0	42	0	61	
4:35 PM	0	6	1	0	9	1	0	0	0	0	0	0	0	0	42	0	59	
4:40 PM	0	9	1	0	7	4	0	0	0	0	0	0	1	0	31	0	53	
4:45 PM	0	9	0	0	15	1	0	0	0	0	0	0	0	0	32	0	57	
4:50 PM	0	8	0	0	9	2	0	0	0	0	0	0	0	0	34	0	53	
4:55 PM	0	15	1	0	8	2	0	0	0	0	0	0	0	0	42	0	68	820
5:00 PM	0	3	0	0	6	3	0	0	0	0	0	0	0	0	33	0	45	800
5:05 PM	0	13	0	0	7	2	0	0	0	0	0	0	0	0	35	0	57	781
5:10 PM	0	12	0	0	7	0	0	0	0	0	0	0	0	0	36	0	55	742
5:15 PM	0	4	0	0	6	1	0	0	0	0	0	0	0	0	24	0	35	688
5:20 PM	0	9	0	0	5	3	0	0	0	0	0	0	0	0	25	0	42	649
5:25 PM	0	10	0	0	3	0	0	0	0	0	0	0	1	0	26	0	40	625
5:30 PM	0	10	0	0	0	1	0	0	0	0	0	0	0	0	23	0	34	598
5:35 PM	0	8	0	0	3	1	0	0	0	0	0	0	0	0	21	0	33	572
5:40 PM	0	4	0	0	2	1	0	0	0	0	0	0	0	0	23	0	30	549
5:45 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	0	20	0	27	519
5:50 PM	0	2	0	0	4	1	0	0	0	0	0	0	0	0	23	0	30	496
5:55 PM	0	4	0	0	5	0	0	0	0	0	0	0	0	0	23	0	32	460
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	200	0	0	56	40	0	0	4	0	0	0	12	0	744	0	1056	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	4	0	12	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952611
DATE: Thu, Sep 22 2022

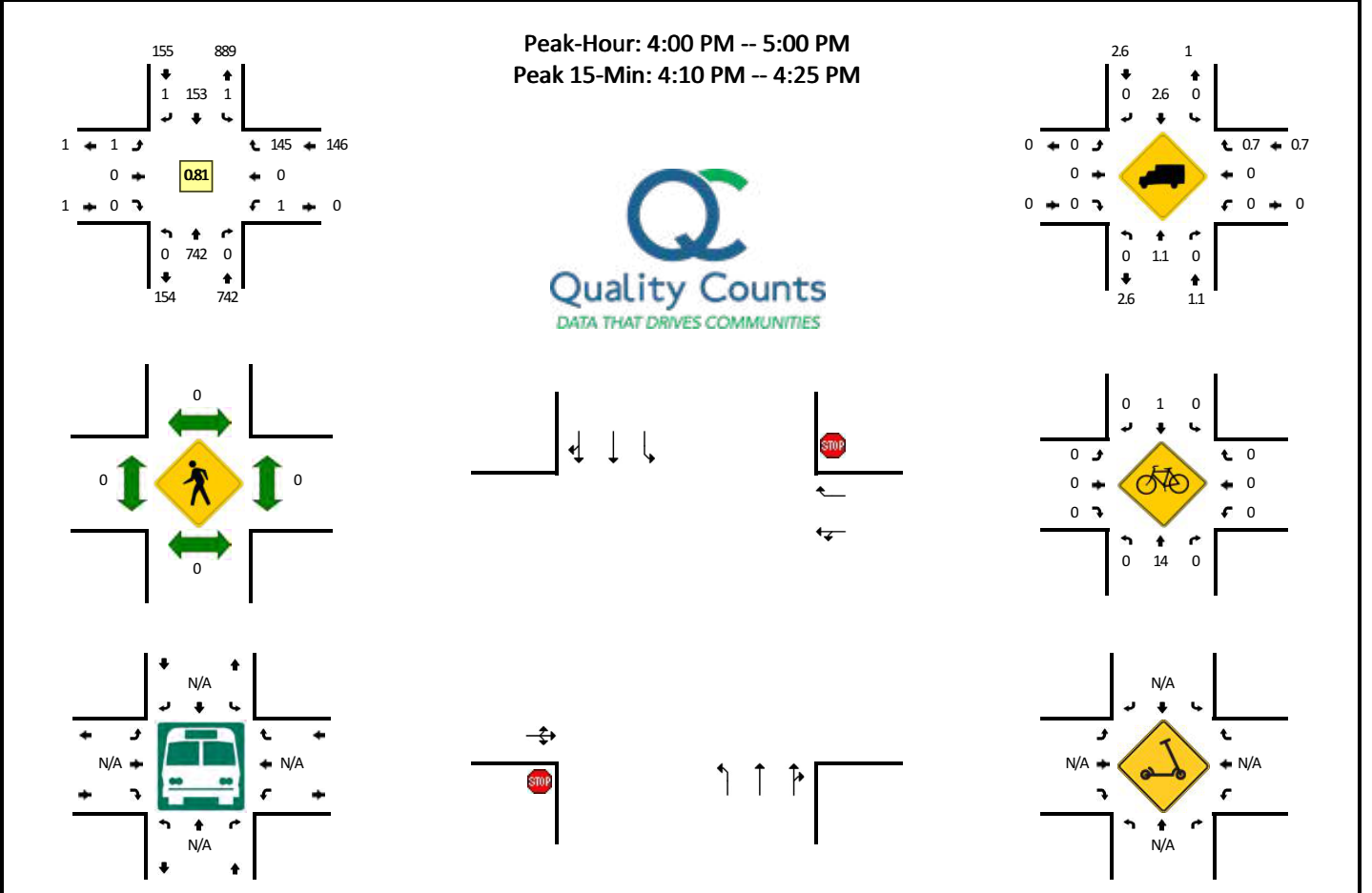


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	0	0	0	79	0	0	0	0	0	0	0	0	2	0	86	
7:05 AM	0	6	0	0	0	61	0	0	0	0	0	0	0	1	0	0	68	
7:10 AM	0	3	0	0	0	58	0	0	0	0	0	0	0	2	0	1	64	
7:15 AM	0	5	0	0	0	64	0	0	0	0	0	0	0	0	0	1	70	
7:20 AM	0	4	0	0	0	74	1	0	0	0	0	0	0	0	0	2	81	
7:25 AM	0	6	0	0	0	77	0	0	0	1	0	1	0	0	0	2	87	
7:30 AM	0	2	0	0	0	62	1	0	0	0	0	0	0	0	0	2	67	
7:35 AM	0	12	0	0	0	56	1	0	0	0	0	0	0	0	0	3	72	
7:40 AM	0	3	0	0	0	75	0	0	0	1	0	0	0	0	0	1	80	
7:45 AM	0	4	0	0	0	51	0	0	0	0	0	0	0	0	0	2	57	
7:50 AM	0	7	0	0	0	56	0	0	0	0	0	0	0	0	0	4	67	
7:55 AM	0	3	0	0	0	65	0	0	0	0	0	0	0	0	0	0	68	867
8:00 AM	0	9	0	0	0	48	0	0	0	0	0	0	0	1	0	1	59	840
8:05 AM	0	11	0	0	0	40	0	0	0	0	0	0	0	1	0	1	53	825
8:10 AM	0	6	0	0	0	45	0	0	0	0	0	0	0	0	0	1	52	813
8:15 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	782
8:20 AM	0	5	0	0	0	43	0	0	0	0	0	0	0	0	0	0	48	749
8:25 AM	0	7	0	0	0	20	1	0	0	1	0	0	0	0	0	3	32	694
8:30 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	666
8:35 AM	0	11	0	0	0	41	0	0	0	0	0	0	0	1	0	2	55	649
8:40 AM	0	5	0	0	0	23	0	0	0	2	0	0	0	0	0	1	31	600
8:45 AM	0	10	0	0	0	17	2	0	0	0	0	0	0	0	0	2	31	574
8:50 AM	0	4	0	0	0	23	0	0	0	0	0	0	0	0	0	3	30	537
8:55 AM	0	2	0	0	0	16	0	0	0	0	0	0	0	0	0	1	19	488
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	60	0	0	0	860	4	0	4	4	0	4	0	0	20	0	952	
Heavy Trucks	0	0	0	0	0	16	4	0	4	0	4	0	0	0	4	0	32	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952612
DATE: Thu, Sep 22 2022

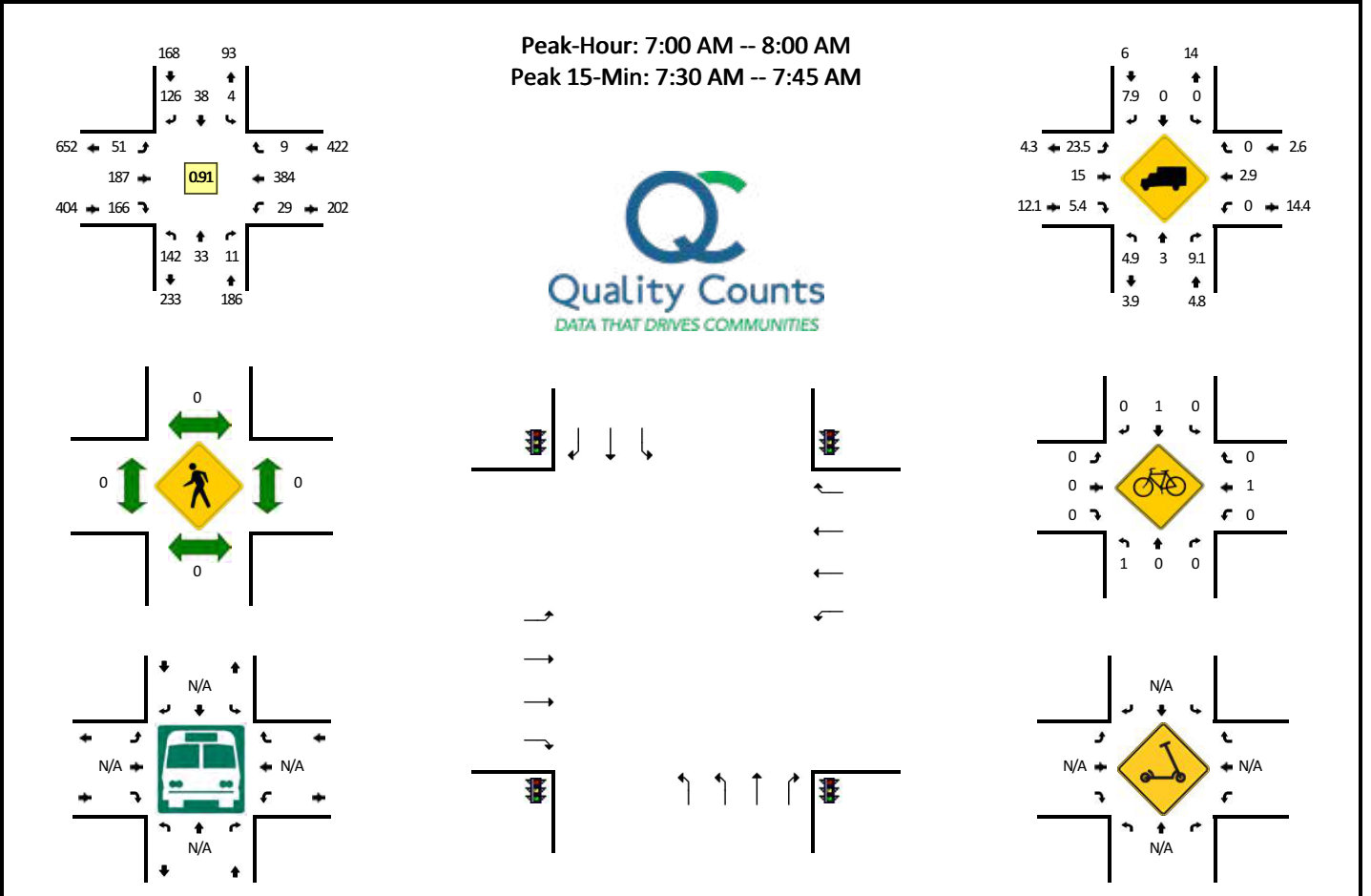


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	50	0	0	0	17	0	0	0	0	0	0	0	0	19	0	86	
4:05 PM	0	69	0	0	0	5	0	0	0	0	0	0	1	0	18	0	93	
4:10 PM	0	85	0	0	0	11	0	0	0	0	0	0	0	0	17	0	113	
4:15 PM	0	84	0	0	0	12	0	0	0	0	0	0	0	0	11	0	107	
4:20 PM	0	77	0	0	0	13	0	0	0	0	0	0	0	0	14	0	104	
4:25 PM	0	58	0	0	0	10	0	0	0	0	0	0	0	0	10	0	78	
4:30 PM	0	60	0	0	0	13	0	1	0	0	0	0	0	0	25	0	99	
4:35 PM	0	75	0	0	0	18	1	0	1	0	0	0	0	0	8	0	103	
4:40 PM	0	41	0	0	0	10	0	0	0	0	0	0	0	0	9	0	60	
4:45 PM	0	38	0	0	0	18	0	0	0	0	0	0	0	0	7	0	63	
4:50 PM	0	45	0	0	0	13	0	0	0	0	0	0	0	0	3	0	61	
4:55 PM	0	60	0	0	0	13	0	0	0	0	0	0	0	0	4	0	77	1044
5:00 PM	0	41	0	0	0	6	0	0	0	0	0	0	0	0	7	0	54	1012
5:05 PM	0	47	0	0	0	11	0	0	0	0	0	0	0	0	5	0	63	982
5:10 PM	0	51	0	0	0	8	0	0	0	0	0	0	0	0	11	0	70	939
5:15 PM	0	31	0	0	0	5	0	0	0	0	0	0	0	0	12	0	48	880
5:20 PM	0	33	0	0	0	9	0	0	1	0	0	0	0	0	5	0	48	824
5:25 PM	0	43	0	0	0	3	0	0	0	0	0	0	0	0	5	0	51	797
5:30 PM	0	30	0	0	0	4	0	0	0	0	0	0	0	0	5	0	39	737
5:35 PM	0	29	0	0	0	4	0	0	0	0	0	0	0	0	8	0	41	675
5:40 PM	0	33	0	0	0	4	0	0	0	0	0	0	0	0	5	0	42	657
5:45 PM	0	19	0	0	0	3	0	0	0	0	0	0	0	0	4	0	26	620
5:50 PM	0	25	0	0	0	6	0	0	0	0	0	0	0	0	4	0	35	594
5:55 PM	0	26	0	0	0	6	0	0	0	0	0	0	0	0	1	0	33	550
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	984	0	0	0	144	0	0	0	0	0	0	0	0	168	0	1296	
Heavy Trucks	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	24	0		0	0	0		0	0	0		0	0	0		24	
Scooters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952613
DATE: Thu, Sep 22 2022

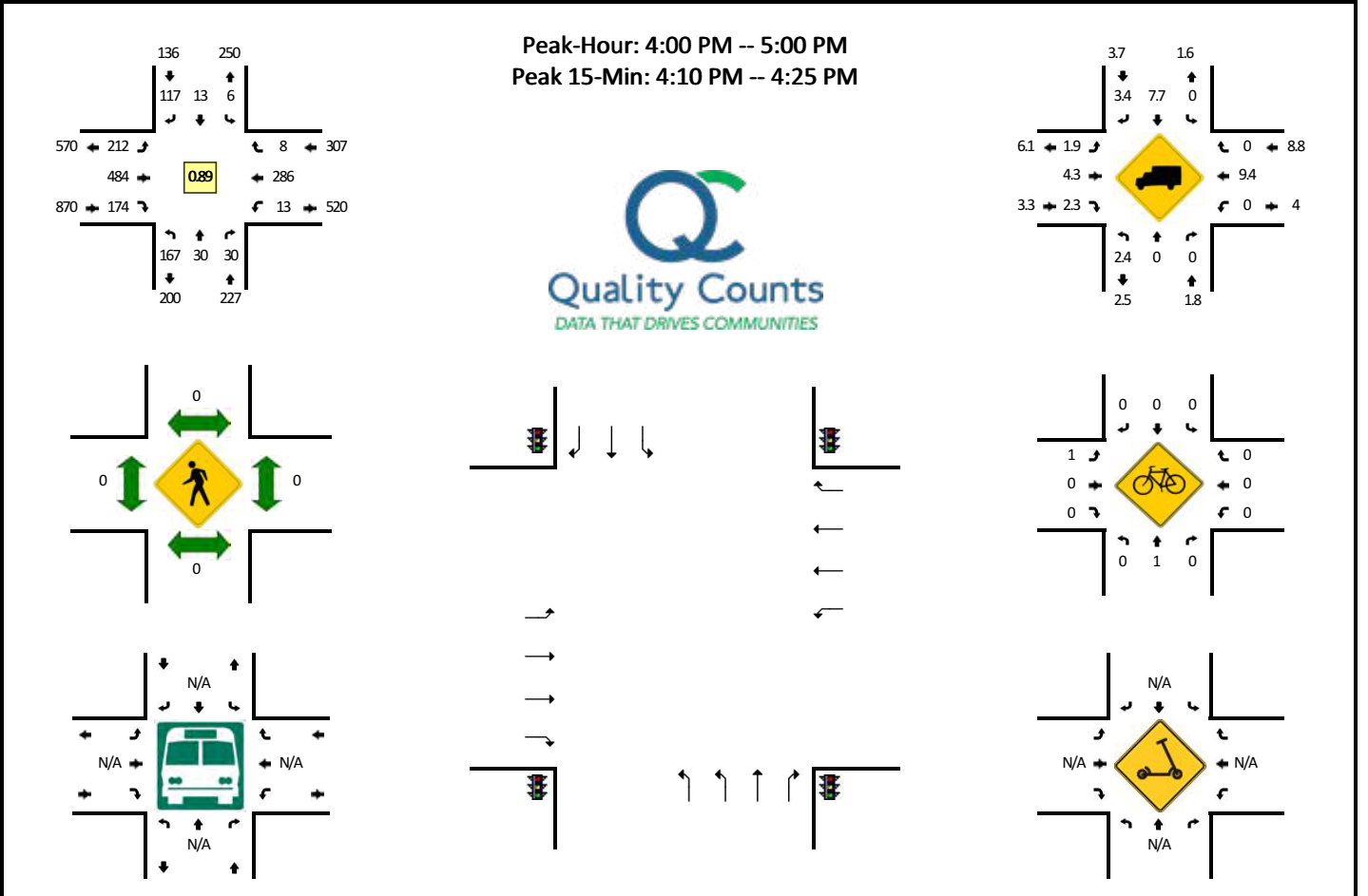


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	1	0	0	0	2	5	0	4	20	22	0	2	21	0	0	87	
7:05 AM	17	1	2	0	0	3	9	0	2	17	16	0	3	33	1	0	104	
7:10 AM	12	1	1	0	0	1	10	0	9	23	15	0	6	50	1	0	129	
7:15 AM	12	0	1	0	1	1	9	0	1	18	10	0	2	30	0	0	85	
7:20 AM	17	3	1	0	0	2	7	0	6	16	10	0	2	28	0	0	92	
7:25 AM	11	7	3	0	1	4	12	0	3	10	12	0	4	20	1	0	88	
7:30 AM	9	8	0	0	0	2	8	0	5	11	10	0	2	48	1	0	104	
7:35 AM	15	8	0	0	0	4	18	0	3	17	15	0	3	43	2	0	128	
7:40 AM	5	3	1	0	1	10	12	0	2	11	11	0	1	35	1	0	93	
7:45 AM	13	0	0	0	1	5	9	0	3	13	19	0	1	27	1	0	92	
7:50 AM	8	0	0	0	0	1	13	0	8	17	16	0	2	26	0	0	91	
7:55 AM	13	1	2	0	0	3	14	0	5	14	10	0	1	23	1	0	87	1180
8:00 AM	12	0	0	0	0	1	4	0	3	22	14	0	0	28	0	0	84	1177
8:05 AM	8	0	1	0	0	2	10	0	10	21	21	0	2	24	2	0	101	1174
8:10 AM	7	0	0	0	0	1	11	0	2	18	15	0	4	20	0	0	78	1123
8:15 AM	2	1	1	0	1	1	7	0	5	11	19	0	4	30	0	0	82	1120
8:20 AM	3	0	0	0	0	2	9	0	6	18	19	0	3	27	0	0	87	1115
8:25 AM	13	1	1	0	0	1	7	0	9	26	7	0	1	17	0	0	83	1110
8:30 AM	3	0	2	0	0	0	6	0	1	11	11	0	1	24	0	0	59	1065
8:35 AM	10	0	1	0	0	2	9	0	5	13	19	0	1	20	0	0	80	1017
8:40 AM	6	2	0	0	0	0	8	0	6	21	7	0	0	22	0	0	72	996
8:45 AM	4	0	0	0	0	1	7	0	4	11	7	0	1	34	0	0	69	973
8:50 AM	6	0	1	0	0	1	12	0	5	10	12	0	2	23	0	0	72	954
8:55 AM	5	0	1	0	0	2	7	0	6	12	13	0	1	14	0	0	61	928
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	116	76	4	0	4	64	152	0	40	156	144	0	24	504	16	0	1300	
Heavy Trucks	8	0	0		0	0	16		8	28	8		0	4	0		72	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952614
DATE: Thu, Sep 22 2022

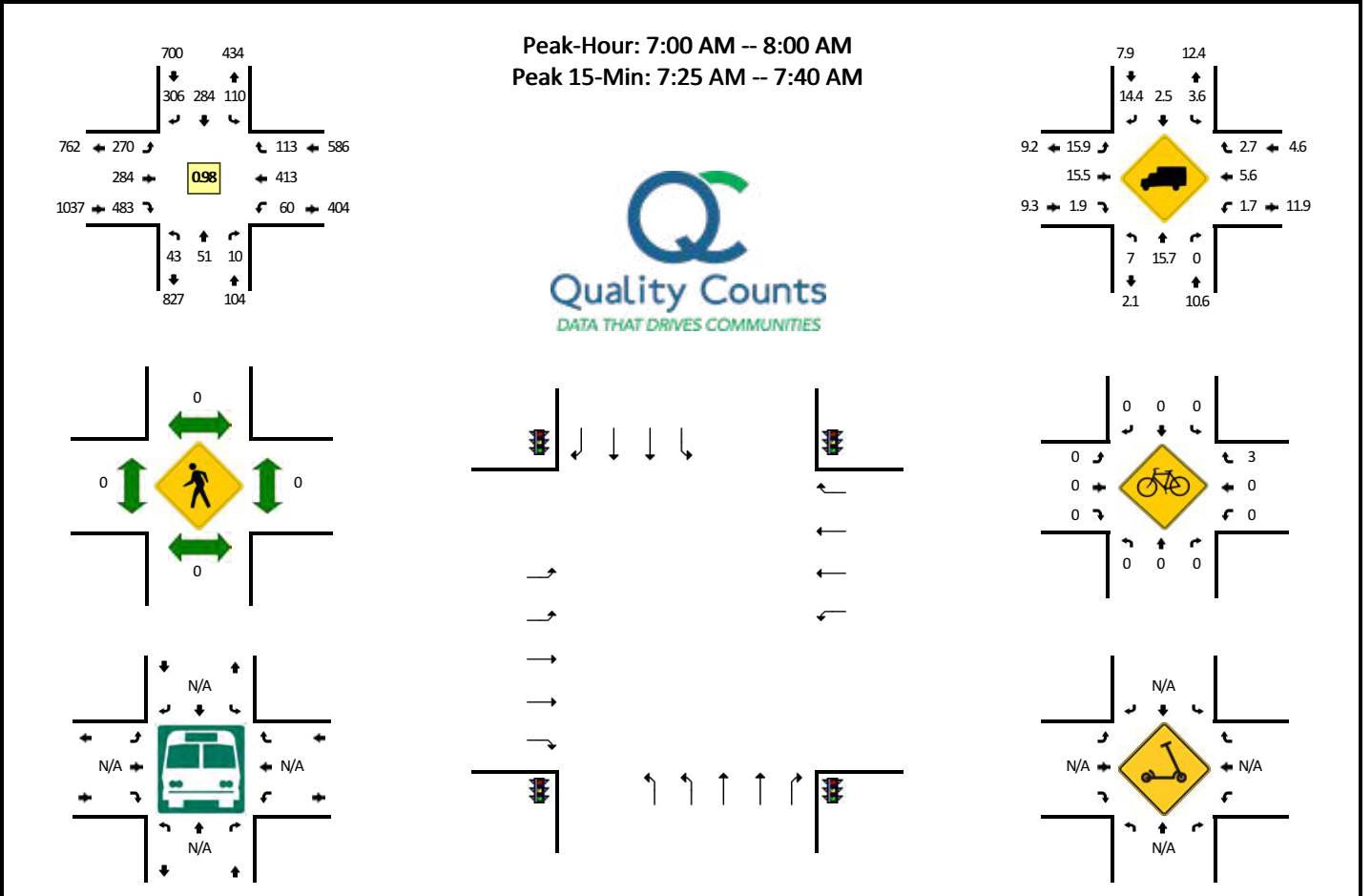


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	4	3	0	0	1	12	0	8	38	8	0	0	20	0	0	115	
4:05 PM	15	1	3	0	1	0	12	0	25	36	11	0	2	29	0	0	135	
4:10 PM	14	3	2	0	0	1	13	0	27	38	21	0	0	22	3	0	144	
4:15 PM	13	3	5	0	0	3	6	0	17	46	11	0	0	32	0	0	136	
4:20 PM	15	1	4	0	0	2	11	0	18	55	8	0	4	31	2	0	151	
4:25 PM	16	1	1	0	1	1	11	0	18	37	20	0	0	34	0	0	140	
4:30 PM	12	2	2	0	0	0	9	0	22	42	20	0	1	20	0	0	130	
4:35 PM	18	2	2	0	0	2	13	0	17	29	10	0	2	20	0	0	115	
4:40 PM	13	1	3	0	3	0	8	0	15	37	21	0	1	16	0	0	118	
4:45 PM	12	4	3	0	1	0	9	0	20	32	23	0	0	18	1	0	123	
4:50 PM	10	5	1	0	0	1	8	0	7	37	14	0	1	30	2	0	116	
4:55 PM	8	3	1	0	0	2	5	0	18	57	7	0	2	14	0	0	117	1540
5:00 PM	10	3	3	0	2	0	11	0	19	23	11	0	2	18	1	0	103	1528
5:05 PM	13	1	5	0	2	1	10	0	14	28	19	0	1	35	0	0	129	1522
5:10 PM	6	2	3	0	1	2	16	0	6	44	10	0	1	17	0	0	108	1486
5:15 PM	11	2	1	0	0	1	5	0	5	41	13	0	2	26	1	0	108	1458
5:20 PM	8	3	2	0	0	3	7	0	15	36	11	0	1	11	0	0	97	1404
5:25 PM	7	2	1	0	0	2	9	0	9	27	8	0	0	14	0	0	79	1343
5:30 PM	2	4	3	0	4	3	13	0	10	31	12	0	2	18	0	0	102	1315
5:35 PM	5	0	1	0	0	5	8	0	12	41	12	0	2	20	1	0	107	1307
5:40 PM	5	1	3	0	0	1	4	0	8	36	7	0	1	7	0	0	73	1262
5:45 PM	3	2	1	0	0	2	13	0	9	35	9	0	1	15	1	0	91	1230
5:50 PM	8	0	0	0	0	0	12	0	17	37	6	0	1	24	1	0	106	1220
5:55 PM	6	1	1	0	1	0	9	0	12	25	5	0	1	22	1	0	84	1187
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	168	28	44	0	0	24	120	0	248	556	160	0	16	340	20	0	1724	
Heavy Trucks	4	0	0		0	4	0		4	28	4		0	36	0		80	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952615
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	1	1	0	12	26	29	0	21	27	49	0	1	31	5	0	208	
7:05 AM	2	2	1	0	6	17	18	0	24	34	36	0	4	42	9	0	195	
7:10 AM	4	4	1	0	10	22	30	0	16	29	40	0	9	40	8	0	213	
7:15 AM	0	5	3	0	9	19	17	0	25	18	41	0	6	27	15	0	185	
7:20 AM	1	5	1	0	6	29	27	0	24	25	42	0	4	30	14	0	208	
7:25 AM	6	2	0	0	9	47	21	0	15	13	43	0	6	26	9	0	197	
7:30 AM	4	6	0	0	11	18	23	0	25	22	34	0	8	32	9	0	192	
7:35 AM	7	5	1	0	10	27	26	0	22	23	40	0	4	49	14	0	228	
7:40 AM	3	4	1	0	6	14	31	0	21	21	42	0	2	41	8	0	194	
7:45 AM	3	6	0	0	12	21	27	0	19	23	30	0	6	40	3	0	190	
7:50 AM	4	9	1	0	9	19	25	0	28	29	52	0	5	28	8	0	217	
7:55 AM	4	2	0	0	10	25	32	0	30	20	34	0	5	27	11	0	200	2427
8:00 AM	2	7	2	0	11	17	24	0	32	30	27	0	3	24	9	0	188	2407
8:05 AM	10	7	2	0	22	28	38	1	16	24	17	0	2	22	6	0	195	2407
8:10 AM	4	5	0	0	9	13	24	0	21	36	32	0	5	25	10	0	184	2378
8:15 AM	5	3	1	0	7	14	24	0	27	21	18	0	6	23	7	0	156	2349
8:20 AM	4	6	2	0	14	12	17	0	19	25	22	0	3	24	8	0	156	2297
8:25 AM	5	6	4	0	10	9	24	0	11	23	23	0	2	20	7	0	144	2244
8:30 AM	9	5	0	0	6	10	23	0	25	26	23	0	1	22	5	0	155	2207
8:35 AM	9	6	4	0	11	12	20	0	15	23	22	0	2	24	3	0	151	2130
8:40 AM	8	4	0	0	8	10	28	0	24	16	18	0	0	24	3	0	143	2079
8:45 AM	4	10	2	0	7	9	26	0	26	18	12	0	1	29	5	0	149	2038
8:50 AM	4	5	1	0	6	10	19	0	21	22	11	0	4	31	6	0	140	1961
8:55 AM	1	7	1	0	8	14	19	0	18	25	6	0	2	19	4	0	124	1885
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	68	52	4	0	120	368	280	0	248	232	468	0	72	428	128	0	2468	
Heavy Trucks	4	4	0	0	0	16	52	0	44	36	8	0	0	20	4	0	188	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

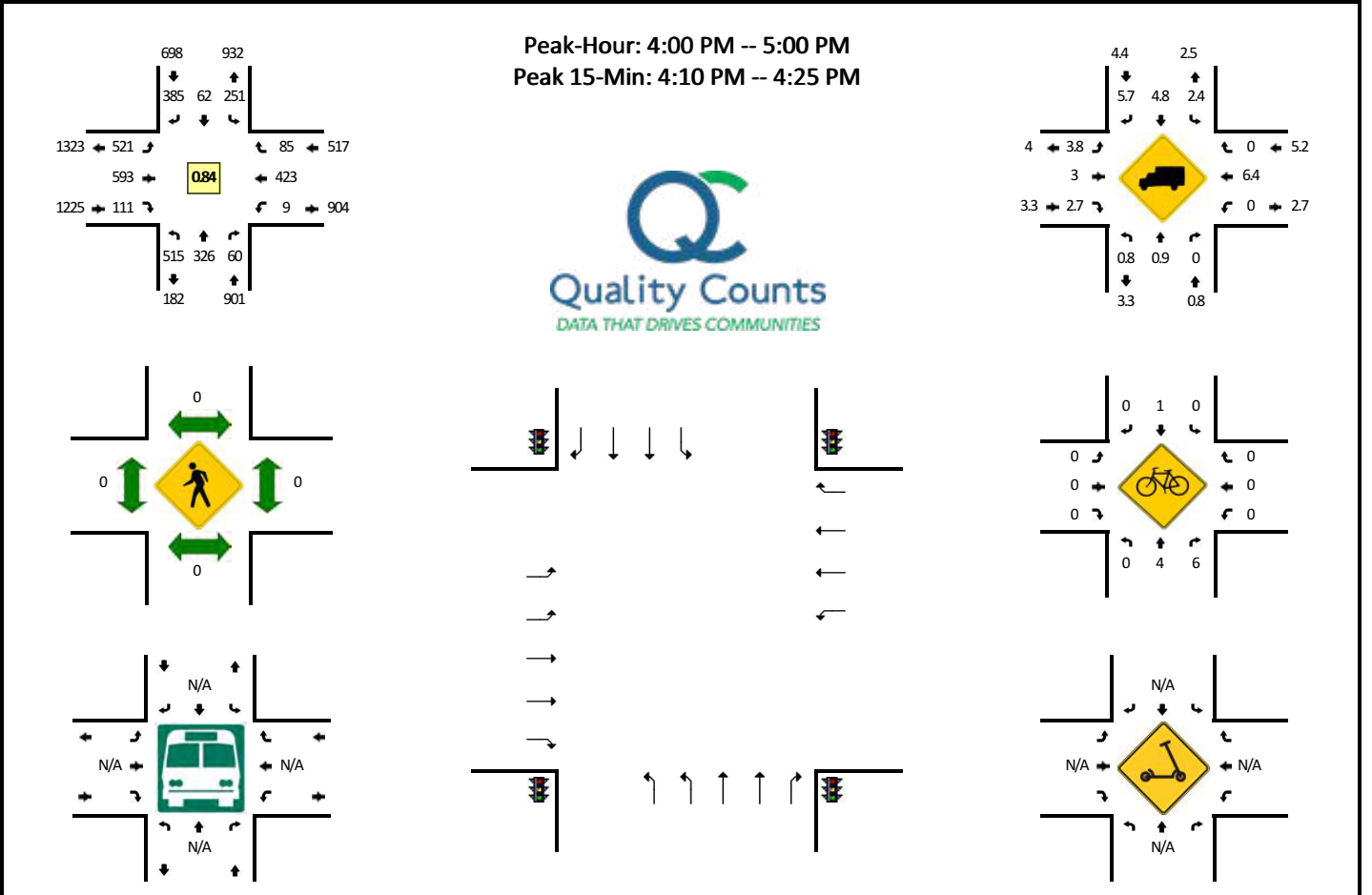
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952616
DATE: Thu, Sep 22 2022

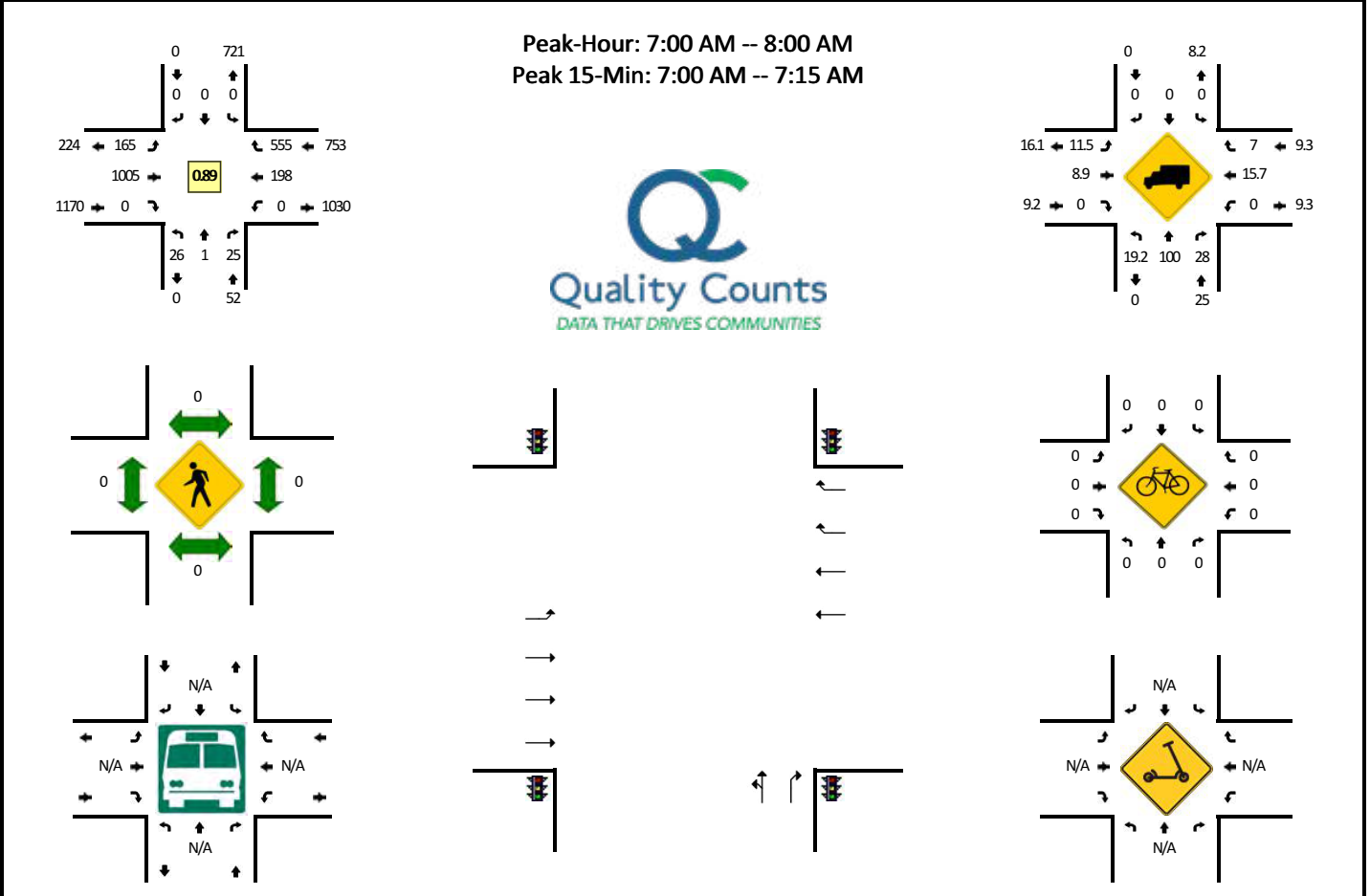


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	27	15	2	0	9	7	24	0	53	50	7	0	1	47	11	0	253	
4:05 PM	71	31	5	0	27	7	38	0	42	32	2	0	1	31	6	0	293	
4:10 PM	54	33	4	0	12	2	35	0	76	81	11	0	0	47	9	0	364	
4:15 PM	72	44	5	0	30	9	43	0	41	38	9	0	1	24	4	0	320	
4:20 PM	37	33	7	0	15	4	28	0	71	66	11	0	1	27	12	0	312	
4:25 PM	29	29	8	0	22	3	39	0	44	47	7	0	1	63	9	0	301	
4:30 PM	57	34	7	0	24	6	45	0	40	57	12	0	0	20	6	0	308	
4:35 PM	41	26	5	0	17	3	27	0	35	56	11	0	0	42	6	0	269	
4:40 PM	34	22	5	0	33	9	36	0	32	34	12	0	2	34	6	0	259	
4:45 PM	36	18	2	0	19	5	20	0	35	44	11	0	0	28	11	0	229	
4:50 PM	15	15	1	0	21	5	25	0	31	57	7	0	2	37	3	0	219	
4:55 PM	42	26	9	0	22	2	25	0	21	31	11	0	0	23	2	0	214	3341
5:00 PM	28	10	3	0	12	3	27	0	33	46	8	0	0	34	6	0	210	3298
5:05 PM	41	18	1	0	27	3	24	0	27	32	10	0	0	41	8	0	232	3237
5:10 PM	43	12	7	0	24	4	26	0	24	26	7	0	2	20	5	0	200	3073
5:15 PM	46	18	4	0	14	4	28	0	24	51	5	0	0	25	9	0	228	2981
5:20 PM	23	10	4	0	14	3	20	0	24	36	6	0	0	22	5	0	167	2836
5:25 PM	26	32	2	0	20	2	19	0	17	21	2	0	0	17	4	0	162	2697
5:30 PM	22	8	2	0	19	2	18	0	28	42	3	0	1	24	6	0	175	2564
5:35 PM	22	16	6	0	16	4	22	0	23	42	4	0	2	23	4	0	184	2479
5:40 PM	29	14	2	0	24	4	10	0	10	24	0	0	0	11	2	0	130	2350
5:45 PM	10	11	1	0	8	2	14	0	12	45	2	0	0	19	8	0	132	2253
5:50 PM	8	11	4	0	16	2	18	0	21	26	6	0	0	30	7	0	149	2183
5:55 PM	25	9	1	0	12	1	24	0	11	27	7	0	0	20	6	0	143	2112
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	652	440	64	0	228	60	424	0	752	740	124	0	8	392	100	0	3984	
Heavy Trucks	4	0	0		12	4	16		24	32	0		0	24	0		116	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	16	12		0	0	0		0	0	0		0	0	0		28	
Scooters																		

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952617
DATE: Thu, Sep 22 2022

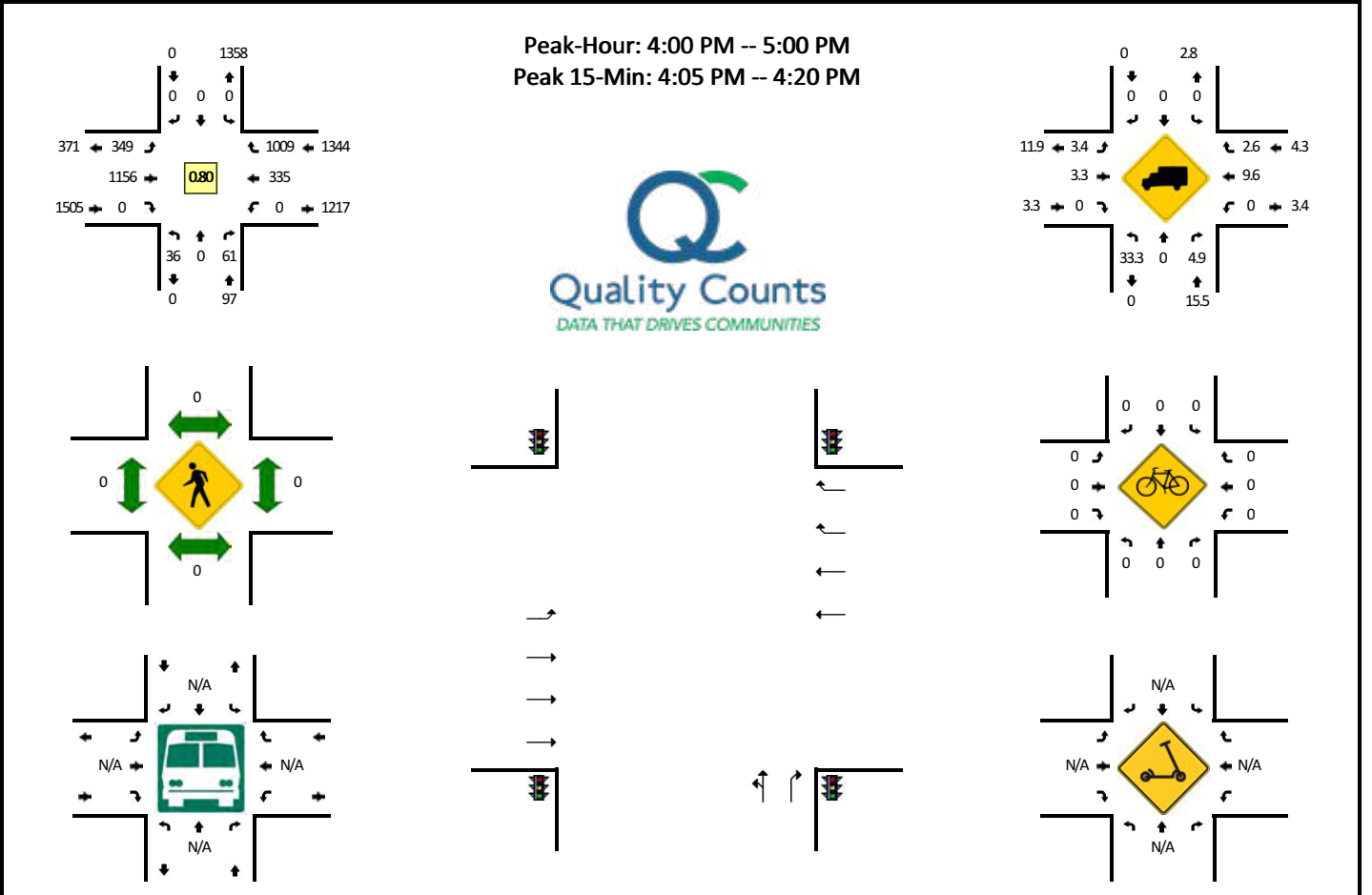


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	2	0	0	0	0	0	12	100	0	0	0	22	47	0	185	
7:05 AM	3	0	1	0	0	0	0	0	26	91	0	0	0	16	45	0	182	
7:10 AM	2	0	0	0	0	0	0	0	16	99	0	0	0	14	56	0	187	
7:15 AM	7	1	2	0	0	0	0	0	20	69	0	0	0	11	44	0	154	
7:20 AM	2	0	2	0	0	0	0	0	8	90	0	0	0	13	36	0	151	
7:25 AM	3	0	0	0	0	0	0	0	11	70	0	0	0	22	37	0	143	
7:30 AM	1	0	5	0	0	0	0	0	17	71	0	0	0	15	45	0	154	
7:35 AM	1	0	3	0	0	0	0	0	9	76	0	0	0	19	58	0	166	
7:40 AM	1	0	2	0	0	0	0	0	15	79	0	0	0	16	51	0	164	
7:45 AM	1	0	1	0	0	0	0	0	9	75	0	0	0	20	52	0	158	
7:50 AM	2	0	3	0	0	0	0	0	10	103	0	0	0	15	46	0	179	
7:55 AM	1	0	4	0	0	0	0	0	12	82	0	0	0	15	38	0	152	1975
8:00 AM	1	0	5	0	0	0	0	0	13	72	0	0	0	18	39	0	148	1938
8:05 AM	1	0	7	0	0	0	0	0	12	60	0	0	0	23	43	0	146	1902
8:10 AM	0	0	5	0	0	0	0	0	11	74	0	0	0	23	32	0	145	1860
8:15 AM	0	0	2	0	0	0	0	0	9	63	0	0	0	19	40	0	133	1839
8:20 AM	1	0	1	0	0	0	0	0	14	63	0	0	0	8	27	0	114	1802
8:25 AM	3	0	2	0	0	0	0	0	12	56	0	0	0	19	40	0	132	1791
8:30 AM	1	0	4	0	0	0	0	0	15	62	0	0	0	19	36	0	137	1774
8:35 AM	3	0	3	0	0	0	0	0	21	65	0	0	0	15	29	0	136	1744
8:40 AM	1	0	4	0	0	0	0	0	19	52	0	0	0	18	43	0	137	1717
8:45 AM	1	0	2	0	0	0	0	0	17	56	0	0	0	28	38	0	142	1701
8:50 AM	3	0	1	0	0	0	0	0	18	47	0	0	0	16	30	0	115	1637
8:55 AM	1	0	2	0	0	0	0	0	15	46	0	0	0	16	31	0	111	1596
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	0	12	0	0	0	0	0	216	1160	0	0	0	208	592	0	2216	
Heavy Trucks	8	0	0	0	0	0	0	0	16	72	0	0	0	32	36	0	164	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952618
DATE: Thu, Sep 22 2022

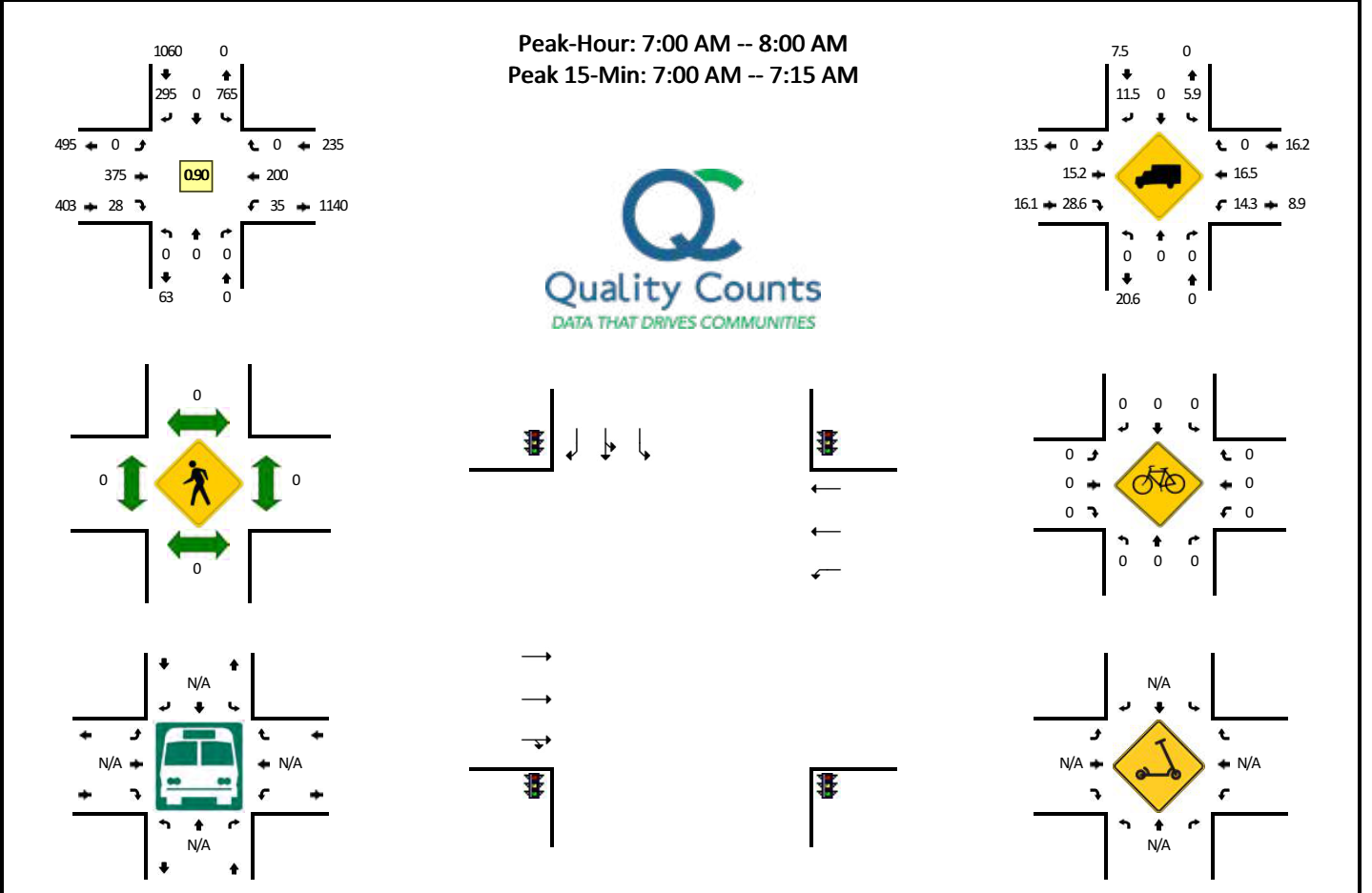


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	7	0	0	0	0	0	29	91	0	0	0	25	64	0	221	
4:05 PM	3	0	11	0	0	0	0	0	27	117	0	0	0	31	126	0	315	
4:10 PM	5	0	5	0	0	0	0	0	41	109	0	0	0	32	98	0	290	
4:15 PM	3	0	5	0	0	0	0	0	53	113	0	0	0	34	104	0	312	
4:20 PM	5	0	10	0	0	0	0	0	27	104	0	0	0	25	89	0	260	
4:25 PM	1	0	2	0	0	0	0	0	26	108	0	0	0	29	74	0	240	
4:30 PM	0	0	5	0	0	0	0	0	24	97	0	0	0	39	109	0	274	
4:35 PM	2	0	6	0	0	0	0	0	21	100	0	0	0	21	85	0	235	
4:40 PM	4	0	2	0	0	0	0	0	39	72	0	0	0	25	81	0	223	
4:45 PM	3	0	2	0	0	0	0	0	24	97	0	0	0	19	49	0	194	
4:50 PM	2	0	2	0	0	0	0	0	16	87	0	0	0	22	56	0	185	
4:55 PM	3	0	4	0	0	0	0	0	22	61	0	0	0	33	74	0	197	2946
5:00 PM	3	0	6	0	0	0	0	0	14	79	0	0	0	18	57	0	177	2902
5:05 PM	1	1	5	0	0	0	0	0	17	69	0	0	0	22	85	0	200	2787
5:10 PM	1	0	2	0	0	0	0	0	16	51	0	0	0	19	83	0	172	2669
5:15 PM	5	0	9	0	0	0	0	0	17	69	0	0	0	13	82	0	195	2552
5:20 PM	1	0	7	0	0	0	0	0	18	60	0	0	0	23	42	0	151	2443
5:25 PM	1	0	2	0	0	0	0	0	21	48	0	0	0	17	57	0	146	2349
5:30 PM	1	0	6	0	0	0	0	0	9	62	0	0	0	10	52	0	140	2215
5:35 PM	1	0	3	0	0	0	0	0	19	63	0	0	0	15	50	0	151	2131
5:40 PM	3	0	1	0	0	0	0	0	14	43	0	0	0	11	38	0	110	2018
5:45 PM	1	0	7	0	0	0	0	0	11	52	0	0	0	7	43	0	121	1945
5:50 PM	2	0	3	0	0	0	0	0	11	46	0	0	0	11	33	0	106	1866
5:55 PM	3	0	3	0	0	0	0	0	12	47	0	0	0	19	50	0	134	1803
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	0	84	0	0	0	0	0	484	1356	0	0	0	388	1312	0	3668	
Heavy Trucks	20	0	8	0	0	0	0	0	16	44	0	0	0	24	28	0	140	
Buses																	0	
Pedestrians																	0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952619
DATE: Thu, Sep 22 2022

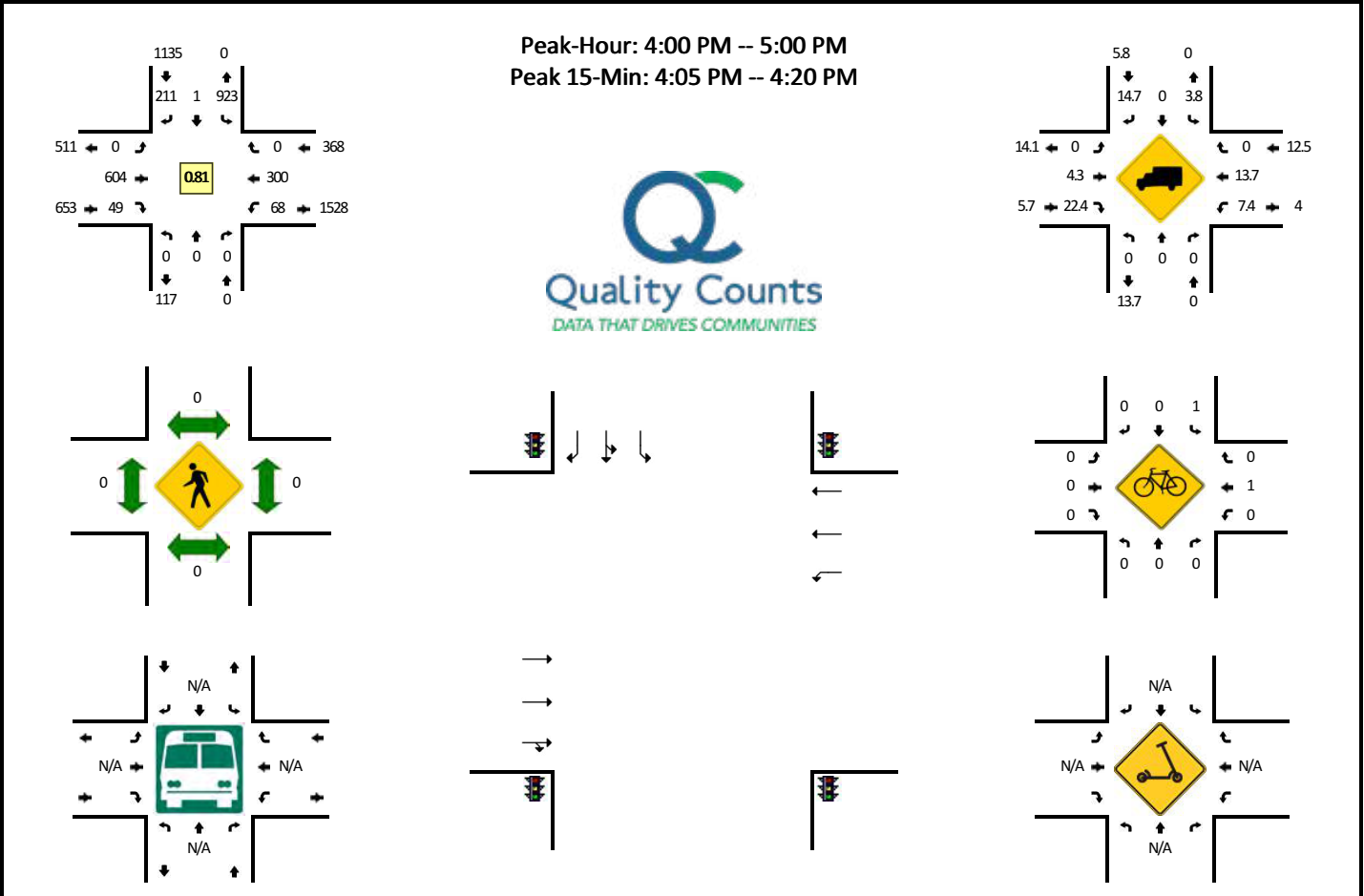


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	58	0	23	0	0	48	3	0	3	27	0	0	162	
7:05 AM	0	0	0	0	71	0	25	0	0	45	2	0	2	17	0	0	162	
7:10 AM	0	0	0	0	80	0	31	0	0	26	0	0	1	12	0	0	150	
7:15 AM	0	0	0	0	47	0	25	0	0	44	2	0	3	19	0	0	140	
7:20 AM	0	0	0	0	65	0	31	0	0	26	2	0	3	9	0	0	136	
7:25 AM	0	0	0	0	68	0	31	0	0	18	3	0	5	23	0	0	148	
7:30 AM	0	0	0	0	57	0	27	0	0	32	4	0	5	11	0	0	136	
7:35 AM	0	0	0	0	51	0	28	0	0	32	3	0	2	17	0	0	133	
7:40 AM	0	0	0	0	63	0	15	0	0	29	4	0	3	15	0	0	129	
7:45 AM	0	0	0	0	72	0	21	0	0	19	2	0	2	20	0	0	136	
7:50 AM	0	0	0	0	80	0	15	0	0	24	2	0	4	15	0	0	140	
7:55 AM	0	0	0	0	53	0	23	0	0	32	1	0	2	15	0	0	126	1698
8:00 AM	0	0	0	0	60	0	36	0	0	28	1	0	2	14	0	0	141	1677
8:05 AM	0	0	0	0	54	0	32	0	0	27	3	0	5	23	0	0	144	1659
8:10 AM	0	0	0	0	56	0	19	0	0	22	6	0	2	19	0	0	124	1633
8:15 AM	0	0	0	0	47	0	23	0	0	22	3	0	9	12	0	0	116	1609
8:20 AM	0	0	0	0	57	0	30	0	0	31	6	0	1	8	0	0	133	1606
8:25 AM	0	0	0	0	38	0	23	0	0	22	3	0	2	19	0	0	107	1565
8:30 AM	0	0	0	0	49	0	21	0	0	31	2	0	2	17	0	0	122	1551
8:35 AM	0	0	0	0	46	0	20	0	0	36	8	0	3	13	0	0	126	1544
8:40 AM	0	0	0	0	45	0	20	0	0	29	8	0	10	9	0	0	121	1536
8:45 AM	0	0	0	0	36	0	14	0	0	29	5	0	10	18	0	0	112	1512
8:50 AM	0	0	0	0	39	0	22	0	0	27	1	0	2	17	0	0	108	1480
8:55 AM	0	0	0	0	32	0	20	0	0	22	4	0	2	14	0	0	94	1448
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	836	0	316	0	0	476	20	0	24	224	0	0	1896	
Heavy Trucks	0	0	0	0	44	0	20	0	0	40	4	0	4	36	0	0	148	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952620
DATE: Thu, Sep 22 2022



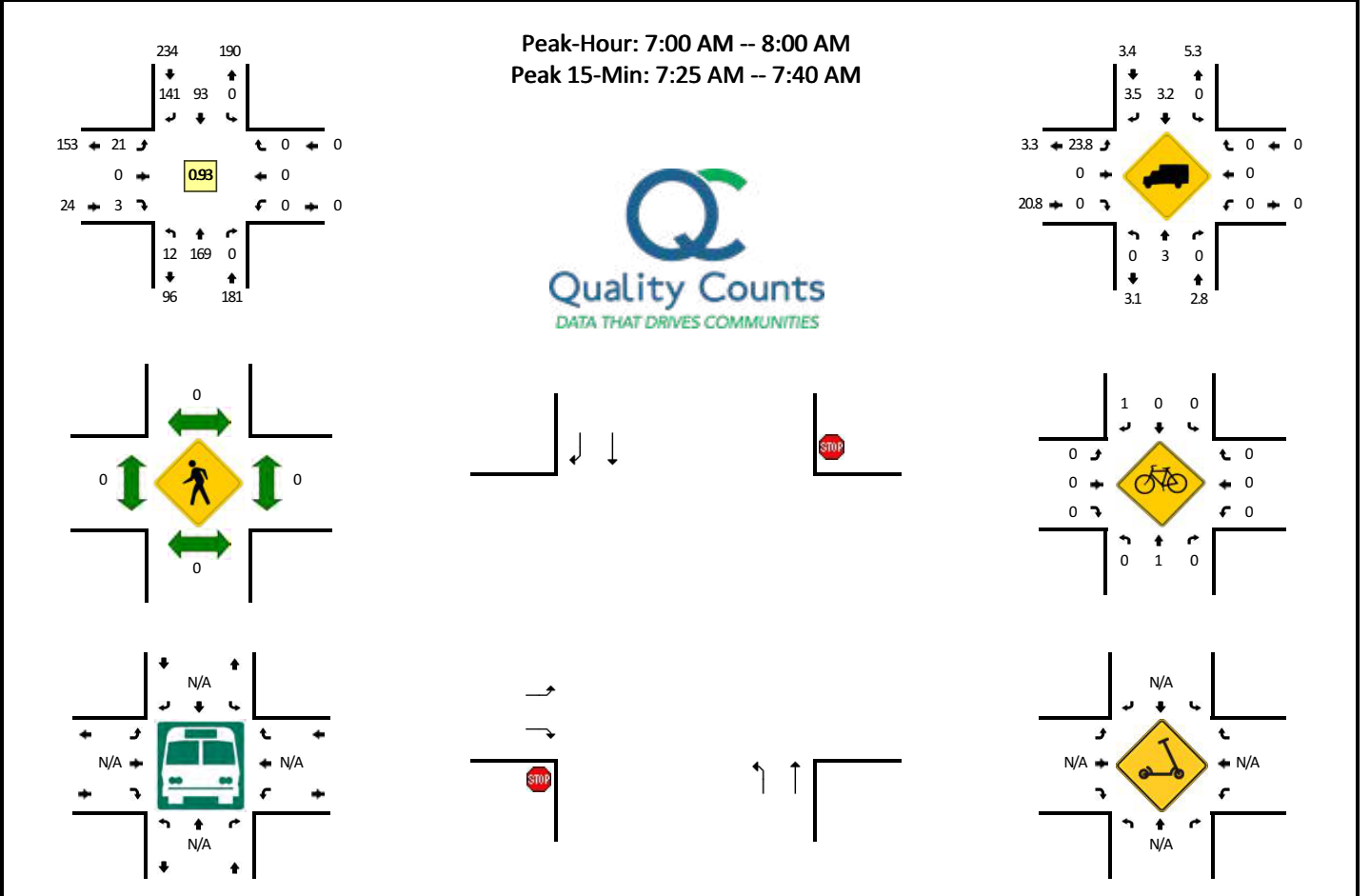
5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	78	0	13	0	0	46	6	0	9	22	0	0	174	
4:05 PM	0	0	0	0	76	0	19	0	0	85	4	0	6	28	0	0	218	
4:10 PM	0	0	0	0	92	0	19	0	0	69	4	0	6	30	0	0	220	
4:15 PM	0	0	0	0	99	0	27	0	0	62	6	0	4	28	0	0	226	
4:20 PM	0	0	0	0	71	0	22	0	0	50	5	0	6	31	0	0	185	
4:25 PM	0	0	0	0	71	0	20	0	0	58	4	0	7	21	0	0	181	
4:30 PM	0	0	0	0	88	0	14	0	0	36	3	0	6	35	0	0	182	
4:35 PM	0	0	0	0	82	0	9	0	0	38	7	0	2	19	0	0	157	
4:40 PM	0	0	0	0	73	0	18	0	0	52	3	0	11	18	0	1	176	
4:45 PM	0	0	0	0	61	0	9	0	0	49	3	0	3	22	0	0	147	
4:50 PM	0	0	0	0	74	0	24	0	0	30	2	0	1	18	0	0	149	
4:55 PM	0	0	0	0	58	1	17	0	0	29	2	0	6	28	0	0	141	2156
5:00 PM	0	0	0	0	50	0	15	0	0	32	7	0	4	21	0	0	129	2111
5:05 PM	0	0	0	0	59	1	18	0	0	27	3	0	7	16	0	0	131	2024
5:10 PM	0	0	0	0	41	0	11	0	0	27	5	0	0	21	0	0	105	1909
5:15 PM	0	0	0	0	56	0	12	0	0	34	4	0	4	13	0	0	123	1806
5:20 PM	0	0	0	0	45	0	11	0	0	28	2	0	6	18	0	0	110	1731
5:25 PM	0	0	0	0	43	0	8	0	0	25	5	0	7	10	0	0	98	1648
5:30 PM	0	0	0	0	34	0	13	0	0	36	3	0	3	9	0	0	98	1564
5:35 PM	0	0	0	0	59	1	11	0	0	28	5	0	4	10	0	0	118	1525
5:40 PM	0	0	0	0	27	0	12	0	0	22	6	0	3	12	0	0	82	1431
5:45 PM	0	0	0	0	45	0	14	0	0	21	0	0	2	6	0	0	88	1372
5:50 PM	0	0	0	0	36	0	14	0	0	15	3	0	2	11	0	0	81	1304
5:55 PM	0	0	0	0	37	0	16	0	0	21	3	0	5	14	0	0	96	1259

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	1068	0	260	0	0	864	56	0	64	344	0	0	2656
Heavy Trucks	0	0	0	0	28	0	44	0	0	44	8	0	0	44	0	0	168
Buses																	0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	0

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952621
DATE: Thu, Sep 22 2022

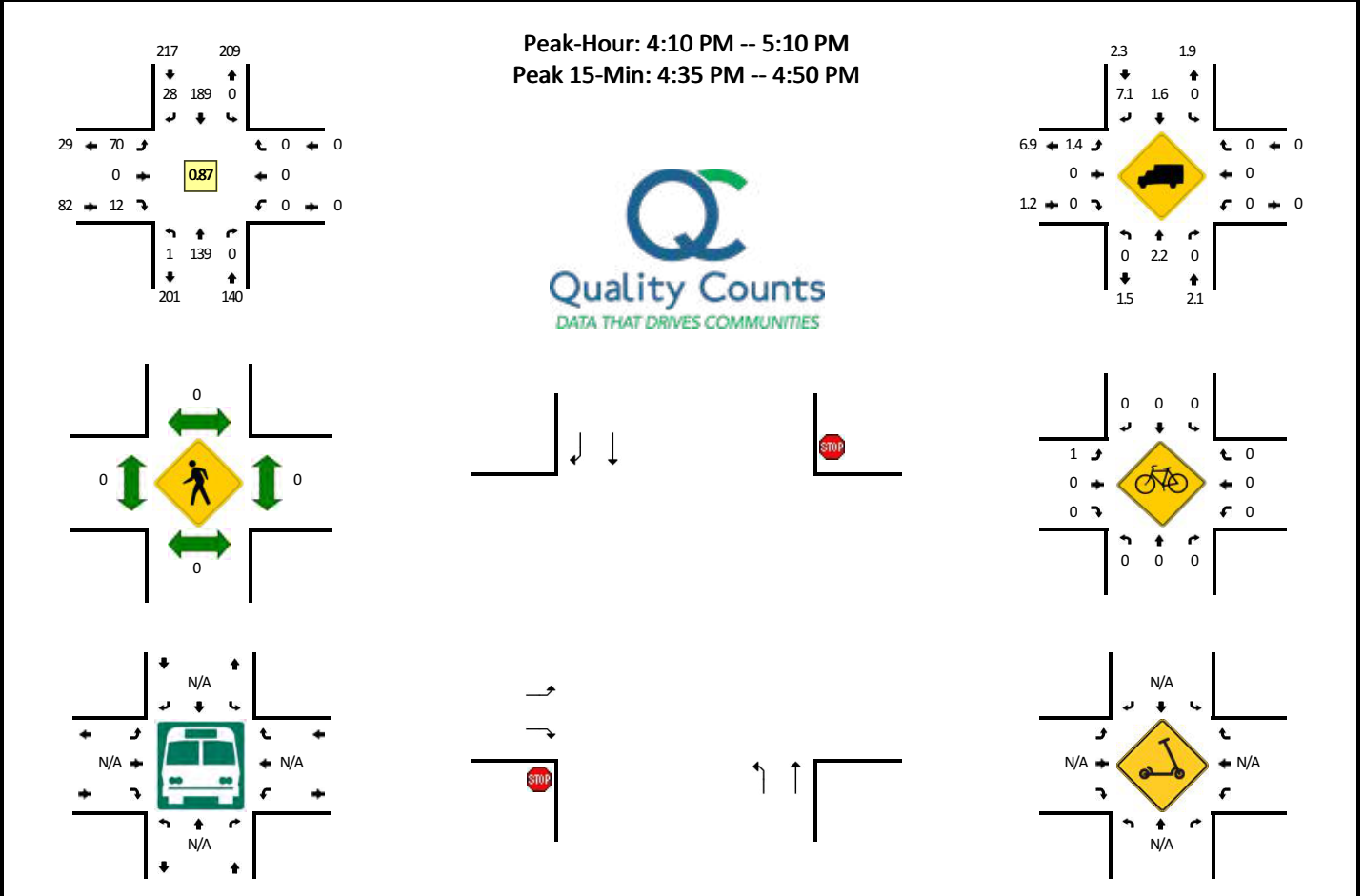


5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	0	0	0	8	16	0	0	0	0	0	0	0	0	0	38	
7:05 AM	2	15	0	0	0	7	12	0	3	0	1	0	0	0	0	0	40	
7:10 AM	0	10	0	0	0	15	10	0	2	0	0	0	0	0	0	0	37	
7:15 AM	1	15	0	0	0	6	9	0	1	0	0	0	0	0	0	0	32	
7:20 AM	2	23	0	0	0	3	9	0	2	0	0	0	0	0	0	0	39	
7:25 AM	2	15	0	0	0	2	19	0	2	0	0	0	0	0	0	0	40	
7:30 AM	0	20	0	0	0	4	11	0	2	0	0	0	0	0	0	0	37	
7:35 AM	0	17	0	0	0	9	14	0	1	0	0	0	0	0	0	0	41	
7:40 AM	2	6	0	0	0	11	11	0	1	0	1	0	0	0	0	0	32	
7:45 AM	2	11	0	0	0	10	12	0	2	0	0	0	0	0	0	0	37	
7:50 AM	1	11	0	0	0	9	11	0	2	0	1	0	0	0	0	0	35	
7:55 AM	0	12	0	0	0	9	7	0	3	0	0	0	0	0	0	0	31	439
8:00 AM	3	9	0	0	0	3	11	0	1	0	0	0	0	0	0	0	27	428
8:05 AM	1	6	0	0	0	5	20	0	0	0	1	0	0	0	0	0	33	421
8:10 AM	0	7	0	0	0	6	16	0	1	0	0	0	0	0	0	0	30	414
8:15 AM	0	3	0	0	0	10	15	0	0	0	0	0	0	0	0	0	28	410
8:20 AM	2	5	0	0	0	8	16	0	2	0	2	0	0	0	0	0	35	406
8:25 AM	2	9	0	0	0	3	7	0	2	0	1	0	0	0	0	0	24	390
8:30 AM	3	7	0	0	0	3	6	0	0	0	0	0	0	0	0	0	19	372
8:35 AM	0	9	0	0	0	4	18	0	0	0	0	0	0	0	0	0	31	362
8:40 AM	2	5	0	0	0	1	7	0	1	0	0	0	0	0	0	0	16	346
8:45 AM	1	5	0	0	0	5	5	0	0	0	0	0	0	0	0	0	16	325
8:50 AM	2	4	0	0	0	5	10	0	1	0	1	0	0	0	0	0	23	313
8:55 AM	0	5	0	0	0	6	6	0	2	0	1	0	0	0	0	0	20	302
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	208	0	0	0	60	176	0	20	0	0	0	0	0	0	0	472	
Heavy Trucks	0	4	0	0	0	4	12	0	4	0	0	0	0	0	0	0	24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952622
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	13	0	0	0	7	2	0	11	0	0	0	0	0	0	0	33	
4:05 PM	0	16	0	0	0	11	2	0	7	0	1	0	0	0	0	0	37	
4:10 PM	0	15	0	0	0	19	0	0	6	0	0	0	0	0	0	0	40	
4:15 PM	0	11	0	0	0	13	2	0	4	0	0	0	0	0	0	0	30	
4:20 PM	0	12	0	0	0	17	0	0	8	0	1	0	0	0	0	0	38	
4:25 PM	0	14	0	0	0	12	3	0	5	0	1	0	0	0	0	0	35	
4:30 PM	0	10	0	0	0	20	6	0	6	0	0	0	0	0	0	0	42	
4:35 PM	0	17	0	0	0	15	4	0	7	0	0	0	0	0	0	0	43	
4:40 PM	0	8	0	0	0	16	5	0	4	0	2	0	0	0	0	0	35	
4:45 PM	0	16	0	0	0	24	0	0	7	0	1	0	0	0	0	0	48	
4:50 PM	0	6	0	0	0	12	4	0	4	0	2	0	0	0	0	0	28	
4:55 PM	1	9	0	0	0	8	1	0	4	0	3	0	0	0	0	0	26	435
5:00 PM	0	12	0	0	0	14	2	0	4	0	1	0	0	0	0	0	33	435
5:05 PM	0	9	0	0	0	19	1	0	11	0	1	0	0	0	0	0	41	439
5:10 PM	0	9	0	0	0	10	2	0	2	0	1	0	0	0	0	0	24	423
5:15 PM	0	13	0	0	0	16	1	0	6	0	1	0	0	0	0	0	37	430
5:20 PM	0	5	0	0	0	15	2	0	3	0	1	0	0	0	0	0	26	418
5:25 PM	0	11	0	0	0	8	2	0	3	0	1	0	0	0	0	0	25	408
5:30 PM	0	5	0	0	0	14	3	0	1	0	0	0	0	0	0	0	23	389
5:35 PM	1	3	0	0	0	16	1	0	1	0	2	0	0	0	0	0	24	370
5:40 PM	1	9	0	0	0	8	2	0	1	0	0	0	0	0	0	0	21	356
5:45 PM	0	9	0	0	0	10	1	0	1	0	1	0	0	0	0	0	22	330
5:50 PM	0	5	0	0	0	9	0	0	1	0	1	0	0	0	0	0	16	318
5:55 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	303
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	164	0	0	0	220	36	0	72	0	12	0	0	0	0	0	504	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

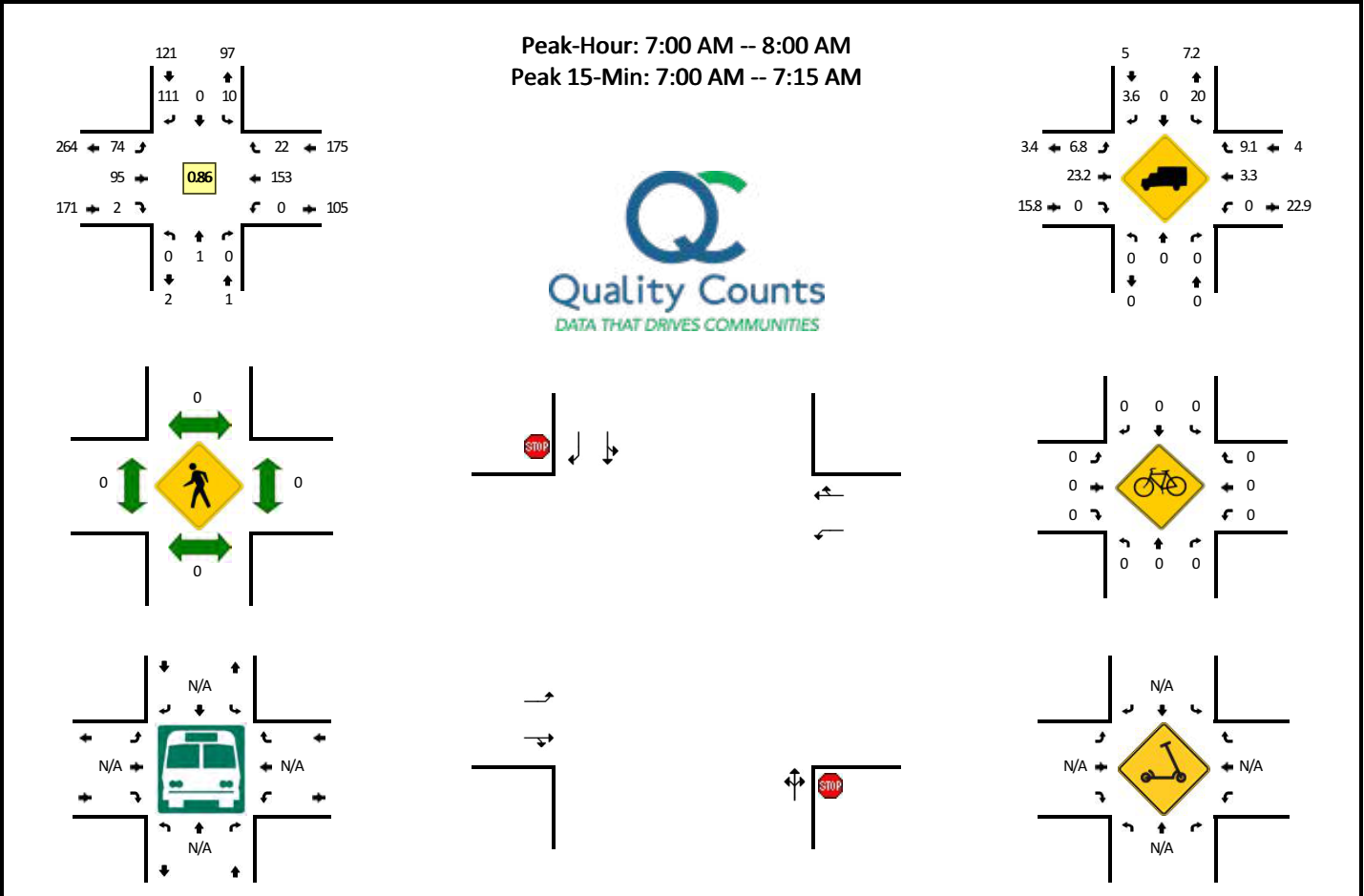
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952626
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	9	0	9	9	0	0	0	18	2	0	48	
7:05 AM	0	1	0	0	0	0	12	0	12	5	0	0	0	12	2	0	44	
7:10 AM	0	0	0	0	0	0	12	0	9	10	0	0	0	12	1	0	44	
7:15 AM	0	0	0	0	2	0	10	0	5	10	1	0	0	8	3	0	39	
7:20 AM	0	0	0	0	1	0	11	0	9	7	0	0	0	10	1	0	39	
7:25 AM	0	0	0	0	1	0	9	0	6	9	0	0	0	15	3	0	43	
7:30 AM	0	0	0	0	0	0	11	0	6	6	0	0	0	20	4	0	47	
7:35 AM	0	0	0	0	0	0	11	0	2	8	0	0	0	21	3	0	45	
7:40 AM	0	0	0	0	0	0	7	0	2	10	1	0	0	9	0	0	29	
7:45 AM	0	0	0	0	1	0	7	0	2	7	0	0	0	10	0	0	27	
7:50 AM	0	0	0	0	1	0	6	0	6	6	0	0	0	12	2	0	33	
7:55 AM	0	0	0	0	3	0	6	0	6	8	0	0	0	6	1	0	30	468
8:00 AM	0	0	0	0	1	0	3	0	4	10	0	0	0	11	1	0	30	450
8:05 AM	1	0	0	0	3	1	13	0	5	15	0	0	0	11	2	0	51	457
8:10 AM	0	0	0	0	0	0	9	0	3	12	0	0	0	13	2	0	39	452
8:15 AM	0	0	0	0	1	0	10	0	4	12	1	0	0	12	2	0	42	455
8:20 AM	0	0	0	0	0	0	3	0	5	7	0	0	1	10	0	0	26	442
8:25 AM	0	0	0	0	3	0	7	0	7	10	1	0	2	15	3	0	48	447
8:30 AM	0	0	0	0	1	0	3	0	4	13	0	1	0	7	3	0	32	432
8:35 AM	0	0	0	0	2	0	9	0	4	11	0	0	0	10	3	0	39	426
8:40 AM	0	0	0	0	3	0	11	0	7	12	0	0	0	10	4	0	47	444
8:45 AM	0	0	0	0	2	0	9	0	3	11	0	0	0	16	4	0	45	462
8:50 AM	0	0	0	0	2	0	3	0	6	5	0	0	0	8	0	0	24	453
8:55 AM	0	0	0	0	1	0	7	0	2	8	0	0	0	9	4	0	31	454
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	4	0	0	4	0	132	0	120	96	0	0	0	168	20	0	544	
Heavy Trucks	0	0	0	0	0	0	4	0	4	12	0	0	0	4	0	0	24	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

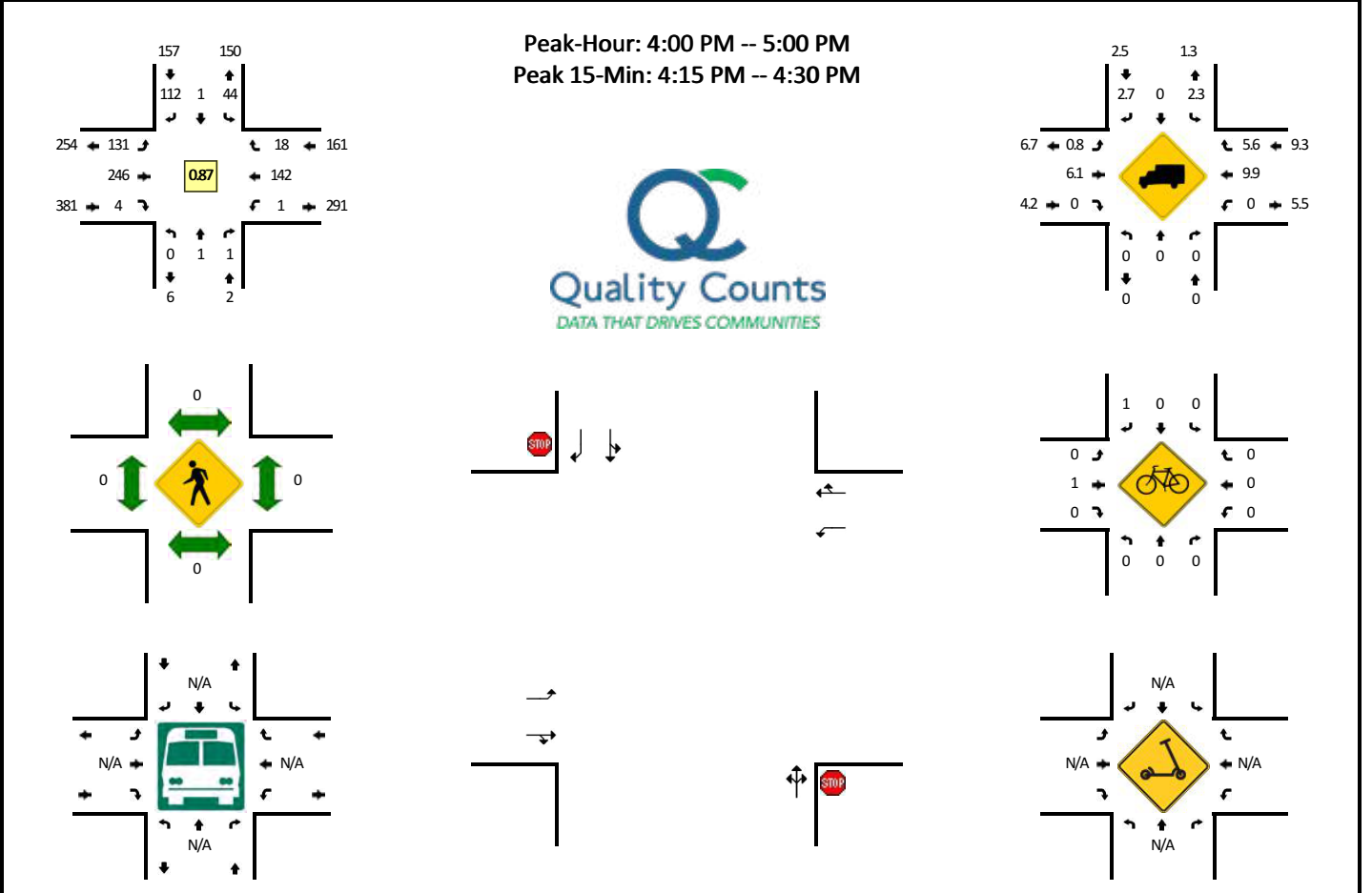
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952627
DATE: Thu, Sep 22 2022

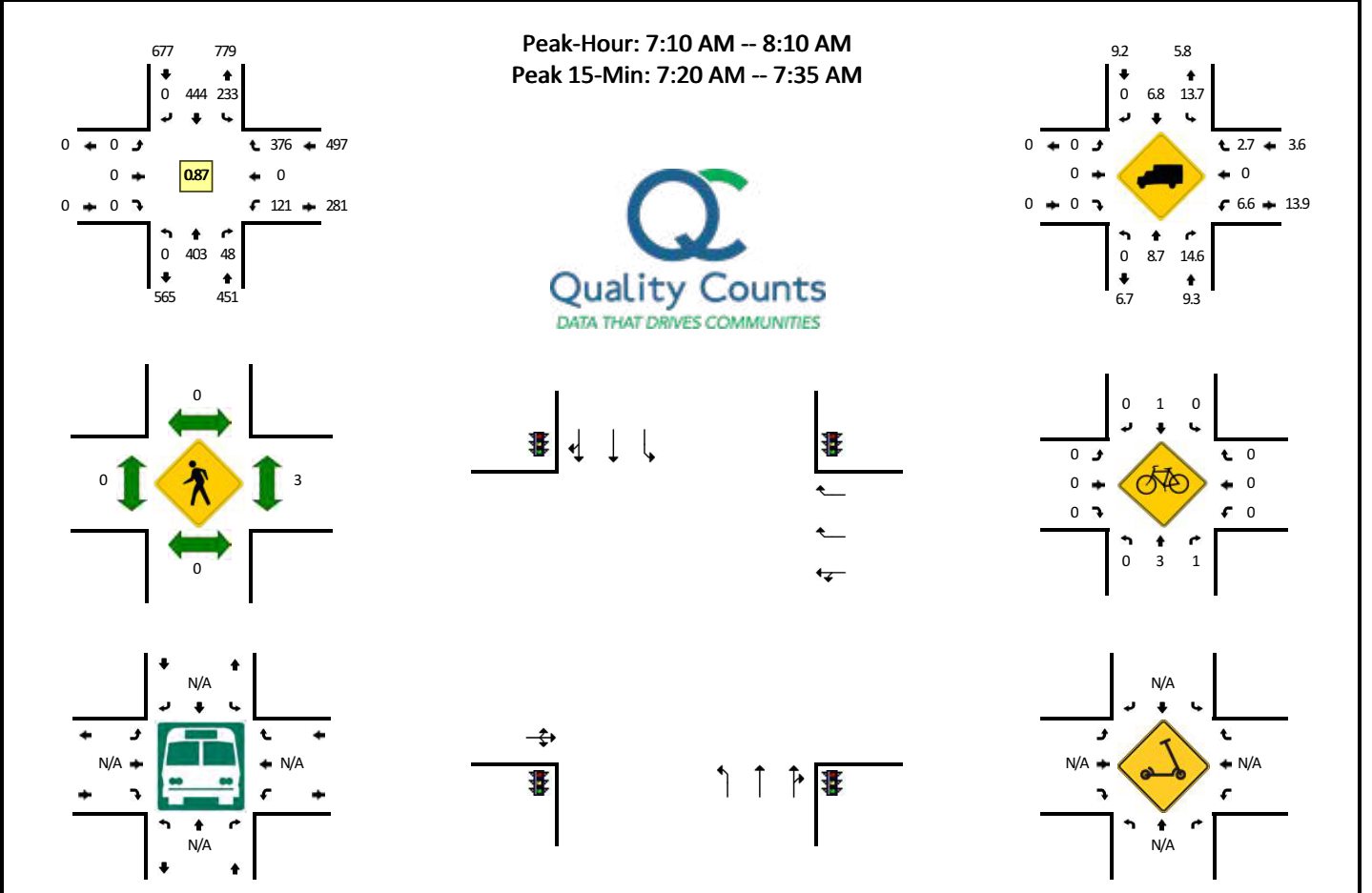


5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	0	0	0	0	1	0	10	0	11	16	0	0	0	15	1	0	54		
4:05 PM	0	0	0	0	3	0	9	0	12	12	1	0	0	0	15	3	0	55	
4:10 PM	0	0	0	0	1	0	12	0	8	16	1	0	0	0	10	2	0	50	
4:15 PM	0	0	0	0	5	0	12	0	15	21	0	0	0	0	16	1	0	70	
4:20 PM	0	0	0	0	4	1	10	0	19	24	0	0	0	0	9	4	0	71	
4:25 PM	0	0	1	0	5	0	16	0	11	23	0	0	0	0	5	0	0	61	
4:30 PM	0	0	0	0	2	0	9	0	8	22	0	0	0	0	12	2	0	55	
4:35 PM	0	0	0	0	4	0	3	0	9	28	0	0	0	0	12	2	0	58	
4:40 PM	0	0	0	0	3	0	6	0	5	23	1	0	1	6	2	0	47		
4:45 PM	0	1	0	0	4	0	9	0	6	21	0	0	0	17	0	0	58		
4:50 PM	0	0	0	0	3	0	15	0	9	16	0	0	0	13	0	0	56		
4:55 PM	0	0	0	0	9	0	1	0	18	24	1	0	0	12	1	0	66	701	
5:00 PM	0	0	1	0	3	0	12	0	12	13	0	0	0	10	1	0	52	699	
5:05 PM	0	0	0	0	2	0	7	0	10	11	0	0	0	8	3	0	41	685	
5:10 PM	0	0	0	0	1	0	4	0	18	18	0	0	0	14	1	0	56	691	
5:15 PM	0	0	0	0	2	0	6	0	15	19	0	0	0	4	3	0	49	670	
5:20 PM	0	0	0	0	3	0	12	0	12	20	0	0	0	1	1	0	49	648	
5:25 PM	0	0	0	0	3	0	7	0	9	17	0	0	0	6	3	0	45	632	
5:30 PM	2	0	0	0	0	0	9	0	12	13	0	0	0	7	0	0	43	620	
5:35 PM	0	0	0	0	0	0	2	0	13	24	0	0	0	4	1	0	44	606	
5:40 PM	0	0	0	0	2	1	4	0	12	21	0	0	0	2	1	0	43	602	
5:45 PM	0	0	0	0	4	0	6	0	16	18	0	0	0	12	1	0	57	601	
5:50 PM	0	0	0	0	2	0	6	0	11	17	0	0	0	3	2	0	41	586	
5:55 PM	0	0	0	0	2	0	7	0	14	7	0	0	0	8	1	0	39	559	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	4	0	56	4	152	0	180	272	0	0	0	120	20	0	808		
Heavy Trucks	0	0	0	0	0	0	4	0	4	24	0	0	0	28	0	0	60		
Buses																	0		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4		
Scoters																			

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952628
DATE: Thu, Sep 22 2022

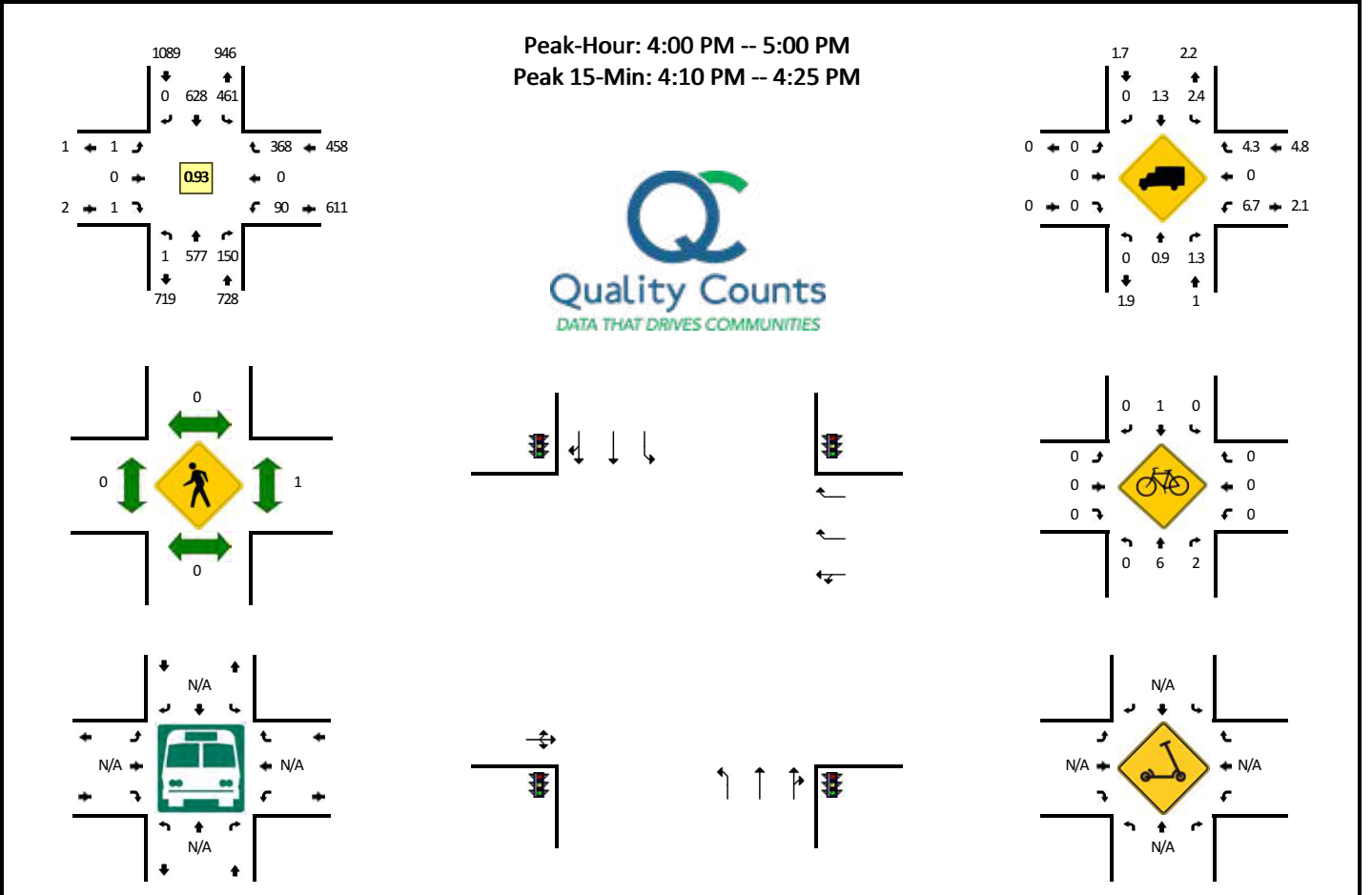


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	22	3	0	21	32	0	0	0	0	0	0	8	0	22	0	108	
7:05 AM	0	19	2	0	16	36	0	0	0	0	0	0	5	0	30	0	108	
7:10 AM	0	31	1	0	27	39	0	0	0	0	0	0	16	0	39	0	153	
7:15 AM	0	40	4	0	20	32	0	0	0	0	0	0	11	0	30	0	137	
7:20 AM	0	39	1	0	23	45	0	0	0	0	0	0	10	0	39	0	157	
7:25 AM	0	50	2	0	21	19	0	0	0	0	0	0	17	0	48	0	157	
7:30 AM	0	48	2	0	26	42	0	0	0	0	0	0	4	0	29	0	151	
7:35 AM	0	26	5	0	17	32	0	0	0	0	0	0	11	0	38	0	129	
7:40 AM	0	40	8	0	19	32	0	0	0	0	0	0	8	0	30	0	137	
7:45 AM	0	31	5	0	20	25	0	0	0	0	0	0	9	0	35	0	125	
7:50 AM	0	23	3	0	12	45	0	0	0	0	0	0	10	0	20	0	113	
7:55 AM	0	37	4	0	18	51	0	0	0	0	0	0	5	0	20	0	135	
8:00 AM	0	21	7	0	13	31	0	0	0	0	0	0	10	0	22	0	104	1610
8:05 AM	0	17	6	0	17	51	0	0	0	0	0	0	10	0	26	0	127	1606
8:10 AM	0	36	0	0	31	21	0	0	0	0	0	0	9	0	26	0	123	1595
8:15 AM	0	25	8	0	7	29	0	0	0	0	0	0	9	0	22	0	100	1558
8:20 AM	0	30	5	0	15	30	0	0	0	0	0	0	6	0	24	0	110	1511
8:25 AM	0	22	3	0	13	25	0	0	0	0	0	0	11	0	24	0	98	1452
8:30 AM	0	18	4	0	20	24	0	0	0	0	0	0	6	0	25	0	97	1398
8:35 AM	0	23	5	0	18	24	0	0	0	0	0	0	7	0	25	0	102	1371
8:40 AM	0	25	5	0	21	38	0	0	0	0	0	0	4	0	19	0	112	1346
8:45 AM	0	30	4	0	11	35	0	0	0	0	0	0	6	0	27	0	113	1334
8:50 AM	0	21	4	0	25	25	0	0	0	0	0	0	9	0	18	0	102	1323
8:55 AM	0	24	5	0	25	26	0	0	0	0	0	0	10	0	20	0	110	1298
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	548	20	0	280	424	0	0	0	0	0	0	124	0	464	0	1860	
Heavy Trucks	0	44	0	0	44	24	0	0	0	0	0	0	4	0	4	0	120	
Buses																		
Pedestrians		0				0					0			0			0	
Bicycles	0	0	4		0	0	0			0	0	0	0	0	0		4	
Scoters																		

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952629
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	49	19	0	42	52	0	0	0	0	0	0	6	0	22	0	190	
4:05 PM	0	54	11	0	40	43	0	0	0	0	0	0	11	0	30	0	189	
4:10 PM	0	43	11	0	43	55	0	0	0	0	0	0	15	0	34	0	201	
4:15 PM	0	63	15	0	45	52	0	0	0	0	0	0	5	0	30	0	210	
4:20 PM	0	56	13	0	41	55	0	0	0	0	0	0	7	0	29	0	201	
4:25 PM	0	56	16	0	28	45	0	0	0	0	0	0	14	0	29	0	188	
4:30 PM	0	53	9	0	42	46	0	0	0	0	0	0	3	0	44	0	197	
4:35 PM	1	43	15	0	32	63	0	0	0	0	0	0	4	0	33	0	191	
4:40 PM	0	44	17	0	36	66	0	0	1	0	1	0	8	0	35	0	208	
4:45 PM	0	35	8	0	36	54	0	0	0	0	0	0	3	0	30	0	166	
4:50 PM	0	52	10	0	41	59	0	0	0	0	0	0	4	0	27	0	193	
4:55 PM	0	29	6	0	35	38	0	0	0	0	0	0	10	0	25	0	143	2277
5:00 PM	0	34	7	0	28	40	0	0	0	0	0	0	13	0	30	0	152	2239
5:05 PM	0	41	7	0	29	55	0	0	0	0	0	0	4	0	26	0	162	2212
5:10 PM	0	30	7	0	31	36	0	0	0	0	0	0	5	0	26	0	135	2146
5:15 PM	0	38	10	0	25	41	0	0	0	0	0	0	2	0	24	0	140	2076
5:20 PM	0	35	5	0	37	34	0	0	0	0	0	0	3	0	24	0	138	2013
5:25 PM	0	33	12	0	36	32	0	0	0	0	0	0	5	0	30	0	148	1973
5:30 PM	0	30	7	0	28	23	0	0	0	0	0	0	5	0	19	0	112	1888
5:35 PM	0	39	4	0	23	22	0	0	0	0	0	0	3	0	13	0	104	1801
5:40 PM	0	13	10	0	28	30	0	0	0	0	0	0	4	0	18	0	103	1696
5:45 PM	0	26	9	0	26	28	0	0	0	0	0	0	3	0	17	0	109	1639
5:50 PM	0	37	3	0	31	26	0	0	0	0	0	0	5	0	26	0	128	1574
5:55 PM	0	32	6	0	27	30	0	0	0	0	0	0	5	0	17	0	117	1548
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	648	156	0	516	648	0	0	0	0	0	0	108	0	372	0	2448	
Heavy Trucks	0	4	4	0	12	12	0	0	0	0	0	0	0	0	24	0	56	
Buses																	0	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	8		0	0	0		0	0	0		0	0	0		8	
Scoters																		

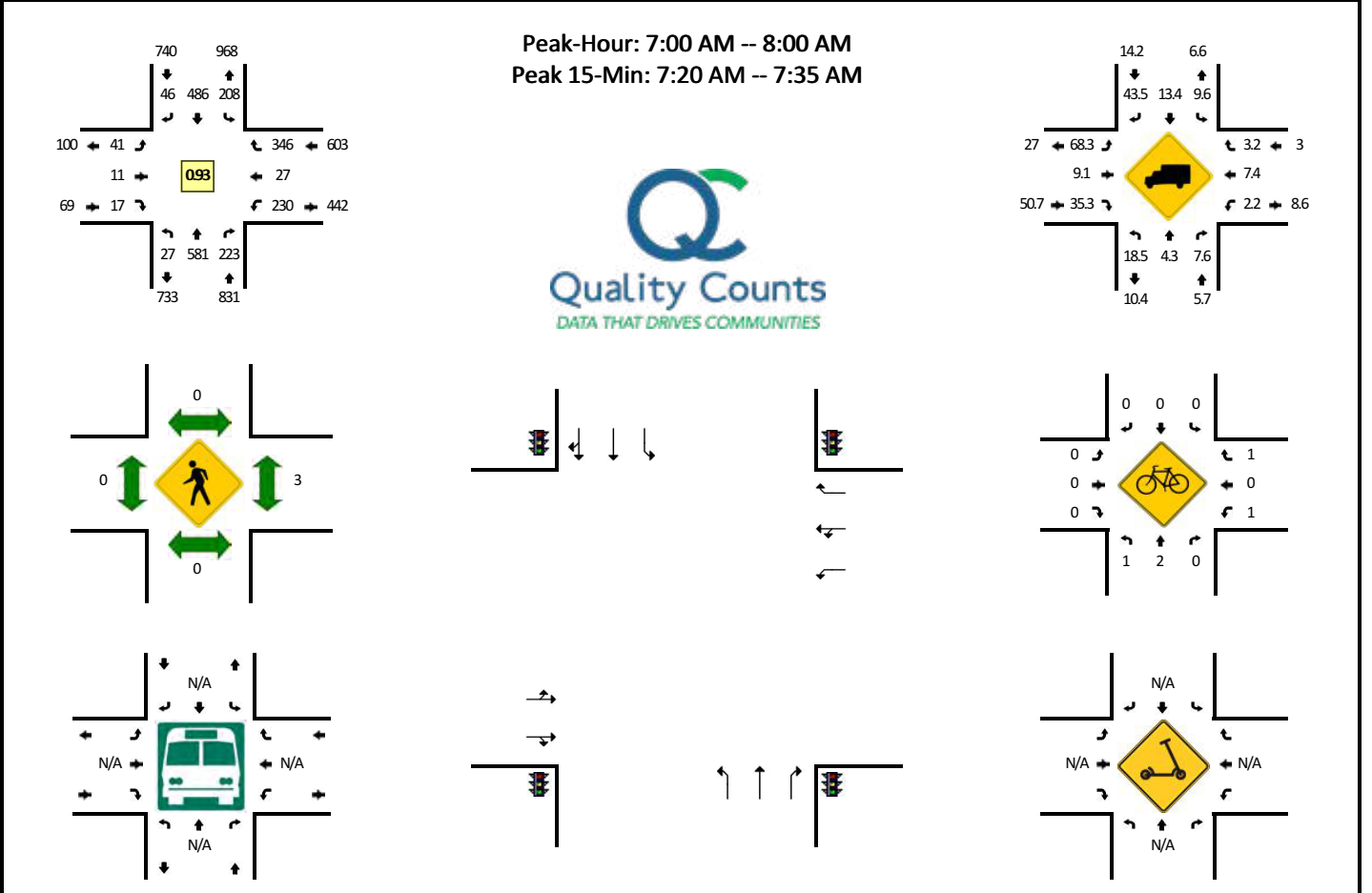
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952630
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	44	12	0	17	33	6	0	3	2	2	0	22	3	24	0	168	
7:05 AM	2	35	5	0	26	50	2	0	5	1	0	0	23	0	17	0	166	
7:10 AM	2	58	15	0	24	49	5	0	2	2	2	0	15	1	28	0	203	
7:15 AM	3	48	20	0	11	39	5	0	0	0	2	0	15	0	27	0	170	
7:20 AM	3	52	20	0	18	47	4	0	4	0	2	0	21	3	28	0	202	
7:25 AM	2	58	36	0	18	35	1	0	5	1	1	0	11	3	25	0	196	
7:30 AM	3	52	29	0	15	36	5	0	5	1	1	0	20	0	37	0	204	
7:35 AM	2	51	19	0	14	40	5	0	4	2	0	0	18	5	30	0	190	
7:40 AM	2	45	21	0	21	48	2	0	5	1	1	0	16	0	41	0	203	
7:45 AM	4	61	17	0	9	36	3	0	1	1	1	0	20	3	35	0	191	
7:50 AM	3	36	20	0	21	40	4	0	6	0	3	0	21	2	27	0	183	
7:55 AM	1	41	9	0	14	33	4	0	1	0	2	0	28	7	27	0	167	2243
8:00 AM	6	24	11	0	19	37	1	0	7	2	3	0	26	4	14	0	154	2229
8:05 AM	4	35	7	0	17	45	2	0	3	2	3	0	18	4	29	0	169	2232
8:10 AM	4	48	13	0	20	42	2	0	4	0	3	0	9	3	20	0	168	2197
8:15 AM	5	40	9	0	11	27	5	0	5	2	1	0	14	5	29	0	153	2180
8:20 AM	5	46	11	0	11	40	1	0	1	1	1	0	17	5	18	0	157	2135
8:25 AM	7	32	7	0	18	29	4	0	3	3	2	0	10	3	16	0	134	2073
8:30 AM	2	36	11	0	23	36	2	0	3	1	4	0	15	1	21	0	155	2024
8:35 AM	6	38	8	0	16	30	0	0	6	2	3	0	6	1	17	0	133	1967
8:40 AM	5	27	14	0	21	50	2	0	4	2	3	0	12	7	29	0	176	1940
8:45 AM	6	36	10	0	13	36	2	0	3	2	6	0	8	3	29	0	154	1903
8:50 AM	8	35	11	0	9	34	2	0	5	3	4	0	14	3	31	0	159	1879
8:55 AM	2	31	9	0	13	40	3	0	3	3	3	0	6	7	23	0	143	1855
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	648	340	0	204	472	40	0	56	8	16	0	208	24	360	0	2408	
Heavy Trucks	4	28	20	0	16	68	16	0	40	0	4	0	8	0	12	0	216	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4	
Scooters																		

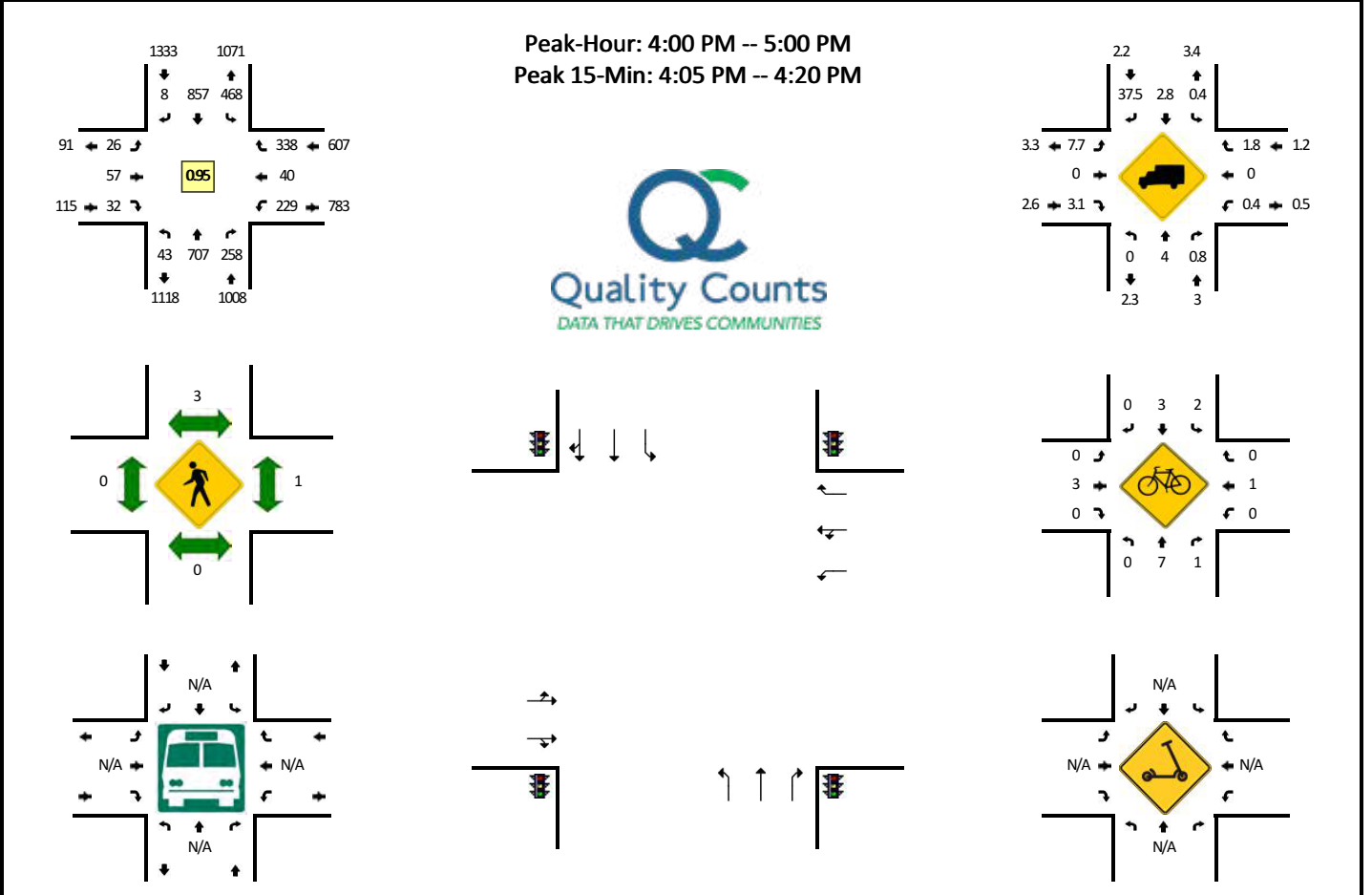
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952631
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	65	19	0	33	82	2	0	3	9	0	0	16	4	24	0	263	
4:05 PM	4	57	24	0	27	59	1	0	2	5	2	0	24	6	35	0	246	
4:10 PM	4	49	17	0	62	80	1	0	4	4	3	0	16	6	34	0	280	
4:15 PM	3	75	34	0	32	73	0	0	4	6	3	0	19	2	33	0	284	
4:20 PM	3	54	27	0	36	69	1	0	0	3	0	0	20	4	21	0	238	
4:25 PM	3	52	16	0	62	66	0	0	2	2	2	0	19	4	21	0	249	
4:30 PM	5	77	26	0	44	75	0	0	1	6	1	0	12	4	24	0	275	
4:35 PM	6	59	21	0	34	72	1	0	3	8	8	0	24	0	31	0	267	
4:40 PM	5	54	20	0	48	81	2	0	2	1	1	0	21	2	26	0	263	
4:45 PM	0	62	23	0	27	82	0	0	2	3	5	0	19	0	33	0	256	
4:50 PM	4	58	16	0	23	58	0	0	2	5	3	0	25	5	25	0	224	
4:55 PM	0	45	15	0	40	60	0	0	1	5	4	0	14	3	31	0	218	3063
5:00 PM	1	50	20	0	27	59	1	0	1	3	6	0	22	2	32	0	224	3024
5:05 PM	3	59	16	0	35	56	0	0	3	5	2	0	15	6	32	0	232	3010
5:10 PM	5	56	10	0	41	42	2	0	2	2	3	0	21	4	19	0	207	2937
5:15 PM	2	54	18	0	39	58	0	0	0	1	1	0	9	6	20	0	208	2861
5:20 PM	1	39	13	0	32	64	1	0	4	3	1	0	18	5	29	0	210	2833
5:25 PM	1	38	21	0	29	46	1	0	2	3	3	0	14	5	24	0	187	2771
5:30 PM	2	39	21	0	34	39	2	0	0	4	1	0	12	2	12	0	168	2664
5:35 PM	3	32	21	0	16	31	0	0	0	5	3	0	12	1	21	0	145	2542
5:40 PM	1	37	10	0	40	67	2	0	2	1	2	0	12	3	21	0	198	2477
5:45 PM	2	20	9	0	23	44	0	0	4	5	1	0	14	3	13	0	138	2359
5:50 PM	1	45	15	0	26	37	0	0	0	0	1	0	12	1	13	0	151	2286
5:55 PM	2	40	20	0	14	53	0	0	0	2	5	0	11	5	13	0	165	2233
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	724	300	0	484	848	8	0	40	60	32	0	236	56	408	0	3240	
Heavy Trucks	0	24	0	0	8	40	8	0	4	0	0	0	0	0	12	0	96	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	4	4		0	4	0		0	0	0		0	0	0		12	
Scoters																		

Comments:

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
 Intersection: Federal Wy / Technology Ln
 City, State: Boise, Idaho
 Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
 Site Code : 00000000
 Start Date : 4/26/2022
 Page No : 1

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
05:00 AM	57	14	0	71	0	0	0	0	1	1	0	2	73
05:15 AM	111	35	0	146	0	1	0	1	1	7	0	8	155
05:30 AM	127	61	0	188	2	0	0	2	2	8	0	10	200
05:45 AM	137	77	0	214	6	0	0	6	1	22	0	23	243
Total	432	187	0	619	8	1	0	9	5	38	0	43	671
06:00 AM	67	19	0	86	2	3	0	5	2	23	0	25	116
06:15 AM	62	32	2	96	1	2	0	3	2	25	0	27	126
06:30 AM	56	33	0	89	1	0	0	1	1	25	0	26	116
06:45 AM	81	28	2	111	0	1	0	1	0	24	3	27	139
Total	266	112	4	382	4	6	0	10	5	97	3	105	497
07:00 AM	74	16	0	90	1	1	0	2	2	12	0	14	106
07:15 AM	85	24	0	109	1	0	0	1	0	4	0	4	114
07:30 AM	118	33	2	153	1	0	0	1	1	5	0	6	160
07:45 AM	168	30	1	199	0	1	0	1	0	14	0	14	214
Total	445	103	3	551	3	2	0	5	3	35	0	38	594
08:00 AM	170	30	0	200	0	0	0	0	0	15	0	15	215
08:15 AM	146	28	0	174	0	1	0	1	0	14	0	14	189
08:30 AM	124	27	2	153	1	0	0	1	0	22	0	22	176
08:45 AM	154	20	2	176	0	0	0	0	1	24	1	26	202
Total	594	105	4	703	1	1	0	2	1	75	1	77	782
09:00 AM	117	24	0	141	0	0	0	0	0	14	0	14	155
09:15 AM	88	25	1	114	1	1	0	2	2	16	1	19	135
09:30 AM	56	11	0	67	1	0	0	1	1	19	0	20	88
09:45 AM	62	5	1	68	0	0	0	0	0	19	0	19	87
Total	323	65	2	390	2	1	0	3	3	68	1	72	465
10:00 AM	36	10	0	46	1	0	0	1	0	18	0	18	65
10:15 AM	31	3	0	34	2	0	0	2	0	18	0	18	54
10:30 AM	35	11	0	46	2	1	0	3	0	20	0	20	69
10:45 AM	27	8	1	36	3	1	0	4	0	28	0	28	68
Total	129	32	1	162	8	2	0	10	0	84	0	84	256
11:00 AM	28	2	0	30	1	0	0	1	0	42	0	42	73
11:15 AM	38	9	1	48	3	0	0	3	0	29	0	29	80
11:30 AM	39	6	0	45	2	0	0	2	0	41	0	41	88
11:45 AM	33	7	0	40	2	0	0	2	0	54	0	54	96
Total	138	24	1	163	8	0	0	8	0	166	0	166	337
12:00 PM	40	11	0	51	2	0	1	3	1	46	0	47	101
12:15 PM	40	7	0	47	1	0	0	1	0	43	0	43	91
12:30 PM	34	9	0	43	0	0	1	1	0	38	0	38	82
12:45 PM	52	10	0	62	7	0	1	8	0	33	0	33	103
Total	166	37	0	203	10	0	3	13	1	160	0	161	377
01:00 PM	50	11	0	61	5	1	1	7	0	29	0	29	97
01:15 PM	39	3	0	42	1	1	1	3	0	31	0	31	76
01:30 PM	36	3	0	39	2	0	1	3	0	30	0	30	72
01:45 PM	25	5	0	30	2	0	0	2	0	21	0	21	53
Total	150	22	0	172	10	2	3	15	0	111	0	111	298

L2 Data Collection

L2DataCollection.com

Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
 Intersection: Federal Wy / Technology Ln
 City, State: Boise, Idaho
 Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
 Site Code : 00000000
 Start Date : 4/26/2022
 Page No : 2

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
02:00 PM	29	8	0	37	1	0	0	1	0	38	0	38	76
02:15 PM	20	6	0	26	3	1	3	7	0	43	0	43	76
02:30 PM	22	7	0	29	3	0	0	3	0	52	0	52	84
02:45 PM	20	2	0	22	0	1	1	2	1	44	0	45	69
Total	91	23	0	114	7	2	4	13	1	177	0	178	305
03:00 PM	15	6	0	21	6	0	0	6	0	63	0	63	90
03:15 PM	21	3	0	24	4	1	0	5	0	69	0	69	98
03:30 PM	21	5	0	26	11	2	0	13	1	78	0	79	118
03:45 PM	12	4	0	16	2	0	0	2	0	109	0	109	127
Total	69	18	0	87	23	3	0	26	1	319	0	320	433
04:00 PM	14	5	0	19	8	2	1	11	0	169	0	169	199
04:15 PM	10	4	0	14	6	4	2	12	0	148	0	148	174
04:30 PM	23	1	0	24	17	3	3	23	0	223	0	223	270
04:45 PM	22	1	0	23	7	0	0	7	0	109	0	109	139
Total	69	11	0	80	38	9	6	53	0	649	0	649	782
05:00 PM	25	4	0	29	4	2	1	7	0	164	0	164	200
05:15 PM	19	6	0	25	6	1	1	8	0	125	0	125	158
05:30 PM	35	9	0	44	9	2	1	12	0	112	0	112	168
05:45 PM	39	4	0	43	4	1	0	5	1	133	0	134	182
Total	118	23	0	141	23	6	3	32	1	534	0	535	708
06:00 PM	24	4	0	28	5	0	0	5	0	129	0	129	162
06:15 PM	26	3	0	29	2	1	1	4	1	81	0	82	115
06:30 PM	7	3	0	10	1	0	0	1	0	84	0	84	95
06:45 PM	9	1	0	10	1	0	0	1	0	55	0	55	66
Total	66	11	0	77	9	1	1	11	1	349	0	350	438
07:00 PM	8	0	0	8	0	0	0	0	0	48	0	48	56
07:15 PM	9	0	0	9	2	0	1	3	0	46	0	46	58
07:30 PM	5	1	0	6	1	0	0	1	0	28	0	28	35
07:45 PM	4	1	0	5	0	0	0	0	0	18	0	18	23
Total	26	2	0	28	3	0	1	4	0	140	0	140	172
Grand Total	3082	775	15	3872	157	36	21	214	22	3002	5	3029	7115
Apprch %	79.6	20	0.4		73.4	16.8	9.8		0.7	99.1	0.2		
Total %	43.3	10.9	0.2	54.4	2.2	0.5	0.3	3	0.3	42.2	0.1	42.6	

Type of report: Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	17	10	0	0	0	0	0	0	0	0	0	0	0	27
01:00 AM	0	18	10	0	0	0	0	0	0	0	0	0	0	0	28
02:00 AM	0	4	1	0	0	2	0	0	0	0	0	0	0	0	7
03:00 AM	0	10	3	0	0	0	0	0	8	1	0	0	0	0	22
04:00 AM	0	17	10	0	0	0	0	0	2	0	0	0	0	0	29
05:00 AM	0	61	41	0	1	2	0	0	3	0	0	0	0	0	108
06:00 AM	1	18	13	0	1	3	0	2	5	0	0	0	0	0	43
07:00 AM	0	31	22	0	3	1	0	0	1	0	0	0	0	0	58
08:00 AM	0	42	29	0	5	1	0	3	5	1	0	0	0	0	86
09:00 AM	1	41	30	0	7	1	1	2	3	0	0	0	0	0	86
10:00 AM	2	111	75	1	5	2	1	2	3	0	0	0	0	0	202
11:00 AM	0	108	73	0	3	2	1	2	2	0	0	0	0	0	191
12:00 PM	1	81	53	0	2	4	0	0	5	1	0	0	0	0	147
01:00 PM	0	121	80	1	5	0	0	3	3	0	0	0	0	0	213
02:00 PM	9	204	136	0	2	0	0	3	4	1	0	0	0	0	359
03:00 PM	10	395	266	0	1	0	0	0	0	1	0	0	0	0	673
04:00 PM	9	414	277	0	5	0	0	1	0	0	0	0	0	0	706
05:00 PM	10	239	156	0	1	0	0	0	0	2	0	0	0	0	408
06:00 PM	4	100	64	0	0	1	0	0	0	0	0	0	0	0	169
07:00 PM	0	33	26	0	1	0	0	0	1	0	1	0	0	0	62
08:00 PM	0	15	8	0	0	0	0	0	0	0	0	0	0	0	23
09:00 PM	1	12	8	0	0	0	0	0	0	0	0	0	0	0	21
10:00 PM	0	12	7	0	0	1	0	0	0	0	0	0	0	0	20
11:00 PM	1	8	4	0	0	0	0	0	0	0	0	0	0	0	13
Day Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															
AM Peak	10:00 AM	10:00 AM	10:00 AM	10:00 AM	9:00 AM	6:00 AM	9:00 AM	8:00 AM	3:00 AM	3:00 AM	12:00 AM	12:00 AM	12:00 AM		10:00 AM
Volume	2	111	75	1	7	3	1	3	8	1	0	0	0		202
PM Peak	3:00 PM	4:00 PM	4:00 PM	1:00 PM	1:00 PM	12:00 PM	12:00 PM	1:00 PM	12:00 PM	5:00 PM	7:00 PM	12:00 PM	12:00 PM		4:00 PM
Volume	10	414	277	1	5	4	0	3	5	2	1	0	0		706

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				27		27			27	
01:00 AM				28		28			28	
02:00 AM				7		7			7	
03:00 AM				22		22			22	
04:00 AM				29		29			29	
05:00 AM				108		108			108	
06:00 AM				43		43			43	
07:00 AM				58		58			58	
08:00 AM				86		86			86	
09:00 AM				86		86			86	
10:00 AM				202		202			202	
11:00 AM				191		191			191	
12:00 PM				147		147			147	
01:00 PM				213		213			213	
02:00 PM				359		359			359	
03:00 PM				673		673			673	
04:00 PM				706		706			706	
05:00 PM				408		408			408	
06:00 PM				169		169			169	
07:00 PM				62		62			62	
08:00 PM				23		23			23	
09:00 PM				21		21			21	
10:00 PM				20		20			20	
11:00 PM				13		13			13	
Day Total				3701		3701			3701	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				10:00 AM 202		10:00 AM 202			10:00 AM 202	
PM Peak Volume				4:00 PM 706		4:00 PM 706			4:00 PM 706	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB, SB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	23	12	0	1	0	0	0	0	0	0	0	0	0	36
01:00 AM	0	22	10	0	0	0	0	0	0	0	0	0	0	0	32
02:00 AM	0	14	5	0	0	2	0	0	1	0	0	0	0	0	22
03:00 AM	0	55	34	0	1	0	0	0	8	1	0	0	0	0	99
04:00 AM	5	395	261	0	4	1	0	1	2	0	0	0	0	0	669
05:00 AM	10	289	195	0	5	3	0	1	5	0	0	0	0	0	508
06:00 AM	11	374	250	0	4	4	0	3	7	0	0	0	0	0	653
07:00 AM	7	487	328	0	9	1	0	0	6	1	0	0	0	0	839
08:00 AM	8	261	175	0	9	1	0	4	6	2	0	0	0	0	466
09:00 AM	4	139	94	0	13	3	2	5	3	0	0	0	0	0	263
10:00 AM	5	213	141	1	12	2	1	4	9	1	0	0	0	0	389
11:00 AM	2	227	150	0	6	3	1	4	6	2	0	0	0	0	401
12:00 PM	1	181	120	0	5	6	0	1	11	1	0	0	0	0	326
01:00 PM	0	180	118	1	10	1	0	6	7	0	0	0	0	0	323
02:00 PM	10	281	188	0	3	0	0	5	7	3	0	0	0	0	497
03:00 PM	10	445	298	0	5	0	0	0	1	1	0	0	0	0	760
04:00 PM	9	507	335	0	7	1	0	2	0	0	0	0	0	0	861
05:00 PM	11	279	180	0	2	0	0	0	0	2	0	0	0	0	474
06:00 PM	6	118	76	0	1	1	0	0	1	0	0	0	0	0	203
07:00 PM	0	44	32	0	2	0	0	0	2	0	1	0	0	0	81
08:00 PM	0	24	11	0	0	0	0	0	1	0	0	0	0	0	36
09:00 PM	1	19	10	0	1	0	0	0	0	0	0	0	0	0	31
10:00 PM	0	17	11	0	1	1	0	0	1	0	0	0	0	0	31
11:00 PM	1	9	4	0	1	0	0	0	0	0	0	0	0	0	15
Day Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															
AM Peak	6:00 AM	7:00 AM	7:00 AM	10:00 AM	9:00 AM	6:00 AM	9:00 AM	9:00 AM	10:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	7:00 AM
Volume	11	487	328	1	13	4	2	5	9	2	0	0	0	0	839
PM Peak	5:00 PM	4:00 PM	4:00 PM	1:00 PM	1:00 PM	12:00 PM	12:00 PM	1:00 PM	12:00 PM	2:00 PM	7:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM
Volume	11	507	335	1	10	6	0	6	11	3	1	0	0	0	861

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB, SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB, SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				36		36			36	
01:00 AM				32		32			32	
02:00 AM				22		22			22	
03:00 AM				99		99			99	
04:00 AM				669		669			669	
05:00 AM				508		508			508	
06:00 AM				653		653			653	
07:00 AM				839		839			839	
08:00 AM				466		466			466	
09:00 AM				263		263			263	
10:00 AM				389		389			389	
11:00 AM				401		401			401	
12:00 PM				326		326			326	
01:00 PM				323		323			323	
02:00 PM				497		497			497	
03:00 PM				760		760			760	
04:00 PM				861		861			861	
05:00 PM				474		474			474	
06:00 PM				203		203			203	
07:00 PM				81		81			81	
08:00 PM				36		36			36	
09:00 PM				31		31			31	
10:00 PM				31		31			31	
11:00 PM				15		15			15	
Day Total				8015		8015			8015	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 839		7:00 AM 839			7:00 AM 839	
PM Peak Volume				4:00 PM 861		4:00 PM 861			4:00 PM 861	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	6	2	0	1	0	0	0	0	0	0	0	0	0	9
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	10	4	0	0	0	0	0	1	0	0	0	0	0	15
03:00 AM	0	45	31	0	1	0	0	0	0	0	0	0	0	0	77
04:00 AM	5	378	251	0	4	1	0	1	0	0	0	0	0	0	640
05:00 AM	10	228	154	0	4	1	0	1	2	0	0	0	0	0	400
06:00 AM	10	356	237	0	3	1	0	1	2	0	0	0	0	0	610
07:00 AM	7	456	306	0	6	0	0	0	5	1	0	0	0	0	781
08:00 AM	8	219	146	0	4	0	0	1	1	1	0	0	0	0	380
09:00 AM	3	98	64	0	6	2	1	3	0	0	0	0	0	0	177
10:00 AM	3	102	66	0	7	0	0	2	6	1	0	0	0	0	187
11:00 AM	2	119	77	0	3	1	0	2	4	2	0	0	0	0	210
12:00 PM	0	100	67	0	3	2	0	1	6	0	0	0	0	0	179
01:00 PM	0	59	38	0	5	1	0	3	4	0	0	0	0	0	110
02:00 PM	1	77	52	0	1	0	0	2	3	2	0	0	0	0	138
03:00 PM	0	50	32	0	4	0	0	0	1	0	0	0	0	0	87
04:00 PM	0	93	58	0	2	1	0	1	0	0	0	0	0	0	155
05:00 PM	1	40	24	0	1	0	0	0	0	0	0	0	0	0	66
06:00 PM	2	18	12	0	1	0	0	0	1	0	0	0	0	0	34
07:00 PM	0	11	6	0	1	0	0	0	1	0	0	0	0	0	19
08:00 PM	0	9	3	0	0	0	0	0	1	0	0	0	0	0	13
09:00 PM	0	7	2	0	1	0	0	0	0	0	0	0	0	0	10
10:00 PM	0	5	4	0	1	0	0	0	1	0	0	0	0	0	11
11:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
Day Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															
AM Peak Volume	5:00 AM 10	7:00 AM 456	7:00 AM 306	12:00 AM 0	10:00 AM 7	9:00 AM 2	9:00 AM 1	9:00 AM 3	10:00 AM 6	11:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0		7:00 AM 781
PM Peak Volume	6:00 PM 2	12:00 PM 100	12:00 PM 67	12:00 PM 0	1:00 PM 5	12:00 PM 2	12:00 PM 0	1:00 PM 3	12:00 PM 6	2:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0		12:00 PM 179

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				9		9			9	
01:00 AM				4		4			4	
02:00 AM				15		15			15	
03:00 AM				77		77			77	
04:00 AM				640		640			640	
05:00 AM				400		400			400	
06:00 AM				610		610			610	
07:00 AM				781		781			781	
08:00 AM				380		380			380	
09:00 AM				177		177			177	
10:00 AM				187		187			187	
11:00 AM				210		210			210	
12:00 PM				179		179			179	
01:00 PM				110		110			110	
02:00 PM				138		138			138	
03:00 PM				87		87			87	
04:00 PM				155		155			155	
05:00 PM				66		66			66	
06:00 PM				34		34			34	
07:00 PM				19		19			19	
08:00 PM				13		13			13	
09:00 PM				10		10			10	
10:00 PM				11		11			11	
11:00 PM				2		2			2	
Day Total				4314		4314			4314	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 781		7:00 AM 781			7:00 AM 781	
PM Peak Volume				12:00 PM 179		12:00 PM 179			12:00 PM 179	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
03:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
04:00 AM	0	15	10	0	0	0	0	0	0	0	0	0	0		25
05:00 AM	0	13	7	1	1	0	0	0	0	0	0	0	0		22
06:00 AM	2	42	29	4	1	0	0	0	0	0	0	0	0		78
07:00 AM	0	56	39	0	0	0	0	0	0	0	0	0	0		95
08:00 AM	0	38	23	0	4	0	0	0	0	0	0	0	0		65
09:00 AM	0	36	21	0	2	0	0	0	0	0	0	0	0		59
10:00 AM	1	42	29	1	3	0	0	0	1	0	0	0	0		77
11:00 AM	0	56	38	0	3	0	0	1	0	0	0	0	0		98
12:00 PM	0	49	35	0	2	0	0	0	0	0	0	0	0		86
01:00 PM	1	58	40	1	3	1	0	0	0	0	0	0	0		104
02:00 PM	0	81	55	4	0	1	0	0	0	0	0	0	0		141
03:00 PM	0	98	68	2	1	0	0	0	0	0	0	0	0		169
04:00 PM	1	110	73	0	1	0	0	0	0	0	0	0	0		185
05:00 PM	0	92	60	0	0	0	0	0	0	0	0	0	0		152
06:00 PM	1	75	46	0	0	0	0	0	0	0	0	0	0		122
07:00 PM	0	53	38	0	0	0	0	0	1	0	0	0	0		92
08:00 PM	0	30	21	0	0	0	0	0	0	0	0	0	0		51
09:00 PM	0	20	13	0	0	0	0	0	0	0	0	0	0		33
10:00 PM	0	7	3	0	0	0	0	0	0	0	0	0	0		10
11:00 PM	0	4	1	0	0	0	0	0	0	0	0	0	0		5
Day Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															
AM Peak	6:00 AM	7:00 AM	7:00 AM	6:00 AM	8:00 AM	12:00 AM	12:00 AM	11:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM
Volume	2	56	39	4	4	0	0	1	1	0	0	0	0	98	
PM Peak	1:00 PM	4:00 PM	4:00 PM	2:00 PM	1:00 PM	1:00 PM	12:00 PM	12:00 PM	7:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	
Volume	1	110	73	4	3	1	0	0	1	0	0	0	185		

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				1		1			1	
03:00 AM				3		3			3	
04:00 AM				25		25			25	
05:00 AM				22		22			22	
06:00 AM				78		78			78	
07:00 AM				95		95			95	
08:00 AM				65		65			65	
09:00 AM				59		59			59	
10:00 AM				77		77			77	
11:00 AM				98		98			98	
12:00 PM				86		86			86	
01:00 PM				104		104			104	
02:00 PM				141		141			141	
03:00 PM				169		169			169	
04:00 PM				185		185			185	
05:00 PM				152		152			152	
06:00 PM				122		122			122	
07:00 PM				92		92			92	
08:00 PM				51		51			51	
09:00 PM				33		33			33	
10:00 PM				10		10			10	
11:00 PM				5		5			5	
Day Total				1678		1678			1678	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				11:00 AM 98		11:00 AM 98			11:00 AM 98	
PM Peak Volume				4:00 PM 185		4:00 PM 185			4:00 PM 185	
Comments:										

Type of report: Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
03:00 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
04:00 AM	0	41	26	0	0	0	0	0	0	0	0	0	0	0	67
05:00 AM	0	45	31	1	1	0	0	0	0	0	0	0	0	0	78
06:00 AM	4	159	108	6	2	0	0	0	0	0	0	0	0	0	279
07:00 AM	2	162	110	3	0	0	0	0	0	0	0	0	0	0	277
08:00 AM	0	91	57	0	6	0	0	0	0	0	0	0	0	0	154
09:00 AM	0	87	55	0	3	0	0	0	0	0	0	0	0	0	145
10:00 AM	2	95	65	1	6	0	0	0	2	0	0	0	0	0	171
11:00 AM	0	104	71	1	5	0	0	1	0	0	0	0	0	0	182
12:00 PM	0	94	66	0	8	0	0	0	0	0	0	0	0	0	168
01:00 PM	1	116	77	2	6	2	0	1	0	0	0	0	0	0	205
02:00 PM	0	154	103	8	3	2	0	0	0	0	0	0	0	0	270
03:00 PM	0	176	120	4	4	0	0	0	0	0	0	0	0	0	304
04:00 PM	3	197	130	0	2	0	0	0	0	0	0	0	0	0	332
05:00 PM	0	149	100	0	0	0	0	0	0	0	0	0	0	0	249
06:00 PM	1	105	64	0	0	0	0	0	0	0	0	0	0	0	170
07:00 PM	0	78	53	0	1	0	0	0	2	0	0	0	0	0	134
08:00 PM	0	48	33	0	0	0	0	0	0	0	0	0	0	0	81
09:00 PM	0	28	18	0	0	0	0	0	0	0	0	0	0	0	46
10:00 PM	0	12	3	0	0	0	0	0	0	0	0	0	0	0	15
11:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
Day Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															
AM Peak	6:00 AM	7:00 AM	7:00 AM	6:00 AM	8:00 AM	12:00 AM	12:00 AM	11:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	6:00 AM
Volume	4	162	110	6	6	0	0	1	2	0	0	0	0	0	279
PM Peak	4:00 PM	4:00 PM	4:00 PM	2:00 PM	12:00 PM	1:00 PM	12:00 PM	1:00 PM	7:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM
Volume	3	197	130	8	8	2	0	1	2	0	0	0	0	0	332

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB, WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				6		6			6	
01:00 AM				4		4			4	
02:00 AM				4		4			4	
03:00 AM				10		10			10	
04:00 AM				67		67			67	
05:00 AM				78		78			78	
06:00 AM				279		279			279	
07:00 AM				277		277			277	
08:00 AM				154		154			154	
09:00 AM				145		145			145	
10:00 AM				171		171			171	
11:00 AM				182		182			182	
12:00 PM				168		168			168	
01:00 PM				205		205			205	
02:00 PM				270		270			270	
03:00 PM				304		304			304	
04:00 PM				332		332			332	
05:00 PM				249		249			249	
06:00 PM				170		170			170	
07:00 PM				134		134			134	
08:00 PM				81		81			81	
09:00 PM				46		46			46	
10:00 PM				15		15			15	
11:00 PM				6		6			6	
Day Total				3357		3357			3357	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 279		6:00 AM 279			6:00 AM 279	
PM Peak Volume				4:00 PM 332		4:00 PM 332			4:00 PM 332	

Comments:

Type of report: Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
03:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0		7
04:00 AM	0	26	16	0	0	0	0	0	0	0	0	0	0		42
05:00 AM	0	32	24	0	0	0	0	0	0	0	0	0	0		56
06:00 AM	2	117	79	2	1	0	0	0	0	0	0	0	0		201
07:00 AM	2	106	71	3	0	0	0	0	0	0	0	0	0		182
08:00 AM	0	53	34	0	2	0	0	0	0	0	0	0	0		89
09:00 AM	0	51	34	0	1	0	0	0	0	0	0	0	0		86
10:00 AM	1	53	36	0	3	0	0	0	1	0	0	0	0		94
11:00 AM	0	48	33	1	2	0	0	0	0	0	0	0	0		84
12:00 PM	0	45	31	0	6	0	0	0	0	0	0	0	0		82
01:00 PM	0	58	37	1	3	1	0	1	0	0	0	0	0		101
02:00 PM	0	73	48	4	3	1	0	0	0	0	0	0	0		129
03:00 PM	0	78	52	2	3	0	0	0	0	0	0	0	0		135
04:00 PM	2	87	57	0	1	0	0	0	0	0	0	0	0		147
05:00 PM	0	57	40	0	0	0	0	0	0	0	0	0	0		97
06:00 PM	0	30	18	0	0	0	0	0	0	0	0	0	0		48
07:00 PM	0	25	15	0	1	0	0	0	1	0	0	0	0		42
08:00 PM	0	18	12	0	0	0	0	0	0	0	0	0	0		30
09:00 PM	0	8	5	0	0	0	0	0	0	0	0	0	0		13
10:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0		5
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
Day Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															
AM Peak Volume	6:00 AM 2	6:00 AM 117	6:00 AM 79	7:00 AM 3	10:00 AM 3	12:00 AM 0	12:00 AM 0	12:00 AM 0	10:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0		6:00 AM 201
PM Peak Volume	4:00 PM 2	4:00 PM 87	4:00 PM 57	2:00 PM 4	12:00 PM 6	1:00 PM 1	12:00 PM 0	1:00 PM 1	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0		4:00 PM 147

Comments:

Type of report: Tube Count - Vehicle Classification Data

SUMMARY - Tube Count - Vehicle Classification Data

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				3		3			3	
03:00 AM				7		7			7	
04:00 AM				42		42			42	
05:00 AM				56		56			56	
06:00 AM				201		201			201	
07:00 AM				182		182			182	
08:00 AM				89		89			89	
09:00 AM				86		86			86	
10:00 AM				94		94			94	
11:00 AM				84		84			84	
12:00 PM				82		82			82	
01:00 PM				101		101			101	
02:00 PM				129		129			129	
03:00 PM				135		135			135	
04:00 PM				147		147			147	
05:00 PM				97		97			97	
06:00 PM				48		48			48	
07:00 PM				42		42			42	
08:00 PM				30		30			30	
09:00 PM				13		13			13	
10:00 PM				5		5			5	
11:00 PM				1		1			1	
Day Total				1679		1679			1679	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 201		6:00 AM 201			6:00 AM 201	
PM Peak Volume				4:00 PM 147		4:00 PM 147			4:00 PM 147	

Comments:

APPENDIX C: Scoping Document

TIS SCOPING MEMO

To: Christy Little, ACHD

From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)

cc: Heather Baldwin, Micron
Deborah E. Nelson, Givens Pursley, LLP

Date: October 10, 2022

Re: Traffic Impact Study Scoping Documentation
Proposed Micron FAB1 Development, S Federal Way, Boise, ID

This memorandum conveys current information related to the preliminary scope of a Traffic Impact Study (TIS) for a microprocessor fabrication facility in Boise, Idaho. The following include trip generation, study area, background growth, nearby approved development, trip distribution and analysis scenarios.

Site Description

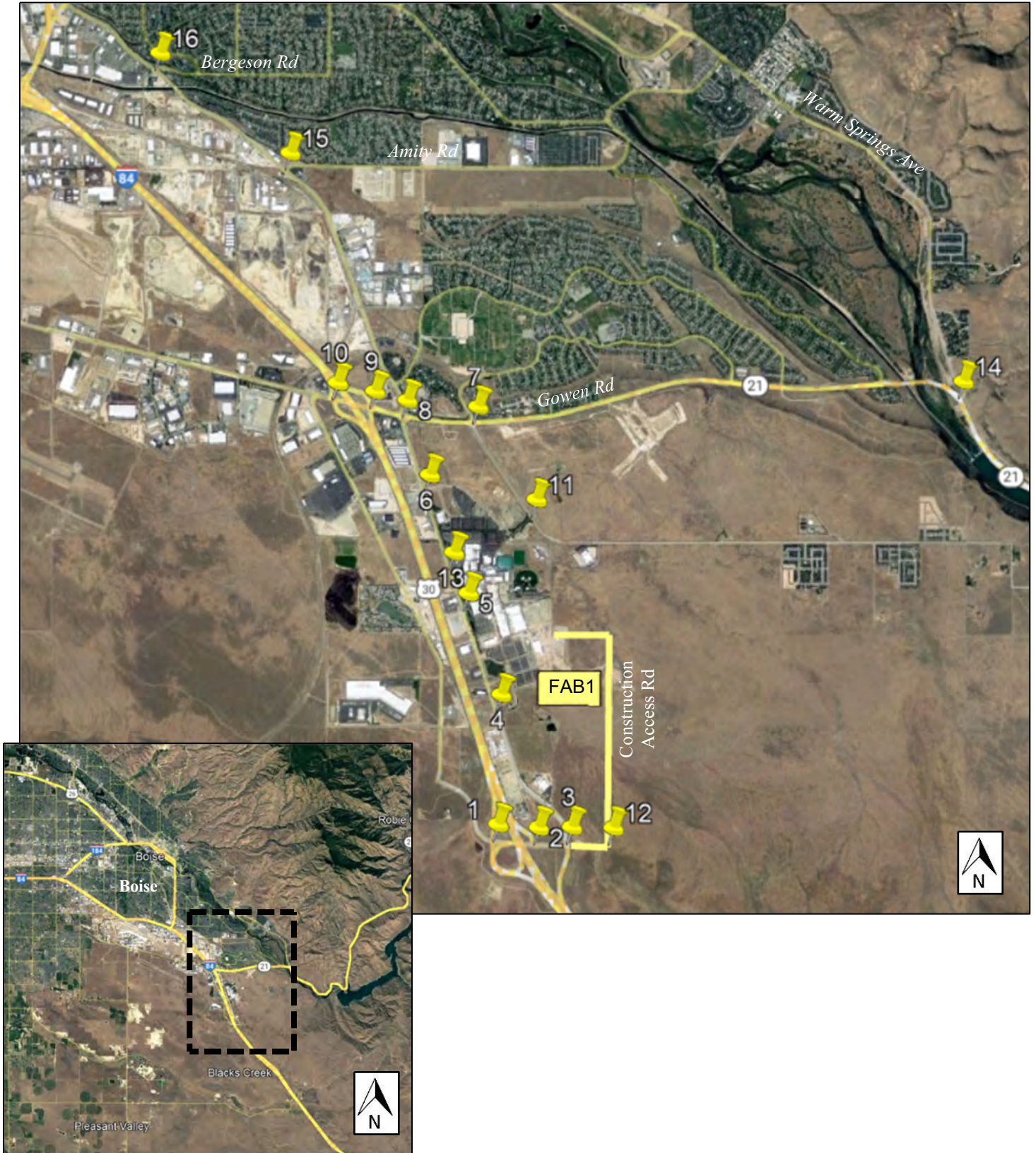
The TIS will comply with all the requirements of the ACHD including analysis, reporting, and development of any necessary mitigation measures meeting minimum design Level-of-Service (LOS) D for suburban roadways and intersections. The proposed development will include several buildings in support of the main fabrication building. The buildings will be east of S Federal Way, north of Memory Lane, and west of Columbia Road. There will be multiple points of egress for the development, all of which are existing. Construction traffic will utilize a temporary road, which will be the extension of Memory Lane.

This study will consider only the first phase of development which will be the Fab building, related office and support buildings, and a vendor building. The site location is shown in Figure 1.

Site Access

Access to the site will be available from existing driveways along S Federal Way and Technology Way.

Figure 1. Site Location and Study Area Map



Site Trip Generation

A new manufacturing facility will be built on land adjacent to the existing Micron R&D campus. The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” with an independent variable of number of employees is the more prudent land use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions.

Table 1. Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

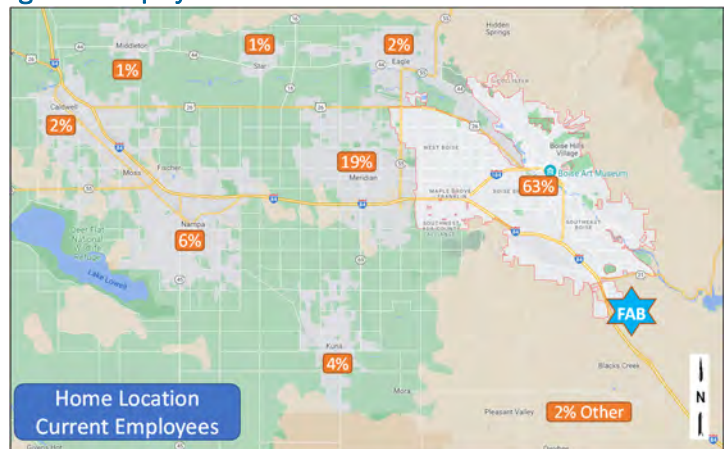
Trip Distribution and Trip Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home locations of current employees is tabulated in Table 2 and shown in Figure 2.

Table 2. Employee Home Base

Current Employee Home City	% of Total
Boise	63%
Meridian	19%
Nampa	6%
Kuna	4%
Caldwell	2%
Eagle	2%
Mountain Home	1%
Middleton	1%
Star	1%
Garden City	0.4%
Emmett	0.4%
Idaho City	0.2%

Figure 2. Employee Home Base



Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 3-5.

Figure 3. Macro Area Trip Distribution – Autos and Trucks



Study Locations

The following intersections and road segments (as illustrated in Figure 1) will be analyzed:

- Intersections
 1. Eisenman Rd & I-84 SB Ramp
 2. Eisenman Rd & I-84 NB On-Ramp
 3. Memory Ln & Federal Way/I-84 NB Off-Ramp
 4. Federal Way & Gate C (signal)
 5. Federal Way & Gate B
 6. Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & Federal Way (signal)
 9. Gowen Road & I-84 NB Ramp (signal)
 10. Gowen Road & I-85 SB Ramp (signal)
 11. Technology Ln & Circuit Way
 - ~~12. Memory Ln & Fab Access Road~~
 13. Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)
- Segments
 - A. Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn I-84 NB Ramp and Federal Way
 - C. Memory Ln, Btwn I-84 NB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way
 - E. Columbia Road, east of Circuit Way

Traffic Counts

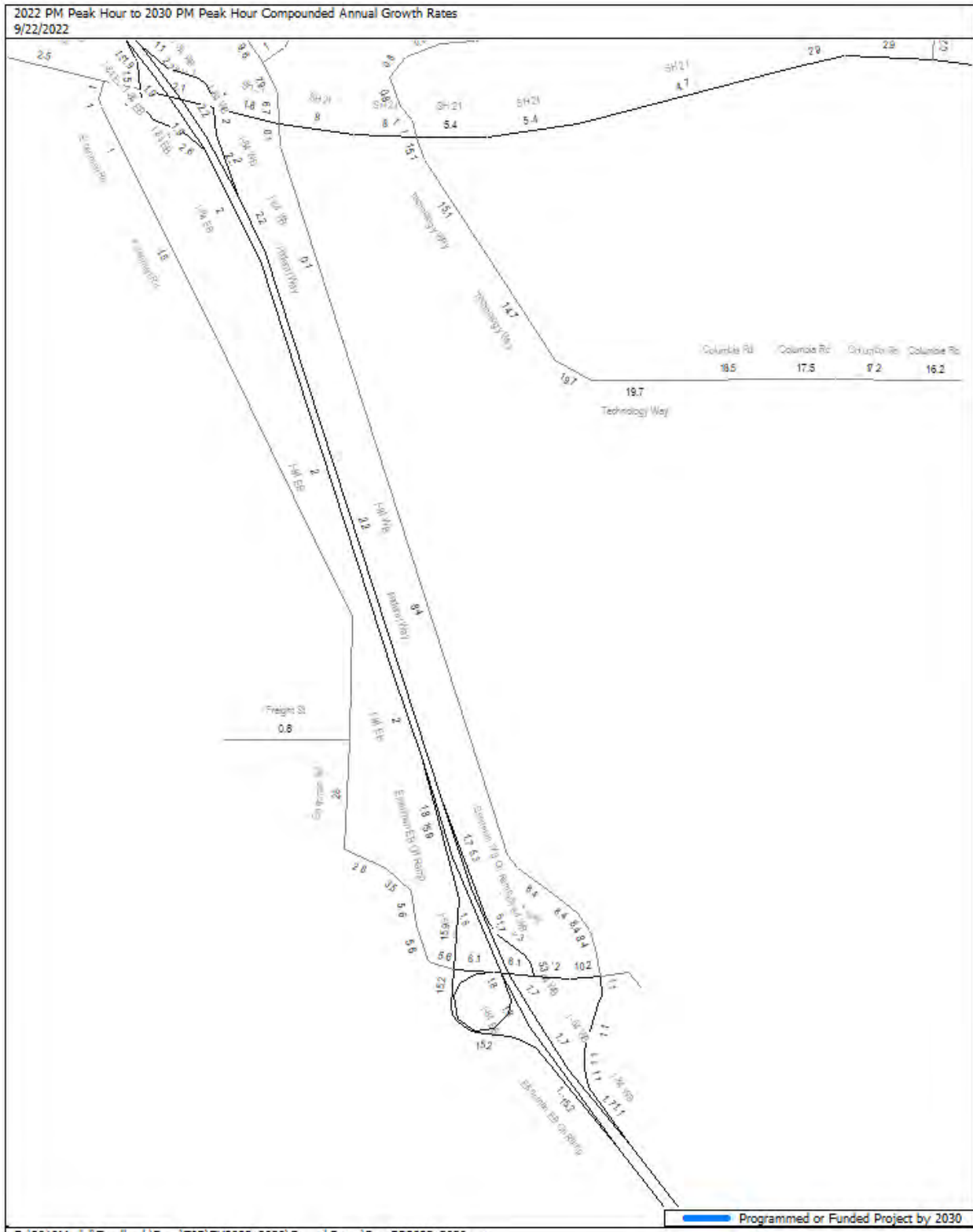
Daily (24-hour) counts, and Intersection turning movement counts will be recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Based on previous traffic counts, the AM Peak Hour is generally between 7:45 and 8:45 am. The PM Peak Hour is between 4:15 and 5:15p. There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low.

Background Growth

Future 2025 turning movement conditions will be forecast utilizing growth rates provided by COMPASS. Table 3 shows the growth changes from the COMPASS model. Figure 7 shows the annual growth rates for each corridor. These rates will be applied to existing traffic counts for three years to determine future year background traffic conditions. No other background project traffic will be considered.

Location	2022-2030 Annual Growth	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	2.5%	1.08
SH 21 w/o Federal Way	1.6%	1.05
SH 21 e/o Federal Way	8.0%	1.26
SH 21 e/o Technology Way	5.4%	1.17
SH 21 w/o Warm Springs	2.9%	1.09
Federal Way s/o SH 21	1.0%	1.00
Federal Way n/o Yamhill Rd	9.6%	1.32
Technology Way, s/o SH 21	15.1%	1.52
Columbia Rd e/o Circuit Way	19.7%	1.72
Eisenman Pkwy/Memory Ln	6.1%	1.19

Figure 7. COMPASS 2022 to 2030 Compounded Annual Growth Rates



Signal Warrants

Signal warrant analysis will be performed for any intersection that is found to exceed ACHD's acceptable v/c ratio of 1.0 in the analysis.

Planned Roadway & Approved Development Projects

There is a planned connector road in the Integrated Five-Year Work Plan (2022-2026). The road would go between Memory Lane and Columbia Road. The alignment of the road has not been determined and no plans current exist. The road will not be considered for this traffic study. Also in the IFYWP is a future widening of Amity Road but the date of such a widening appears to be well into the future.

Analysis Scenarios

Capacity analyses will be completed utilizing Synchro 11® and *Highway Capacity Manual, 6th Edition* methodology. All study intersections will be analyzed during the surrounding roadways' weekday AM and PM peak hours under the following traffic scenarios:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Phase 1 Build with Existing Roadway Conditions

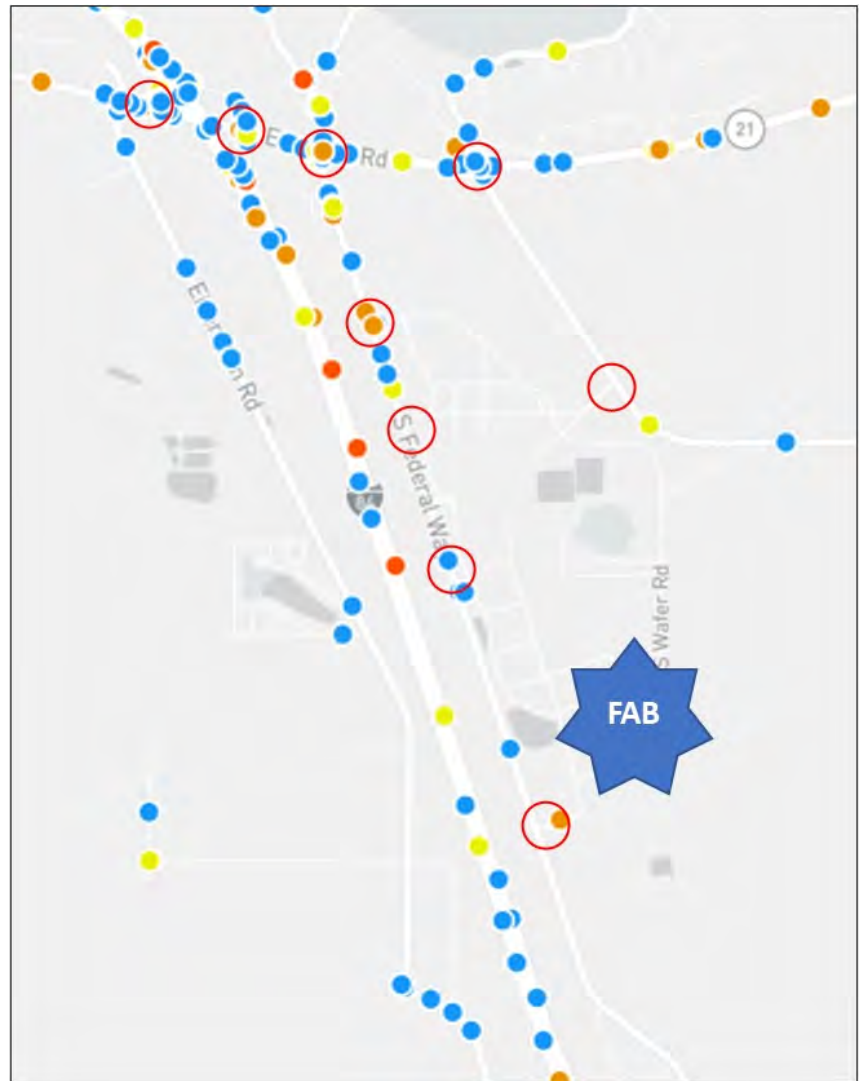
Traffic Operations and Safety Review

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) will be reviewed and summarized at each of the project area intersections. If certain crash trends exist, they will be noted along with possible countermeasure improvements that could be implemented to reduce crash frequency. A further safety review at these locations will not be completed.

A traffic operations review will be performed at the previously noted intersections using Synchro 11 software. In accordance with ACHD Policy, the maximum overall intersection v/c ratio is 0.90 for signalized intersections while the maximum lane group v/c ratio for signalized and unsignalized intersections is 1.0, and 0.85 for roundabouts. Default values as summarized in Policy 7106.6 will be assumed.

Roadway segments will be evaluated using the ACHD LOS Planning Threshold table. Based on the current ACHD Policy Manual, the minimum acceptable LOS for a roadway segment is LOS E for principal arterials and minor arterials, and LOS D for collectors.

Driveway locations will be reviewed to determine if ACHD Access Spacing Policy is met. Additionally, a turn lane analysis in accordance with NCHRP 457 will be performed at the site access points to determine if auxiliary right and left turn lanes are warranted.



Study Area Crashes – 2017-2021 (Source LHTAC)

Report

The TIS report will be prepared with adherence to TIS requirements found in the ACHD General Requirements and Procedures for Development except as may be deviated by this document.

Construction Period Traffic

In a separate analysis and memo, the construction traffic will be assessed relative to the plans and recommendations identified in the TIS. The number of construction vehicles and contractor private vehicles – over time – will be estimated and the expected distribution and relative impacts will be considered. Graphics showing the volume of traffic through the study area will be included in the technical memo. No detailed capacity analysis will be performed unless the volume of traffic appears to be concentrated in any one area and believed to cause problems. In that case, limited capacity analysis will be performed to determine possible construction-time period mitigation.

APPENDIX D: Highway Capacity Worksheets

The following is the required setup for capacity analysis per ACHD guidelines. These were followed, as applicable, in the Synchro analysis.

Variable	Existing Analysis	Future Year Analysis
HCS Analysis Type ¹	Operations	
HCS Report Type	Full Report and Back of Queue Worksheets or Long Report	
HCM Analysis Duration	0.25 hours	
PHF	Actual by approach	0.90 ²
RTOR	Actual count or 0	Existing percentage or 0
Unit Extension	3 sec	
Arrival Type	HCM Exhibit 10-18	
Start Up Time	2 sec	
Extension of Effective Green Time	2 sec	
Walking Speed	4 ft/sec ³	3.5 ft/sec ³
Pedestrian Volume	Actual count or 400 CBD or 50 non-CBD	
Pedestrian Travel Distance	Distance from top of ramp to opposite curb	
Lane Utilization Factor	HCM Exhibit 10-23	
Phasing	Existing	Leading/Protected left turns
Actuation Type	Existing	Fully actuated except Boise CBD
Cycle Length	Use Cycle Length from Table	
Base (Ideal) Saturation Flow Rate	1800	
Lane Width Existing	Existing	Existing ⁴
% Heavy Vehicles	Existing %	
% Grade	Existing %	
Parking maneuvers per hour	HCM Exhibit 10-20	
Bus Stops per hour	HCM Exhibit 10-21	
Yellow Time	4 sec 40 mph and under; 5 sec over 40 mph	
Red Time	1 sec	
Min Vehicle Green Time	5 sec	
Min Pedestrian Green Time	5 sec	
Upstream filtering adjust factor	HCM Exhibit 15-7 5	

¹The preferred software is the latest version of the HCS or Synchro.

²Use existing PHF if existing PHF is > 0.90 and no capacity improvements are planned.

³Use walking speed of 3 ft/sec around certain land uses such as schools.

⁴Use ACHD Policy Manual if improvements will be completed by analysis year.






















⁵Use value of 1.0 if nearest upstream signal is greater than 1/2 mile away.

Synchro Output – Existing Conditions Analysis

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Future Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.79	0.79	0.79	0.67	0.67	0.67	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	10	25	0	0	0	0	37	68	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Future Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	67	67	67	75	75	75	73	73	73
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	49	43	10	25	0	0	0	0	37	0	68

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	92	0	0		70	137	25
Stage 1	-	-	-	-	-	-		45	45	-
Stage 2	-	-	-	-	-	-		25	92	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1264	-	0		925	664	950
Stage 1	0	-	-	-	-	0		972	765	-
Stage 2	0	-	-	-	-	0		989	726	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1264	-	-		918	0	950
Mov Cap-2 Maneuver	-	-	-	-	-	-		918	0	-
Stage 1	-	-	-	-	-	-		972	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1264	-	918	950
HCM Lane V/C Ratio	-	-	0.008	-	0.04	0.072
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↩	↑↑	↑	↗↗		
Traffic Volume (vph)	32	41	23	4	0	0
Future Volume (vph)	32	41	23	4	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.87	0.87	0.75	0.75	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	47	31	5	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Future Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.77	0.90	0.77	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.67	0.67
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1	0	0	1	0	15	21	0	0	0	24
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Future Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	90	77	90	90	90	75	75	90	90	67	67
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	51	1	0	0	1	0	15	21	0	0	0	24













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.016	0.024	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	18	32	50	21
Future Volume (vph)	4	7	18	32	50	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	14	20	36	74	31
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.9	5.9	27.2	27.2	27.2	27.2
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.6		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.07
Intersection Signal Delay:	2.8
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	14	20	36	74	31
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022





















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	18	32	50	21
Future Volume (veh/h)	4	7	18	32	50	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	8	14	20	0	74	31
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	50	44	474		827	423
Arrive On Green	0.03	0.03	0.30	0.00	0.30	0.30
Sat Flow, veh/h	1714	1525	1561	1525	1326	1393
Grp Volume(v), veh/h	8	14	20	0	74	31
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1326	1393
Q Serve(g_s), s	0.1	0.1	0.1	0.0	0.7	0.3
Cycle Q Clear(g_c), s	0.1	0.1	0.1	0.0	0.8	0.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	50	44	474		827	423
V/C Ratio(X)	0.16	0.32	0.04		0.09	0.07
Avail Cap(c_a), veh/h	2185	1944	2653		2678	2367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.8	7.8	4.0	0.0	4.3	4.1
Incr Delay (d2), s/veh	1.5	4.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	11.8	4.1	0.0	4.4	4.2
LnGrp LOS	A	B	A		A	A
Approach Vol, veh/h	22		20			105
Approach Delay, s/veh	10.9		4.1			4.3
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.1		2.1		2.8
Green Ext Time (p_c), s		0.0		0.0		0.3

Intersection Summary		
HCM 6th Ctrl Delay		5.3
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Future Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	39	0	0	24	0	655	123	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Future Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	80	80	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	39	0	22	2	655	119	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1442	1455	62	1393	1456	12	123	0	0	24	0	0
Stage 1	1431	1431	-	23	23	-	-	-	-	-	-	-
Stage 2	11	24	-	1370	1433	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	95	131	996	103	131	1072	1477	-	-	1604	-	-
Stage 1	144	202	-	998	880	-	-	-	-	-	-	-
Stage 2	1014	879	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	78	996	70	78	1072	1477	-	-	1604	-	-
Mov Cap-2 Maneuver	62	78	-	70	78	-	-	-	-	-	-	-
Stage 1	144	120	-	998	880	-	-	-	-	-	-	-
Stage 2	977	879	-	93	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10	0	7.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1477	-	-	-	70	1072	1604	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.036	0.408	-	-
HCM Control Delay (s)	0	-	-	0	57.4	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Future Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.38	0.38	0.38	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	0	3	3	0	21	0	68	0	0	867	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵		↵	↵		↵		↕↕			↕↕	
Traffic Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Future Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	96	96	96	88	88	88	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	5	0	3	3	0	21	0	68	0	0	864	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	900	-	434	500	-	34	867	0	-	-	-	0
Stage 1	866	-	-	68	-	-	-	-	-	-	-	-
Stage 2	34	-	-	432	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	170	0	367	458	0	1006	785	-	0	0	-	-
Stage 1	231	0	-	940	0	-	-	-	0	0	-	-
Stage 2	854	0	-	577	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	166	-	367	455	-	1006	785	-	-	-	-	-
Mov Cap-2 Maneuver	206	-	-	502	-	-	-	-	-	-	-	-
Stage 1	231	-	-	940	-	-	-	-	-	-	-	-
Stage 2	836	-	-	573	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	20.2		9.2		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	785	-	206	367	502	1006	-	-
HCM Lane V/C Ratio	-	-	0.026	0.007	0.006	0.021	-	-
HCM Control Delay (s)	0	-	22.9	14.9	12.2	8.7	-	-
HCM Lane LOS	A	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	237	210	37	504	0	167	39	13	5	216	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.7	90.0	90.0	95.2	88.7		12.6	29.8	29.8	22.8	16.9	
Actuated g/C Ratio	0.67	0.62	0.62	0.66	0.61		0.09	0.21	0.21	0.16	0.12	
v/c Ratio	0.14	0.13	0.21	0.05	0.25		0.61	0.11	0.03	0.02	0.82	
Control Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
LOS	A	B	A	A	B		E	D	A	D	E	
Approach Delay		8.6			14.8			63.6			56.2	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	19	48	0	10	114		79	29	0	4	110	
Queue Length 95th (ft)	38	73	23	24	152		111	59	0	11	143	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

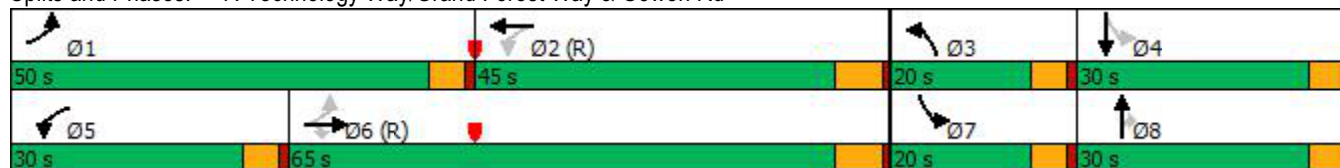


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	672	1845	983	860	2025		326	395	422	329	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25		0.51	0.10	0.03	0.02	0.63	

Intersection Summary

Area Type:	Other
Cycle Length:	145
Actuated Cycle Length:	145
Offset:	70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	25.9
Intersection LOS:	C
Intersection Capacity Utilization	47.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	237	210	37	504	167	39	13	5	216
v/c Ratio	0.14	0.13	0.21	0.05	0.25	0.61	0.11	0.03	0.02	0.82
Control Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Length 50th (ft)	19	48	0	10	114	79	29	0	4	110
Queue Length 95th (ft)	38	73	23	24	152	111	59	0	11	143
Internal Link Dist (ft)	1908				346		3134		856	
Turn Bay Length (ft)	155		415		90		520		240 125	
Base Capacity (vph)	672	1845	983	860	2025	326	395	422	329	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25	0.51	0.10	0.03	0.02	0.63

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	592	2176		905	2389		213	179		118	74	
Arrive On Green	0.03	0.72	0.00	0.03	0.72	0.00	0.07	0.10	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Cycle Q Clear(g_c), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	592	2176		905	2389		213	179		118	74	
V/C Ratio(X)	0.11	0.11		0.04	0.21		0.78	0.22		0.04	0.67	
Avail Cap(c_a), veh/h	980	2176		1154	2389		331	303		284	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.1	6.1	0.0	5.0	6.9	0.0	66.6	59.8	0.0	66.0	68.5	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	6.4	0.6	0.0	0.1	10.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.0	0.3	2.5	0.0	3.2	1.3	0.0	0.2	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	6.2	0.0	5.0	7.1	0.0	73.1	60.4	0.0	66.1	78.6	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		302			529			206			55	
Approach Delay, s/veh		6.0			6.9			70.7			77.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	109.7	14.7	11.0	8.9	110.5	5.9	19.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	3.8	9.1	9.5	6.0	2.8	5.5	2.4	5.0				
Green Ext Time (p_c), s	0.2	3.4	0.2	0.1	0.1	1.6	0.0	0.1				

Intersection Summary































HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.1	38.6	38.6	9.0	33.7	33.7	7.9	18.2	18.2	28.0	22.0	35.1
Actuated g/C Ratio	0.12	0.43	0.43	0.10	0.37	0.37	0.09	0.20	0.20	0.31	0.24	0.39
v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.19	0.10	0.02	0.29	0.37	0.45
Control Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
LOS	E	B	A	D	C	A	D	C	A	C	C	A
Approach Delay		21.9			22.3			29.5			16.6	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	83	45	10	37	116	0	13	13	0	40	70	4

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

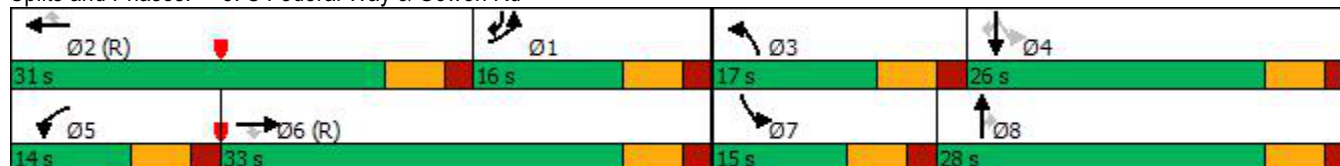
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#150	78	56	77	160	14	28	27	0	75	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1275	914	167	1206	669	413	753	580	400	894	708
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.12	0.08	0.02	0.29	0.33	0.45

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 20.9 Intersection LOS: C
 Intersection Capacity Utilization 59.0% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.19	0.10	0.02	0.29	0.37	0.45
Control Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	18.9	5.0	45.9	24.4	2.0	39.2	27.2	0.1	20.5	28.9	3.8
Queue Length 50th (ft)	83	45	10	37	116	0	13	13	0	40	70	4
Queue Length 95th (ft)	#150	78	56	77	160	14	28	27	0	75	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1275	914	167	1206	669	413	753	580	400	894	708
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.39	0.19	0.12	0.08	0.02	0.29	0.33	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1088	1460		141	630		161	366	186	362	536	725
Arrive On Green	0.12	0.16	0.00	0.08	0.19	0.00	0.05	0.12	0.12	0.09	0.16	0.16
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.0	7.8	0.0	3.5	12.2	0.0	1.4	1.6	0.6	5.3	7.4	2.7
Cycle Q Clear(g_c), s	8.0	7.8	0.0	3.5	12.2	0.0	1.4	1.6	0.6	5.3	7.4	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1088	1460		141	630		161	366	186	362	536	725
V/C Ratio(X)	0.26	0.21		0.48	0.74		0.32	0.17	0.06	0.32	0.56	0.44
Avail Cap(c_a), veh/h	1088	1460		169	942		419	765	390	400	786	825
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.95	0.95	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	22.8	0.0	39.4	34.2	0.0	41.2	35.4	34.9	29.9	34.9	3.9
Incr Delay (d2), s/veh	0.1	0.3	0.0	2.4	7.4	0.0	1.1	0.2	0.1	0.5	0.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.9	0.0	1.5	5.3	0.0	0.6	0.6	0.2	2.1	3.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	23.1	0.0	41.8	41.6	0.0	42.3	35.6	35.1	30.4	35.8	4.3
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		25.7			41.6			38.3			21.2	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.7	22.4	9.6	19.3	12.5	48.5	12.9	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.0	14.2	3.4	9.4	5.5	9.8	7.3	3.6				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.2	0.0	1.7	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	1182	0	0	215	603	34	0	33	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.4	78.2			63.5	63.5	10.1		10.6			
Actuated g/C Ratio	0.85	0.87			0.71	0.71	0.11		0.12			
v/c Ratio	0.23	0.30			0.10	0.31	0.21		0.15			
Control Delay	2.6	2.2			3.9	0.9	39.9		1.5			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.6	2.2			3.9	0.9	39.9		1.5			
LOS	A	A			A	A	D		A			
Approach Delay		2.3			1.7			21.0				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	55			12	0	18		0			
Queue Length 95th (ft)	34	65			21	0	39		0			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

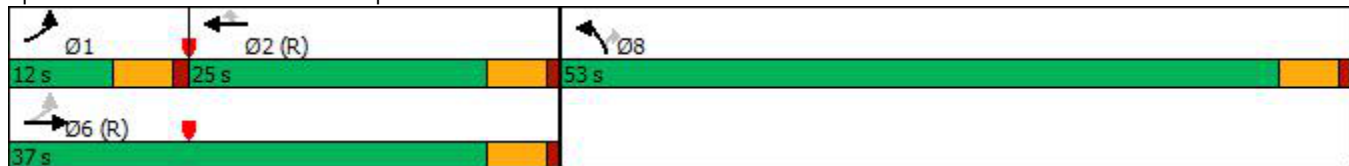


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	844	3918			2080	1953	766		683			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.10	0.31	0.04		0.05			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	2.6
Intersection LOS:	A
Intersection Capacity Utilization	50.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	194	1182	215	603	34	33
v/c Ratio	0.23	0.30	0.10	0.31	0.21	0.15
Control Delay	2.6	2.2	3.9	0.9	39.9	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.2	3.9	0.9	39.9	1.5
Queue Length 50th (ft)	21	55	12	0	18	0
Queue Length 95th (ft)	34	65	21	0	39	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	844	3918	2080	1953	766	683
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.10	0.31	0.04	0.05
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	194	1182	0	0	215	0	34	0	33			
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	858	3674	0	0	2076		132	0	114			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.10			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	194	1182	0	0	215	0	34	0	33			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.9	6.2	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Cycle Q Clear(g_c), s	2.9	6.2	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	858	3674	0	0	2076		132	0	114			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.10		0.26	0.00	0.29			
Avail Cap(c_a), veh/h	893	3674	0	0	2076		779	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.79	0.79	0.00	0.00	0.92	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.9	2.3	0.0	0.0	12.6	0.0	38.1	0.0	37.8			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.0	0.0	0.0	1.5	0.0	0.7	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	2.5	0.0	0.0	12.7	0.0	39.1	0.0	39.2			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1376			215			67				
Approach Delay, s/veh		2.6			12.7			39.2				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	66.9				76.9		13.1				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.9	7.1				8.2		4.3				
Green Ext Time (p_c), s	0.1	1.0				9.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		127.1		137.6	137.6					72.4		72.4
Actuated g/C Ratio		0.58		0.63	0.63					0.33		0.33
v/c Ratio		0.21		0.08	0.12					0.81		0.48
Control Delay		23.9		18.6	18.0					73.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		23.9		18.6	18.0					73.7		6.2
LOS		C		B	B					E		A
Approach Delay		23.9			18.1							54.9
Approach LOS		C			B							D
Queue Length 50th (ft)		126		20	63					574		0
Queue Length 95th (ft)		157		45	100					598		75
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

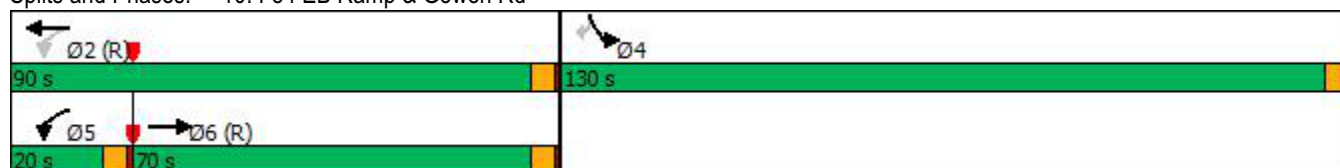
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2422		473	1828					1778		914
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.08	0.12					0.47		0.35

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	42.0
Intersection LOS:	D
Intersection Capacity Utilization	50.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.21	0.08	0.12	0.81	0.48
Control Delay	23.9	18.6	18.0	73.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	18.6	18.0	73.7	6.2
Queue Length 50th (ft)	126	20	63	574	0
Queue Length 95th (ft)	157	45	100	598	75
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2422	473	1828	1778	914
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.12	0.47	0.35
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2582	193	535	1987	0				902	0	393
Arrive On Green	0.00	0.63	0.63	0.02	0.67	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4262	308	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Cycle Q Clear(g_c), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1813	962	535	1987	0				902	0	393
V/C Ratio(X)	0.00	0.18	0.18	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1813	962	608	1987	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.2	17.3	13.7	12.9	0.0				76.3	0.0	73.3
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.5	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	4.0	0.7	2.0	0.0				22.9	0.0	34.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.5	17.7	13.7	13.0	0.0				80.9	0.0	77.5
LnGrp LOS	A	B	B	B	B	A				F	A	E
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		17.5			13.1						79.9	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		152.4		67.6	9.5	142.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		7.6		58.0	3.9	12.5						
Green Ext Time (p_c), s		1.5		4.6	0.0	3.5						
Intersection Summary												
HCM 6th Ctrl Delay			54.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	12	169	93	141
Future Volume (vph)	21	3	12	169	93	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.86	0.86
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	4	15	217	108	164
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.4% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 1.2

Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 

Traffic Vol, veh/h 21 3 12 169 93 141

Future Vol, veh/h 21 3 12 169 93 141

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 75 75 78 78 86 86

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 28 4 15 217 108 164

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 355 - 108 0 - 0

Stage 1 108 - - - - -

Stage 2 247 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 601 0 1495 - - 0

Stage 1 864 0 - - - 0

Stage 2 745 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 595 - 1495 - - -

Mov Cap-2 Maneuver 595 - - - - -

Stage 1 855 - - - - -

Stage 2 745 - - - - -

Approach EB NB SB

HCM Control Delay, s 11.3 0.5 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1495 - 595 - -

HCM Lane V/C Ratio 0.01 - 0.047 - -

HCM Control Delay (s) 7.4 - 11.3 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0 - 0.1 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Future Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.63	0.63	0.63	0.68	0.68	0.68	0.69	0.69	0.69
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	3	5	0	0	55	0	149	645	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Future Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	63	63	63	68	68	68	69	69	69
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	3	0	5	0	51	4	149	645	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	969	998	323	674	996	28	645	0	0	55	0	0
Stage 1	943	943	-	53	53	-	-	-	-	-	-	-
Stage 2	26	55	-	621	943	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	211	246	679	344	246	1047	950	-	-	1563	-	-
Stage 1	286	344	-	959	855	-	-	-	-	-	-	-
Stage 2	994	853	-	446	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	195	223	679	319	223	1047	950	-	-	1563	-	-
Mov Cap-2 Maneuver	195	223	-	319	223	-	-	-	-	-	-	-
Stage 1	286	311	-	959	855	-	-	-	-	-	-	-
Stage 2	989	853	-	403	311	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	11.7	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	950	-	-	-	-	319	1047	1563	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.01	0.005	0.096	-	-
HCM Control Delay (s)	0	-	-	0	0	16.4	8.5	7.5	-	-
HCM Lane LOS	A	-	-	A	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	95	153	22	10	111
Future Volume (vph)	74	95	153	22	10	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.79	0.79	0.77	0.77	0.89	0.89
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	120	228	0	11	125
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 3.7

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	74	95	153	22	10	111
Future Vol, veh/h	74	95	153	22	10	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	77	77	89	89
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	94	120	199	29	11	125

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	228	0	-	0	522	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	308	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1352	-	-	-	519	831
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	750	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1352	-	-	-	483	831
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	750	-

Approach EB WB SB

HCM Control Delay, s	3.4	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1352	-	-	-	483	831
HCM Lane V/C Ratio	0.069	-	-	-	0.023	0.15
HCM Control Delay (s)	7.9	-	-	-	12.6	10.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.5

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	475	0	544	0	245	439	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					14.9	14.9		44.2		64.0	63.0	
Actuated g/C Ratio					0.14	0.14		0.40		0.58	0.57	
v/c Ratio					0.65	0.62		0.43		0.56	0.24	
Control Delay					58.9	7.8		28.3		19.2	17.2	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					58.9	7.8		28.3		19.2	17.2	
LOS					E	A		C		B	B	
Approach Delay					19.6			28.3			18.0	
Approach LOS					B			C			B	
Queue Length 50th (ft)					95	0		162		123	114	
Queue Length 95th (ft)					142	24		194		m140	m116	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

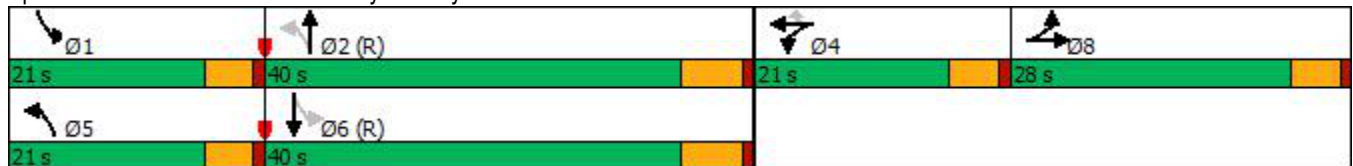
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					251	805		1254		456	1847	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.57	0.59		0.43		0.54	0.24	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization	44.7%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	143	475	544	245	439
v/c Ratio	0.65	0.62	0.43	0.56	0.24
Control Delay	58.9	7.8	28.3	19.2	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	7.8	28.3	19.2	17.2
Queue Length 50th (ft)	95	0	162	123	114
Queue Length 95th (ft)	142	24	194	m140	m116
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	251	805	1254	456	1847
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.59	0.43	0.54	0.24




















Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	142	0	475	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	265	0	405	691	1907	188	632	2489	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.65	0.64	0.08	0.76	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2948	291	1514	3346	0
Grp Volume(v), veh/h	0	0	0	142	0	475	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	8.4	0.0	17.0	0.0	7.8	7.9	5.4	4.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.4	0.0	17.0	0.0	7.8	7.9	5.4	4.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	265	0	405	691	1037	1058	632	2489	0
V/C Ratio(X)	0.00	0.00	0.00	0.54	0.00	1.17	0.00	0.26	0.26	0.39	0.18	0.00
Avail Cap(c_a), veh/h	0	393	0	265	0	405	955	1037	1058	744	2489	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.50	0.50	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.3	0.0	46.5	0.0	8.2	8.3	4.9	3.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.1	0.0	100.8	0.0	0.6	0.6	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.6	0.0	11.2	0.0	2.5	2.6	1.3	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	45.5	0.0	147.3	0.0	8.8	8.9	5.1	3.6	0.0
LnGrp LOS	A	A	A	D	A	F	A	A	A	A	A	A
Approach Vol, veh/h		0			617			544			684	
Approach Delay, s/veh		0.0			123.8			8.9			4.2	
Approach LOS					F			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	76.2		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	7.4	9.9		19.0	0.0	6.0		0.0				
Green Ext Time (p_c), s	0.4	3.0		0.0	0.0	2.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				45.6								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	81	0	142	146	389	31	676	259	239	612	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.5		31.0	31.0	31.0	41.6	41.1	41.1	15.0	52.3	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.38	0.37	0.37	0.14	0.48	
v/c Ratio		0.45		2.37	2.70	0.56	0.14	0.55	0.37	0.58	0.44	
Control Delay		44.8		684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.8		684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1	
LOS		D		F	F	A	B	B	A	D	C	
Approach Delay		44.8			327.6			13.8			30.2	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		21		~172	~184	0	7	90	0	82	162	
Queue Length 95th (ft)		45		#265	#283	71	m16	128	7	119	214	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

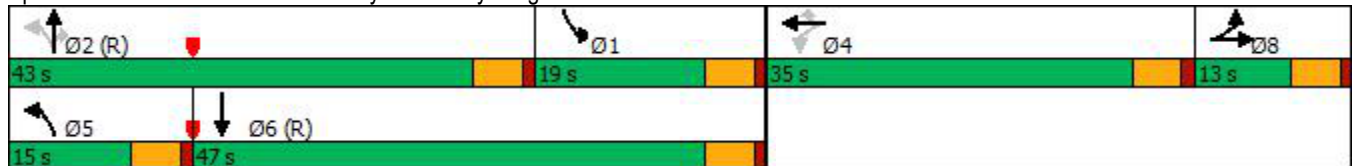
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		192		60	54	697	251	1228	691	411	1393	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.42		2.37	2.70	0.56	0.12	0.55	0.37	0.58	0.44	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.70
Intersection Signal Delay:	102.7
Intersection LOS:	F
Intersection Capacity Utilization	54.2%
ICU Level of Service	A
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

























Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	142	146	389	31	676	259	239	612
v/c Ratio	0.45	2.37	2.70	0.56	0.14	0.55	0.37	0.58	0.44
Control Delay	44.8	684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	684.8	835.7	6.6	15.6	18.1	2.2	50.9	22.1
Queue Length 50th (ft)	21	~172	~184	0	7	90	0	82	162
Queue Length 95th (ft)	45	#265	#283	71	m16	128	7	119	214
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	192	60	54	697	251	1228	691	411	1393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	2.37	2.70	0.56	0.12	0.55	0.37	0.58	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	279	0	389	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	85	32	49	950	0	419	226	1160	501	507	1357	128
Arrive On Green	0.04	0.05	0.04	0.28	0.00	0.28	0.04	0.35	0.35	0.17	0.48	0.47
Sat Flow, veh/h	1594	594	915	3375	0	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	279	0	389	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	1594	0	1509	1688	0	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	3.2	0.0	2.3	7.1	0.0	27.9	1.6	18.3	15.8	7.8	14.0	14.1
Cycle Q Clear(g_c), s	3.2	0.0	2.3	7.1	0.0	27.9	1.6	18.3	15.8	7.8	14.0	14.1
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	85	0	81	950	0	419	226	1160	501	507	735	750
V/C Ratio(X)	0.56	0.00	0.41	0.29	0.00	0.93	0.14	0.58	0.52	0.47	0.41	0.41
Avail Cap(c_a), veh/h	130	0	123	951	0	420	319	1160	501	507	735	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	50.7	31.0	0.0	38.4	26.0	29.2	28.4	41.6	18.6	18.7
Incr Delay (d2), s/veh	5.7	0.0	3.3	0.2	0.0	26.8	0.2	1.8	3.2	0.7	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.0	2.9	0.0	13.3	0.5	7.3	5.7	2.8	4.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	54.0	31.1	0.0	65.2	26.2	31.0	31.6	42.3	20.3	20.4
LnGrp LOS	E	A	D	C	A	E	C	C	C	D	C	C
Approach Vol, veh/h		81			668			966			851	
Approach Delay, s/veh		55.8			51.0			31.0			26.5	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.2	43.0		35.0	8.1	57.1		9.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	9.8	20.3		29.9	3.6	16.1		5.2				
Green Ext Time (p_c), s	0.3	5.0		0.0	0.0	3.2		0.1				






















Intersection Summary												
HCM 6th Ctrl Delay				35.5								
HCM 6th LOS				D								

Notes
 User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Future Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.79	0.79	0.79	0.67	0.67	0.67	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	75	52	0	0	0	0	7	97	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Future Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	67	67	67	75	75	75	73	73	73
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	41	54	75	52	0	0	0	0	7	0	97

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	95	0	0		223	297	52
Stage 1	-	-	-	-	-	-		202	202	-
Stage 2	-	-	-	-	-	-		21	95	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1260	-	0		750	529	916
Stage 1	0	-	-	-	-	0		826	641	-
Stage 2	0	-	-	-	-	0		994	723	-
Platoon blocked, %		-	-	-						
Mov Cap-1 Maneuver	-	-	-	1260	-	-		705	0	916
Mov Cap-2 Maneuver	-	-	-	-	-	-		705	0	-
Stage 1	-	-	-	-	-	-		826	0	-
Stage 2	-	-	-	-	-	-		934	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1260	-	705	916
HCM Lane V/C Ratio	-	-	0.059	-	0.01	0.106
HCM Control Delay (s)	-	-	8	-	10.2	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↶	↷↷	↶	↷↷		
Traffic Volume (vph)	30	13	83	72	0	0
Future Volume (vph)	30	13	83	72	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.87	0.87	0.75	0.75	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	15	111	96	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Future Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.77	0.90	0.77	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.67	0.67
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	0	0	0	1	0	33	20	0	0	0	191
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Future Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	90	77	90	90	90	75	75	90	90	67	67
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	16	0	0	0	1	0	33	20	0	0	0	191













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.035	0.022	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	26	4	6	36
Future Volume (vph)	67	101	26	4	6	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	202	29	4	9	53
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.6	7.6	9.0	9.0	9.0	9.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.32	0.32
v/c Ratio	0.29	0.36	0.06	0.01	0.02	0.12
Control Delay	8.7	3.5	7.6	5.5	7.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	3.5	7.6	5.5	7.3	8.1
LOS	A	A	A	A	A	A
Approach Delay	5.6		7.4			8.0
Approach LOS	A		A			A
Queue Length 50th (ft)	11	0	3	0	1	5
Queue Length 95th (ft)	16	1	11	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

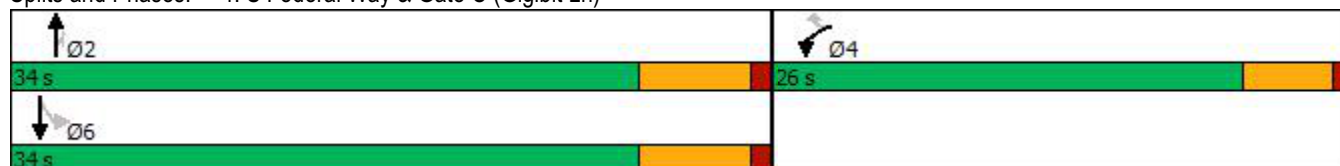


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1322	1228	1458	1450	1166	1322
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.02	0.00	0.01	0.04

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.9
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	6.1
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	202	29	4	9	53
v/c Ratio	0.29	0.36	0.06	0.01	0.02	0.12
Control Delay	8.7	3.5	7.6	5.5	7.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	3.5	7.6	5.5	7.3	8.1
Queue Length 50th (ft)	11	0	3	0	1	5
Queue Length 95th (ft)	16	1	11	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1322	1228	1458	1450	1166	1322
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.02	0.00	0.01	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary




















4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	26	4	6	36
Future Volume (veh/h)	67	101	26	4	6	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	134	202	29	0	9	53
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	385	343	378		649	337
Arrive On Green	0.22	0.22	0.24	0.00	0.24	0.24
Sat Flow, veh/h	1714	1525	1561	1525	1315	1393
Grp Volume(v), veh/h	134	202	29	0	9	53
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1315	1393
Q Serve(g_s), s	1.4	2.4	0.3	0.0	0.1	0.6
Cycle Q Clear(g_c), s	1.4	2.4	0.3	0.0	0.4	0.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	385	343	378		649	337
V/C Ratio(X)	0.35	0.59	0.08		0.01	0.16
Avail Cap(c_a), veh/h	1744	1552	2118		2114	1890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.7	7.1	6.0	0.0	6.2	6.2
Incr Delay (d2), s/veh	0.5	1.6	0.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.3	8.8	6.1	0.0	6.2	6.4
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	336		29			62
Approach Delay, s/veh	8.2		6.1			6.3
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		9.6		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		4.4		2.6
Green Ext Time (p_c), s		0.1		1.0		0.2
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			
Notes						
User approved ignoring U-Turning movement.						
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.						

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Future Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	8	673	0	0	160	0	102	37	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	12.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Future Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	80	80	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	8	0	673	0	157	3	102	37	0





















Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	320	401	19	382	400	80	37	0	0	160	0	0
Stage 1	241	241	-	159	159	-	-	-	-	-	-	-
Stage 2	79	160	-	223	241	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	614	541	1061	556	541	971	1587	-	-	1432	-	-
Stage 1	747	710	-	833	770	-	-	-	-	-	-	-
Stage 2	927	769	-	765	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	179	503	1061	526	503	971	1587	-	-	1432	-	-
Mov Cap-2 Maneuver	179	503	-	526	503	-	-	-	-	-	-	-
Stage 1	747	660	-	833	770	-	-	-	-	-	-	-
Stage 2	285	769	-	711	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.3	16.5	0	5.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	179	526	971	1432	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.014	0.693	0.071	-	-
HCM Control Delay (s)	0	-	-	25.3	11.9	16.6	7.7	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.8	0.2	-	-


Lanes, Volumes, Timings
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations								 				 
Traffic Volume (vph)	1	0	0	1	0	145	0	742	0	1	0	153
Future Volume (vph)	1	0	0	1	0	145	0	742	0	1	0	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45				45
Link Distance (ft)		255			1077			2303				2188
Travel Time (s)		7.0			21.0			34.9				33.2
Peak Hour Factor	0.38	0.38	0.38	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	0	0	1	0	151	0	843	0	0	0	172
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.5% ICU Level of Service A
Analysis Period (min)	15



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	67%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	

Intersection Summary

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection													
Int Delay, s/veh	1.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↘		↗	↘		↗		↕				↕	
Traffic Vol, veh/h	1	0	0	1	0	145	0	742	0	1	0	153	1
Future Vol, veh/h	1	0	0	1	0	145	0	742	0	1	0	153	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	38	38	38	96	96	96	88	88	88	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	2	0	2	67
Mvmt Flow	3	0	0	1	0	151	0	843	0	1	0	170	1

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	595	-	86	930	-	422	171	0	-	843	-	-	0
Stage 1	173	-	-	843	-	-	-	-	-	-	-	-	-
Stage 2	422	-	-	87	-	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	6.44	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	2.52	-	-	-
Pot Cap-1 Maneuver	302	0	712	225	0	559	1418	-	0	419	0	-	-
Stage 1	690	0	-	329	0	-	-	-	0	-	0	-	-
Stage 2	468	0	-	917	0	-	-	-	0	-	0	-	-
Platoon blocked, %								-				-	-
Mov Cap-1 Maneuver	220	-	712	224	-	559	1418	-	-	310	-	-	-
Mov Cap-2 Maneuver	220	-	-	224	-	-	-	-	-	-	-	-	-
Stage 1	690	-	-	329	-	-	-	-	-	-	-	-	-
Stage 2	342	-	-	913	-	-	-	-	-	-	-	-	-























Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.6		13.9		0		0.1	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1418	-	220	-	224	559	-	-
HCM Lane V/C Ratio	-	-	0.012	-	0.005	0.27	-	-
HCM Control Delay (s)	0	-	21.6	0	21.1	13.8	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	613	220	17	377	0	196	35	35	8	171	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.2	91.7	91.7	82.2	75.2		13.1	23.3	23.3	15.8	9.7	
Actuated g/C Ratio	0.72	0.68	0.68	0.61	0.56		0.10	0.17	0.17	0.12	0.07	
v/c Ratio	0.46	0.30	0.21	0.03	0.20		0.64	0.12	0.11	0.05	0.70	
Control Delay	10.1	10.8	2.1	8.3	17.0		68.3	45.5	0.7	40.0	26.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.1	10.8	2.1	8.3	17.0		68.3	45.5	0.7	40.0	26.6	
LOS	B	B	A	A	B		E	D	A	D	C	
Approach Delay		8.9			16.6			56.4			27.2	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	69	86	0	4	78		86	26	0	6	15	
Queue Length 95th (ft)	120	163	21	12	123		119	54	0	16	49	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	593	2019	1059	616	1845		351	582	538	284	586	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.45	0.30	0.21	0.03	0.20		0.56	0.06	0.07	0.03	0.29	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	135
Offset:	70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	18.7
Intersection LOS:	B
Intersection Capacity Utilization	51.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

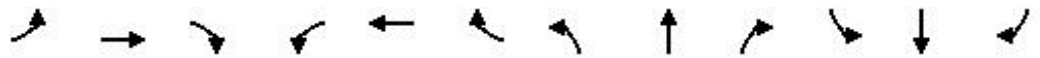


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	268	613	220	17	377	196	35	35	8	171
v/c Ratio	0.46	0.30	0.21	0.03	0.20	0.64	0.12	0.11	0.05	0.70
Control Delay	10.1	10.8	2.1	8.3	17.0	68.3	45.5	0.7	40.0	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	10.8	2.1	8.3	17.0	68.3	45.5	0.7	40.0	26.6
Queue Length 50th (ft)	69	86	0	4	78	86	26	0	6	15
Queue Length 95th (ft)	120	163	21	12	123	119	54	0	16	49
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	593	2019	1059	616	1845	351	582	538	284	586
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.30	0.21	0.03	0.20	0.56	0.06	0.07	0.03	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	268	613	0	17	367	0	196	35	0	8	17	0
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	676	2165		613	2195		246	177		116	60	
Arrive On Green	0.08	0.72	0.00	0.02	0.66	0.00	0.08	0.10	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	268	613	0	17	367	0	196	35	0	8	17	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	8.1	9.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.6	1.2	0.0
Cycle Q Clear(g_c), s	8.1	9.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.6	1.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	676	2165		613	2195		246	177		116	60	
V/C Ratio(X)	0.40	0.28		0.03	0.17		0.80	0.20		0.07	0.29	
Avail Cap(c_a), veh/h	723	2165		774	2195		355	586		290	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.6	6.8	0.0	7.2	8.9	0.0	61.3	55.7	0.0	62.1	63.7	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	7.9	0.5	0.0	0.2	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.0	0.0	0.2	2.1	0.0	3.5	1.1	0.0	0.3	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.9	7.1	0.0	7.2	9.1	0.0	69.2	56.3	0.0	62.4	66.3	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		881			384			231			25	
Approach Delay, s/veh		6.7			9.0			67.2			65.0	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	94.7	15.4	9.5	7.4	102.8	6.3	18.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	10.1	7.7	10.1	3.2	2.4	11.7	2.6	4.5				
Green Ext Time (p_c), s	0.4	2.5	0.2	0.1	0.0	4.4	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	39.0	52.0	52.0	17.0	30.0	30.0	50.0	56.0	56.0	25.0	31.0	39.0
Total Split (%)	26.0%	34.7%	34.7%	11.3%	20.0%	20.0%	33.3%	37.3%	37.3%	16.7%	20.7%	26.0%
Maximum Green (s)	34.0	47.0	47.0	12.0	25.0	25.0	45.0	51.0	51.0	20.0	26.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	33.2	66.7	66.7	9.0	34.7	34.7	36.2	46.3	46.3	49.6	29.9	67.1
Actuated g/C Ratio	0.22	0.44	0.44	0.06	0.23	0.23	0.24	0.31	0.31	0.33	0.20	0.45
v/c Ratio	0.88	0.48	0.16	0.10	0.64	0.21	0.82	0.43	0.13	0.67	0.10	0.62
Control Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
LOS	E	C	A	E	E	A	E	D	A	D	D	C
Approach Delay		47.6			50.1			51.2			32.6	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	268	231	0	10	243	0	294	149	0	146	25	210

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

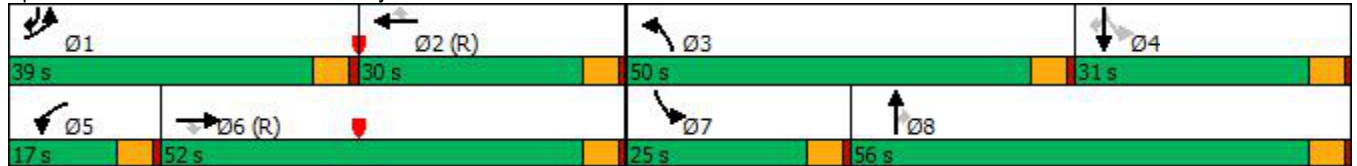
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#343	337	41	30	#319	0	313	182	0	212	51	354
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1322	736	145	746	466	950	1036	618	409	745	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.48	0.16	0.07	0.64	0.21	0.65	0.37	0.11	0.65	0.09	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 46.1 Intersection LOS: D
 Intersection Capacity Utilization 65.6% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
v/c Ratio	0.88	0.48	0.16	0.10	0.64	0.21	0.82	0.43	0.13	0.67	0.10	0.62
Control Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	34.3	5.2	69.1	59.6	1.0	63.1	41.8	0.5	35.4	47.6	28.4
Queue Length 50th (ft)	268	231	0	10	243	0	294	149	0	146	25	210
Queue Length 95th (ft)	#343	337	41	30	#319	0	313	182	0	212	51	354
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1322	736	145	746	466	950	1036	618	409	745	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.48	0.16	0.07	0.64	0.21	0.65	0.37	0.11	0.65	0.09	0.61































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	615	1409		42	913		698	784	399	420	606	532
Arrive On Green	0.21	0.47	0.00	0.02	0.28	0.00	0.22	0.26	0.26	0.14	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	27.8	21.1	0.0	0.9	18.7	0.0	28.3	16.5	5.4	19.3	2.4	27.0
Cycle Q Clear(g_c), s	27.8	21.1	0.0	0.9	18.7	0.0	28.3	16.5	5.4	19.3	2.4	27.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	615	1409		42	913		698	784	399	420	606	532
V/C Ratio(X)	0.90	0.45		0.24	0.53		0.88	0.50	0.18	0.63	0.11	0.76
Avail Cap(c_a), veh/h	679	1409		146	913		964	1038	529	420	606	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	27.0	0.0	71.7	45.6	0.0	56.4	46.9	42.9	41.3	51.4	39.6
Incr Delay (d2), s/veh	13.6	1.0	0.0	2.7	2.0	0.0	7.1	0.5	0.2	3.0	0.1	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	7.8	0.0	0.4	7.8	0.0	11.8	6.2	2.1	8.2	1.0	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.2	27.9	0.0	74.5	47.6	0.0	63.5	47.4	43.1	44.3	51.5	46.0
LnGrp LOS	E	C		E	D		E	D	D	D	D	D
Approach Vol, veh/h		1185			491			1072			734	
Approach Delay, s/veh		48.1			48.2			56.3			45.8	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.7	46.0	37.3	31.0	7.7	74.0	25.0	43.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	34.0	25.0	45.0	26.0	12.0	47.0	20.0	51.0				
Max Q Clear Time (g_c+I1), s	29.8	20.7	30.3	29.0	2.9	23.1	21.3	18.5				
Green Ext Time (p_c), s	0.9	1.2	2.0	0.0	0.0	4.4	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			50.2									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	411	1360	0	0	364	1097	47	0	80	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	109.5	109.5			91.2	91.2	11.0		11.5			
Actuated g/C Ratio	0.84	0.84			0.70	0.70	0.08		0.09			
v/c Ratio	0.54	0.36			0.18	0.52	0.39		0.45			
Control Delay	5.1	2.7			7.4	1.5	65.5		19.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.1	2.7			7.4	1.5	65.5		19.6			
LOS	A	A			A	A	E		B			
Approach Delay		3.2			2.9			36.6				
Approach LOS		A			A			D				
Queue Length 50th (ft)	53	67			47	0	39		0			
Queue Length 95th (ft)	88	91			84	25	66		31			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

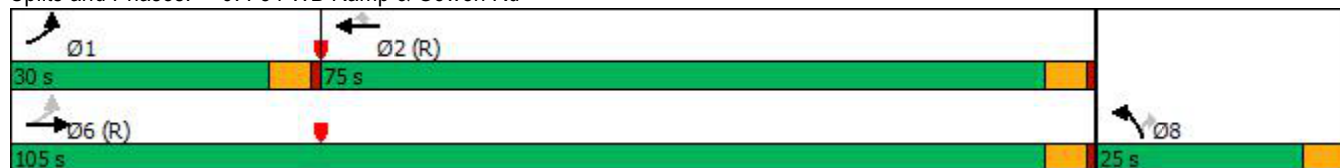


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	828	3796			2067	2092	221		255			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.50	0.36			0.18	0.52	0.21		0.31			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	4.4
Intersection LOS:	A
Intersection Capacity Utilization	77.7%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	411	1360	364	1097	47	80
v/c Ratio	0.54	0.36	0.18	0.52	0.39	0.45
Control Delay	5.1	2.7	7.4	1.5	65.5	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	2.7	7.4	1.5	65.5	19.6
Queue Length 50th (ft)	53	67	47	0	39	0
Queue Length 95th (ft)	88	91	84	25	66	31
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	828	3796	2067	2092	221	255
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.36	0.18	0.52	0.21	0.31
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	411	1360	0	0	364	0	47	0	80			
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	834	3861	0	0	2154		120	0	102			
Arrive On Green	0.09	0.85	0.00	0.00	0.72	0.00	0.08	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	411	1360	0	0	364	0	47	0	80			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.1	8.5	0.0	0.0	5.0	0.0	4.0	0.0	8.5			
Cycle Q Clear(g_c), s	8.1	8.5	0.0	0.0	5.0	0.0	4.0	0.0	8.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	834	3861	0	0	2154		120	0	102			
V/C Ratio(X)	0.49	0.35	0.00	0.00	0.17		0.39	0.00	0.78			
Avail Cap(c_a), veh/h	998	3861	0	0	2154		225	0	188			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.66	0.66	0.00	0.00	0.64	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.0	2.2	0.0	0.0	5.8	0.0	56.6	0.0	58.2			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	12.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.7	0.0	0.0	1.5	0.0	1.5	0.0	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.4	0.0	0.0	5.9	0.0	58.7	0.0	70.5			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1771			364			127				
Approach Delay, s/veh		2.6			5.9			66.1				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.3	98.1				114.4		15.6				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.1	7.0				10.5		10.5				
Green Ext Time (p_c), s	1.2	2.6				14.7		0.2				

Intersection Summary













HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	71	316	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		102.1		116.3	116.3					63.7		63.7
Actuated g/C Ratio		0.54		0.61	0.61					0.34		0.34
v/c Ratio		0.36		0.22	0.18					0.96		0.38
Control Delay		25.8		17.1	16.6					80.1		6.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		25.8		17.1	16.6					80.1		6.3
LOS		C		B	B					F		A
Approach Delay		25.8			16.7							66.4
Approach LOS		C			B							E
Queue Length 50th (ft)		208		36	89					628		0
Queue Length 95th (ft)		219		61	116					#761		66
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2254		355	1788					1070		617
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.36		0.20	0.18					0.94		0.37

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 45.0 Intersection LOS: D

Intersection Capacity Utilization 77.7% ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

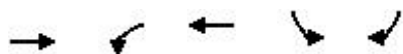
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	806	71	316	1003	229
v/c Ratio	0.36	0.22	0.18	0.96	0.38
Control Delay	25.8	17.1	16.6	80.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	17.1	16.6	80.1	6.3
Queue Length 50th (ft)	208	36	89	628	0
Queue Length 95th (ft)	219	61	116	#761	66
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2254	355	1788	1070	617
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.20	0.18	0.94	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	746	60	71	316	0				1003	0	229
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2296	184	366	1829	0				1048	0	457
Arrive On Green	0.00	0.56	0.56	0.03	0.62	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	4239	328	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	526	280	71	316	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	18.5	18.7	3.7	8.7	0.0				58.9	0.0	25.2
Cycle Q Clear(g_c), s	0.0	18.5	18.7	3.7	8.7	0.0				58.9	0.0	25.2
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1622	858	366	1829	0				1048	0	457
V/C Ratio(X)	0.00	0.32	0.33	0.19	0.17	0.00				0.96	0.00	0.50
Avail Cap(c_a), veh/h	0	1622	858	441	1829	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.4	22.4	17.1	15.6	0.0				62.3	0.0	51.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.2	0.0				17.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	7.1	1.4	3.1	0.0				25.6	0.0	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.9	23.5	17.4	15.8	0.0				79.9	0.0	51.9
LnGrp LOS	A	C	C	B	B	A				E	A	D
Approach Vol, veh/h		806			387						1232	
Approach Delay, s/veh		23.1			16.1						74.7	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		122.2		67.8	10.6	111.5						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		10.7		60.9	5.7	20.7						
Green Ext Time (p_c), s		2.3		2.0	0.1	6.2						

Intersection Summary

HCM 6th Ctrl Delay	48.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	1	147	174	29
Future Volume (vph)	73	11	1	147	174	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.86	0.86
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	15	1	188	202	34
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 2.5

Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 

Traffic Vol, veh/h 73 11 1 147 174 29

Future Vol, veh/h 73 11 1 147 174 29

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 75 75 78 78 86 86

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 97 15 1 188 202 34

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 392 - 202 0 - 0

Stage 1 202 - - - - -

Stage 2 190 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 572 0 1382 - - 0

Stage 1 782 0 - - - 0

Stage 2 792 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 571 - 1382 - - -

Mov Cap-2 Maneuver 571 - - - - -

Stage 1 781 - - - - -

Stage 2 792 - - - - -

Approach EB NB SB

HCM Control Delay, s 12.6 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1382 - 571 - -

HCM Lane V/C Ratio 0.001 - 0.17 - -

HCM Control Delay (s) 7.6 - 12.6 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0 - 0.6 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Future Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.63	0.63	0.63	0.68	0.68	0.68	0.69	0.69	0.69
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	14	60	0	0	954	0	16	100	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Future Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	63	63	63	68	68	68	69	69	69
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	14	0	60	0	954	0	16	100	0

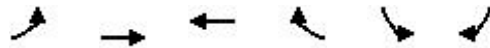
Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	609	1086	50	1036	1086	477	100	0	0	954	0	0
Stage 1	132	132	-	954	954	-	-	-	-	-	-	-
Stage 2	477	954	-	82	132	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	383	218	1014	189	218	540	1505	-	-	729	-	-
Stage 1	864	791	-	282	340	-	-	-	-	-	-	-
Stage 2	543	340	-	923	791	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	334	213	1014	186	213	540	1505	-	-	729	-	-
Mov Cap-2 Maneuver	334	213	-	186	213	-	-	-	-	-	-	-
Stage 1	864	774	-	282	340	-	-	-	-	-	-	-
Stage 2	482	340	-	903	774	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	0		15.1			0		1.4		
HCM LOS	A		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1505	-	-	-	-	186	540	729	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.077	0.112	0.022	-	-
HCM Control Delay (s)	0	-	-	0	0	26	12.5	10	-	-
HCM Lane LOS	A	-	-	A	A	D	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	0.4	0.1	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	131	246	142	18	44	112
Future Volume (vph)	131	246	142	18	44	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.79	0.79	0.77	0.77	0.89	0.89
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	311	207	0	49	126
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↑	↔		↔	↔
Traffic Vol, veh/h	131	246	142	18	44	112
Future Vol, veh/h	131	246	142	18	44	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	77	77	89	89
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	166	311	184	23	49	126
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	207	0	-	0	839	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1376	-	-	-	339	850
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1376	-	-	-	298	850
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	527	-
Approach	EB	WB	SB			
HCM Control Delay, s	2.8	0	12.7			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1376	-	-	-	298	850
HCM Lane V/C Ratio	0.121	-	-	-	0.166	0.148
HCM Control Delay (s)	8	-	-	-	19.5	10
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.6	0.5

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	113	460	1	887	0	470	641	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			14.6	14.6	42.6	35.0		79.4	76.3	
Actuated g/C Ratio		0.20			0.11	0.11	0.33	0.27		0.61	0.59	
v/c Ratio		0.00			0.62	0.66	0.00	1.07		0.94	0.34	
Control Delay		0.0			69.6	9.4	17.0	94.4		58.3	19.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			69.6	9.4	17.0	94.4		58.3	19.2	
LOS		A			E	A	B	F		E	B	
Approach Delay					21.2			94.3			35.8	
Approach LOS					C			F			D	
Queue Length 50th (ft)		0			91	0	0	~426		~443	136	
Queue Length 95th (ft)		0			135	24	3	#474		m#510	m184	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		516			213	741	426	832		501	1892	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.53	0.62	0.00	1.07		0.94	0.34	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	125
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.07
Intersection Signal Delay:	52.7
Intersection LOS:	D
Intersection Capacity Utilization	69.0%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	113	460	1	887	470	641
v/c Ratio	0.00	0.62	0.66	0.00	1.07	0.94	0.34
Control Delay	0.0	69.6	9.4	17.0	94.4	58.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	69.6	9.4	17.0	94.4	58.3	19.2
Queue Length 50th (ft)	0	91	0	0	~426	~443	136
Queue Length 95th (ft)	0	135	24	3	#474	m#510	m184
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	516	213	741	426	832	501	1892
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.53	0.62	0.00	1.07	0.94	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	112	0	460	1	704	183	470	641	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	8	0	8	224	0	343	599	1462	380	513	2223	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.13	0.05	0.58	0.57	0.15	0.68	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2519	654	1514	3346	0
Grp Volume(v), veh/h	2	0	0	112	0	460	1	448	439	470	641	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	7.9	0.0	17.0	0.0	21.2	21.3	15.0	10.1	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	7.9	0.0	17.0	0.0	21.2	21.3	15.0	10.1	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	17	0	0	224	0	343	599	931	911	513	2223	0
V/C Ratio(X)	0.12	0.00	0.00	0.50	0.00	1.34	0.00	0.48	0.48	0.92	0.29	0.00
Avail Cap(c_a), veh/h	397	0	0	224	0	343	744	931	911	627	2223	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	64.2	0.0	0.0	53.0	0.0	56.5	9.1	15.9	16.0	15.8	8.2	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	1.7	0.0	172.1	0.0	1.8	1.8	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.5	0.0	13.9	0.0	7.7	7.6	8.7	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	0.0	54.7	0.0	228.6	9.1	17.7	17.8	17.8	8.2	0.0
LnGrp LOS	E	A	A	D	A	F	A	B	B	B	A	A
Approach Vol, veh/h		2			572			888			1111	
Approach Delay, s/veh		67.4			194.6			17.7			12.3	
Approach LOS		E			F			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.2	80.5		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	17.0	23.3		19.0	2.0	12.1		2.2				
Green Ext Time (p_c), s	1.2	3.9		0.0	0.0	4.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				54.7								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	133	0	149	153	380	50	822	300	538	994	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		15.1		35.0	35.0	35.0	48.3	39.0	39.0	24.4	56.7	
Actuated g/C Ratio		0.12		0.27	0.27	0.27	0.37	0.30	0.30	0.19	0.44	
v/c Ratio		0.41		2.92	3.56	0.56	0.25	0.83	0.53	0.95	0.76	
Control Delay		41.9		934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		41.9		934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0	
LOS		D		F	F	A	B	C	A	F	D	
Approach Delay		41.9			482.4			17.0			52.1	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		39		~227	~242	0	9	143	0	~239	386	
Queue Length 95th (ft)		68		#332	#354	77	m13	m172	m7	#339	466	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		358		51	43	677	255	986	566	566	1316	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.37		2.92	3.56	0.56	0.20	0.83	0.53	0.95	0.76	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.56
 Intersection Signal Delay: 123.4 Intersection LOS: F
 Intersection Capacity Utilization 59.6% ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	149	153	380	50	822	300	538	994
v/c Ratio	0.41	2.92	3.56	0.56	0.25	0.83	0.53	0.95	0.76
Control Delay	41.9	934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	934.5	1222.6	7.1	10.6	22.7	2.6	80.0	37.0
Queue Length 50th (ft)	39	~227	~242	0	9	143	0	~239	386
Queue Length 95th (ft)	68	#332	#354	77	m13	m172	m7	#339	466
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	358	51	43	677	255	986	566	566	1316
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	2.92	3.56	0.56	0.20	0.83	0.53	0.95	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	30	66	37	289	0	380	50	822	300	538	985	9
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	47	105	60	909	0	401	245	1191	514	543	1549	14
Arrive On Green	0.06	0.07	0.06	0.27	0.00	0.27	0.04	0.36	0.36	0.18	0.50	0.49
Sat Flow, veh/h	699	1559	893	3375	0	1490	1460	3313	1430	3066	3120	29
Grp Volume(v), veh/h	70	0	63	289	0	380	50	822	300	538	485	509
Grp Sat Flow(s),veh/h/ln	1639	0	1513	1688	0	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	5.4	0.0	5.2	8.9	0.0	32.5	2.8	27.5	22.1	22.8	30.2	30.2
Cycle Q Clear(g_c), s	5.4	0.0	5.2	8.9	0.0	32.5	2.8	27.5	22.1	22.8	30.2	30.2
Prop In Lane	0.43		0.59	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	111	0	102	909	0	401	245	1191	514	543	763	801
V/C Ratio(X)	0.64	0.00	0.61	0.32	0.00	0.95	0.20	0.69	0.58	0.99	0.64	0.64
Avail Cap(c_a), veh/h	214	0	198	909	0	401	344	1191	514	543	763	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.26	0.26	0.26	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	59.3	38.0	0.0	46.6	24.6	35.5	33.8	53.4	24.1	24.1
Incr Delay (d2), s/veh	5.9	0.0	5.8	0.2	0.0	31.7	0.1	0.9	1.3	36.4	4.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.2	3.7	0.0	15.6	0.9	11.0	7.7	11.1	10.9	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	0.0	65.1	38.2	0.0	78.3	24.7	36.3	35.0	89.8	28.1	27.9
LnGrp LOS	E	A	E	D	A	E	C	D	D	F	C	C
Approach Vol, veh/h		133			669			1172			1532	
Approach Delay, s/veh		65.2			61.0			35.5			49.7	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.2		39.0	9.2	69.0		12.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	24.8	29.5		34.5	4.8	32.2		7.4				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	4.8		0.4				

Intersection Summary

HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes



















- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Background Conditions Analysis

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Future Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	9	22	0	0	0	0	36	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 20.6% ICU Level of Service A

Analysis Period (min) 15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Future Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	52	46	9	22	0	0	0	0	36	0	67

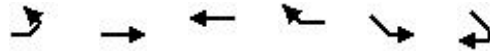
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	98	0	0		66	138	22
Stage 1	-	-	-	-	-	-		40	40	-
Stage 2	-	-	-	-	-	-		26	98	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1256	-	0		930	663	954
Stage 1	0	-	-	-	-	0		977	769	-
Stage 2	0	-	-	-	-	0		988	721	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1256	-	-		923	0	954
Mov Cap-2 Maneuver	-	-	-	-	-	-		923	0	-
Stage 1	-	-	-	-	-	-		977	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1256	-	923	954
HCM Lane V/C Ratio	-	-	0.007	-	0.039	0.07
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↩	↕↕	↩	↗↗		
Traffic Volume (vph)	38	49	27	5	0	0
Future Volume (vph)	38	49	27	5	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	54	30	6	0	0
Sign Control		Free	Free		Free	






















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 		 					 
Traffic Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Future Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	0	0	0	1	0	14	21	0	0	0	21
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Future Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	52	0	0	0	1	0	14	21	0	0	0	21













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.023	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	19	32	50	22
Future Volume (vph)	4	7	19	32	50	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	8	21	36	56	24
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.8	5.8	27.0	27.0	27.0	27.0
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.9		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

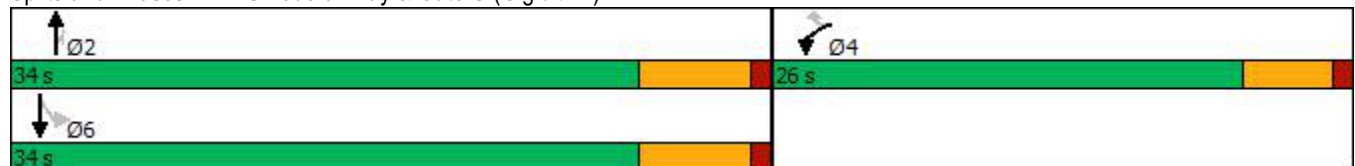
10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.5
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.05
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	8	21	36	56	24
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	19	32	50	22
Future Volume (veh/h)	4	7	19	32	50	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	4	8	21	0	56	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	28	25	480		837	428
Arrive On Green	0.02	0.02	0.31	0.00	0.31	0.31
Sat Flow, veh/h	1714	1525	1561	1525	1325	1393
Grp Volume(v), veh/h	4	8	21	0	56	24
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1325	1393
Q Serve(g_s), s	0.0	0.1	0.2	0.0	0.5	0.2
Cycle Q Clear(g_c), s	0.0	0.1	0.2	0.0	0.7	0.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	28	25	480		837	428
V/C Ratio(X)	0.14	0.32	0.04		0.07	0.06
Avail Cap(c_a), veh/h	2213	1970	2688		2711	2398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.9	7.9	4.0	0.0	4.2	4.0
Incr Delay (d2), s/veh	2.3	7.3	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.2	15.2	4.0	0.0	4.2	4.0
LnGrp LOS	B	B	A		A	A
Approach Vol, veh/h	12		21			80
Approach Delay, s/veh	13.6		4.0			4.2
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.3		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.7
Green Ext Time (p_c), s		0.0		0.0		0.2

Intersection Summary




















HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Future Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	34	0	0	25	0	655	126	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
	ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵			↔		↵	↔	
Traffic Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Future Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	34	0	23	2	655	122	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1446	1459	63	1395	1460	13	126	0	0	25	0	0
Stage 1	1434	1434	-	24	24	-	-	-	-	-	-	-
Stage 2	12	25	-	1371	1436	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	94	131	995	103	130	1070	1473	-	-	1603	-	-
Stage 1	143	201	-	996	879	-	-	-	-	-	-	-
Stage 2	1012	878	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	77	995	70	77	1070	1473	-	-	1603	-	-
Mov Cap-2 Maneuver	62	77	-	70	77	-	-	-	-	-	-	-
Stage 1	143	119	-	996	879	-	-	-	-	-	-	-
Stage 2	979	878	-	93	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10	0	7.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	-	70	1070	1603	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.032	0.409	-	-
HCM Control Delay (s)	0	-	-	0	57.3	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Future Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	69	0	0	894	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Future Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	69	0	0	891	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	928	-	447	515	-	35	894	0	-	-	-	0
Stage 1	893	-	-	69	-	-	-	-	-	-	-	-
Stage 2	35	-	-	446	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	161	0	358	447	0	1005	767	-	0	0	-	-
Stage 1	221	0	-	939	0	-	-	-	0	0	-	-
Stage 2	853	0	-	567	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	158	-	358	446	-	1005	767	-	-	-	-	-
Mov Cap-2 Maneuver	197	-	-	495	-	-	-	-	-	-	-	-
Stage 1	221	-	-	939	-	-	-	-	-	-	-	-
Stage 2	835	-	-	565	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	20.7		9.2		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	767	-	197	358	495	1005	-	-
HCM Lane V/C Ratio	-	-	0.011	0.003	0.006	0.021	-	-
HCM Control Delay (s)	0	-	23.5	15.1	12.3	8.7	-	-
HCM Lane LOS	A	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	216	41	550	0	241	56	19	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	99.0	91.3	91.3	96.6	90.1		14.3	28.4	28.4	19.7	13.9	
Actuated g/C Ratio	0.68	0.63	0.63	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.13	0.22	0.05	0.27		0.77	0.16	0.05	0.02	0.78	
Control Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.0			14.1			69.8			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	48	0	11	123		115	42	0	3	76	
Queue Length 95th (ft)	43	83	39	29	192		#166	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

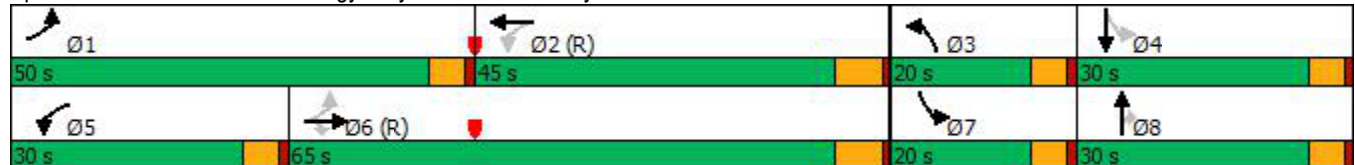


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	665	1871	997	867	2058		326	378	409	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27		0.74	0.15	0.05	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.1
 Intersection LOS: C
 Intersection Capacity Utilization 53.0%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	216	41	550	241	56	19	4	182
v/c Ratio	0.15	0.13	0.22	0.05	0.27	0.77	0.16	0.05	0.02	0.78
Control Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Length 50th (ft)	19	48	0	11	123	115	42	0	3	76
Queue Length 95th (ft)	43	83	39	29	192	#166	84	0	12	156
Internal Link Dist (ft)	1908				346		3134		856	
Turn Bay Length (ft)	155		415		90		520		240 125	
Base Capacity (vph)	665	1871	997	867	2058	326	378	409	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27	0.74	0.15	0.05	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	552	2117		877	2327		285	213		109	67	
Arrive On Green	0.03	0.70	0.00	0.03	0.70	0.00	0.09	0.12	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	552	2117		877	2327		285	213		109	67	
V/C Ratio(X)	0.12	0.11		0.05	0.23		0.84	0.26		0.04	0.63	
Avail Cap(c_a), veh/h	939	2117		1125	2327		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	7.0	0.0	5.7	7.9	0.0	65.0	57.8	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	16.1	0.7	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.2	0.0	0.3	3.0	0.0	5.0	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	7.2	0.0	5.7	8.2	0.0	81.1	58.5	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			579			297			46	
Approach Delay, s/veh		6.9			8.0			76.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	107.0	17.9	10.4	9.0	107.7	5.7	22.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.4	12.8	5.3	3.0	5.8	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.2	0.1	0.1	1.7	0.0	0.2				

Intersection Summary												
HCM 6th Ctrl Delay											26.9	
HCM 6th LOS											C	

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.2	38.2	9.1	33.2	33.2	7.9	18.2	18.2	28.4	22.4	35.6
Actuated g/C Ratio	0.13	0.42	0.42	0.10	0.37	0.37	0.09	0.20	0.20	0.32	0.25	0.40
v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.18	0.10	0.02	0.40	0.47	0.61
Control Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
LOS	E	B	A	D	C	A	D	C	A	C	C	A
Approach Delay		24.3			24.0			29.6			19.8	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	87	50	35	46	149	0	13	13	0	54	95	36

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	88	184	93	205	33	30	28	0	96	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1263	871	168	1190	663	413	753	580	383	896	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.12	0.08	0.02	0.40	0.44	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 23.0 Intersection LOS: C
 Intersection Capacity Utilization 63.2% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.18	0.10	0.02	0.40	0.47	0.61
Control Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	19.1	8.4	49.3	25.8	3.8	39.2	27.1	0.1	22.6	30.4	9.0
Queue Length 50th (ft)	87	50	35	46	149	0	13	13	0	54	95	36
Queue Length 95th (ft)	#161	88	184	93	205	33	30	28	0	96	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1263	871	168	1190	663	413	753	580	383	896	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.49	0.24	0.12	0.08	0.02	0.40	0.44	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	939	1387		150	736		158	366	186	395	603	682
Arrive On Green	0.11	0.15	0.00	0.09	0.23	0.00	0.05	0.12	0.12	0.11	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.6	8.3	0.0	4.3	15.0	0.0	1.4	1.6	0.6	6.8	9.8	3.9
Cycle Q Clear(g_c), s	8.6	8.3	0.0	4.3	15.0	0.0	1.4	1.6	0.6	6.8	9.8	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	939	1387		150	736		158	366	186	395	603	682
V/C Ratio(X)	0.32	0.23		0.56	0.79		0.31	0.16	0.06	0.39	0.65	0.62
Avail Cap(c_a), veh/h	939	1387		169	942		419	765	390	401	786	755
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	24.2	0.0	39.3	32.8	0.0	41.2	35.4	34.9	27.8	34.3	5.4
Incr Delay (d2), s/veh	0.2	0.4	0.0	2.9	7.5	0.0	1.1	0.2	0.1	0.6	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.2	0.0	1.9	6.5	0.0	0.5	0.6	0.2	2.7	3.9	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	24.5	0.0	42.2	40.3	0.0	42.3	35.6	35.1	28.5	35.6	6.7
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		27.8			40.6			38.3			21.8	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.0	25.3	9.5	21.1	13.0	46.3	14.6	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.6	17.0	3.4	11.8	6.3	10.3	8.8	3.6				
Green Ext Time (p_c), s	0.0	2.3	0.0	2.6	0.0	1.8	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			29.5									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1171	0	0	226	633	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.5	78.3			63.6	63.6	10.0		10.5			
Actuated g/C Ratio	0.85	0.87			0.71	0.71	0.11		0.12			
v/c Ratio	0.23	0.30			0.11	0.32	0.19		0.14			
Control Delay	2.6	2.2			3.4	0.7	39.6		1.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.6	2.2			3.4	0.7	39.6		1.3			
LOS	A	A			A	A	D		A			
Approach Delay		2.2			1.4			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	54			13	0	16		0			
Queue Length 95th (ft)	35	68			24	2	42		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

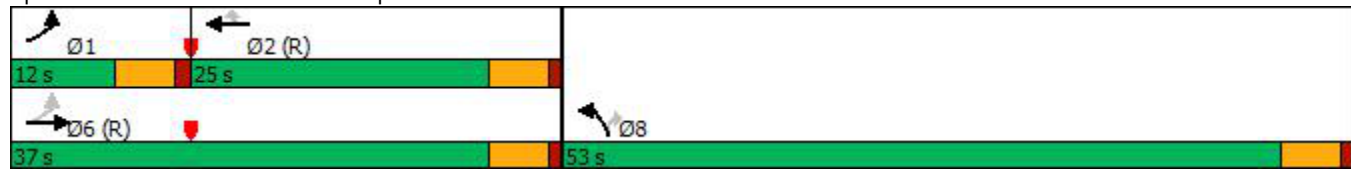


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	837	3922			2084	1965	766		683			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.11	0.32	0.04		0.04			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	2.4
Intersection LOS:	A
Intersection Capacity Utilization	51.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1171	226	633	30	29
v/c Ratio	0.23	0.30	0.11	0.32	0.19	0.14
Control Delay	2.6	2.2	3.4	0.7	39.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.2	3.4	0.7	39.6	1.3
Queue Length 50th (ft)	21	54	13	0	16	0
Queue Length 95th (ft)	35	68	24	2	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	837	3922	2084	1965	766	683
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.11	0.32	0.04	0.04
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1171	0	0	226	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	853	3695	0	0	2090		125	0	109			
Arrive On Green	0.06	0.81	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1171	0	0	226	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.8	5.9	0.0	0.0	5.4	0.0	1.7	0.0	2.0			
Cycle Q Clear(g_c), s	2.8	5.9	0.0	0.0	5.4	0.0	1.7	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	853	3695	0	0	2090		125	0	109			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.11		0.24	0.00	0.27			
Avail Cap(c_a), veh/h	888	3695	0	0	2090		779	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.84	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.8	2.2	0.0	0.0	12.5	0.0	38.4	0.0	38.1			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	1.0	0.0	0.0	1.6	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.9	2.4	0.0	0.0	12.6	0.0	39.4	0.0	39.4			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1363			226			59				
Approach Delay, s/veh		2.5			12.6			39.4				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.8	7.4				7.9		4.0				
Green Ext Time (p_c), s	0.1	1.0				9.0		0.2				

Intersection Summary













HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		115.9		127.0	127.0					83.0		83.0
Actuated g/C Ratio		0.53		0.58	0.58					0.38		0.38
v/c Ratio		0.21		0.09	0.13					0.74		0.46
Control Delay		32.1		27.4	25.3					62.5		4.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		32.1		27.4	25.3					62.5		4.5
LOS		C		C	C					E		A
Approach Delay		32.1			25.6							46.4
Approach LOS		C			C							D
Queue Length 50th (ft)		123		22	70					597		0
Queue Length 95th (ft)		234		69	150					442		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

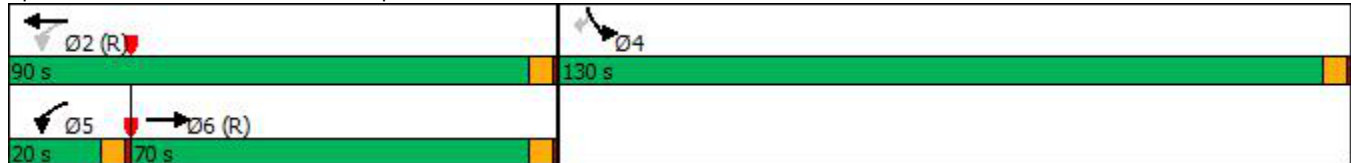
Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2211		447	1686					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.09	0.13					0.49		0.36

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	40.1
Intersection LOS:	D
Intersection Capacity Utilization	51.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.21	0.09	0.13	0.74	0.46
Control Delay	32.1	27.4	25.3	62.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	27.4	25.3	62.5	4.5
Queue Length 50th (ft)	123	22	70	597	0
Queue Length 95th (ft)	234	69	150	442	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2211	447	1686	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.09	0.13	0.49	0.36
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2533	183	538	1948	0				944	0	412
Arrive On Green	0.00	0.61	0.61	0.02	0.66	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	4272	299	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Cycle Q Clear(g_c), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1774	942	538	1948	0				944	0	412
V/C Ratio(X)	0.00	0.17	0.17	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1774	942	611	1948	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.4	18.4	14.7	14.0	0.0				74.8	0.0	71.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	3.9	0.8	2.2	0.0				24.0	0.0	35.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	18.8	14.8	14.1	0.0				79.2	0.0	75.6
LnGrp LOS	A	B	B	B	B	A				E	A	E
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		18.7			14.2						78.2	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		149.5		70.5	9.5	139.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		8.1		60.6	4.1	12.2						
Green Ext Time (p_c), s		1.5		4.9	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				55.2								
HCM 6th LOS				E								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	21	290	142	215
Future Volume (vph)	21	3	21	290	142	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	3	23	322	158	239
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 0.9

Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 

Traffic Vol, veh/h 21 3 21 290 142 215

Future Vol, veh/h 21 3 21 290 142 215

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 90 90 90 90 90 90

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 23 3 23 322 158 239

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 526 - 158 0 - 0

Stage 1 158 - - - - -

Stage 2 368 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 476 0 1434 - - 0

Stage 1 820 0 - - - 0

Stage 2 654 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 468 - 1434 - - -

Mov Cap-2 Maneuver 468 - - - - -

Stage 1 807 - - - - -

Stage 2 654 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.1 0.5 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1434 - 468 - -

HCM Lane V/C Ratio 0.016 - 0.05 - -

HCM Control Delay (s) 7.6 - 13.1 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0.1 - 0.2 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Future Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	3	0	0	43	0	114	509	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Future Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	2	0	3	0	40	3	114	509	0

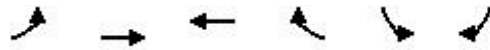
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	757	780	255	525	779	22	509	0	0	43	0	0
Stage 1	737	737	-	42	42	-	-	-	-	-	-	-
Stage 2	20	43	-	483	737	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	300	329	750	440	330	1056	1066	-	-	1579	-	-
Stage 1	381	428	-	973	864	-	-	-	-	-	-	-
Stage 2	1002	863	-	539	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	283	305	750	416	306	1056	1066	-	-	1579	-	-
Mov Cap-2 Maneuver	283	305	-	416	306	-	-	-	-	-	-	-
Stage 1	381	397	-	973	864	-	-	-	-	-	-	-
Stage 2	999	863	-	500	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.5	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1066	-	-	-	-	416	1056	1579	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.005	0.003	0.072	-	-
HCM Control Delay (s)	0	-	-	0	0	13.7	8.4	7.5	-	-
HCM Lane LOS	A	-	-	A	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.2	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	104	167	24	11	121
Future Volume (vph)	81	104	167	24	11	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	116	213	0	12	134
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	81	104	167	24	11	121
Future Vol, veh/h	81	104	167	24	11	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	90	116	186	27	12	134
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	213	0	-	0	496	200
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1369	-	-	-	537	846
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	502	846
Mov Cap-2 Maneuver	-	-	-	-	502	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	759	-
Approach	EB	WB	SB			
HCM Control Delay, s	3.4	0	10.3			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1369	-	-	-	502	846
HCM Lane V/C Ratio	0.066	-	-	-	0.024	0.159
HCM Control Delay (s)	7.8	-	-	-	12.4	10.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					15.7	15.7		41.3		63.7	62.7	
Actuated g/C Ratio					0.14	0.14		0.38		0.58	0.57	
v/c Ratio					0.72	0.65		0.56		0.86	0.34	
Control Delay					63.0	7.6		31.3		26.4	17.6	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					63.0	7.6		31.3		26.4	17.6	
LOS					E	A		C		C	B	
Approach Delay					20.4			31.3			20.7	
Approach LOS					C			C			C	
Queue Length 50th (ft)					112	0		205		179	168	
Queue Length 95th (ft)					#198	52		270		m183	m160	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					251	874		1171		408	1839	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.67	0.64		0.56		0.86	0.34	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	23.6
Intersection LOS:	C
Intersection Capacity Utilization	55.5%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.72	0.65	0.56	0.86	0.34
Control Delay	63.0	7.6	31.3	26.4	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	7.6	31.3	26.4	17.6
Queue Length 50th (ft)	112	0	205	179	168
Queue Length 95th (ft)	#198	52	270	m183	m160
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	251	874	1171	408	1839
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.64	0.56	0.86	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	556	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	265	0	405	568	1822	181	595	2489	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.62	0.61	0.11	0.76	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2946	292	1514	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	556	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	10.1	0.0	17.0	0.0	10.6	10.7	8.5	6.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.1	0.0	17.0	0.0	10.6	10.7	8.5	6.2	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	265	0	405	568	991	1011	595	2489	0
V/C Ratio(X)	0.00	0.00	0.00	0.63	0.00	1.37	0.00	0.33	0.33	0.59	0.25	0.00
Avail Cap(c_a), veh/h	0	393	0	265	0	405	831	991	1011	664	2489	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.0	0.0	46.5	0.0	10.0	10.1	6.1	3.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	4.7	0.0	182.5	0.0	0.9	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.5	0.0	15.8	0.0	3.5	3.6	1.9	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	48.8	0.0	229.0	0.0	10.9	11.0	6.2	3.8	0.0
LnGrp LOS	A	A	A	D	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			723			653			980	
Approach Delay, s/veh		0.0			187.4			10.9			4.7	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	73.0		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	10.5	12.7		19.0	0.0	8.2		0.0				
Green Ext Time (p_c), s	0.5	3.6		0.0	0.0	4.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	62.5											
HCM 6th LOS	E											
Notes												
User approved pedestrian interval to be less than phase max green.												

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	850	327	304	762	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.5		31.0	31.0	31.0	41.6	41.1	41.1	15.0	52.3	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.38	0.37	0.37	0.14	0.48	
v/c Ratio		0.43		3.03	3.36	0.73	0.16	0.69	0.47	0.74	0.54	
Control Delay		44.3		975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.3		975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		44.3			450.5			15.6			33.6	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		20		~234	~243	75	7	134	0	107	217	
Queue Length 95th (ft)		46		#347	#361	213	m13	246	13	#163	293	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

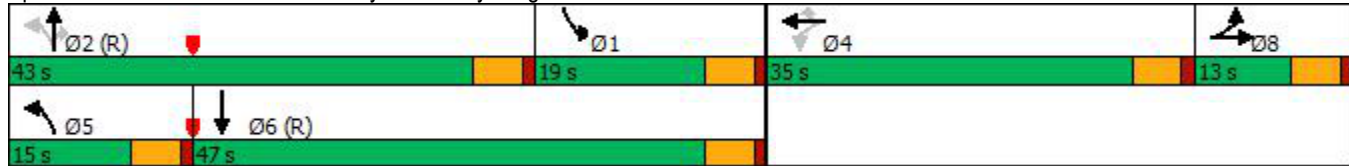


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		191		60	55	690	217	1228	700	411	1404	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.40		3.03	3.36	0.73	0.14	0.69	0.47	0.74	0.54	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.36
Intersection Signal Delay:	140.2
Intersection LOS:	F
Intersection Capacity Utilization	66.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	850	327	304	762
v/c Ratio	0.43	3.03	3.36	0.73	0.16	0.69	0.47	0.74	0.54
Control Delay	44.3	975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	975.3	1124.3	16.3	16.1	20.4	3.0	57.5	24.1
Queue Length 50th (ft)	20	~234	~243	75	7	134	0	107	217
Queue Length 95th (ft)	46	#347	#361	213	m13	246	13	#163	293
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	191	60	55	690	217	1228	700	411	1404
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	3.03	3.36	0.73	0.14	0.69	0.47	0.74	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	82	30	48	951	0	420	188	1160	501	510	1396	100
Arrive On Green	0.04	0.05	0.04	0.28	0.00	0.28	0.04	0.35	0.35	0.17	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	358	0	507	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	24.7	21.2	10.1	18.5	18.5
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	24.7	21.2	10.1	18.5	18.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	82	0	78	951	0	420	188	1160	501	510	738	759
V/C Ratio(X)	0.56	0.00	0.40	0.38	0.00	1.21	0.16	0.73	0.65	0.60	0.51	0.51
Avail Cap(c_a), veh/h	130	0	123	951	0	420	281	1160	501	510	738	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	50.8	31.7	0.0	39.5	26.7	31.3	30.1	42.4	19.7	19.7
Incr Delay (d2), s/veh	5.8	0.0	3.3	0.2	0.0	113.9	0.3	3.2	5.1	1.9	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	3.8	0.0	24.5	0.5	9.9	7.7	3.8	6.4	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	0.0	54.0	32.0	0.0	153.4	27.1	34.5	35.2	44.3	22.2	22.1
LnGrp LOS	E	A	D	C	A	F	C	C	D	D	C	C
Approach Vol, veh/h		77			865			1207			1066	
Approach Delay, s/veh		55.9			103.1			34.5			28.5	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.1	26.7		33.0	3.5	20.5		5.1				
Green Ext Time (p_c), s	0.2	5.1		0.0	0.0	4.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D



















Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Future Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	67	47	0	0	0	0	7	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Future Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	42	57	67	47	0	0	0	0	7	0	94

Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	99	0	0				202	280	47
Stage 1	-	-	-	-	-	-				181	181	-
Stage 2	-	-	-	-	-	-				21	99	-
Critical Hdwy	-	-	-	4.745	-	-				6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-				5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-				3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1255	-	0				772	542	922
Stage 1	0	-	-	-	-	0				844	656	-
Stage 2	0	-	-	-	-	0				994	720	-
Platoon blocked, %		-	-	-								
Mov Cap-1 Maneuver	-	-	-	1255	-	-				731	0	922
Mov Cap-2 Maneuver	-	-	-	-	-	-				731	0	-
Stage 1	-	-	-	-	-	-				844	0	-
Stage 2	-	-	-	-	-	-				941	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1255	-	731	922
HCM Lane V/C Ratio	-	-	0.053	-	0.009	0.102
HCM Control Delay (s)	-	-	8	-	10	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.3

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↙	↑↑	↑	↘↘		
Traffic Volume (vph)	36	16	99	86	0	0
Future Volume (vph)	36	16	99	86	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	18	110	96	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Future Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	0	0	0	1	0	33	20	0	0	0	170
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Future Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	16	0	0	0	1	0	33	20	0	0	0	170













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.035	0.022	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	27	4	6	37
Future Volume (vph)	67	101	27	4	6	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	112	30	4	7	41
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	6.7	6.7	13.3	13.3	13.3	13.3
Actuated g/C Ratio	0.24	0.24	0.48	0.48	0.48	0.48
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
LOS	A	A	A	A	A	A
Approach Delay	5.5		6.7			7.0
Approach LOS	A		A			A
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.25
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	112	30	4	7	41
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	27	4	6	37
Future Volume (veh/h)	67	101	27	4	6	37
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	74	112	30	0	7	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	281	250	408		700	364
Arrive On Green	0.16	0.16	0.26	0.00	0.26	0.26
Sat Flow, veh/h	1714	1525	1561	1525	1314	1393
Grp Volume(v), veh/h	74	112	30	0	7	41
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1314	1393
Q Serve(g_s), s	0.7	1.3	0.3	0.0	0.1	0.4
Cycle Q Clear(g_c), s	0.7	1.3	0.3	0.0	0.4	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	281	250	408		700	364
V/C Ratio(X)	0.26	0.45	0.07		0.01	0.11
Avail Cap(c_a), veh/h	1881	1674	2284		2279	2038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	7.2	5.3	0.0	5.5	5.4
Incr Delay (d2), s/veh	0.5	1.3	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.5	8.5	5.4	0.0	5.5	5.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	186		30			48
Approach Delay, s/veh	8.1		5.4			5.5
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		8.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		3.3		2.4
Green Ext Time (p_c), s		0.1		0.5		0.2

Intersection Summary		
HCM 6th Ctrl Delay		7.3
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Future Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55			45	
Link Distance (ft)		182			257			239			1256	
Travel Time (s)		6.2			8.8			3.0			19.0	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	7	673	0	0	164	0	102	38	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	12.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵			↔		↵	↔	
Traffic Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Future Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	7	0	673	0	161	3	102	38	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	323	406	19	386	405	82	38	0	0	164	0	0
Stage 1	242	242	-	163	163	-	-	-	-	-	-	-
Stage 2	81	164	-	223	242	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	612	537	1061	552	538	968	1585	-	-	1427	-	-
Stage 1	746	709	-	829	767	-	-	-	-	-	-	-
Stage 2	924	766	-	765	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	177	499	1061	522	500	968	1585	-	-	1427	-	-
Mov Cap-2 Maneuver	177	499	-	522	500	-	-	-	-	-	-	-
Stage 1	746	659	-	829	767	-	-	-	-	-	-	-
Stage 2	282	766	-	710	659	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	25.6		16.7		0		5.6	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	177	522	968	1427	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.013	0.695	0.072	-	-
HCM Control Delay (s)	0	-	-	25.6	12	16.7	7.7	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.9	0.2	-	-

Lanes, Volumes, Timings
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	764	0	1	0	158
Future Volume (vph)	1	0	0	1	0	145	0	764	0	1	0	158
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45				45
Link Distance (ft)		255			1077			2303				2188
Travel Time (s)		7.0			21.0			34.9				33.2
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	2%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	849	0	0	0	178
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.1% ICU Level of Service A
Analysis Period (min)	15

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	67%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Sign Control	
Intersection Summary	

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection													
Int Delay, s/veh	1.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↘		↗	↘		↗	↔	↔				↕	↕
Traffic Vol, veh/h	1	0	0	1	0	145	0	764	0	1	0	158	1
Future Vol, veh/h	1	0	0	1	0	145	0	764	0	1	0	158	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	2	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	849	0	1	0	176	1

Major/Minor	Minor2		Minor1		Major1		Major2						
Conflicting Flow All	604	-	89	939	-	425	177	0	-	849	-	-	0
Stage 1	179	-	-	849	-	-	-	-	-	-	-	-	-
Stage 2	425	-	-	90	-	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	6.44	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	2.52	-	-	-
Pot Cap-1 Maneuver	297	0	708	222	0	556	1411	-	0	415	0	-	-
Stage 1	684	0	-	326	0	-	-	-	0	-	0	-	-
Stage 2	466	0	-	913	0	-	-	-	0	-	0	-	-
Platoon blocked, %								-				-	-
Mov Cap-1 Maneuver	216	-	708	221	-	556	1411	-	-	307	-	-	-
Mov Cap-2 Maneuver	216	-	-	221	-	-	-	-	-	-	-	-	-
Stage 1	684	-	-	326	-	-	-	-	-	-	-	-	-
Stage 2	339	-	-	909	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.8	14	0	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1411	-	216	-	221	556	-	-
HCM Lane V/C Ratio	-	-	0.005	-	0.005	0.272	-	-
HCM Control Delay (s)	0	-	21.8	0	21.4	13.9	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

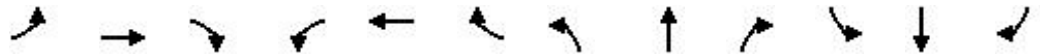
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	227	18	411	0	283	51	51	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.4	90.8	90.8	80.3	73.3		14.6	23.5	23.5	15.0	9.0	
Actuated g/C Ratio	0.71	0.67	0.67	0.59	0.54		0.11	0.17	0.17	0.11	0.07	
v/c Ratio	0.49	0.32	0.22	0.04	0.23		0.83	0.17	0.15	0.04	0.66	
Control Delay	10.7	11.1	2.1	8.5	17.9		79.1	46.5	1.0	39.8	27.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.7	11.1	2.1	8.5	17.9		79.1	46.5	1.0	39.8	27.1	
LOS	B	B	A	A	B		E	D	A	D	C	
Approach Delay		9.2			17.5			64.4			27.7	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	74	93	0	4	91		126	37	0	5	12	
Queue Length 95th (ft)	147	200	37	14	160		#194	77	0	17	77	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

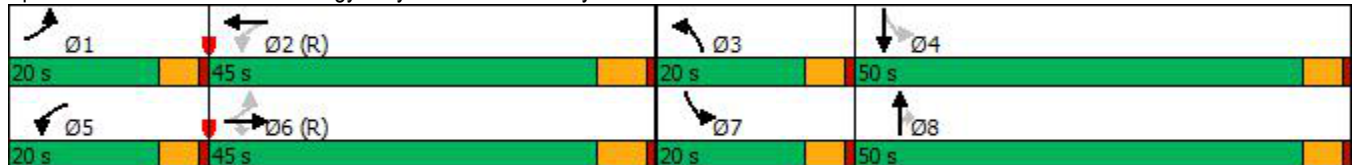


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	572	2000	1054	598	1798		351	582	538	277	570	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.48	0.32	0.22	0.03	0.23		0.81	0.09	0.09	0.03	0.25	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	135
Offset:	70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	22.4
Intersection LOS:	C
Intersection Capacity Utilization	58.9%
ICU Level of Service	B
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	276	630	227	18	411	283	51	51	7	144
v/c Ratio	0.49	0.32	0.22	0.04	0.23	0.83	0.17	0.15	0.04	0.66
Control Delay	10.7	11.1	2.1	8.5	17.9	79.1	46.5	1.0	39.8	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	11.1	2.1	8.5	17.9	79.1	46.5	1.0	39.8	27.1
Queue Length 50th (ft)	74	93	0	4	91	126	37	0	5	12
Queue Length 95th (ft)	147	200	37	14	160	#194	77	0	17	77
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	572	2000	1054	598	1798	351	582	538	277	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.32	0.22	0.03	0.23	0.81	0.09	0.09	0.03	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗		↘↘	↗	↘	↘	↗	↘
Traffic Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	276	630	0	18	400	0	283	51	0	7	14	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	636	2080		575	2075		329	227		115	62	
Arrive On Green	0.09	0.69	0.00	0.02	0.62	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	276	630	0	18	400	0	283	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	9.3	11.1	0.0	0.5	7.0	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Cycle Q Clear(g_c), s	9.3	11.1	0.0	0.5	7.0	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	636	2080		575	2075		329	227		115	62	
V/C Ratio(X)	0.43	0.30		0.03	0.19		0.86	0.23		0.06	0.23	
Avail Cap(c_a), veh/h	671	2080		735	2075		355	586		291	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	8.3	0.0	8.9	11.0	0.0	59.6	52.8	0.0	62.1	63.4	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.0	0.0	0.2	0.0	17.9	0.5	0.0	0.2	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.5	0.0	0.2	2.6	0.0	5.5	1.6	0.0	0.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	8.6	0.0	8.9	11.2	0.0	77.5	53.2	0.0	62.3	65.2	0.0
LnGrp LOS	A	A		A	B		E	D		E	E	
Approach Vol, veh/h		906			418			334			21	
Approach Delay, s/veh		8.2			11.1			73.8			64.2	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	89.9	18.9	9.7	7.5	99.0	6.2	22.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	11.3	9.0	13.8	3.0	2.5	13.1	2.5	5.5				
Green Ext Time (p_c), s	0.3	2.7	0.1	0.0	0.0	4.5	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	39.0	52.0	52.0	17.0	30.0	30.0	50.0	56.0	56.0	25.0	31.0	39.0
Total Split (%)	26.0%	34.7%	34.7%	11.3%	20.0%	20.0%	33.3%	37.3%	37.3%	16.7%	20.7%	26.0%
Maximum Green (s)	34.0	47.0	47.0	12.0	25.0	25.0	45.0	51.0	51.0	20.0	26.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	33.4	66.4	66.4	9.1	34.3	34.3	35.0	45.3	45.3	52.3	31.3	68.7
Actuated g/C Ratio	0.22	0.44	0.44	0.06	0.23	0.23	0.23	0.30	0.30	0.35	0.21	0.46
v/c Ratio	0.91	0.50	0.17	0.12	0.80	0.26	0.82	0.42	0.13	0.82	0.12	0.81
Control Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
LOS	E	C	A	E	E	A	E	D	A	D	D	D
Approach Delay		49.8			55.3			51.8			42.5	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	284	245	0	11	~333	0	284	143	0	205	34	340

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

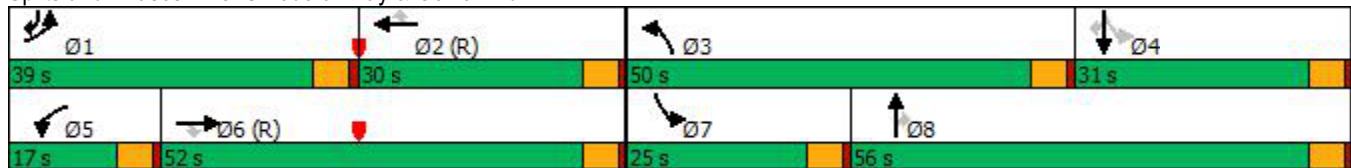
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#380	358	45	34	#458	22	334	191	0	#285	62	552
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1317	733	145	737	462	950	1021	611	421	763	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.50	0.17	0.08	0.80	0.26	0.62	0.37	0.11	0.82	0.11	0.79

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 49.6 Intersection LOS: D
 Intersection Capacity Utilization 74.7% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
v/c Ratio	0.91	0.50	0.17	0.12	0.80	0.26	0.82	0.42	0.13	0.82	0.12	0.81
Control Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	35.0	5.8	69.5	65.3	3.8	63.9	42.2	0.5	46.7	47.2	39.0
Queue Length 50th (ft)	284	245	0	11	~333	0	284	143	0	205	34	340
Queue Length 95th (ft)	#380	358	45	34	#458	22	334	191	0	#285	62	552
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1317	733	145	737	462	950	1021	611	421	763	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.50	0.17	0.08	0.80	0.26	0.62	0.37	0.11	0.82	0.11	0.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	638	1423		47	911		675	762	388	419	606	543
Arrive On Green	0.22	0.47	0.00	0.03	0.28	0.00	0.21	0.25	0.25	0.14	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	29.2	22.3	0.0	1.0	24.0	0.0	27.2	15.9	5.3	21.0	3.2	27.0
Cycle Q Clear(g_c), s	29.2	22.3	0.0	1.0	24.0	0.0	27.2	15.9	5.3	21.0	3.2	27.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	638	1423		47	911		675	762	388	419	606	543
V/C Ratio(X)	0.91	0.47		0.26	0.65		0.87	0.49	0.18	0.83	0.14	0.98
Avail Cap(c_a), veh/h	679	1423		146	911		964	1038	529	419	606	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.88	0.88	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	26.9	0.0	71.4	47.6	0.0	57.0	47.6	43.7	45.6	51.8	44.6
Incr Delay (d2), s/veh	15.2	1.0	0.0	2.5	3.2	0.0	6.5	0.5	0.2	13.0	0.1	34.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	8.2	0.0	0.5	10.1	0.0	11.3	6.0	2.0	3.9	1.4	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.3	27.9	0.0	73.9	50.7	0.0	63.5	48.1	43.9	58.6	51.9	79.0
LnGrp LOS	E	C		E	D		E	D	D	E	D	E
Approach Vol, veh/h		1243			604			1032			967	
Approach Delay, s/veh		48.7			51.2			56.6			69.3	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.9	45.9	36.2	31.0	8.1	74.7	25.0	42.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	34.0	25.0	45.0	26.0	12.0	47.0	20.0	51.0				
Max Q Clear Time (g_c+I1), s	31.2	26.0	29.2	29.0	3.0	24.3	23.0	17.9				
Green Ext Time (p_c), s	0.7	0.0	2.0	0.0	0.0	4.6	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			56.4									
HCM 6th LOS			E									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

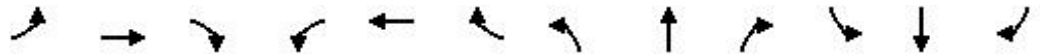
Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1347	0	0	382	1150	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.7	113.6			95.2	95.2	10.8		11.3			
Actuated g/C Ratio	0.87	0.87			0.73	0.73	0.08		0.09			
v/c Ratio	0.53	0.34			0.18	0.53	0.35		0.42			
Control Delay	4.6	2.2			6.7	1.4	64.6		20.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	4.6	2.2			6.7	1.4	64.6		20.0			
LOS	A	A			A	A	E		C			
Approach Delay		2.8			2.8			36.6				
Approach LOS		A			A			D				
Queue Length 50th (ft)	52	66			50	0	34		0			
Queue Length 95th (ft)	92	94			86	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	841	3940			2159	2151	221		248			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.48	0.34			0.18	0.53	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	3.9
Intersection LOS:	A
Intersection Capacity Utilization	80.5%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1347	382	1150	42	71
v/c Ratio	0.53	0.34	0.18	0.53	0.35	0.42
Control Delay	4.6	2.2	6.7	1.4	64.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.6	2.2	6.7	1.4	64.6	20.0
Queue Length 50th (ft)	52	66	50	0	34	0
Queue Length 95th (ft)	92	94	86	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	841	3940	2159	2151	221	248
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.34	0.18	0.53	0.19	0.29
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1347	0	0	382	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	827	3890	0	0	2182		110	0	95			
Arrive On Green	0.09	0.85	0.00	0.00	0.73	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1347	0	0	382	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	7.7	8.1	0.0	0.0	5.2	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	7.7	8.1	0.0	0.0	5.2	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	827	3890	0	0	2182		110	0	95			
V/C Ratio(X)	0.49	0.35	0.00	0.00	0.18		0.38	0.00	0.75			
Avail Cap(c_a), veh/h	996	3890	0	0	2182		225	0	188			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.63	0.63	0.00	0.00	0.48	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.8	2.0	0.0	0.0	5.5	0.0	57.2	0.0	58.6			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	11.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.5	0.0	0.0	1.5	0.0	1.3	0.0	2.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.1	2.2	0.0	0.0	5.6	0.0	59.3	0.0	69.7			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1754			382			113				
Approach Delay, s/veh		2.4			5.6			65.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.9	99.3				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	9.7	7.2				10.1		9.6				
Green Ext Time (p_c), s	1.1	2.8				14.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	74	332	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		100.6		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.34		0.22	0.19					0.98		0.38
Control Delay		26.0		17.3	17.0					84.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.0		17.3	17.0					84.7		6.2
LOS		C		B	B					F		A
Approach Delay		26.0			17.1							70.1
Approach LOS		C			B							E
Queue Length 50th (ft)		194		37	94					675		0
Queue Length 95th (ft)		234		64	122					#826		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2222		365	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.34		0.20	0.19					0.98		0.38

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 47.7
 Intersection LOS: D
 Intersection Capacity Utilization 80.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	74	332	1052	240
v/c Ratio	0.34	0.22	0.19	0.98	0.38
Control Delay	26.0	17.3	17.0	84.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	17.3	17.0	84.7	6.2
Queue Length 50th (ft)	194	37	94	675	0
Queue Length 95th (ft)	234	64	122	#826	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2222	365	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.20	0.19	0.98	0.38













Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	74	332	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2249	181	376	1800	0				1079	0	471
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4236	330	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	496	264	74	332	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	17.7	17.9	4.0	9.4	0.0				62.2	0.0	26.3
Cycle Q Clear(g_c), s	0.0	17.7	17.9	4.0	9.4	0.0				62.2	0.0	26.3
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1589	841	376	1800	0				1079	0	471
V/C Ratio(X)	0.00	0.31	0.31	0.20	0.18	0.00				0.97	0.00	0.51
Avail Cap(c_a), veh/h	0	1589	841	449	1800	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.3	23.3	17.9	16.5	0.0				61.8	0.0	50.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.2	0.0				21.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.3	6.8	1.5	3.4	0.0				27.4	0.0	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.8	24.3	18.1	16.8	0.0				83.2	0.0	50.9
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		760			406						1292	
Approach Delay, s/veh		24.0			17.0						77.2	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.3		69.7	10.9	109.4						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		11.4		64.2	6.0	19.9						
Green Ext Time (p_c), s		2.4		0.5	0.1	5.8						
Intersection Summary												
HCM 6th Ctrl Delay				50.8								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	2	252	265	44
Future Volume (vph)	73	11	2	252	265	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	12	2	280	294	49
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.7% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
 11: Technology Way & Circuit Ln

10/14/2022

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	73	11	2	252	265	44
Future Vol, veh/h	73	11	2	252	265	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	81	12	2	280	294	49

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	578	-	294	0	-
Stage 1	294	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-
Stage 1	709	0	-	-	-
Stage 2	716	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	442	-	1279	-	-
Mov Cap-2 Maneuver	442	-	-	-	-
Stage 1	708	-	-	-	-
Stage 2	716	-	-	-	-























Approach	EB	NB	SB
HCM Control Delay, s	15	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.184	-	-
HCM Control Delay (s)	7.8	-	15	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Future Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45				45
Link Distance (ft)		273			287			1256				2303
Travel Time (s)		9.3			9.8			19.0				34.9
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	10	42	0	0	743	0	12	79	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 29.5% ICU Level of Service A

Analysis Period (min) 15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵↵		↵	↵↵	
Traffic Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Future Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	10	0	42	0	743	0	12	79	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	475	846	40	807	846	372	79	0	0	743	0	0
Stage 1	103	103	-	743	743	-	-	-	-	-	-	-
Stage 2	372	743	-	64	103	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	477	301	1029	276	301	631	1532	-	-	873	-	-
Stage 1	897	814	-	378	425	-	-	-	-	-	-	-
Stage 2	626	425	-	945	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	440	297	1029	273	297	631	1532	-	-	873	-	-
Mov Cap-2 Maneuver	440	297	-	273	297	-	-	-	-	-	-	-
Stage 1	897	803	-	378	425	-	-	-	-	-	-	-
Stage 2	584	425	-	932	803	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		12.6		0		1.2	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	-	-	273	631	873	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.037	0.067	0.014	-	-
HCM Control Delay (s)	0	-	-	0	0	18.7	11.1	9.2	-	-
HCM Lane LOS	A	-	-	A	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1	0.2	0	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	143	268	155	20	48	122
Future Volume (vph)	143	268	155	20	48	122
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	298	194	0	53	136
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.6% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.3

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	143	268	155	20	48	122
Future Vol, veh/h	143	268	155	20	48	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	159	298	172	22	53	136

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	194	0	-	0	799	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1391	-	-	-	357	865
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1391	-	-	-	316	865
Mov Cap-2 Maneuver	-	-	-	-	316	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	543	-

Approach EB WB SB

HCM Control Delay, s	2.8	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1391	-	-	-	316	865
HCM Lane V/C Ratio	0.114	-	-	-	0.169	0.157
HCM Control Delay (s)	7.9	-	-	-	18.7	9.9
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.6	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	619	844	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			15.4	15.4	42.6	35.0		78.6	75.5	
Actuated g/C Ratio		0.20			0.12	0.12	0.33	0.27		0.60	0.58	
v/c Ratio		0.00			0.68	0.69	0.00	1.28		1.26	0.45	
Control Delay		0.0			72.7	9.2	17.0	172.6		160.6	23.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			72.7	9.2	17.0	172.6		160.6	23.6	
LOS		A			E	A	B	F		F	C	
Approach Delay					21.6			172.5			81.5	
Approach LOS					C			F			F	
Queue Length 50th (ft)		0			106	0	0	~591		~722	228	
Queue Length 95th (ft)		0			176	56	3	#729		m#595	m208	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		516			213	809	390	832		492	1873	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.62	0.67	0.00	1.28		1.26	0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.28
Intersection Signal Delay:	99.2
Intersection LOS:	F
Intersection Capacity Utilization	87.3%
ICU Level of Service	E
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



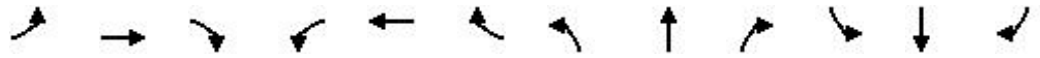
Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	619	844
v/c Ratio	0.00	0.68	0.69	0.00	1.28	1.26	0.45
Control Delay	0.0	72.7	9.2	17.0	172.6	160.6	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	72.7	9.2	17.0	172.6	160.6	23.6
Queue Length 50th (ft)	0	106	0	0	~591	~722	228
Queue Length 95th (ft)	0	176	56	3	#729	m#595	m208
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	516	213	809	390	832	492	1873
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.62	0.67	0.00	1.28	1.26	0.45

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	538	1	844	219	619	844	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	8	0	8	224	0	343	469	1273	330	514	2223	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.13	0.05	0.51	0.50	0.22	0.68	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2520	654	1514	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	538	1	537	526	619	844	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	9.4	0.0	17.0	0.0	32.4	32.5	29.0	14.4	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	9.4	0.0	17.0	0.0	32.4	32.5	29.0	14.4	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	17	0	0	224	0	343	469	810	793	514	2223	0
V/C Ratio(X)	0.12	0.00	0.00	0.58	0.00	1.57	0.00	0.66	0.66	1.20	0.38	0.00
Avail Cap(c_a), veh/h	397	0	0	224	0	343	614	810	793	514	2223	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	64.2	0.0	0.0	53.7	0.0	56.5	13.1	23.9	24.1	30.2	8.9	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	3.9	0.0	269.8	0.0	4.3	4.4	93.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.2	0.0	18.5	0.0	12.5	12.3	29.1	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	0.0	57.5	0.0	326.3	13.1	28.2	28.5	123.5	8.9	0.0
LnGrp LOS	E	A	A	E	A	F	B	C	C	F	A	A
Approach Vol, veh/h		2			669			1064			1463	
Approach Delay, s/veh		67.4			273.7			28.3			57.4	
Approach LOS		E			F			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	70.7		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	31.0	34.5		19.0	2.0	16.4		2.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	6.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	93.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

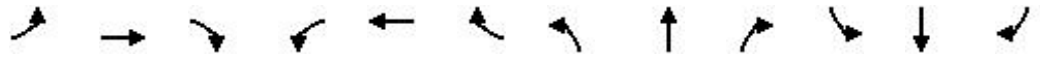
Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1034	378	684	1262	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		15.1		35.0	35.0	35.0	47.7	38.5	38.5	24.9	56.8	
Actuated g/C Ratio		0.12		0.27	0.27	0.27	0.37	0.30	0.30	0.19	0.44	
v/c Ratio		0.40		3.67	4.34	0.68	0.34	1.06	0.67	1.18	0.96	
Control Delay		41.0		1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		41.0		1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2	
LOS		D		F	F	B	B	E	A	F	D	
Approach Delay		41.0			620.1			42.3			85.3	
Approach LOS		D			F			D			F	
Queue Length 50th (ft)		37		~296	~276	27	9	~488	0	~376	~597	
Queue Length 95th (ft)		70		#422	#443	144	m12	m291	m10	#498	#764	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		358		51	44	729	201	973	561	578	1319	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.36		3.67	4.34	0.68	0.24	1.06	0.67	1.18	0.96	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	4.34
Intersection Signal Delay:	175.6
Intersection LOS:	F
Intersection Capacity Utilization	72.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1034	378	684	1262
v/c Ratio	0.40	3.67	4.34	0.68	0.34	1.06	0.67	1.18	0.96
Control Delay	41.0	1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	1262.1	1567.9	10.6	20.0	57.5	3.5	144.5	53.2
Queue Length 50th (ft)	37	~296	~276	27	9	~488	0	~376	~597
Queue Length 95th (ft)	70	#422	#443	144	m12	m291	m10	#498	#764
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	358	51	44	729	201	973	561	578	1319
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	3.67	4.34	0.68	0.24	1.06	0.67	1.18	0.96

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	494	48	1034	378	684	1253	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	46	102	59	909	0	401	177	1197	517	543	1560	11
Arrive On Green	0.06	0.07	0.06	0.27	0.00	0.27	0.04	0.36	0.36	0.18	0.50	0.49
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	494	48	1034	378	684	616	646
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	5.2	0.0	5.1	11.5	0.0	35.0	2.6	37.7	29.8	23.0	43.5	43.6
Cycle Q Clear(g_c), s	5.2	0.0	5.1	11.5	0.0	35.0	2.6	37.7	29.8	23.0	43.5	43.6
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	108	0	99	909	0	401	177	1197	517	543	766	805
V/C Ratio(X)	0.63	0.00	0.61	0.40	0.00	1.23	0.27	0.86	0.73	1.26	0.80	0.80
Avail Cap(c_a), veh/h	214	0	198	909	0	401	276	1197	517	543	766	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	0.0	59.4	38.9	0.0	47.5	26.7	38.6	36.1	53.5	27.2	27.3
Incr Delay (d2), s/veh	5.9	0.0	5.9	0.3	0.0	124.3	0.1	0.8	0.8	131.7	8.7	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	2.1	4.8	0.0	26.9	0.9	15.0	10.3	18.4	16.3	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.3	0.0	65.2	39.2	0.0	171.8	26.8	39.4	36.9	185.2	36.0	35.6
LnGrp LOS	E	A	E	D	A	F	C	D	D	F	D	D
Approach Vol, veh/h		128			859			1460			1946	
Approach Delay, s/veh		65.3			115.4			38.3			88.3	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.5		39.0	9.1	69.3		12.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	25.0	39.7		37.0	4.6	45.6		7.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	76.3
HCM 6th LOS	E

Notes






















- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Build Conditions Analysis

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Future Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	62	32	0	0	198	0	90	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Future Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	79	46	62	32	0	0	198	0	90	0	67

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	125	0	0		196	281	32
Stage 1	-	-	-	-	-	-		156	156	-
Stage 2	-	-	-	-	-	-		40	125	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1224	-	0		778	541	941
Stage 1	0	-	-	-	-	0		866	675	-
Stage 2	0	-	-	-	-	0		972	699	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1224	-	-		738	0	941
Mov Cap-2 Maneuver	-	-	-	-	-	-		738	0	-
Stage 1	-	-	-	-	-	-		866	0	-
Stage 2	-	-	-	-	-	-		922	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.3	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1224	-	738	941
HCM Lane V/C Ratio	-	-	0.051	-	0.122	0.071
HCM Control Delay (s)	-	-	8.1	-	10.6	9.1
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0.4	0.2

Lanes, Volumes, Timings

2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↶	↷↷	↶	↷↷		
Traffic Volume (vph)	38	227	84	64	0	0
Future Volume (vph)	38	227	84	64	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	252	93	71	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3% ICU Level of Service A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Future Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	1	0	0	1	0	14	163	0	0	0	150
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Future Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	250	1	0	0	1	0	14	163	0	0	0	150













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.8	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.182	-	-	-	-	-
HCM Control Delay (s)	8.9	9.9	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.7	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	16	68	290	74	39
Future Volume (vph)	103	16	68	290	74	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.5	7.5	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.25	0.25	0.63	0.63	0.63	0.63
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
LOS	B	A	A	A	A	A
Approach Delay	9.8		3.0			6.7
Approach LOS	A		A			A
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	5.1
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	18	76	322	82	43
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022






















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	103	16	68	290	74	39
Future Volume (veh/h)	103	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	114	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	228	203	423		684	377
Arrive On Green	0.13	0.13	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	114	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.1	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.1	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	228	203	423		684	377
V/C Ratio(X)	0.50	0.09	0.18		0.12	0.11
Avail Cap(c_a), veh/h	1950	1735	2368		2255	2113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	7.0	5.2	0.0	5.8	5.1
Incr Delay (d2), s/veh	1.7	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	7.2	5.4	0.0	5.9	5.2
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	132		76			125
Approach Delay, s/veh	8.9		5.4			5.6
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.1		3.7
Green Ext Time (p_c), s		0.3		0.3		0.4

Intersection Summary		
HCM 6th Ctrl Delay		6.9
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	20	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection

Int Delay, s/veh 9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵			↔		↵	↔	
Traffic Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	20	0	53	0	33	55	709	148	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	39.6	0	7.7
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	49	1023	1520	-	-
HCM Lane V/C Ratio	-	-	-	-	0.408	0.052	0.466	-	-
HCM Control Delay (s)	0	-	-	0	122	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.2	2.6	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Future Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	108	0	0	1002	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	↕
Traffic Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Future Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	108	0	0	999	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1055	-	501	608	-	54	1002	0	-	-	-	0
Stage 1	1001	-	-	108	-	-	-	-	-	-	-	-
Stage 2	54	-	-	500	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	127	0	322	384	0	976	699	-	0	0	-	-
Stage 1	185	0	-	892	0	-	-	-	0	0	-	-
Stage 2	829	0	-	527	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	124	-	322	383	-	976	699	-	-	-	-	-
Mov Cap-2 Maneuver	164	-	-	451	-	-	-	-	-	-	-	-
Stage 1	185	-	-	892	-	-	-	-	-	-	-	-
Stage 2	811	-	-	525	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	23.6		9.3		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	699	-	164	322	451	976	-	-
HCM Lane V/C Ratio	-	-	0.014	0.003	0.007	0.021	-	-
HCM Control Delay (s)	0	-	27.3	16.2	13	8.8	-	-
HCM Lane LOS	A	-	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	272	96	550	0	261	56	38	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.1	87.3	87.3	97.8	89.8		14.6	28.5	28.5	19.7	13.9	
Actuated g/C Ratio	0.66	0.60	0.60	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.14	0.28	0.13	0.27		0.82	0.16	0.10	0.02	0.78	
Control Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.1			13.7			69.6			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	50	0	27	123		126	42	0	3	76	
Queue Length 95th (ft)	43	86	44	56	192		#192	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

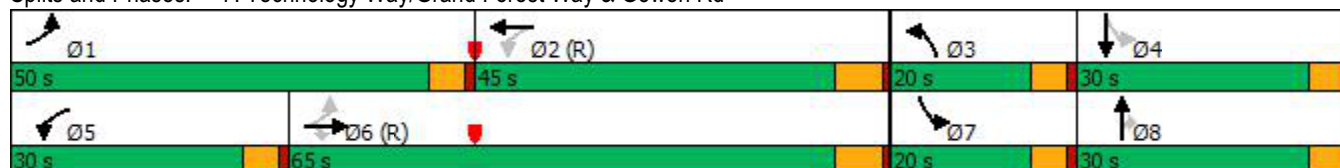


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	671	1789	985	855	2052		326	379	410	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27		0.80	0.15	0.09	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 26.9
 Intersection LOS: C
 Intersection Capacity Utilization 53.5%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	272	96	550	261	56	38	4	182
v/c Ratio	0.15	0.14	0.28	0.13	0.27	0.82	0.16	0.10	0.02	0.78
Control Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Length 50th (ft)	19	50	0	27	123	126	42	0	3	76
Queue Length 95th (ft)	43	86	44	56	192	#192	84	0	12	156
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	671	1789	985	855	2052	326	379	410	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27	0.80	0.15	0.09	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	547	2082		872	2308		304	223		109	67	
Arrive On Green	0.03	0.69	0.00	0.03	0.69	0.00	0.10	0.13	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	547	2082		872	2308		304	223		109	67	
V/C Ratio(X)	0.12	0.12		0.11	0.23		0.86	0.25		0.04	0.63	
Avail Cap(c_a), veh/h	934	2082		1110	2308		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.2	7.6	0.0	5.9	8.3	0.0	64.6	57.1	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.2	0.0	18.6	0.6	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	0.0	0.8	3.1	0.0	5.5	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	7.7	0.0	6.0	8.5	0.0	83.3	57.7	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			634			317			46	
Approach Delay, s/veh		7.4			8.1			78.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	106.2	18.8	10.4	9.9	106.0	5.7	23.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.6	13.7	5.3	4.4	5.9	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.1	0.1	0.2	1.7	0.0	0.2				

Intersection Summary												
HCM 6th Ctrl Delay											27.5	
HCM 6th LOS											C	

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	35.8	35.8	9.0	30.7	30.7	8.6	20.6	20.6	29.7	21.7	34.0
Actuated g/C Ratio	0.13	0.40	0.40	0.10	0.34	0.34	0.10	0.23	0.23	0.33	0.24	0.38
v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.26	0.10	0.02	0.43	0.52	0.66
Control Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
LOS	E	C	B	D	C	A	D	C	A	C	C	B
Approach Delay		26.5			25.5			30.9			22.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	88	56	62	46	152	0	21	15	0	64	104	52

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

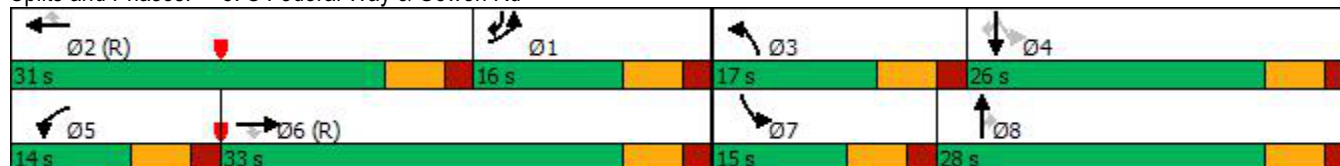


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	96	#328	93	210	39	42	32	0	110	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1182	836	167	1100	626	413	753	580	417	867	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.19	0.09	0.02	0.43	0.48	0.66

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.1 Intersection LOS: C
 Intersection Capacity Utilization 68.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.26	0.10	0.02	0.43	0.52	0.66
Control Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	20.7	14.3	49.6	28.0	4.5	39.4	26.2	0.1	22.2	31.8	12.7
Queue Length 50th (ft)	88	56	62	46	152	0	21	15	0	64	104	52
Queue Length 95th (ft)	#161	96	#328	93	210	39	42	32	0	110	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1182	836	167	1100	626	413	753	580	417	867	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.29	0.74	0.50	0.54	0.27	0.19	0.09	0.02	0.43	0.48	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	906	1363		150	746		185	378	193	402	601	666
Arrive On Green	0.10	0.15	0.00	0.09	0.23	0.00	0.06	0.13	0.13	0.11	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.6	9.1	0.0	4.3	15.3	0.0	2.2	1.9	0.6	8.0	10.5	4.2
Cycle Q Clear(g_c), s	8.6	9.1	0.0	4.3	15.3	0.0	2.2	1.9	0.6	8.0	10.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	906	1363		150	746		185	378	193	402	601	666
V/C Ratio(X)	0.33	0.25		0.56	0.79		0.42	0.18	0.06	0.44	0.70	0.64
Avail Cap(c_a), veh/h	906	1363		169	942		419	765	390	402	786	740
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	24.9	0.0	39.3	32.7	0.0	40.9	35.2	34.6	27.9	34.7	5.6
Incr Delay (d2), s/veh	0.2	0.4	0.0	2.9	7.5	0.0	1.5	0.2	0.1	0.8	1.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.5	0.0	1.9	6.6	0.0	0.8	0.7	0.2	3.1	4.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	25.3	0.0	42.2	40.1	0.0	42.4	35.4	34.7	28.7	36.5	7.1
LnGrp LOS	C	C		D	D		D	D	C	C	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		28.4			40.4			38.8			22.9	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.0	25.6	10.3	21.1	13.0	45.6	15.0	16.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.6	17.3	4.2	12.5	6.3	11.1	10.0	3.9				
Green Ext Time (p_c), s	0.0	2.3	0.1	2.6	0.0	1.9	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

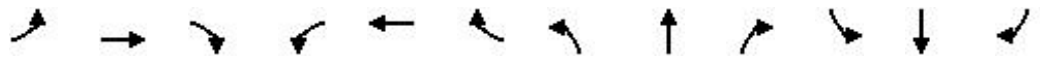
Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1281	0	0	245	652	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.5	78.3			63.6	63.6	10.0		10.5			
Actuated g/C Ratio	0.85	0.87			0.71	0.71	0.11		0.12			
v/c Ratio	0.23	0.33			0.12	0.33	0.19		0.14			
Control Delay	2.6	2.3			3.8	0.8	39.6		1.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.6	2.3			3.8	0.8	39.6		1.3			
LOS	A	A			A	A	D		A			
Approach Delay		2.3			1.6			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	61			15	0	16		0			
Queue Length 95th (ft)	35	76			27	3	42		0			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

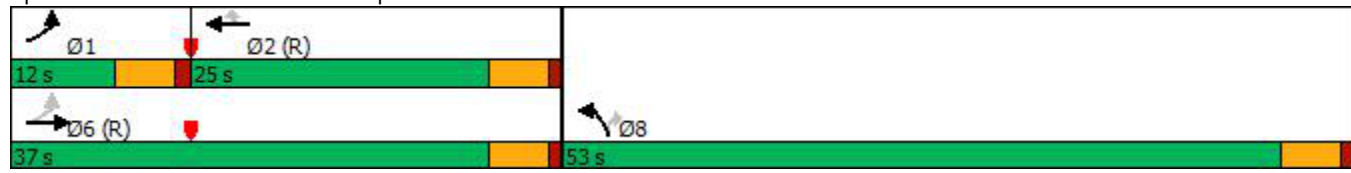


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	824	3922			2084	1970	766		683			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.33			0.12	0.33	0.04		0.04			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.33
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	52.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1281	245	652	30	29
v/c Ratio	0.23	0.33	0.12	0.33	0.19	0.14
Control Delay	2.6	2.3	3.8	0.8	39.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.3	3.8	0.8	39.6	1.3
Queue Length 50th (ft)	21	61	15	0	16	0
Queue Length 95th (ft)	35	76	27	3	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	824	3922	2084	1970	766	683
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.33	0.12	0.33	0.04	0.04

Intersection Summary

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1281	0	0	245	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	836	3695	0	0	2090		125	0	109			
Arrive On Green	0.06	0.81	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1281	0	0	245	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.8	6.7	0.0	0.0	5.8	0.0	1.7	0.0	2.0			
Cycle Q Clear(g_c), s	2.8	6.7	0.0	0.0	5.8	0.0	1.7	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	836	3695	0	0	2090		125	0	109			
V/C Ratio(X)	0.23	0.35	0.00	0.00	0.12		0.24	0.00	0.27			
Avail Cap(c_a), veh/h	871	3695	0	0	2090		779	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	0.80	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.9	2.3	0.0	0.0	12.7	0.0	38.4	0.0	38.1			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.0	0.0	1.8	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	2.5	0.0	0.0	12.8	0.0	39.4	0.0	39.4			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1473			245			59				
Approach Delay, s/veh		2.6			12.8			39.4				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.8	7.8				8.7		4.0				
Green Ext Time (p_c), s	0.1	1.1				9.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.2								
HCM 6th LOS				A								
Notes												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		112.0		123.2	123.2					86.8		86.8
Actuated g/C Ratio		0.51		0.56	0.56					0.39		0.39
v/c Ratio		0.24		0.10	0.15					0.75		0.45
Control Delay		34.4		28.8	26.9					60.8		4.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		34.4		28.8	26.9					60.8		4.2
LOS		C		C	C					E		A
Approach Delay		34.4			27.2							45.7
Approach LOS		C			C							D
Queue Length 50th (ft)		146		24	80					628		0
Queue Length 95th (ft)		262		69	162					479		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

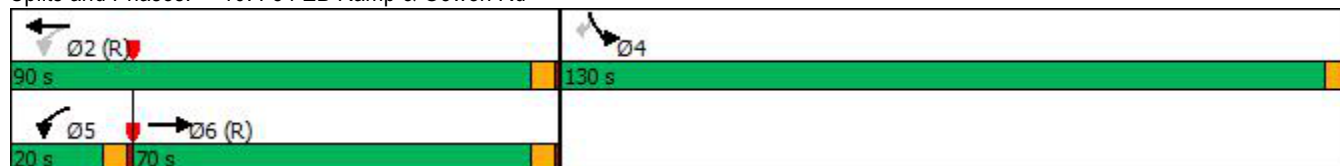
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2141		411	1636					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.24		0.09	0.15					0.52		0.36

Intersection Summary	
Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	40.4
Intersection LOS:	D
Intersection Capacity Utilization	52.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.24	0.10	0.15	0.75	0.45
Control Delay	34.4	28.8	26.9	60.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	28.8	26.9	60.8	4.2
Queue Length 50th (ft)	146	24	80	628	0
Queue Length 95th (ft)	262	69	162	479	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2141	411	1636	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.09	0.15	0.52	0.36
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑					↔		↔
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2480	160	495	1895	0				1001	0	436
Arrive On Green	0.00	0.60	0.60	0.02	0.64	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	4308	269	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Cycle Q Clear(g_c), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1723	918	495	1895	0				1001	0	436
V/C Ratio(X)	0.00	0.20	0.20	0.08	0.13	0.00				0.93	0.00	0.77
Avail Cap(c_a), veh/h	0	1723	918	567	1895	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.4	20.4	16.3	15.6	0.0				72.8	0.0	68.1
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				4.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	4.6	0.8	2.5	0.0				25.4	0.0	34.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.6	20.9	16.4	15.7	0.0				77.5	0.0	70.9
LnGrp LOS	A	C	C	B	B	A				E	A	E
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		20.7			15.8						75.8	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		145.6		74.4	9.5	136.0						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		9.0		64.2	4.2	14.0						
Green Ext Time (p_c), s		1.7		5.2	0.0	3.7						
Intersection Summary												
HCM 6th Ctrl Delay			53.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	3	21	290	142	314
Future Volume (vph)	57	3	21	290	142	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	3	23	322	158	349
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection

Int Delay, s/veh 1.9

Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 

Traffic Vol, veh/h 57 3 21 290 142 314

Future Vol, veh/h 57 3 21 290 142 314

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Free - None - Free

Storage Length 0 0 160 - - 0

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 90 90 90 90 90 90

Heavy Vehicles, % 24 0 0 3 3 4

Mvmt Flow 63 3 23 322 158 349

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 526 - 158 0 - 0

Stage 1 158 - - - - -

Stage 2 368 - - - - -

Critical Hdwy 6.64 - 4.1 - - -

Critical Hdwy Stg 1 5.64 - - - - -

Critical Hdwy Stg 2 5.64 - - - - -

Follow-up Hdwy 3.716 - 2.2 - - -

Pot Cap-1 Maneuver 476 0 1434 - - 0

Stage 1 820 0 - - - 0

Stage 2 654 0 - - - 0

Platoon blocked, % - -

Mov Cap-1 Maneuver 468 - 1434 - - -

Mov Cap-2 Maneuver 468 - - - - -

Stage 1 807 - - - - -

Stage 2 654 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.9 0.5 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT

Capacity (veh/h) 1434 - 468 - -

HCM Lane V/C Ratio 0.016 - 0.135 - -

HCM Control Delay (s) 7.6 - 13.9 0 -























HCM Lane LOS A - B A -

HCM 95th %tile Q(veh) 0.1 - 0.5 - -

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Future Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	105	0	2	13	0	12	72	0	134	597	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↕↔		↔	↕↔	
Traffic Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Future Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	6	56	49	2	0	13	12	69	3	134	590	7

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	921	958	299	686	960	36	597	0	0	72	0	0
Stage 1	862	862	-	95	95	-	-	-	-	-	-	-
Stage 2	59	96	-	591	865	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	229	259	703	338	259	1035	989	-	-	1541	-	-
Stage 1	320	375	-	907	820	-	-	-	-	-	-	-
Stage 2	951	819	-	465	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	209	234	703	238	234	1035	989	-	-	1541	-	-
Mov Cap-2 Maneuver	209	234	-	238	234	-	-	-	-	-	-	-
Stage 1	316	342	-	896	810	-	-	-	-	-	-	-
Stage 2	927	809	-	331	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.3	10.2	1.3	1.4
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	989	-	-	209	340	238	1035	1541	-	-
HCM Lane V/C Ratio	0.012	-	-	0.027	0.307	0.009	0.013	0.087	-	-
HCM Control Delay (s)	8.7	-	-	22.7	20.2	20.3	8.5	7.6	-	-
HCM Lane LOS	A	-	-	C	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.3	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	113	191	24	11	145
Future Volume (vph)	90	113	191	24	11	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	126	239	0	12	161
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	90	113	191	24	11	145
Future Vol, veh/h	90	113	191	24	11	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	100	126	212	27	12	161

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	239	0	-	0	552	226
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	326	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1340	-	-	-	498	818
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	736	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1340	-	-	-	461	818
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	736	-

Approach EB WB SB

HCM Control Delay, s	3.5	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1340	-	-	-	461	818
HCM Lane V/C Ratio	0.075	-	-	-	0.027	0.197
HCM Control Delay (s)	7.9	-	-	-	13	10.5
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.7

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	193	556	0	673	0	351	656	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					16.2	16.2		40.5		63.4	62.4	
Actuated g/C Ratio					0.15	0.15		0.37		0.58	0.57	
v/c Ratio					0.80	0.65		0.59		0.88	0.36	
Control Delay					70.2	7.5		32.0		27.3	17.9	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					70.2	7.5		32.0		27.3	17.9	
LOS					E	A		C		C	B	
Approach Delay					23.6			32.0			21.2	
Approach LOS					C			C			C	
Queue Length 50th (ft)					132	0		212		181	177	
Queue Length 95th (ft)					#245	52		279		m188	m168	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					251	874		1148		401	1828	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.77	0.64		0.59		0.88	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 24.9 Intersection LOS: C

Intersection Capacity Utilization 57.4% ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	193	556	673	351	656
v/c Ratio	0.80	0.65	0.59	0.88	0.36
Control Delay	70.2	7.5	32.0	27.3	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	7.5	32.0	27.3	17.9
Queue Length 50th (ft)	132	0	212	181	177
Queue Length 95th (ft)	#245	52	279	m188	m168
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	251	874	1148	401	1828
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.64	0.59	0.88	0.36

Intersection Summary

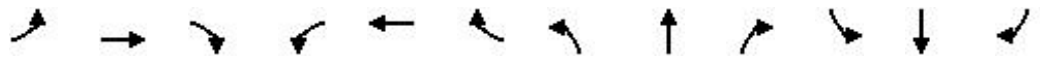
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	193	0	556	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	265	0	405	555	1793	204	585	2489	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.62	0.61	0.11	0.76	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2901	331	1514	3346	0
Grp Volume(v), veh/h	0	0	0	193	0	556	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1628	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.8	0.0	17.0	0.0	11.0	11.1	8.5	6.6	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.8	0.0	17.0	0.0	11.0	11.1	8.5	6.6	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	265	0	405	555	991	1007	585	2489	0
V/C Ratio(X)	0.00	0.00	0.00	0.73	0.00	1.37	0.00	0.34	0.34	0.60	0.26	0.00
Avail Cap(c_a), veh/h	0	393	0	265	0	405	819	991	1007	654	2489	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.8	0.0	46.5	0.0	10.1	10.2	6.2	3.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	9.7	0.0	182.5	0.0	0.9	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	5.6	0.0	15.8	0.0	3.7	3.8	1.9	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	54.5	0.0	229.0	0.0	11.0	11.1	6.4	3.9	0.0
LnGrp LOS	A	A	A	D	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			749			673			1007	
Approach Delay, s/veh		0.0			184.0			11.1			4.7	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	73.0		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	10.5	13.1		19.0	0.0	8.6		0.0				
Green Ext Time (p_c), s	0.5	3.7		0.0	0.0	4.3		0.0				

Intersection Summary























HCM 6th Ctrl Delay	61.8
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	860	327	304	789	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.5		31.0	31.0	31.0	41.6	41.1	41.1	15.0	52.3	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.38	0.37	0.37	0.14	0.48	
v/c Ratio		0.43		3.03	3.36	0.74	0.17	0.70	0.47	0.74	0.56	
Control Delay		44.3		975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.3		975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		44.3			450.6			15.5			33.7	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		20		~234	~243	76	7	135	0	107	227	
Queue Length 95th (ft)		46		#347	#361	214	m13	245	13	#163	307	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

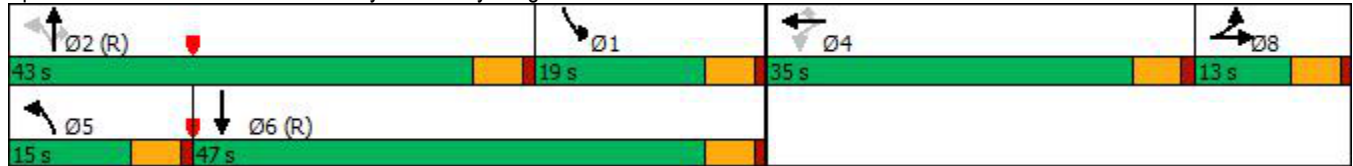
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		191		60	55	689	212	1228	697	411	1404	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.40		3.03	3.36	0.74	0.14	0.70	0.47	0.74	0.56	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.36
 Intersection Signal Delay: 138.9 Intersection LOS: F
 Intersection Capacity Utilization 67.0% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	860	327	304	789
v/c Ratio	0.43	3.03	3.36	0.74	0.17	0.70	0.47	0.74	0.56
Control Delay	44.3	975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	975.3	1124.3	16.4	16.1	20.2	3.0	57.5	24.6
Queue Length 50th (ft)	20	~234	~243	76	7	135	0	107	227
Queue Length 95th (ft)	46	#347	#361	214	m13	245	13	#163	307
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	191	60	55	689	212	1228	697	411	1404
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	3.03	3.36	0.74	0.14	0.70	0.47	0.74	0.56

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	82	30	48	951	0	420	181	1160	501	510	1400	97
Arrive On Green	0.04	0.05	0.04	0.28	0.00	0.28	0.04	0.35	0.35	0.17	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	358	0	507	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	25.1	21.2	10.1	19.4	19.4
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.4	0.0	31.0	1.5	25.1	21.2	10.1	19.4	19.4
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	82	0	78	951	0	420	181	1160	501	510	738	759
V/C Ratio(X)	0.56	0.00	0.40	0.38	0.00	1.21	0.17	0.74	0.65	0.60	0.53	0.53
Avail Cap(c_a), veh/h	130	0	123	951	0	420	274	1160	501	510	738	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	50.8	31.7	0.0	39.5	26.9	31.4	30.1	42.4	19.9	19.9
Incr Delay (d2), s/veh	5.8	0.0	3.3	0.2	0.0	113.9	0.3	3.3	4.9	1.9	2.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	3.8	0.0	24.5	0.5	10.1	7.7	3.8	6.7	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	0.0	54.0	32.0	0.0	153.4	27.2	34.6	35.1	44.3	22.6	22.5
LnGrp LOS	E	A	D	C	A	F	C	C	D	D	C	C
Approach Vol, veh/h		77			865			1217			1093	
Approach Delay, s/veh		55.9			103.1			34.6			28.6	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.1	27.1		33.0	3.5	21.4		5.1				
Green Ext Time (p_c), s	0.2	5.1		0.0	0.0	4.2		0.1				

Intersection Summary

HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D



















Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings

1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Future Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1161			390				662
Travel Time (s)		7.1			17.6			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	0	177	68	0	0	90	0	31	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/14/2022

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Future Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	54	57	177	68	0	0	90	0	31	0	94

Major/Minor	Major1			Major2			Minor2				
Conflicting Flow All	-	0	0	111	0	0			449	533	68
Stage 1	-	-	-	-	-	-			422	422	-
Stage 2	-	-	-	-	-	-			27	111	-
Critical Hdwy	-	-	-	4.745	-	-			6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-			5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-			3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1241	-	0			548	376	896
Stage 1	0	-	-	-	-	0			655	497	-
Stage 2	0	-	-	-	-	0			987	710	-
Platoon blocked, %	-	-	-	-	-	-			-	-	-
Mov Cap-1 Maneuver	-	-	-	1241	-	-			470	0	896
Mov Cap-2 Maneuver	-	-	-	-	-	-			470	0	-
Stage 1	-	-	-	-	-	-			655	0	-
Stage 2	-	-	-	-	-	-			846	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.1	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1241	-	470	896
HCM Lane V/C Ratio	-	-	0.142	-	0.066	0.105
HCM Control Delay (s)	-	-	8.4	-	13.2	9.5
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	-	0.2	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Ln & I-85 NB On-Ramp

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	↩	↑↑	↑	↘↘		
Traffic Volume (vph)	36	97	216	205	0	0
Future Volume (vph)	36	97	216	205	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340			0	0	0
Storage Lanes	1			2	0	0
Taper Length (ft)	100				25	
Link Speed (mph)		45	45		55	
Link Distance (ft)		1161	937		801	
Travel Time (s)		17.6	14.2		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	35%	25%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	108	240	228	0	0
Sign Control		Free	Free		Free	





















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.0%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 				 							 
Traffic Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Future Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		937			173			1286				1925
Travel Time (s)		14.2			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	0	0	0	1	0	33	84	0	0	1	432
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
 3: I-84 NB Off Ramp/S Federal Way & Memory Ln

10/14/2022

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Future Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	106	0	0	0	1	0	33	84	0	1	0	432

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.3	9
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	891	-
HCM Lane V/C Ratio	0.035	0.094	-	-	-	0.001	-
HCM Control Delay (s)	9	9.4	0	-	-	9	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.3	-	-	-	0	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	266	120	49	122	17	74
Future Volume (vph)	266	120	49	122	17	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	10.4	10.4	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.34	0.34	0.29	0.29	0.29	0.29
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
LOS	B	A	A	A	A	B
Approach Delay	8.4		5.7			10.5
Approach LOS	A		A			B
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.4
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	8.0
Intersection LOS:	A
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022















Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	296	133	54	136	19	82
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	266	120	49	122	17	74
Future Volume (veh/h)	266	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	296	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	474	422	353		581	315
Arrive On Green	0.28	0.28	0.23	0.00	0.23	0.23
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	296	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	3.3	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	3.3	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	474	422	353		581	315
V/C Ratio(X)	0.62	0.32	0.15		0.03	0.26
Avail Cap(c_a), veh/h	1628	1449	1977		1918	1764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	6.3	6.9	0.0	7.2	7.0
Incr Delay (d2), s/veh	1.4	0.4	0.2	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.3	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.8	7.1	0.0	7.2	7.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	429		54			101
Approach Delay, s/veh	7.9		7.1			7.4
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		11.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		5.3		3.1
Green Ext Time (p_c), s		0.2		1.2		0.4
Intersection Summary						
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			



















Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	48	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0% ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection

Int Delay, s/veh 11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	48	0	639	0	182	27	126	51	0





















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.6	16.5	0	5.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	445	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.107	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	14.1	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	5.6	0.3	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Future Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	931	0	0	224	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/14/2022

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗	↔	↔			↕	↕
Traffic Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Future Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	931	0	0	223	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	690	-	112	1043	-	466	224	0	-	-	-	0
Stage 1	224	-	-	931	-	-	-	-	-	-	-	-
Stage 2	466	-	-	112	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	253	0	678	186	0	522	1357	-	0	0	-	-
Stage 1	638	0	-	291	0	-	-	-	0	0	-	-
Stage 2	437	0	-	887	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	180	-	678	186	-	522	1357	-	-	-	-	-
Mov Cap-2 Maneuver	257	-	-	253	-	-	-	-	-	-	-	-
Stage 1	638	-	-	291	-	-	-	-	-	-	-	-
Stage 2	311	-	-	887	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	19.1		14.7		0			0		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1357	-	257	-	253	522	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.004	0.289	-	-
HCM Control Delay (s)	0	-	19.1	0	19.3	14.7	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.2	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	252	42	411	0	327	51	92	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	105.9	95.5	95.5	91.7	84.2		15.0	26.7	26.7	15.1	9.1	
Actuated g/C Ratio	0.73	0.66	0.66	0.63	0.58		0.10	0.18	0.18	0.10	0.06	
v/c Ratio	0.49	0.32	0.24	0.08	0.21		1.00	0.16	0.25	0.05	0.68	
Control Delay	10.2	12.3	2.0	7.7	16.2		114.4	51.2	3.6	44.7	29.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.2	12.3	2.0	7.7	16.2		114.4	51.2	3.6	44.7	29.2	
LOS	B	B	A	A	B		F	D	A	D	C	
Approach Delay		9.5			15.4			85.8			29.9	
Approach LOS		A			B			F			C	
Queue Length 50th (ft)	74	126	0	9	88		~161	41	0	5	13	
Queue Length 95th (ft)	144	201	37	26	157		#267	83	15	19	82	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

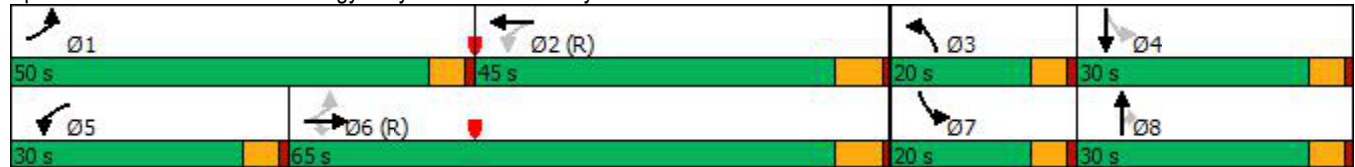
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	711	1958	1045	705	1921		326	321	368	258	357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.39	0.32	0.24	0.06	0.21		1.00	0.16	0.25	0.03	0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 28.2 Intersection LOS: C
 Intersection Capacity Utilization 60.0% ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	276	630	252	42	411	327	51	92	7	144
v/c Ratio	0.49	0.32	0.24	0.08	0.21	1.00	0.16	0.25	0.05	0.68
Control Delay	10.2	12.3	2.0	7.7	16.2	114.4	51.2	3.6	44.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	12.3	2.0	7.7	16.2	114.4	51.2	3.6	44.7	29.2
Queue Length 50th (ft)	74	126	0	9	88	~161	41	0	5	13
Queue Length 95th (ft)	144	201	37	26	157	#267	83	15	19	82
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	711	1958	1045	705	1921	326	321	368	258	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.32	0.24	0.06	0.21	1.00	0.16	0.25	0.03	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	276	630	0	42	400	0	327	51	0	7	14	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	644	2087		591	2116		331	224		109	59	
Arrive On Green	0.09	0.69	0.00	0.03	0.63	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	276	630	0	42	400	0	327	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	9.6	11.8	0.0	1.2	7.2	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Cycle Q Clear(g_c), s	9.6	11.8	0.0	1.2	7.2	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	644	2087		591	2116		331	224		109	59	
V/C Ratio(X)	0.43	0.30		0.07	0.19		0.99	0.23		0.06	0.24	
Avail Cap(c_a), veh/h	957	2087		838	2116		331	303		272	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.9	8.7	0.0	8.6	11.1	0.0	64.9	56.8	0.0	66.9	68.4	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.1	0.2	0.0	46.4	0.5	0.0	0.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.8	0.0	0.5	2.7	0.0	8.1	1.7	0.0	0.3	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	9.0	0.0	8.6	11.3	0.0	111.3	57.3	0.0	67.2	70.5	0.0
LnGrp LOS	A	A		A	B		F	E		E	E	
Approach Vol, veh/h		906			442			378				21
Approach Delay, s/veh		8.5			11.0			104.0				69.4
Approach LOS		A			B			F				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	97.8	20.0	9.7	9.1	106.2	6.2	23.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	11.6	9.2	16.8	3.1	3.2	13.8	2.6	5.8				
Green Ext Time (p_c), s	0.9	2.7	0.0	0.0	0.1	4.9	0.0	0.1				

Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	39.0	52.0	52.0	17.0	30.0	30.0	50.0	56.0	56.0	25.0	31.0	39.0
Total Split (%)	26.0%	34.7%	34.7%	11.3%	20.0%	20.0%	33.3%	37.3%	37.3%	16.7%	20.7%	26.0%
Maximum Green (s)	34.0	47.0	47.0	12.0	25.0	25.0	45.0	51.0	51.0	20.0	26.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	33.7	66.1	66.1	9.1	33.7	33.7	38.0	45.6	45.6	49.6	28.6	66.3
Actuated g/C Ratio	0.22	0.44	0.44	0.06	0.22	0.22	0.25	0.30	0.30	0.33	0.19	0.44
v/c Ratio	0.90	0.51	0.21	0.12	0.85	0.31	0.83	0.44	0.13	0.90	0.15	0.83
Control Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
LOS	E	D	A	E	E	A	E	D	A	E	D	D
Approach Delay		48.3			57.4			51.5			48.3	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	284	252	0	11	~358	0	313	153	0	214	40	355

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

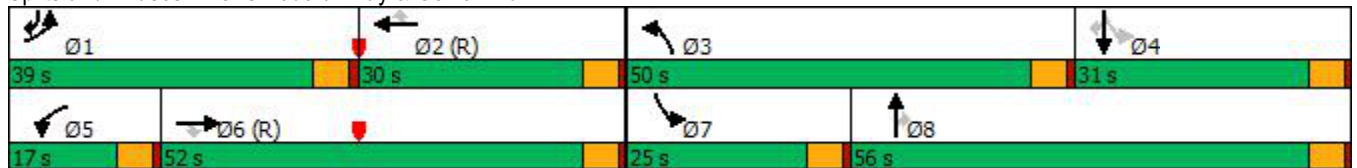
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#380	366	51	34	#485	44	361	202	0	#364	71	#592
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1310	748	145	724	457	950	1021	611	401	712	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.51	0.21	0.08	0.85	0.31	0.69	0.39	0.11	0.90	0.14	0.82

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 50.8 Intersection LOS: D
 Intersection Capacity Utilization 77.0% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
v/c Ratio	0.90	0.51	0.21	0.12	0.85	0.31	0.83	0.44	0.13	0.90	0.15	0.83
Control Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	35.4	5.4	69.5	68.7	6.6	62.5	42.4	0.5	56.3	50.0	42.5
Queue Length 50th (ft)	284	252	0	11	~358	0	313	153	0	214	40	355
Queue Length 95th (ft)	#380	366	51	34	#485	44	361	202	0	#364	71	#592
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	667	1310	748	145	724	457	950	1021	611	401	712	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.51	0.21	0.08	0.85	0.31	0.69	0.39	0.11	0.90	0.14	0.82

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	638	1364		47	847		736	821	418	431	606	543
Arrive On Green	0.22	0.45	0.00	0.03	0.26	0.00	0.23	0.27	0.27	0.14	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	29.2	23.6	0.0	1.0	25.9	0.0	30.1	16.5	5.2	21.0	3.7	27.0
Cycle Q Clear(g_c), s	29.2	23.6	0.0	1.0	25.9	0.0	30.1	16.5	5.2	21.0	3.7	27.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	638	1364		47	847		736	821	418	431	606	543
V/C Ratio(X)	0.91	0.49		0.26	0.73		0.89	0.48	0.17	0.83	0.16	0.98
Avail Cap(c_a), veh/h	679	1364		146	847		964	1038	529	431	606	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.80	0.80	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	29.0	0.0	71.4	50.7	0.0	55.5	45.5	41.4	45.8	51.9	44.6
Incr Delay (d2), s/veh	15.1	1.2	0.0	2.3	4.4	0.0	8.1	0.4	0.2	13.2	0.1	34.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	8.8	0.0	0.5	11.0	0.0	12.6	6.1	2.0	4.2	1.6	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.2	30.2	0.0	73.7	55.0	0.0	63.6	45.9	41.6	59.0	52.1	79.0
LnGrp LOS	E	C		E	E		E	D	D	E	D	E
Approach Vol, veh/h		1255			628			1115			991	
Approach Delay, s/veh		49.7			55.4			56.0			69.1	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.9	43.0	39.1	31.0	8.1	71.7	25.0	45.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	34.0	25.0	45.0	26.0	12.0	47.0	20.0	51.0				
Max Q Clear Time (g_c+I1), s	31.2	27.9	32.1	29.0	3.0	25.6	23.0	18.5				
Green Ext Time (p_c), s	0.7	0.0	2.1	0.0	0.0	4.6	0.0	2.8				

Intersection Summary

HCM 6th Ctrl Delay	57.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

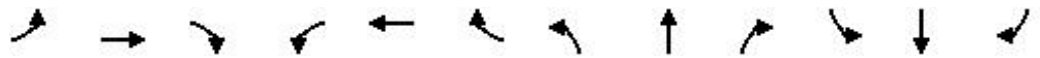
Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1396	0	0	422	1192	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	-0.5	-0.5			-0.5	-0.5	0.0		-0.5			
Total Lost Time (s)	4.5	4.5			4.5	4.5	5.0		4.5			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.7	113.6			95.2	95.2	10.8		11.3			
Actuated g/C Ratio	0.87	0.87			0.73	0.73	0.08		0.09			
v/c Ratio	0.55	0.35			0.20	0.55	0.35		0.42			
Control Delay	5.0	2.3			6.8	1.5	64.6		20.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.0	2.3			6.8	1.5	64.6		20.0			
LOS	A	A			A	A	E		C			
Approach Delay		2.9			2.9			36.6				
Approach LOS		A			A			D				
Queue Length 50th (ft)	52	69			55	0	34		0			
Queue Length 95th (ft)	92	99			95	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	816	3940			2159	2162	221		248			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.50	0.35			0.20	0.55	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	4.0
Intersection LOS:	A
Intersection Capacity Utilization	81.9%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1396	422	1192	42	71
v/c Ratio	0.55	0.35	0.20	0.55	0.35	0.42
Control Delay	5.0	2.3	6.8	1.5	64.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	2.3	6.8	1.5	64.6	20.0
Queue Length 50th (ft)	52	69	55	0	34	0
Queue Length 95th (ft)	92	99	95	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	816	3940	2159	2162	221	248
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.35	0.20	0.55	0.19	0.29
Intersection Summary						

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1396	0	0	422	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	800	3890	0	0	2182		110	0	95			
Arrive On Green	0.09	0.85	0.00	0.00	0.73	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1396	0	0	422	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	7.7	8.5	0.0	0.0	5.8	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	7.7	8.5	0.0	0.0	5.8	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	800	3890	0	0	2182		110	0	95			
V/C Ratio(X)	0.51	0.36	0.00	0.00	0.19		0.38	0.00	0.75			
Avail Cap(c_a), veh/h	968	3890	0	0	2182		225	0	188			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	0.43	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	2.9	2.1	0.0	0.0	5.6	0.0	57.2	0.0	58.6			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	11.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.6	0.0	0.0	1.7	0.0	1.3	0.0	2.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	2.2	0.0	0.0	5.6	0.0	59.3	0.0	69.7			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1803			422			113				
Approach Delay, s/veh		2.5			5.6			65.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.9	99.3				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	9.7	7.8				10.5		9.6				
Green Ext Time (p_c), s	1.1	3.1				15.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay			6.1									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	74	371	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		100.6		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.35		0.23	0.21					1.01		0.38
Control Delay		26.3		17.3	17.3					89.9		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.3		17.3	17.3					89.9		6.2
LOS		C		B	B					F		A
Approach Delay		26.3			17.3							74.6
Approach LOS		C			B							E
Queue Length 50th (ft)		202		37	107					~705		0
Queue Length 95th (ft)		243		64	136					#859		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2222		357	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.35		0.21	0.21					1.01		0.38

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 49.7
 Intersection LOS: D
 Intersection Capacity Utilization 81.9%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	74	371	1077	240
v/c Ratio	0.35	0.23	0.21	1.01	0.38
Control Delay	26.3	17.3	17.3	89.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	17.3	17.3	89.9	6.2
Queue Length 50th (ft)	202	37	107	~705	0
Queue Length 95th (ft)	243	64	136	#859	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2222	357	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.21	0.21	1.01	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.













95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑					↔		↔
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	74	371	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2248	175	366	1796	0				1084	0	473
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4248	320	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	512	273	74	371	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	18.5	18.6	4.0	10.7	0.0				64.3	0.0	26.3
Cycle Q Clear(g_c), s	0.0	18.5	18.6	4.0	10.7	0.0				64.3	0.0	26.3
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1584	839	366	1796	0				1084	0	473
V/C Ratio(X)	0.00	0.32	0.33	0.20	0.21	0.00				0.99	0.00	0.51
Avail Cap(c_a), veh/h	0	1584	839	439	1796	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.6	23.7	18.1	16.9	0.0				62.3	0.0	49.8
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.3	0.0				25.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	7.1	1.5	3.8	0.0				28.9	0.0	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.2	24.7	18.4	17.2	0.0				87.9	0.0	50.6
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		785			445						1317	
Approach Delay, s/veh		24.3			17.4						81.1	
Approach LOS		C			B						F	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.0		70.0	10.9	109.1						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		12.7		66.3	6.0	20.6						
Green Ext Time (p_c), s		2.7		0.0	0.1	6.0						
Intersection Summary												
HCM 6th Ctrl Delay				52.5								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/14/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	149	11	2	252	265	88
Future Volume (vph)	149	11	2	252	265	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	12	2	280	294	98
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

10/14/2022

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	149	11	2	252	265	88
Future Vol, veh/h	149	11	2	252	265	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	166	12	2	280	294	98

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	578	-	294	0	-
Stage 1	294	-	-	-	-
Stage 2	284	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-
Stage 1	709	0	-	-	-
Stage 2	716	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	442	-	1279	-	-
Mov Cap-2 Maneuver	442	-	-	-	-
Stage 1	708	-	-	-	-
Stage 2	716	-	-	-	-























Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.375	-	-
HCM Control Delay (s)	7.8	-	17.9	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-

Lanes, Volumes, Timings

13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Future Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45				45
Link Distance (ft)		273			287			1256				2303
Travel Time (s)		9.3			9.8			19.0				34.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	7	0	3	70	0	50	806	0	24	114	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
13: S Federal Way & Childcare Ctr/Gate A

10/14/2022

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↶↷		↶	↶↷	
Traffic Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Future Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	119	0	7	3	56	14	50	806	0	24	114	0

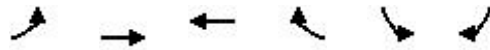
Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	693	1068	57	1011	1068	403	114	0	0	806	0	0
Stage 1	162	162	-	906	906	-	-	-	-	-	-	-
Stage 2	531	906	-	105	162	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	334	223	1004	197	223	603	1488	-	-	828	-	-
Stage 1	830	768	-	301	358	-	-	-	-	-	-	-
Stage 2	505	358	-	895	768	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	247	209	1004	187	209	603	1488	-	-	828	-	-
Mov Cap-2 Maneuver	247	209	-	187	209	-	-	-	-	-	-	-
Stage 1	802	746	-	291	346	-	-	-	-	-	-	-
Stage 2	400	346	-	863	746	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	31.1		25.7			0.4		1.7		
HCM LOS	D		D							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	247	1004	187	242	828	-	-
HCM Lane V/C Ratio	0.034	-	-	0.481	0.007	0.018	0.289	0.03	-	-
HCM Control Delay (s)	7.5	-	-	32.4	8.6	24.6	25.8	9.5	-	-
HCM Lane LOS	A	-	-	D	A	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0	0.1	1.2	0.1	-	-

Lanes, Volumes, Timings
 14: SH 21 & Warm Springs Ave

10/14/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	162	287	166	20	48	133
Future Volume (vph)	162	287	166	20	48	133
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				100	
Link Speed (mph)		55	45		40	
Link Distance (ft)		5282	1394		422	
Travel Time (s)		65.5	21.1		7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	6%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	180	319	206	0	53	148
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
14: SH 21 & Warm Springs Ave

10/14/2022

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	287	166	20	48	133
Future Vol, veh/h	162	287	166	20	48	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	6	6	0	0	0
Mvmt Flow	180	319	184	22	53	148




















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	206	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1377	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1377	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1377	-	-	-	281	851
HCM Lane V/C Ratio	0.131	-	-	-	0.19	0.174
HCM Control Delay (s)	8	-	-	-	20.8	10.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.7	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	143	538	1	1106	0	674	931	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		21.1			15.1	15.1	42.6	35.0		64.0	60.8	
Actuated g/C Ratio		0.19			0.14	0.14	0.39	0.32		0.58	0.55	
v/c Ratio		0.00			0.64	0.65	0.00	1.12		1.76	0.52	
Control Delay		0.0			58.2	7.8	14.0	103.9		362.9	23.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			58.2	7.8	14.0	103.9		362.9	23.1	
LOS		A			E	A	B	F		F	C	
Approach Delay					18.4			103.8			165.8	
Approach LOS					B			F			F	
Queue Length 50th (ft)		0			95	0	0	~468		~751	313	
Queue Length 95th (ft)		0			162	51	3	#603		m#625	m293	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		465			251	858	445	984		384	1784	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.57	0.63	0.00	1.12		1.76	0.52	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.76
Intersection Signal Delay:	115.9
Intersection LOS:	F
Intersection Capacity Utilization	89.7%
ICU Level of Service	E
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	143	538	1	1106	674	931
v/c Ratio	0.00	0.64	0.65	0.00	1.12	1.76	0.52
Control Delay	0.0	58.2	7.8	14.0	103.9	362.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	58.2	7.8	14.0	103.9	362.9	23.1
Queue Length 50th (ft)	0	95	0	0	~468	~751	313
Queue Length 95th (ft)	0	162	51	3	#603	m#625	m293
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	465	251	858	445	984	384	1784
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.57	0.63	0.00	1.12	1.76	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

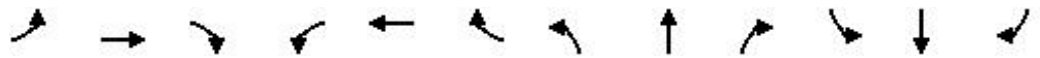
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	143	0	538	1	866	240	674	931	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	10	0	10	265	0	405	449	1301	360	422	2036	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.05	0.52	0.52	0.15	0.62	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2481	687	1514	3346	0
Grp Volume(v), veh/h	2	0	0	143	0	538	1	559	547	674	931	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1564	1514	1630	0
Q Serve(g_s), s	0.1	0.0	0.0	8.5	0.0	17.0	0.0	28.0	28.2	17.0	16.5	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	8.5	0.0	17.0	0.0	28.0	28.2	17.0	16.5	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	19	0	0	265	0	405	449	841	820	422	2036	0
V/C Ratio(X)	0.11	0.00	0.00	0.54	0.00	1.33	0.00	0.67	0.67	1.60	0.46	0.00
Avail Cap(c_a), veh/h	352	0	0	265	0	405	620	841	820	422	2036	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	54.3	0.0	0.0	43.4	0.0	46.5	9.9	19.1	19.3	23.6	10.9	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.0	2.2	0.0	163.7	0.0	4.1	4.3	269.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	14.8	0.0	10.4	10.3	37.1	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	0.0	0.0	45.6	0.0	210.2	9.9	23.2	23.6	293.4	10.9	0.0
LnGrp LOS	E	A	A	D	A	F	A	C	C	F	B	A
Approach Vol, veh/h		2			681			1107			1605	
Approach Delay, s/veh		56.7			175.6			23.4			129.5	
Approach LOS		E			F			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	62.7		21.0	10.0	73.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	19.0	30.2		19.0	2.0	18.5		2.1				
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	5.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	104.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			4736				857
Travel Time (s)		9.6			21.3			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1056	378	684	1275	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		8.6		31.0	31.0	31.0	39.4	38.9	38.9	15.0	47.2	
Actuated g/C Ratio		0.08		0.28	0.28	0.28	0.36	0.35	0.35	0.14	0.43	
v/c Ratio		0.56		3.12	3.60	0.71	0.28	0.91	0.57	1.66	0.98	
Control Delay		44.9		1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		44.9		1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3	
LOS		D		F	F	B	B	C	A	F	D	
Approach Delay		44.9			494.9			16.7			154.4	
Approach LOS		D			F			B			F	
Queue Length 50th (ft)		33		~243	~221	57	10	155	0	~363	~514	
Queue Length 95th (ft)		65		#356	#375	188	m13	m190	m7	#479	#675	
Internal Link Dist (ft)		273			855			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

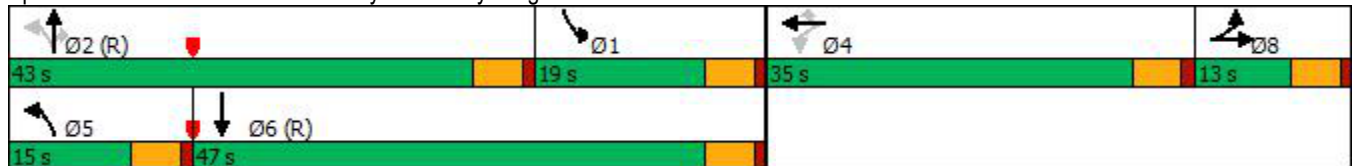
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		237		60	53	697	194	1163	665	411	1295	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.54		3.12	3.60	0.71	0.25	0.91	0.57	1.66	0.98	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.60
Intersection Signal Delay:	172.2
Intersection LOS:	F
Intersection Capacity Utilization	73.3%
ICU Level of Service	D
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1056	378	684	1275
v/c Ratio	0.56	3.12	3.60	0.71	0.28	0.91	0.57	1.66	0.98
Control Delay	44.9	1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	1011.9	1232.0	14.2	15.1	22.0	2.4	341.0	54.3
Queue Length 50th (ft)	33	~243	~221	57	10	155	0	~363	~514
Queue Length 95th (ft)	65	#356	#375	188	m13	m190	m7	#479	#675
Internal Link Dist (ft)	273		855			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	237	60	53	697	194	1163	665	411	1295
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	3.12	3.60	0.71	0.25	0.91	0.57	1.66	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	494	48	1056	378	684	1266	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	47	104	61	951	0	420	130	1160	501	463	1429	10
Arrive On Green	0.06	0.07	0.06	0.28	0.00	0.28	0.04	0.35	0.35	0.15	0.46	0.45
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	494	48	1056	378	684	622	653
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	4.4	0.0	4.3	9.6	0.0	31.0	2.5	33.4	25.7	16.6	40.6	40.6
Cycle Q Clear(g_c), s	4.4	0.0	4.3	9.6	0.0	31.0	2.5	33.4	25.7	16.6	40.6	40.6
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	110	0	101	951	0	420	130	1160	501	463	702	737
V/C Ratio(X)	0.62	0.00	0.59	0.38	0.00	1.18	0.37	0.91	0.76	1.48	0.89	0.89
Avail Cap(c_a), veh/h	134	0	124	951	0	420	211	1160	501	463	702	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.16	0.16	0.16	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	0.0	50.1	31.8	0.0	39.5	29.7	34.1	31.6	46.7	27.2	27.2
Incr Delay (d2), s/veh	5.7	0.0	5.5	0.3	0.0	101.8	0.3	2.4	1.7	225.9	15.3	14.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	3.9	0.0	23.1	0.8	13.2	8.7	20.5	16.1	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	0.0	55.6	32.1	0.0	141.3	30.0	36.5	33.3	272.6	42.5	42.0
LnGrp LOS	E	A	E	C	A	F	C	D	C	F	D	D
Approach Vol, veh/h		128			859			1482			1959	
Approach Delay, s/veh		55.7			94.9			35.5			122.7	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.6	43.0		35.0	8.8	54.8		11.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	18.6	35.4		33.0	4.5	42.6		6.4				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	86.2
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Mitigation Conditions Analysis

EXISTING Traffic Conditions

ID	Intersection	Mitigation	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	C	22.3	-	-	B	17.4	-
			EBL	155	0.10	A	3.0	14	0.37	A	3.5	85
			EBT	-	0.10	A	3.9	38	0.27	A	4.4	125
			EBR	415	-	A	0.0	0	-	A	0.0	16
			WBL	90	0.04	A	3.0	8	0.03	A	4.4	9
			WBTR	-	0.19	A	4.5	91	0.15	A	5.7	99
			NBL	520	0.65	E	58.6	59	0.74	E	57.7	109
			NBT	-	0.28	E	55.2	26	0.24	E	52.3	54
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49			
8	Gowen Rd at Federal Way	- Add SBL Lane	Overall	-	-	C	28.3	-	-	D	50.2	-
			EBL	420	0.26	C	25.5	155	0.68	C	31.1	257
			EBT	-	0.21	C	22.2	142	0.50	C	20.6	233
			EBR	390	-	A	0.0	312	-	A	0.0	26
			WBL	175	0.48	D	41.8	77	0.21	D	44.8	21
			WBT	-	0.74	D	39.8	104	0.62	D	38.4	126
		- Add a WBT Lane	WBR	225	-	A	0.0	14	-	A	0.0	15
			NBL	495	0.32	D	42.3	28	0.88	D	46.1	238
			NBT	-	0.17	D	35.0	27	0.48	C	27.9	124
		- Retiming	NBR	150	0.06	D	34.5	0	0.17	C	25.2	0
			SBL	275	0.32	C	30.6	36	0.34	C	27.2	63
			SBT	-	0.56	D	37.7	109	0.13	C	32.9	32
			SBR	255	0.44	A	3.3	37	0.69	A	9.1	96
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	D	48.2	-
			EBTR	-	0.18	B	13.2	73	0.30	B	14.1	185
			WBL	110	0.07	B	13.5	11	0.17	B	10.2	52
			WBT	-	0.11	B	9.9	33	0.16	A	8.8	95
			SBL	-	0.92	D	49.9	270	0.85	E	55.1	346
			SBTR	600	0.82	E	59.1	75	0.65	D	51.9	61
15	Federal Way at Amity Rd	- Add Free-flow WBR	Overall	-	-	C	21.4	-	-	D	54.7	-
			EBLTR	-	0.00	A	0.0	6	0.01	D	53.0	-
			WBLT	-	0.64	E	59.0	151	0.59	E	60.3	121
			WBR	190	-	A	0.0	0	-	A	0.0	38
		- Add 2nd SBL Lane and Prot signal phase	NBL	130	0.00	A	0.0	0	0.46	A	7.7	2
			NBTR	-	0.25	A	8.8	131	0.46	B	15.4	350
			SBL	420	0.76	E	59.7	102	0.84	D	54.3	238
			SBTR	-	0.17	A	3.6	63	0.26	A	5.2	165
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	29.8	-	-	D	47.7	-
			EBLTR	-	0.54	E	56.0	34	0.58	D	53.9	52
			WBL	140	0.75	D	51.8	303	0.75	D	51.2	316
			WBT	-	0.00	A	0.0	315	0.00	A	0.0	330
			WBR	140	-	A	0.0	90	-	A	0.0	87
			NBL	100	0.13	C	28.4	36	0.29	C	29.0	50
			NBT	-	0.65	D	35.7	265	0.73	D	35.9	319
			NBR	160	0.58	D	37.0	50	0.62	D	35.9	77
			SBL	350	0.21	C	23.8	125	0.55	C	31.4	365
SBTR	-	0.30	A	9.4	224	0.51	C	13.7	388			

No-Build 2025 Traffic Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	C	22.3	-	-	B	15.8	-
			EBL	155	0.11	A	3.6	22	0.40	A	4.6	94
			EBT	-	0.11	A	4.6	51	0.28	A	5.6	144
			EBR	415	-	A	0.0	26	-	A	0.0	28
			WBL	90	0.04	A	3.5	15	0.03	A	5.8	9
			WBTR	-	0.22	A	5.3	116	0.18	A	7.4	115
			NBL	520	0.77	E	59.1	136	0.48	E	55.6	147
			NBT	-	0.33	E	53.6	82	0.26	D	49.3	71
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
SBTR	-	0.67	E	78.6	143	0.29	E	66.3	49			
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	-	B	13.4	-
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	28.3	-	-	C	33.0	-
			EBL	420	0.28	C	28.6	161	0.85	D	41.9	275
			EBT	-	0.23	C	24.2	82	0.59	C	24.9	246
			EBR	390	-	A	0.0	185	-	A	0.0	29
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.3	131	0.76	D	42.1	159
			WBR	225	-	A	0.0	33	-	A	0.0	32
			NBL	495	0.31	D	42.3	30	0.87	D	45.0	255
			NBT	-	0.13	D	33.3	28	0.42	C	25.7	135
			NBR	150	0.05	D	32.8	0	15.00	C	23.4	0
			SBL	275	0.21	C	28.7	45	0.38	C	23.3	81
			SBT	-	0.68	D	36.4	142	0.13	C	29.4	40
			SBR	255	0.57	A	4.7	91	0.90	C	22.7	209
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.8	-	-	C	34.3	-
			EBTR	-	0.18	B	14.0	105	0.28	B	14.8	207
			WBL	110	0.07	B	10.6	29	0.29	B	15.2	56
			WBT	-	0.11	A	9.7	61	0.17	A	10.8	105
			SBL	-	0.68	D	48.9	311	0.86	D	54.1	357
			SBTR	600	0.87	E	58.0	80	0.65	D	50.7	61
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	22.7	-	-	C	26.9	-
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.67	E	57.9	195	0.62	E	59.4	159
			WBR	190	-	A	0.0	106	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.62	B	11.0	2
			NBTR	-	0.33	B	13.3	263	0.62	C	23.7	635
			SBL	420	0.81	E	57.2	188	0.87	D	53.1	296
			SBTR	-	0.24	A	3.8	134	0.35	A	6.4	231
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	29.8	-	-	D	36.7	-
			EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
			WBL	140	0.80	D	54.8	384	0.80	D	53.8	392
			WBT	-	0.00	A	0.0	393	0.00	A	0.0	406
			WBR	140	-	A	0.0	115	-	A	0.0	111
			NBL	100	0.15	C	29.0	37	0.37	C	31.9	50
			NBT	-	0.82	D	42.0	371	0.92	D	47.6	497
			NBR	160	0.73	D	43.6	118	0.78	D	43.9	163
			SBL	350	0.28	C	26.0	194	0.74	D	37.6	500
SBTR	-	0.39	A	11.3	307	0.67	C	18.6	642			

Build 2025 Traffic Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
4	Federal Way at Gate C	No WBL at Gate 5	Overall	-	-	A	6.9	-	-	A	7.8	-
			WBL	-	0.54	A	9.2	38	0.65	A	8.3	91
			WBR	-	0.08	A	7.1	7	0.29	A	6.8	18
			NBT	-	0.18	A	5.5	23	0.16	A	7.1	26
			NBR	240	-	A	0.0	27	-	A	0.0	26
			SBL	225	0.12	A	6.0	25	0.03	A	7.2	13
			SBT	-	0.12	A	5.3	15	0.27	A	7.5	36
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	-	-	-	-	-	-	-	-
			WBR	-	0.52	A	8.7	30	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
7	Gowen Rd at Technology Way/Grand Forest Dr	Timing Changes Only	Overall	-	-	B	18.3	-	-	B	17.1	-
			EBL	155	0.11	A	3.9	24	0.41	A	5.2	102
			EBT	-	0.11	A	5.1	56	0.29	A	6.8	155
			EBR	415	-	A	0.0	31	-	A	0.0	32
			WBL	90	0.10	A	3.7	31	0.07	A	6.1	18
			WBTR	-	0.22	A	5.6	123	0.18	A	8.3	122
			NBL	520	0.78	E	58.6	144	0.80	D	54.6	165
			NBT	-	0.31	E	52.7	80	0.23	D	47.6	69
			NBR	240	-	A	0.0	9	-	A	0.0	27
			SBL	125	0.04	E	66.1	11	0.07	E	62.4	16
7	Gowen Rd at Technology Way/Grand Forest Dr	Roundabout	Overall	-	-	A	7.5	-	-	B	13.4	-
			EB	-	0.28	A	3.4	20	0.78	B	13.5	160
			WB	-	0.60	B	12.0	80	0.57	B	13.7	80
			NB	-	0.57	A	5.7	20	0.56	C	15.5	60
			SB	-	0.70	A	8.2	20	0.19	A	7.2	20
8	Gowen Rd at Federal Way	- Add SBL Lane - Add a WBT Lane - Timing	Overall	-	-	C	29.9	-	-	D	37.6	-
			EBL	420	0.29	C	29.5	161	0.88	C	45.7	275
			EBT	-	0.25	C	25.3	90	0.62	C	25.9	252
			EBR	390	-	A	0.0	328	-	A	0.0	44
			WBL	175	0.56	D	42.3	93	0.23	D	44.5	23
			WBT	-	0.68	D	38.2	133	0.79	D	43.3	169
			WBR	225	-	A	0.0	39	-	A	0.0	47
			NBL	495	0.42	D	42.4	42	0.93	D	53.9	296
			NBT	-	0.15	C	33.4	32	0.47	C	27.1	145
			NBR	150	0.05	C	32.8	0	0.16	C	24.4	0
			SBL	275	0.63	C	42.1	82	0.77	C	42.0	144
			SBT	-	0.70	D	36.5	154	0.14	C	29.3	44
10	Gowen Rd at I-84 EB Ramp	Add 3rd SBL Lane	Overall	-	-	D	36.6	-	-	C	33.9	-
			EBTR	-	0.20	B	14.3	123	0.30	B	15.3	218
			WBL	110	0.08	B	10.7	31	0.18	B	11.2	57
			WBT	-	0.12	A	9.9	70	0.19	A	10.1	120
			SBL	-	0.72	D	49.5	324	0.86	D	53.6	363
15	Federal Way at Amity Rd	- Add Free-flow WBR - Add 2nd SBL Lane and Prot signal phase	Overall	-	-	C	23.5	-	-	C	28.7	-
			EBLTR	-	-	A	0.0	0	-	A	0.0	0
			WBLT	-	0.70	E	57.9	220	0.64	E	58.9	173
			WBR	190	-	A	0.0	103	-	A	0.0	108
			NBL	130	0.00	A	0.0	0	0.68	B	12.5	2
			NBTR	-	0.35	B	13.3	281	0.68	C	27.9	702
			SBL	420	0.81	E	57.2	188	0.88	D	53.1	319
16	Federal Way at Bergeson Ave	Add Free-flow WBR	Overall	-	-	C	33.7	-	-	D	37.4	-
			EBLTR	-	0.53	E	56.2	35	0.58	D	54.1	53
			WBL	140	0.80	D	54.8	384	0.80	D	53.8	392
			WBT	-	0.00	A	0.0	393	0.00	A	0.0	406
			WBR	140	-	A	0.0	115	-	A	0.0	111
			NBL	100	0.16	C	29.1	37	0.37	C	31.9	50
			NBT	-	0.83	D	42.6	376	0.93	D	50.2	515
			NBR	160	0.73	D	43.6	120	0.78	D	43.9	167

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	0	0	0
Future Volume (vph)	51	187	166	29	384	9	142	33	11	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	237	210	37	504	0	167	39	13	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		30.0	30.0	30.0			
Total Split (s)	22.0	68.0	68.0	19.0	65.0		38.0	38.0	38.0			
Total Split (%)	17.6%	54.4%	54.4%	15.2%	52.0%		30.4%	30.4%	30.4%			
Maximum Green (s)	17.0	62.0	62.0	14.0	59.0		33.0	33.0	33.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0		5.0	5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0		20.0	20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50		50	50	50			
Act Effct Green (s)	90.8	85.0	85.0	88.1	81.9		22.0	22.0	22.0			
Actuated g/C Ratio	0.73	0.68	0.68	0.70	0.66		0.18	0.18	0.18			
v/c Ratio	0.13	0.12	0.20	0.05	0.23		0.30	0.13	0.04			
Control Delay	5.7	8.6	1.7	5.3	10.3		45.2	42.3	0.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	5.7	8.6	1.7	5.3	10.3		45.2	42.3	0.3			
LOS	A	A	A	A	B		D	D	A			
Approach Delay		5.4			10.0			42.0				
Approach LOS		A			A			D				
Queue Length 50th (ft)	14	38	0	8	91		59	26	0			
Queue Length 95th (ft)	23	50	17	15	104		87	55	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

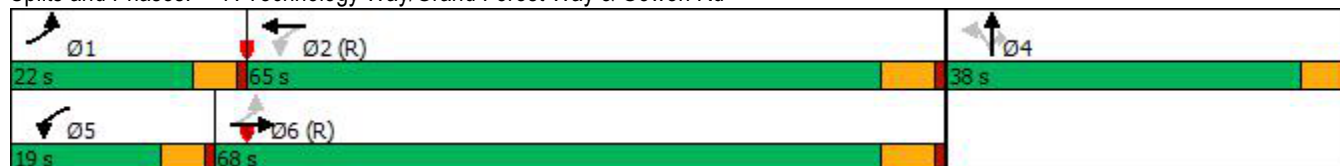


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	581	2022	1058	878	2170		833	461	422			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.11	0.12	0.20	0.04	0.23		0.20	0.08	0.03			

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization	37.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	65	237	210	37	504	167	39	13
v/c Ratio	0.13	0.12	0.20	0.05	0.23	0.30	0.13	0.04
Control Delay	5.7	8.6	1.7	5.3	10.3	45.2	42.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	8.6	1.7	5.3	10.3	45.2	42.3	0.3
Queue Length 50th (ft)	14	38	0	8	91	59	26	0
Queue Length 95th (ft)	23	50	17	15	104	87	55	0
Internal Link Dist (ft)	1908				346		3134	
Turn Bay Length (ft)	155		415		90		520	
Base Capacity (vph)	581	2022	1058	878	2170	833	461	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.12	0.20	0.04	0.23	0.20	0.08	0.03
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗			
Traffic Volume (veh/h)	51	187	166	29	384	9	142	33	11	0	0	0
Future Volume (veh/h)	51	187	166	29	384	9	142	33	11	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	65	237	0	37	492	0	167	39	0			
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	641	2305		970	2526		255	141				
Arrive On Green	0.04	0.76	0.00	0.03	0.76	0.00	0.08	0.08	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	65	237	0	37	492	0	167	39	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	1.3	2.5	0.0	0.6	5.3	0.0	6.3	2.6	0.0			
Cycle Q Clear(g_c), s	1.3	2.5	0.0	0.6	5.3	0.0	6.3	2.6	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	641	2305		970	2526		255	141				
V/C Ratio(X)	0.10	0.10		0.04	0.19		0.65	0.28				
Avail Cap(c_a), veh/h	781	2305		1112	2526		844	464				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.99	0.99	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.0	3.8	0.0	3.0	4.4	0.0	55.8	54.1	0.0			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	2.8	1.1	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.7	0.0	0.2	1.6	0.0	2.6	1.2	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	3.9	0.0	3.0	4.5	0.0	58.6	55.2	0.0			
LnGrp LOS	A	A		A	A		E	E				
Approach Vol, veh/h		302			529			206				
Approach Delay, s/veh		3.7			4.4			58.0				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.5	100.5		15.0	8.6	101.4						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	17.0	59.0		33.0	14.0	62.0						
Max Q Clear Time (g_c+I1), s	3.3	7.3		8.3	2.6	4.5						
Green Ext Time (p_c), s	0.1	3.6		0.7	0.0	1.6						

Intersection Summary												
HCM 6th Ctrl Delay				14.9								
HCM 6th LOS				B								

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.1	38.9	38.9	9.0	34.0	34.0	7.9	18.7	18.7	27.2	21.7	34.8
Actuated g/C Ratio	0.12	0.43	0.43	0.10	0.38	0.38	0.09	0.21	0.21	0.30	0.24	0.39
v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.19	0.10	0.02	0.15	0.37	0.46
Control Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
LOS	E	D	C	D	C	A	D	C	A	B	C	A
Approach Delay		40.3			20.8			29.3			16.4	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	92	98	212	37	76	0	13	13	0	19	70	4

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#155	142	312	77	104	14	28	27	0	36	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1285	917	167	1749	673	413	769	587	787	883	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.12	0.08	0.02	0.15	0.34	0.46

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 28.2 Intersection LOS: C
 Intersection Capacity Utilization 59.0% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.19	0.10	0.02	0.15	0.37	0.46
Control Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	36.3	24.8	45.9	22.3	2.0	39.2	26.7	0.1	18.5	29.1	3.9
Queue Length 50th (ft)	92	98	212	37	76	0	13	13	0	19	70	4
Queue Length 95th (ft)	#155	142	312	77	104	14	28	27	0	36	109	37
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	353	1285	917	167	1749	673	413	769	587	787	883	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.24	0.56	0.41	0.27	0.19	0.12	0.08	0.02	0.15	0.34	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1248	1514		141	732		161	387	197	646	477	775
Arrive On Green	0.14	0.17	0.00	0.08	0.16	0.00	0.05	0.13	0.13	0.06	0.14	0.14
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	7.9	7.8	0.0	3.5	8.4	0.0	1.4	1.6	0.6	2.7	7.5	2.7
Cycle Q Clear(g_c), s	7.9	7.8	0.0	3.5	8.4	0.0	1.4	1.6	0.6	2.7	7.5	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1248	1514		141	732		161	387	197	646	477	775
V/C Ratio(X)	0.23	0.20		0.48	0.64		0.32	0.16	0.06	0.18	0.63	0.42
Avail Cap(c_a), veh/h	1248	1514		169	1353		419	765	390	799	786	899
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.00	0.98	0.98	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	22.0	0.0	39.4	35.6	0.0	41.2	34.8	34.4	30.4	36.4	2.9
Incr Delay (d2), s/veh	0.1	0.3	0.0	2.5	4.2	0.0	1.1	0.2	0.1	0.1	1.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.9	0.0	1.5	3.4	0.0	0.6	0.6	0.2	1.0	3.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	22.2	0.0	41.8	39.8	0.0	42.3	35.0	34.5	30.6	37.7	3.3
LnGrp LOS	C	C		D	D		D	D	C	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		23.9			40.0			38.0			21.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	43.6	19.1	9.6	17.8	12.5	50.1	10.7	16.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	9.9	10.4	3.4	9.5	5.5	9.8	4.7	3.6				
Green Ext Time (p_c), s	0.0	2.6	0.0	2.2	0.0	1.7	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			28.3									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		94.3		104.0	104.0					36.0		36.0
Actuated g/C Ratio		0.63		0.69	0.69					0.24		0.24
v/c Ratio		0.19		0.07	0.10					0.76		0.56
Control Delay		12.9		8.8	8.4					57.6		8.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		12.9		8.8	8.4					57.6		8.2
LOS		B		A	A					E		A
Approach Delay		12.9			8.5							43.8
Approach LOS		B			A							D
Queue Length 50th (ft)		73		11	33					270		0
Queue Length 95th (ft)		96		27	56					300		80
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

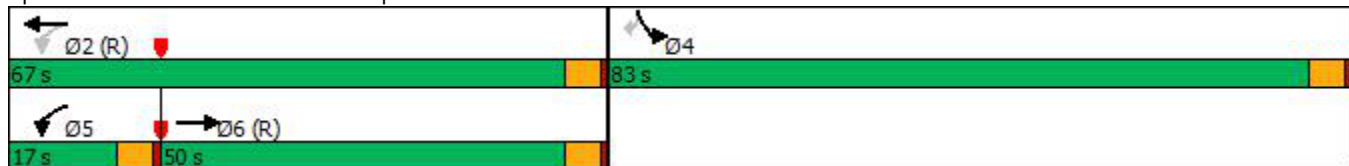


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2637		536	2025					2365		864
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.19		0.07	0.10					0.35		0.37

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	31.1
Intersection LOS:	C
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.19	0.07	0.10	0.76	0.56
Control Delay	12.9	8.8	8.4	57.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	8.8	8.4	57.6	8.2
Queue Length 50th (ft)	73	11	33	270	0
Queue Length 95th (ft)	96	27	56	300	80
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2637	536	2025	2365	864
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.07	0.10	0.35	0.37
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2502	187	542	1979	0				1227	0	368
Arrive On Green	0.00	0.61	0.61	0.03	0.67	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	4262	308	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	7.4	7.5	1.3	3.8	0.0				24.3	0.0	33.3
Cycle Q Clear(g_c), s	0.0	7.4	7.5	1.3	3.8	0.0				24.3	0.0	33.3
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1758	932	542	1979	0				1227	0	368
V/C Ratio(X)	0.00	0.18	0.19	0.07	0.11	0.00				0.68	0.00	0.87
Avail Cap(c_a), veh/h	0	1758	932	624	1979	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.0	13.0	9.9	8.9	0.0				49.3	0.0	52.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				0.7	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	2.7	0.4	1.3	0.0				9.1	0.0	23.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	13.5	9.9	9.1	0.0				49.9	0.0	59.1
LnGrp LOS	A	B	B	A	A	A				D	A	E
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		13.3			9.2						52.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.1		44.9	8.9	96.1						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		5.8		35.3	3.3	9.5						
Green Ext Time (p_c), s		1.5		4.6	0.0	3.4						
Intersection Summary												
HCM 6th Ctrl Delay				36.6								
HCM 6th LOS				D								

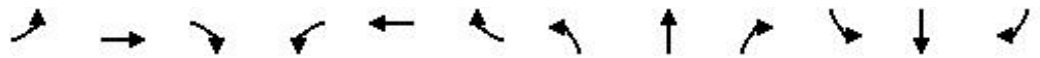
Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	1	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	143	475	0	544	0	245	439	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			27.3	27.3		72.2		17.5	93.7	
Actuated g/C Ratio		0.20			0.21	0.21		0.56		0.13	0.72	
v/c Ratio		0.01			0.53	0.69		0.32		0.63	0.19	
Control Delay		38.0			51.7	9.4		17.4		60.3	6.7	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		38.0			51.7	9.4		17.4		60.3	6.7	
LOS		D			D	A		B		E	A	
Approach Delay		38.0			19.2			17.4			25.9	
Approach LOS		D			B			B			C	
Queue Length 50th (ft)		1			104	0		131		102	63	
Queue Length 95th (ft)		6			151	38		165		141	84	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

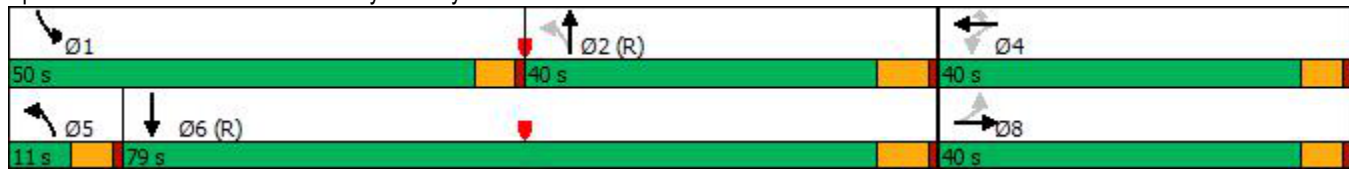


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		272			359	754		1726		1020	2324	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.00			0.40	0.63		0.32		0.24	0.19	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	21.2
Intersection LOS:	C
Intersection Capacity Utilization	53.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

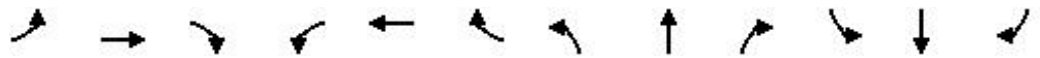
10/14/2022



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1	143	475	544	245	439
v/c Ratio	0.01	0.53	0.69	0.32	0.63	0.19
Control Delay	38.0	51.7	9.4	17.4	60.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	51.7	9.4	17.4	60.3	6.7
Queue Length 50th (ft)	1	104	0	131	102	63
Queue Length 95th (ft)	6	151	38	165	141	84
Internal Link Dist (ft)	68	1420		4542		2223
Turn Bay Length (ft)			190		420	
Base Capacity (vph)	272	359	754	1726	1020	2324
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.40	0.63	0.32	0.24	0.19
Intersection Summary						

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕↔	↕↔	
Traffic Volume (veh/h)	1	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	1	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	0	142	0	0	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	261	0	0	233	0		699	1963	194	324	2632	0
Arrive On Green	0.12	0.00	0.00	0.12	0.00	0.00	0.00	0.67	0.66	0.11	0.81	0.00
Sat Flow, veh/h	1669	0	0	1441	0	1490	1714	2948	291	2937	3346	0
Grp Volume(v), veh/h	1	0	0	142	0	0	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	1669	0	0	1441	0	1490	1714	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	12.5	0.0	0.0	0.0	8.7	8.8	10.5	3.9	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	12.6	0.0	0.0	0.0	8.7	8.8	10.5	3.9	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	249	0	0	222	0		699	1068	1089	324	2632	0
V/C Ratio(X)	0.00	0.00	0.00	0.64	0.00		0.00	0.25	0.25	0.76	0.17	0.00
Avail Cap(c_a), veh/h	470	0	0	443	0		790	1068	1089	1039	2632	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	55.9	0.0	0.0	0.0	8.7	8.8	56.1	2.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.6	0.6	3.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.7	0.0	0.0	0.0	2.9	3.0	4.0	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	0.0	0.0	59.0	0.0	0.0	0.0	9.3	9.3	59.7	2.9	0.0
LnGrp LOS	D	A	A	E	A		A	A	A	E	A	A
Approach Vol, veh/h		1			142			544			684	
Approach Delay, s/veh		50.4			59.0			9.3			23.3	
Approach LOS		D			E			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.4	91.6		20.1	0.0	109.9		20.1				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	12.5	10.8		14.6	0.0	5.9		2.1				
Green Ext Time (p_c), s	0.8	3.0		0.6	0.0	2.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	81	0	142	146	389	31	676	259	239	612	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	35.0	35.0		20.0	20.0	20.0	10.0	39.0	39.0	16.0	45.0	
Total Split (%)	31.8%	31.8%		18.2%	18.2%	18.2%	9.1%	35.5%	35.5%	14.5%	40.9%	
Maximum Green (s)	30.0	30.0		15.0	15.0	15.0	5.0	34.0	34.0	11.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		26.1		16.0	16.0	16.0	42.0	41.5	41.5	12.0	51.5	
Actuated g/C Ratio		0.24		0.15	0.15	0.15	0.38	0.38	0.38	0.11	0.47	
v/c Ratio		0.16		2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45	
Control Delay		23.3		686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		23.3		686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3	
LOS		C		F	F	B	C	C	A	E	C	
Approach Delay		23.3			331.5			24.4			34.6	
Approach LOS		C			F			C			C	
Queue Length 50th (ft)		16		~172	~184	0	15	216	1	85	176	
Queue Length 95th (ft)		34		#303	#315	90	36	265	50	#125	224	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

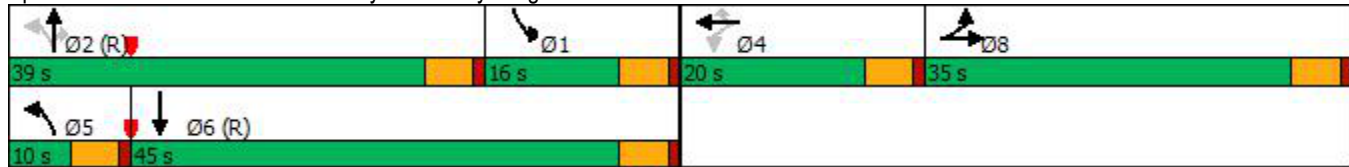


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		613		60	54	548	210	1240	694	329	1372	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.13		2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.70
Intersection Signal Delay:	108.5
Intersection LOS:	F
Intersection Capacity Utilization	54.2%
ICU Level of Service	A
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	142	146	389	31	676	259	239	612
v/c Ratio	0.16	2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45
Control Delay	23.3	686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	686.2	836.8	12.3	28.0	31.6	5.3	61.1	24.3
Queue Length 50th (ft)	16	~172	~184	0	15	216	1	85	176
Queue Length 95th (ft)	34	#303	#315	90	36	265	50	#125	224
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	613	60	54	548	210	1240	694	329	1372
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	2.37	2.70	0.71	0.15	0.55	0.37	0.73	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	279	0	0	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	89	33	51	374	0	0	230	1039	449	1133	1834	173
Arrive On Green	0.05	0.06	0.05	0.11	0.00	0.00	0.04	0.31	0.31	0.37	0.65	0.64
Sat Flow, veh/h	1594	594	915	3375	0	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	279	0	0	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	1594	0	1509	1688	0	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	3.2	0.0	2.3	8.8	0.0	0.0	1.7	19.4	16.7	5.9	9.5	9.6
Cycle Q Clear(g_c), s	3.2	0.0	2.3	8.8	0.0	0.0	1.7	19.4	16.7	5.9	9.5	9.6
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	89	0	85	374	0	0	230	1039	449	1133	993	1014
V/C Ratio(X)	0.54	0.00	0.39	0.75	0.00	0.00	0.13	0.65	0.58	0.21	0.30	0.31
Avail Cap(c_a), veh/h	449	0	425	491	0	0	256	1039	449	1133	993	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	50.4	47.4	0.0	0.0	28.2	32.6	31.6	23.7	8.6	8.6
Incr Delay (d2), s/veh	4.9	0.0	2.9	4.4	0.0	0.0	0.3	3.2	5.3	0.1	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.0	3.9	0.0	0.0	0.6	7.9	6.2	2.0	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	0.0	53.3	51.8	0.0	0.0	28.4	35.7	37.0	23.8	9.4	9.4
LnGrp LOS	E	A	D	D	A		C	D	D	C	A	A
Approach Vol, veh/h		81			279			966			851	
Approach Delay, s/veh		54.9			51.8			35.8			13.4	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	44.6	39.0		16.2	8.1	75.6		10.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	34.0		15.0	5.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	7.9	21.4		10.8	3.7	11.6		5.2				
Green Ext Time (p_c), s	0.2	4.3		0.4	0.0	3.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				29.8								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	0	0	0
Future Volume (vph)	212	484	174	13	286	8	167	30	30	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	613	220	17	377	0	196	35	35	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	35.0	59.0	59.0	16.0	40.0		45.0	45.0	45.0			
Total Split (%)	29.2%	49.2%	49.2%	13.3%	33.3%		37.5%	37.5%	37.5%			
Maximum Green (s)	30.0	53.0	53.0	11.0	34.0		40.0	40.0	40.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	97.2	91.7	91.7	86.6	79.8		12.8	12.8	12.8			
Actuated g/C Ratio	0.81	0.76	0.76	0.72	0.66		0.11	0.11	0.11			
v/c Ratio	0.41	0.27	0.19	0.03	0.17		0.58	0.19	0.14			
Control Delay	5.0	5.4	1.2	3.5	8.5		57.7	49.9	1.1			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	5.0	5.4	1.2	3.5	8.5		57.7	49.9	1.1			
LOS	A	A	A	A	A		E	D	A			
Approach Delay		4.5			8.2			49.2				
Approach LOS		A			A			D				
Queue Length 50th (ft)	39	50	0	2	52		75	25	0			
Queue Length 95th (ft)	62	101	14	6	76		104	53	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

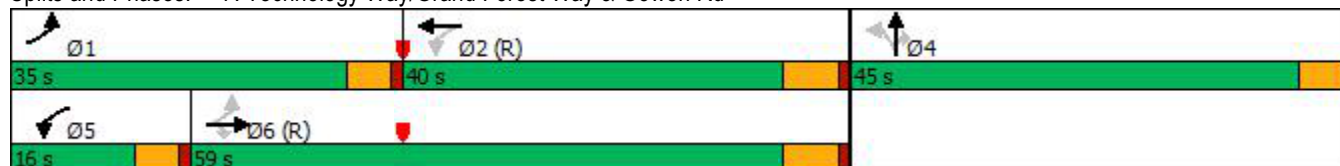


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	748	2273	1165	665	2202		1053	582	546			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.36	0.27	0.19	0.03	0.17		0.19	0.06	0.06			

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	12.1
Intersection LOS:	B
Intersection Capacity Utilization	39.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	268	613	220	17	377	196	35	35
v/c Ratio	0.41	0.27	0.19	0.03	0.17	0.58	0.19	0.14
Control Delay	5.0	5.4	1.2	3.5	8.5	57.7	49.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	5.4	1.2	3.5	8.5	57.7	49.9	1.1
Queue Length 50th (ft)	39	50	0	2	52	75	25	0
Queue Length 95th (ft)	62	101	14	6	76	104	53	0
Internal Link Dist (ft)		1908			346		3134	
Turn Bay Length (ft)	155		415	90		520		240
Base Capacity (vph)	748	2273	1165	665	2202	1053	582	546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27	0.19	0.03	0.17	0.19	0.06	0.06
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗			
Traffic Volume (veh/h)	212	484	174	13	286	8	167	30	30	0	0	0
Future Volume (veh/h)	212	484	174	13	286	8	167	30	30	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	268	613	0	17	367	0	196	35	0			
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	726	2311		671	2380		266	146				
Arrive On Green	0.07	0.77	0.00	0.02	0.71	0.00	0.08	0.08	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	268	613	0	17	367	0	196	35	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	5.7	7.2	0.0	0.3	4.3	0.0	7.2	2.2	0.0			
Cycle Q Clear(g_c), s	5.7	7.2	0.0	0.3	4.3	0.0	7.2	2.2	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	726	2311		671	2380		266	146				
V/C Ratio(X)	0.37	0.27		0.03	0.15		0.74	0.24				
Avail Cap(c_a), veh/h	976	2311		797	2380		1065	586				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.2	4.1	0.0	4.4	5.6	0.0	53.7	51.4	0.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.1	0.0	3.9	0.8	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	1.9	0.0	0.1	1.4	0.0	3.0	1.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	4.4	0.0	4.4	5.7	0.0	57.7	52.3	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		881			384			231				
Approach Delay, s/veh		4.1			5.6			56.8				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	13.5	91.5		15.0	7.2	97.8						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	30.0	34.0		40.0	11.0	53.0						
Max Q Clear Time (g_c+I1), s	7.7	6.3		9.2	2.3	9.2						
Green Ext Time (p_c), s	0.8	2.4		0.8	0.0	4.7						

Intersection Summary

HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.9	38.9	8.0	18.3	18.3	21.5	25.7	25.7	27.0	17.3	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.29	0.29	0.30	0.19	0.39
v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.46	0.12	0.38	0.10	0.66
Control Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
LOS	E	C	A	D	D	A	D	C	A	B	C	B
Approach Delay		35.5			30.2			35.6			16.2	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)	159	134	0	5	94	0	175	88	0	41	15	49

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

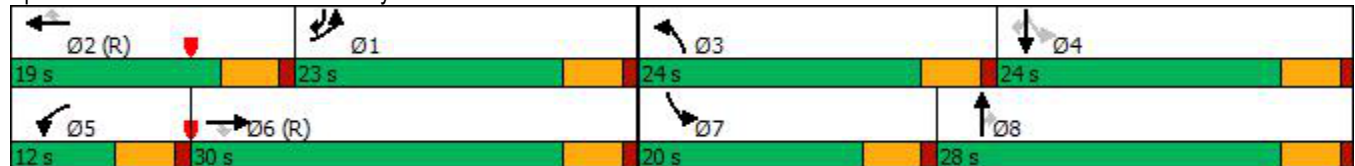
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#257	233	26	21	126	15	#238	124	0	63	32	96
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1286	731	148	943	417	739	912	615	878	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.43	0.12	0.30	0.09	0.66

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 30.8 Intersection LOS: C
 Intersection Capacity Utilization 59.3% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	554	631	118	10	481	97	613	388	71	264	65	405
v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.46	0.12	0.38	0.10	0.66
Control Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	22.3	3.2	38.8	35.4	3.4	44.6	27.8	0.4	17.9	28.3	13.1
Queue Length 50th (ft)	159	134	0	5	94	0	175	88	0	41	15	49
Queue Length 95th (ft)	#257	233	26	21	126	15	#238	124	0	63	32	96
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1286	731	148	943	417	739	912	615	878	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.49	0.16	0.07	0.51	0.23	0.83	0.43	0.12	0.30	0.09	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	813	1261		48	781		698	812	414	773	520	589
Arrive On Green	0.28	0.42	0.00	0.03	0.17	0.00	0.22	0.27	0.27	0.10	0.15	0.15
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	554	631	0	10	481	0	613	388	71	264	65	405
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	15.2	13.8	0.0	0.5	8.6	0.0	17.0	9.8	3.2	6.0	1.5	9.8
Cycle Q Clear(g_c), s	15.2	13.8	0.0	0.5	8.6	0.0	17.0	9.8	3.2	6.0	1.5	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	813	1261		48	781		698	812	414	773	520	589
V/C Ratio(X)	0.68	0.50		0.21	0.62		0.88	0.48	0.17	0.34	0.13	0.69
Avail Cap(c_a), veh/h	813	1261		150	781		699	812	414	1008	748	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.96	0.96	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	19.3	0.0	42.7	34.8	0.0	33.8	27.4	25.1	26.9	32.8	6.7
Incr Delay (d2), s/veh	2.2	1.3	0.0	2.1	3.5	0.0	12.3	0.4	0.2	0.3	0.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	4.8	0.0	0.2	3.4	0.0	7.3	3.4	1.1	2.2	0.6	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	20.6	0.0	44.8	38.3	0.0	46.1	27.9	25.2	27.2	32.9	9.1
LnGrp LOS	C	C		D	D		D	C	C	C	C	A
Approach Vol, veh/h		1185			491			1072			734	
Approach Delay, s/veh		25.5			38.4			38.2			17.7	
Approach LOS		C			D			D			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	19.0	24.0	17.9	6.5	41.6	13.4	28.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	17.2	10.6	19.0	11.8	2.5	15.8	8.0	11.8				
Green Ext Time (p_c), s	0.2	1.0	0.0	1.1	0.0	2.8	0.5	2.0				

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	806	0	71	316	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		84.1		97.4	97.4					42.6		42.6
Actuated g/C Ratio		0.56		0.65	0.65					0.28		0.28
v/c Ratio		0.34		0.20	0.17					0.78		0.41
Control Delay		19.1		12.3	11.3					53.5		6.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		19.1		12.3	11.3					53.5		6.5
LOS		B		B	B					D		A
Approach Delay		19.1			11.5							44.7
Approach LOS		B			B							D
Queue Length 50th (ft)		149		24	60					321		0
Queue Length 95th (ft)		185		52	95					346		61
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

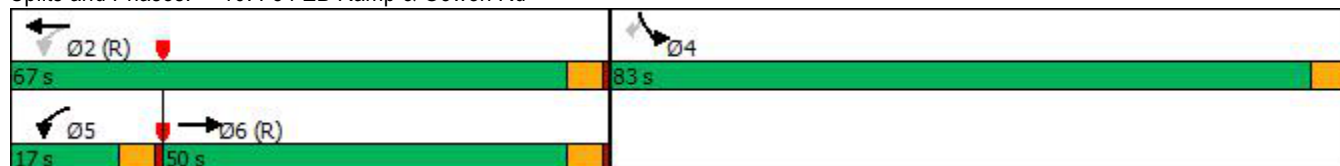
10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2351		377	1897					2365		820
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.34		0.19	0.17					0.42		0.28

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	30.9
Intersection LOS:	C
Intersection Capacity Utilization	77.7%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	806	71	316	1003	229
v/c Ratio	0.34	0.20	0.17	0.78	0.41
Control Delay	19.1	12.3	11.3	53.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	12.3	11.3	53.5	6.5
Queue Length 50th (ft)	149	24	60	321	0
Queue Length 95th (ft)	185	52	95	346	61
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2351	377	1897	2365	820
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.19	0.17	0.42	0.28
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↗↗↗		↖
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	746	60	71	316	0				1003	0	229
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2513	201	419	2013	0				1174	0	352
Arrive On Green	0.00	0.61	0.61	0.03	0.68	0.00				0.25	0.00	0.25
Sat Flow, veh/h	0	4239	328	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	526	280	71	316	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	12.9	13.0	2.5	5.7	0.0				31.1	0.0	22.2
Cycle Q Clear(g_c), s	0.0	12.9	13.0	2.5	5.7	0.0				31.1	0.0	22.2
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1775	939	419	2013	0				1174	0	352
V/C Ratio(X)	0.00	0.30	0.30	0.17	0.16	0.00				0.85	0.00	0.65
Avail Cap(c_a), veh/h	0	1775	939	492	2013	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	13.7	10.0	8.7	0.0				53.2	0.0	49.9
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.2	0.2	0.0				1.9	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.3	4.7	0.8	1.9	0.0				11.7	0.0	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.1	14.5	10.2	8.8	0.0				55.1	0.0	51.9
LnGrp LOS	A	B	B	B	A	A				E	A	D
Approach Vol, veh/h		806			387						1232	
Approach Delay, s/veh		14.3			9.1						54.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		106.8		43.2	9.7	97.0						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		7.7		33.1	4.5	15.0						
Green Ext Time (p_c), s		2.2		5.1	0.1	5.8						

Intersection Summary

HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	113	460	1	887	0	470	641	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			26.9	26.9	69.8	62.3		27.8	92.0	
Actuated g/C Ratio		0.20			0.21	0.21	0.54	0.48		0.21	0.71	
v/c Ratio		0.00			0.42	0.68	0.00	0.61		0.76	0.28	
Control Delay		0.0			48.2	9.4	9.0	28.6		56.0	8.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			48.2	9.4	9.0	28.6		56.0	8.5	
LOS		A			D	A	A	C		E	A	
Approach Delay					17.0			28.6			28.6	
Approach LOS					B			C			C	
Queue Length 50th (ft)		0			80	0	0	293		193	99	
Queue Length 95th (ft)		0			121	38	2	350		238	165	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

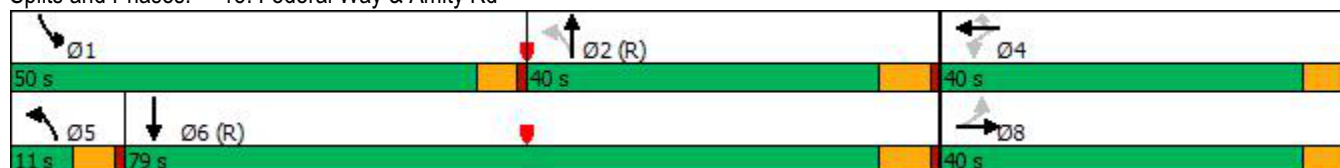
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		514			359	743	449	1462		1020	2282	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.31	0.62	0.00	0.61		0.46	0.28	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	26.0
Intersection LOS:	C
Intersection Capacity Utilization	60.9%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd




















10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	113	460	1	887	470	641
v/c Ratio	0.00	0.42	0.68	0.00	0.61	0.76	0.28
Control Delay	0.0	48.2	9.4	9.0	28.6	56.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	48.2	9.4	9.0	28.6	56.0	8.5
Queue Length 50th (ft)	0	80	0	0	293	193	99
Queue Length 95th (ft)	0	121	38	2	350	238	165
Internal Link Dist (ft)	68	1420			4542		2223
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	514	359	743	449	1462	1020	2282
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.31	0.62	0.00	0.61	0.46	0.28
Intersection Summary							

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	112	0	0	1	704	183	470	641	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	113	14	85	201	0		622	1533	398	558	2453	0
Arrive On Green	0.09	0.00	0.09	0.09	0.00	0.00	0.05	0.61	0.60	0.19	0.75	0.00
Sat Flow, veh/h	710	134	844	1442	0	1490	1714	2519	654	2937	3346	0
Grp Volume(v), veh/h	2	0	0	112	0	0	1	448	439	470	641	0
Grp Sat Flow(s),veh/h/ln	1688	0	0	1442	0	1490	1714	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	9.8	0.0	0.0	0.0	19.7	19.9	20.1	7.9	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	9.9	0.0	0.0	0.0	19.7	19.9	20.1	7.9	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	199	0	0	190	0		622	976	956	558	2453	0
V/C Ratio(X)	0.01	0.00	0.00	0.59	0.00		0.00	0.46	0.46	0.84	0.26	0.00
Avail Cap(c_a), veh/h	460	0	0	443	0		635	976	956	1039	2453	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.0	0.0	0.0	57.4	0.0	0.0	7.7	13.8	14.0	50.8	5.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.9	0.0	0.0	0.0	1.6	1.6	3.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	0.0	0.0	7.0	6.9	7.5	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	0.0	0.0	60.3	0.0	0.0	7.7	15.4	15.5	54.3	5.2	0.0
LnGrp LOS	D	A	A	E	A		A	B	B	D	A	A
Approach Vol, veh/h		2			112			888			1111	
Approach Delay, s/veh		53.0			60.3			15.4			26.0	
Approach LOS		D			E			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.7	84.1		17.2	10.0	102.8		17.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	22.1	21.9		11.9	2.0	9.9		2.1				
Green Ext Time (p_c), s	1.6	4.2		0.5	0.0	4.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	133	0	149	153	380	50	822	300	538	994	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	30.0	30.0		21.0	21.0	21.0	10.0	42.0	42.0	17.0	49.0	
Total Split (%)	27.3%	27.3%		19.1%	19.1%	19.1%	9.1%	38.2%	38.2%	15.5%	44.5%	
Maximum Green (s)	25.0	25.0		16.0	16.0	16.0	5.0	37.0	37.0	12.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		22.2		17.0	17.0	17.0	41.8	41.3	41.3	13.0	50.3	
Actuated g/C Ratio		0.20		0.15	0.15	0.15	0.38	0.38	0.38	0.12	0.46	
v/c Ratio		0.25		2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72	
Control Delay		25.8		736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.8		736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1	
LOS		C		F	F	B	C	C	A	F	C	
Approach Delay		25.8			384.7			26.6			117.4	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		28		~184	~197	0	24	266	22	~273	322	
Queue Length 95th (ft)		52		#316	#330	87	50	319	77	#364	388	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

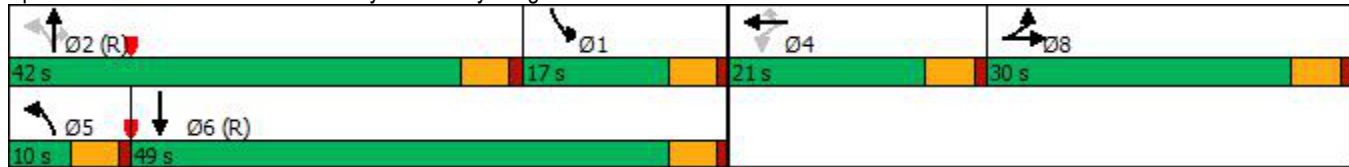


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		619		60	51	550	134	1234	691	356	1380	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.21		2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.00
Intersection Signal Delay:	135.5
Intersection LOS:	F
Intersection Capacity Utilization	59.6%
ICU Level of Service	B
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	149	153	380	50	822	300	538	994
v/c Ratio	0.25	2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72
Control Delay	25.8	736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	736.4	968.6	11.7	32.6	33.1	7.6	278.8	30.1
Queue Length 50th (ft)	28	~184	~197	0	24	266	22	~273	322
Queue Length 95th (ft)	52	#316	#330	87	50	319	77	#364	388
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	619	60	51	550	134	1234	691	356	1380
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	2.48	3.00	0.69	0.37	0.67	0.43	1.51	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	30	66	37	289	0	0	50	822	300	538	985	9
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	51	115	66	386	0		174	1130	488	985	1927	18
Arrive On Green	0.06	0.07	0.06	0.11	0.00	0.00	0.04	0.34	0.34	0.32	0.62	0.61
Sat Flow, veh/h	699	1559	893	3375	0	1490	1460	3313	1430	3066	3120	29
Grp Volume(v), veh/h	70	0	63	289	0	0	50	822	300	538	485	509
Grp Sat Flow(s),veh/h/ln	1639	0	1513	1688	0	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	4.6	0.0	4.4	9.1	0.0	0.0	2.6	23.9	19.2	15.9	19.4	19.4
Cycle Q Clear(g_c), s	4.6	0.0	4.4	9.1	0.0	0.0	2.6	23.9	19.2	15.9	19.4	19.4
Prop In Lane	0.43		0.59	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	121	0	111	386	0		174	1130	488	985	949	996
V/C Ratio(X)	0.58	0.00	0.56	0.75	0.00		0.29	0.73	0.62	0.55	0.51	0.51
Avail Cap(c_a), veh/h	387	0	358	522	0		188	1130	488	985	949	996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	49.5	47.2	0.0	0.0	28.1	31.8	30.2	30.7	11.8	11.8
Incr Delay (d2), s/veh	4.4	0.0	4.4	4.1	0.0	0.0	0.9	4.1	5.7	0.6	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	4.0	0.0	0.0	0.9	9.8	7.1	5.5	6.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	0.0	53.9	51.2	0.0	0.0	29.0	35.9	35.9	31.4	13.7	13.6
LnGrp LOS	D	A	D	D	A		C	D	D	C	B	B
Approach Vol, veh/h		133			289			1172			1532	
Approach Delay, s/veh		53.9			51.2			35.6			19.9	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.3	42.0		16.6	8.9	72.4		12.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	12.0	37.0		16.0	5.0	44.0		25.0				
Max Q Clear Time (g_c+I1), s	17.9	25.9		11.1	4.6	21.4		6.6				
Green Ext Time (p_c), s	0.0	4.8		0.4	0.0	5.7		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				30.1								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	0	0	0
Future Volume (vph)	60	219	194	37	484	11	217	50	17	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	216	41	550	0	241	56	19	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	22.0	68.0	68.0	19.0	65.0		38.0	38.0	38.0			
Total Split (%)	17.6%	54.4%	54.4%	15.2%	52.0%		30.4%	30.4%	30.4%			
Maximum Green (s)	17.0	62.0	62.0	14.0	59.0		33.0	33.0	33.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	96.7	90.0	90.0	95.5	89.4		14.9	14.9	14.9			
Actuated g/C Ratio	0.77	0.72	0.72	0.76	0.72		0.12	0.12	0.12			
v/c Ratio	0.13	0.11	0.19	0.05	0.23		0.64	0.27	0.08			
Control Delay	3.6	6.3	1.4	3.3	7.1		60.2	52.3	0.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	3.6	6.3	1.4	3.3	7.1		60.2	52.3	0.7			
LOS	A	A	A	A	A		E	D	A			
Approach Delay		3.9			6.9			55.2				
Approach LOS		A			A			E				
Queue Length 50th (ft)	9	30	0	6	75		97	42	0			
Queue Length 95th (ft)	22	51	26	15	116		136	82	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

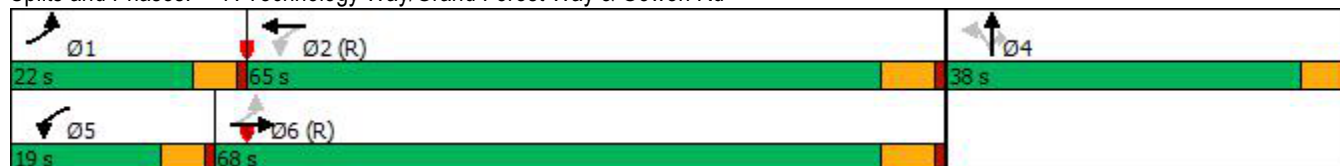


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	610	2142	1109	936	2370		833	461	422			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.11	0.11	0.19	0.04	0.23		0.29	0.12	0.05			

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	16.4
Intersection LOS:	B
Intersection Capacity Utilization	38.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	67	243	216	41	550	241	56	19
v/c Ratio	0.13	0.11	0.19	0.05	0.23	0.64	0.27	0.08
Control Delay	3.6	6.3	1.4	3.3	7.1	60.2	52.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	6.3	1.4	3.3	7.1	60.2	52.3	0.7
Queue Length 50th (ft)	9	30	0	6	75	97	42	0
Queue Length 95th (ft)	22	51	26	15	116	136	82	0
Internal Link Dist (ft)	1908				346		3134	
Turn Bay Length (ft)	155		415		90		520	
Base Capacity (vph)	610	2142	1109	936	2370	833	461	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.19	0.04	0.23	0.29	0.12	0.05

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗			
Traffic Volume (veh/h)	60	219	194	37	484	11	217	50	17	0	0	0
Future Volume (veh/h)	60	219	194	37	484	11	217	50	17	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	67	243	0	41	538	0	241	56	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	600	2246		943	2465		312	172				
Arrive On Green	0.04	0.74	0.00	0.03	0.74	0.00	0.10	0.10	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	67	243	0	41	538	0	241	56	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	1.4	2.8	0.0	0.7	6.3	0.0	9.2	3.7	0.0			
Cycle Q Clear(g_c), s	1.4	2.8	0.0	0.7	6.3	0.0	9.2	3.7	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	600	2246		943	2465		312	172				
V/C Ratio(X)	0.11	0.11		0.04	0.22		0.77	0.33				
Avail Cap(c_a), veh/h	740	2246		1083	2465		844	464				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.5	4.5	0.0	3.4	5.1	0.0	55.0	52.6	0.0			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	4.0	1.1	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.8	0.0	0.2	2.0	0.0	3.8	1.7	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.6	4.6	0.0	3.5	5.3	0.0	59.1	53.6	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		310			579			297				
Approach Delay, s/veh		4.3			5.2			58.0				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.5	98.3		17.2	8.8	99.0						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	17.0	59.0		33.0	14.0	62.0						
Max Q Clear Time (g_c+I1), s	3.4	8.3		11.2	2.7	4.8						
Green Ext Time (p_c), s	0.1	4.0		1.0	0.0	1.7						

Intersection Summary												
HCM 6th Ctrl Delay												18.2
HCM 6th LOS												B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.4	38.4	9.1	33.4	33.4	7.9	18.4	18.4	28.0	22.2	35.5
Actuated g/C Ratio	0.13	0.43	0.43	0.10	0.37	0.37	0.09	0.20	0.20	0.31	0.25	0.39
v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.18	0.10	0.02	0.21	0.48	0.61
Control Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
LOS	E	B	A	D	C	A	D	C	A	B	C	A
Approach Delay		24.1			22.1			29.5			19.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	87	47	34	46	97	0	13	13	0	26	95	36

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

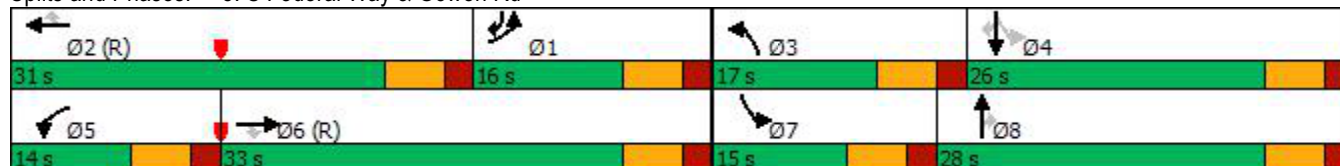


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	82	185	93	131	33	30	28	0	45	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1268	873	168	1718	665	413	760	583	747	891	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.12	0.08	0.02	0.20	0.44	0.61

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.3 Intersection LOS: C
 Intersection Capacity Utilization 63.2% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.18	0.10	0.02	0.21	0.48	0.61
Control Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	18.8	8.2	49.3	23.2	3.8	39.2	26.9	0.1	19.2	30.5	9.0
Queue Length 50th (ft)	87	47	34	46	97	0	13	13	0	26	95	36
Queue Length 95th (ft)	#161	82	185	93	131	33	30	28	0	45	142	91
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1268	873	168	1718	665	413	760	583	747	891	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.25	0.62	0.50	0.34	0.24	0.12	0.08	0.02	0.20	0.44	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/14/2022













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1085	1408		150	855		158	449	229	731	579	740
Arrive On Green	0.12	0.15	0.00	0.09	0.18	0.00	0.05	0.15	0.15	0.07	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	8.5	8.3	0.0	4.3	10.4	0.0	1.4	1.5	0.6	3.5	9.9	3.9
Cycle Q Clear(g_c), s	8.5	8.3	0.0	4.3	10.4	0.0	1.4	1.5	0.6	3.5	9.9	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1085	1408		150	855		158	449	229	731	579	740
V/C Ratio(X)	0.28	0.23		0.56	0.68		0.31	0.13	0.05	0.21	0.68	0.57
Avail Cap(c_a), veh/h	1085	1408		169	1353		419	765	390	856	786	824
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	23.8	0.0	39.3	34.3	0.0	41.2	33.2	32.7	28.6	34.9	4.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.0	4.0	0.0	1.1	0.1	0.1	0.1	1.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.2	0.0	1.9	4.1	0.0	0.5	0.5	0.2	1.3	4.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	24.2	0.0	42.3	38.3	0.0	42.3	33.3	32.8	28.7	36.4	4.7
LnGrp LOS	C	C		D	D		D	C	C	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		26.3			38.8			37.0			21.3	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.6	21.4	9.5	20.5	13.0	47.0	11.5	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.5	12.4	3.4	11.9	6.3	10.3	5.5	3.5				
Green Ext Time (p_c), s	0.0	3.1	0.0	2.6	0.0	1.8	0.1	0.2				

Intersection Summary												
HCM 6th Ctrl Delay											28.3	
HCM 6th LOS											C	

Notes
 User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘↘		↗
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		92.6		102.3	102.3					37.7		37.7
Actuated g/C Ratio		0.62		0.68	0.68					0.25		0.25
v/c Ratio		0.18		0.08	0.11					0.76		0.57
Control Delay		13.5		9.4	9.0					56.5		7.9
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		13.5		9.4	9.0					56.5		7.9
LOS		B		A	A					E		A
Approach Delay		13.5			9.1							42.9
Approach LOS		B			A							D
Queue Length 50th (ft)		70		12	36					282		0
Queue Length 95th (ft)		105		29	61					311		80
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

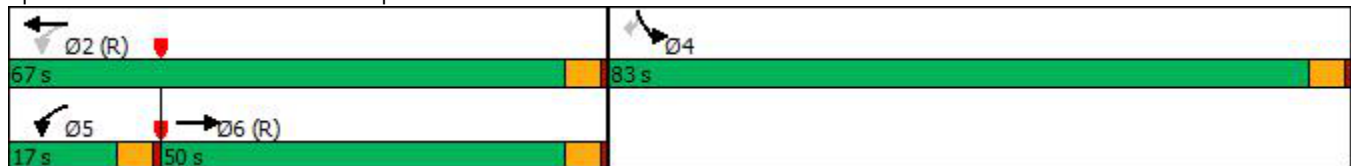
Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2592		540	1993					2365		871
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.18		0.07	0.11					0.37		0.39

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	31.3
Intersection Capacity Utilization	52.9%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	A

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.18	0.08	0.11	0.76	0.57
Control Delay	13.5	9.4	9.0	56.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	9.4	9.0	56.5	7.9
Queue Length 50th (ft)	70	12	36	282	0
Queue Length 95th (ft)	105	29	61	311	80
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2592	540	1993	2365	871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.07	0.11	0.37	0.39
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2458	178	546	1944	0				1281	0	384
Arrive On Green	0.00	0.60	0.60	0.03	0.66	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4272	299	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	7.1	7.3	1.4	4.2	0.0				25.3	0.0	34.8
Cycle Q Clear(g_c), s	0.0	7.1	7.3	1.4	4.2	0.0				25.3	0.0	34.8
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1722	914	546	1944	0				1281	0	384
V/C Ratio(X)	0.00	0.18	0.18	0.07	0.11	0.00				0.68	0.00	0.87
Avail Cap(c_a), veh/h	0	1722	914	627	1944	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	13.8	10.5	9.6	0.0				48.2	0.0	51.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				0.6	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.6	0.5	1.4	0.0				9.4	0.0	24.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.0	14.2	10.6	9.7	0.0				48.9	0.0	58.0
LnGrp LOS	A	B	B	B	A	A				D	A	E
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		14.0			9.9						51.4	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		103.3		46.7	9.0	94.3						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		6.2		36.8	3.4	9.3						
Green Ext Time (p_c), s		1.5		4.9	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				36.8								
HCM 6th LOS				D								

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45				45
Link Distance (ft)		148			1500			4622				2303
Travel Time (s)		4.0			22.7			70.0				34.9
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					28.3	28.3		66.3		22.4	92.7	
Actuated g/C Ratio					0.22	0.22		0.51		0.17	0.71	
v/c Ratio					0.59	0.73		0.41		0.71	0.27	
Control Delay					53.6	9.6		22.2		58.4	7.6	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					53.6	9.6		22.2		58.4	7.6	
LOS					D	A		C		E	A	
Approach Delay					19.8			22.2			25.8	
Approach LOS					B			C			C	
Queue Length 50th (ft)					124	0		180		145	97	
Queue Length 95th (ft)					195	106		263		188	134	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)							190			420		

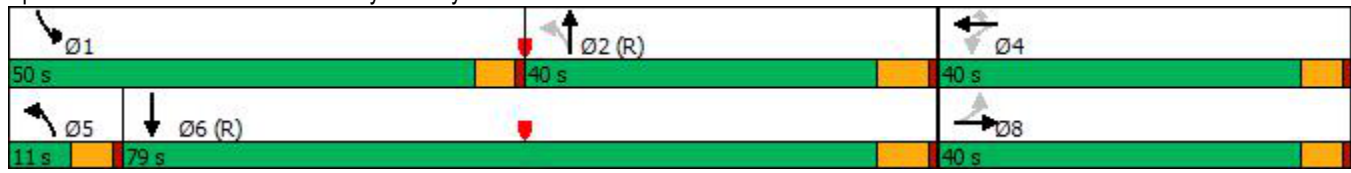
Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					359	813		1587		1020	2301	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.47	0.68		0.41		0.34	0.27	

Intersection Summary	
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	23.0
Intersection Capacity Utilization	57.6%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	B

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd






















10/14/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.59	0.73	0.41	0.71	0.27
Control Delay	53.6	9.6	22.2	58.4	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	9.6	22.2	58.4	7.6
Queue Length 50th (ft)	124	0	180	145	97
Queue Length 95th (ft)	195	106	263	188	134
Internal Link Dist (ft)	1420		4542		2223
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	359	813	1587	1020	2301
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.68	0.41	0.34	0.27
Intersection Summary					

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	0	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	255	0	259	0		551	1798	178	435	2573	0
Arrive On Green	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.61	0.60	0.15	0.79	0.00
Sat Flow, veh/h	0	1800	0	1440	0	1490	1714	2946	292	2937	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	0	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1490	1714	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	14.8	0.0	0.0	0.0	12.8	12.9	15.0	6.6	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	14.8	0.0	0.0	0.0	12.8	12.9	15.0	6.6	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	255	0	248	0		551	978	998	435	2573	0
V/C Ratio(X)	0.00	0.00	0.00	0.67	0.00		0.00	0.33	0.33	0.81	0.24	0.00
Avail Cap(c_a), veh/h	0	498	0	443	0		642	978	998	1039	2573	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	54.7	0.0	0.0	0.0	12.4	12.4	53.6	3.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.9	0.9	3.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	5.5	0.0	0.0	0.0	4.5	4.6	5.6	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	57.9	0.0	0.0	0.0	13.3	13.3	57.2	3.8	0.0
LnGrp LOS	A	A	A	E	A		A	B	B	E	A	A
Approach Vol, veh/h		0			167			653			980	
Approach Delay, s/veh		0.0			57.9			13.3			22.9	
Approach LOS					E			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.3	84.3		22.4	0.0	107.6		22.4				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	17.0	14.9		16.8	0.0	8.6		0.0				
Green Ext Time (p_c), s	1.2	3.5		0.7	0.0	4.4		0.0				

Intersection Summary























HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	850	327	304	762	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4			5	2		1	6
Permitted Phases				4		4		2		2		
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	35.0	35.0		20.0	20.0	20.0	10.0	39.0	39.0	16.0	45.0	
Total Split (%)	31.8%	31.8%		18.2%	18.2%	18.2%	9.1%	35.5%	35.5%	14.5%	40.9%	
Maximum Green (s)	30.0	30.0		15.0	15.0	15.0	5.0	34.0	34.0	11.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		26.1		16.0	16.0	16.0	42.0	41.5	41.5	12.0	51.5	
Actuated g/C Ratio		0.24		0.15	0.15	0.15	0.38	0.38	0.38	0.11	0.47	
v/c Ratio		0.15		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55	
Control Delay		23.4		976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		23.4		976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5	
LOS		C		F	F	B	C	D	A	F	C	
Approach Delay		23.4			449.2			28.1			42.6	
Approach LOS		C			F			C			D	
Queue Length 50th (ft)		15		~234	~243	0	15	291	35	111	235	
Queue Length 95th (ft)		35		#384	#393	115	37	371	118	#194	307	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

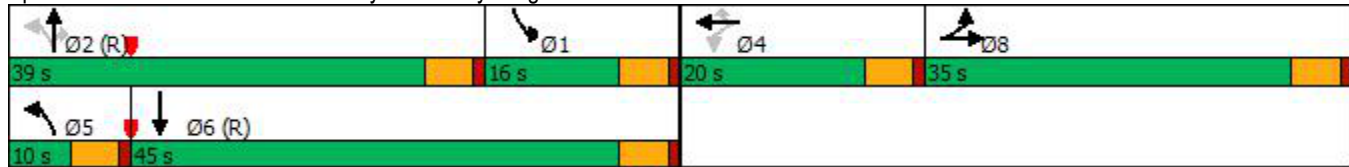


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		611		60	55	649	171	1240	695	329	1382	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.13		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.36
Intersection Signal Delay:	146.9
Intersection LOS:	F
Intersection Capacity Utilization	66.7%
ICU Level of Service	C
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	850	327	304	762
v/c Ratio	0.15	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55
Control Delay	23.4	976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	976.1	1125.0	13.4	28.7	35.1	9.7	82.9	26.5
Queue Length 50th (ft)	15	~234	~243	0	15	291	35	111	235
Queue Length 95th (ft)	35	#384	#393	115	37	371	118	#194	307
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	611	60	55	649	171	1240	695	329	1382
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.























Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	0	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	86	32	50	447	0		194	1039	449	1073	1823	131
Arrive On Green	0.05	0.05	0.05	0.13	0.00	0.00	0.04	0.31	0.31	0.35	0.63	0.62
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	358	0	0	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.1	22.4	7.9	13.3	13.3
Cycle Q Clear(g_c), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.1	22.4	7.9	13.3	13.3
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	86	0	82	447	0		194	1039	449	1073	964	991
V/C Ratio(X)	0.53	0.00	0.38	0.80	0.00		0.15	0.82	0.73	0.28	0.39	0.39
Avail Cap(c_a), veh/h	449	0	425	491	0		221	1039	449	1073	964	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	0.0	50.5	46.3	0.0	0.0	28.6	34.9	33.6	25.8	10.1	10.1
Incr Delay (d2), s/veh	5.0	0.0	2.9	8.5	0.0	0.0	0.4	7.2	10.0	0.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	5.3	0.0	0.0	0.6	11.1	8.7	2.7	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	53.4	54.8	0.0	0.0	29.0	42.0	43.6	26.0	11.3	11.3
LnGrp LOS	E	A	D	D	A		C	D	D	C	B	B
Approach Vol, veh/h		77			358			1207			1066	
Approach Delay, s/veh		55.1			54.8			42.1			15.5	
Approach LOS		E			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	39.0		18.6	8.0	73.5		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	34.0		15.0	5.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	9.9	28.1		13.3	3.6	15.3		5.1				
Green Ext Time (p_c), s	0.1	3.3		0.2	0.0	4.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				33.7								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	0	0	0
Future Volume (vph)	248	567	204	16	360	10	255	46	46	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	227	18	411	0	283	51	51	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	35.0	59.0	59.0	16.0	40.0		45.0	45.0	45.0			
Total Split (%)	29.2%	49.2%	49.2%	13.3%	33.3%		37.5%	37.5%	37.5%			
Maximum Green (s)	30.0	53.0	53.0	11.0	34.0		40.0	40.0	40.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	93.7	88.2	88.2	81.9	75.1		16.3	16.3	16.3			
Actuated g/C Ratio	0.78	0.74	0.74	0.68	0.63		0.14	0.14	0.14			
v/c Ratio	0.45	0.29	0.20	0.03	0.20		0.66	0.22	0.17			
Control Delay	6.5	6.8	1.5	4.7	10.8		56.3	46.8	1.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	6.5	6.8	1.5	4.7	10.8		56.3	46.8	1.3			
LOS	A	A	A	A	B		E	D	A			
Approach Delay		5.7			10.6			47.8				
Approach LOS		A			B			D				
Queue Length 50th (ft)	48	62	0	3	65		108	36	0			
Queue Length 95th (ft)	94	144	28	9	115		147	71	0			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

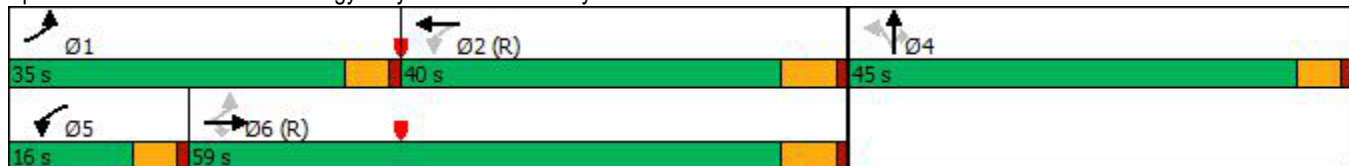


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	712	2185	1131	627	2072		1053	582	546			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.39	0.29	0.20	0.03	0.20		0.27	0.09	0.09			

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	15.1
Intersection LOS:	B
Intersection Capacity Utilization	46.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	276	630	227	18	411	283	51	51
v/c Ratio	0.45	0.29	0.20	0.03	0.20	0.66	0.22	0.17
Control Delay	6.5	6.8	1.5	4.7	10.8	56.3	46.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	6.8	1.5	4.7	10.8	56.3	46.8	1.3
Queue Length 50th (ft)	48	62	0	3	65	108	36	0
Queue Length 95th (ft)	94	144	28	9	115	147	71	0
Internal Link Dist (ft)		1908			346		3134	
Turn Bay Length (ft)	155		415	90		520		240
Base Capacity (vph)	712	2185	1131	627	2072	1053	582	546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.29	0.20	0.03	0.20	0.27	0.09	0.09
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	567	204	16	360	10	255	46	46	0	0	0
Future Volume (veh/h)	248	567	204	16	360	10	255	46	46	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	276	630	0	18	400	0	283	51	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	683	2220		630	2250		361	198				
Arrive On Green	0.08	0.74	0.00	0.02	0.67	0.00	0.11	0.11	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	276	630	0	18	400	0	283	51	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	6.8	8.4	0.0	0.4	5.3	0.0	10.3	3.2	0.0			
Cycle Q Clear(g_c), s	6.8	8.4	0.0	0.4	5.3	0.0	10.3	3.2	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	683	2220		630	2250		361	198				
V/C Ratio(X)	0.40	0.28		0.03	0.18		0.78	0.26				
Avail Cap(c_a), veh/h	920	2220		755	2250		1065	586				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	4.3	5.3	0.0	5.7	7.3	0.0	51.8	48.6	0.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	3.8	0.7	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.4	0.0	0.1	1.8	0.0	4.2	1.4	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	5.6	0.0	5.8	7.4	0.0	55.6	49.3	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		906			418			334				
Approach Delay, s/veh		5.3			7.4			54.6				
Approach LOS		A			A			D				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	14.6	86.9		18.5	7.3	94.2						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	30.0	34.0		40.0	11.0	53.0						
Max Q Clear Time (g_c+I1), s	8.8	7.3		12.3	2.4	10.4						
Green Ext Time (p_c), s	0.8	2.6		1.2	0.0	4.8						

Intersection Summary

HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.6	38.6	8.0	18.0	18.0	21.8	24.3	24.3	28.6	17.3	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.27	0.27	0.32	0.19	0.39
v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.47	0.12	0.45	0.13	0.88
Control Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
LOS	E	C	A	D	D	A	D	C	A	B	C	C
Approach Delay		39.2			32.6			34.4			24.4	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	169	143	0	6	119	0	167	87	0	55	20	89

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

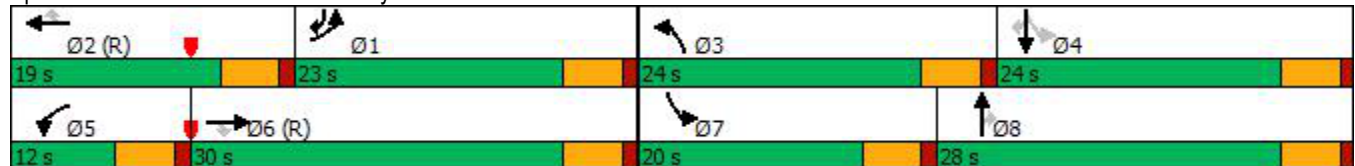
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#275	246	29	23	159	32	#255	135	0	81	40	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1276	726	148	929	413	749	869	596	883	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.43	0.12	0.39	0.12	0.88

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 33.3 Intersection LOS: C
 Intersection Capacity Utilization 70.0% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	662	123	12	592	119	590	373	69	347	86	534
v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.47	0.12	0.45	0.13	0.88
Control Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	22.9	3.5	39.1	37.9	5.7	41.8	29.0	0.5	18.7	28.9	27.4
Queue Length 50th (ft)	169	143	0	6	119	0	167	87	0	55	20	89
Queue Length 95th (ft)	#275	246	29	23	159	32	#255	135	0	81	40	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1276	726	148	929	413	749	869	596	883	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.52	0.17	0.08	0.64	0.29	0.79	0.43	0.12	0.39	0.12	0.88

































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	687	1122		53	781		681	892	454	910	683	597
Arrive On Green	0.24	0.37	0.00	0.03	0.17	0.00	0.22	0.30	0.30	0.12	0.20	0.20
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	581	662	0	12	592	0	590	373	69	347	86	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	17.1	15.9	0.0	0.6	10.9	0.0	16.3	9.0	3.0	7.3	1.9	14.6
Cycle Q Clear(g_c), s	17.1	15.9	0.0	0.6	10.9	0.0	16.3	9.0	3.0	7.3	1.9	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	687	1122		53	781		681	892	454	910	683	597
V/C Ratio(X)	0.85	0.59		0.23	0.76		0.87	0.42	0.15	0.38	0.13	0.90
Avail Cap(c_a), veh/h	687	1122		150	781		699	892	454	1091	748	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.93	0.93	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	22.8	0.0	42.5	35.8	0.0	34.0	25.3	23.2	23.0	29.3	7.6
Incr Delay (d2), s/veh	9.1	2.2	0.0	2.0	6.4	0.0	11.0	0.3	0.2	0.3	0.1	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	5.7	0.0	0.3	4.5	0.0	6.9	3.1	1.0	2.7	0.7	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	24.9	0.0	44.5	42.1	0.0	45.0	25.7	23.4	23.3	29.4	22.7
LnGrp LOS	D	C		D	D		D	C	C	C	C	C
Approach Vol, veh/h		1243			604			1032			967	
Approach Delay, s/veh		32.9			42.2			36.6			23.5	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.2	19.0	23.5	22.3	6.8	37.4	14.9	30.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	19.1	12.9	18.3	16.6	2.6	17.9	9.3	11.0				
Green Ext Time (p_c), s	0.0	0.5	0.2	0.7	0.0	2.5	0.6	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘↘		↗
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	74	332	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		81.9		95.4	95.4					44.6		44.6
Actuated g/C Ratio		0.55		0.64	0.64					0.30		0.30
v/c Ratio		0.33		0.21	0.18					0.78		0.42
Control Delay		20.1		13.2	12.3					52.2		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		20.1		13.2	12.3					52.2		6.2
LOS		C		B	B					D		A
Approach Delay		20.1			12.4							43.7
Approach LOS		C			B							D
Queue Length 50th (ft)		143		26	66					335		0
Queue Length 95th (ft)		207		56	105					357		61
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

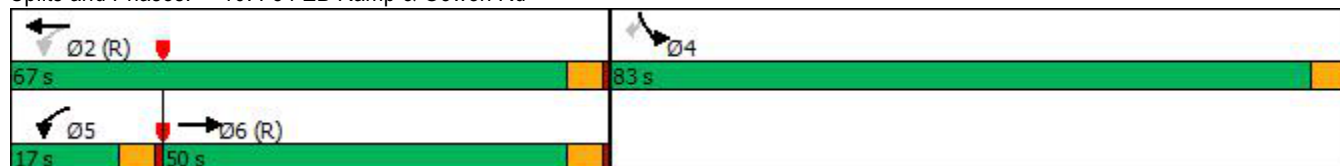


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2292		384	1859					2365		825
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.33		0.19	0.18					0.44		0.29

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	31.2
Intersection LOS:	C
Intersection Capacity Utilization	80.5%
ICU Level of Service	D
Analysis Period (min)	15

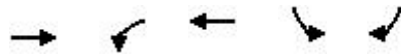
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	74	332	1052	240
v/c Ratio	0.33	0.21	0.18	0.78	0.42
Control Delay	20.1	13.2	12.3	52.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	13.2	12.3	52.2	6.2
Queue Length 50th (ft)	143	26	66	335	0
Queue Length 95th (ft)	207	56	105	357	61
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2292	384	1859	2365	825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.19	0.18	0.44	0.29

Intersection Summary

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	74	332	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2462	198	427	1978	0				1229	0	369
Arrive On Green	0.00	0.60	0.60	0.03	0.67	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	4236	330	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	496	264	74	332	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	12.4	12.5	2.7	6.3	0.0				32.5	0.0	23.1
Cycle Q Clear(g_c), s	0.0	12.4	12.5	2.7	6.3	0.0				32.5	0.0	23.1
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1740	920	427	1978	0				1229	0	369
V/C Ratio(X)	0.00	0.28	0.29	0.17	0.17	0.00				0.86	0.00	0.65
Avail Cap(c_a), veh/h	0	1740	920	501	1978	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.4	14.4	10.6	9.4	0.0				52.3	0.0	48.8
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.2	0.2	0.0				1.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	4.5	0.9	2.1	0.0				12.3	0.0	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.8	15.2	10.8	9.6	0.0				54.1	0.0	50.7
LnGrp LOS	A	B	B	B	A	A				D	A	D
Approach Vol, veh/h		760			406						1292	
Approach Delay, s/veh		14.9			9.8						53.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		105.0		45.0	9.8	95.2						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		8.3		34.5	4.7	14.5						
Green Ext Time (p_c), s		2.4		5.5	0.1	5.4						
Intersection Summary												
HCM 6th Ctrl Delay			34.3									
HCM 6th LOS			C									

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	619	844	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		26.1			27.2	27.2	62.7	55.2		34.6	91.7	
Actuated g/C Ratio		0.20			0.21	0.21	0.48	0.42		0.27	0.71	
v/c Ratio		0.00			0.48	0.73	0.00	0.82		0.81	0.37	
Control Delay		0.0			50.2	9.9	11.0	40.5		52.9	9.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			50.2	9.9	11.0	40.5		52.9	9.4	
LOS		A			D	A	B	D		D	A	
Approach Delay					17.8			40.5			27.8	
Approach LOS					B			D			C	
Queue Length 50th (ft)		0			94	0	0	424		252	142	
Queue Length 95th (ft)		0			159	108	2	#635		296	231	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

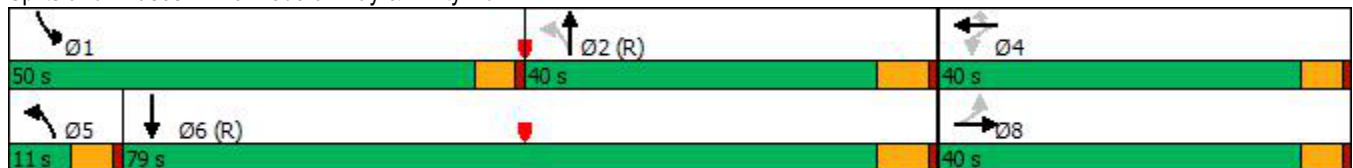
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		514			359	800	352	1300		1020	2276	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.36	0.67	0.00	0.82		0.61	0.37	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 29.9
 Intersection LOS: C
 Intersection Capacity Utilization 75.4%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	619	844
v/c Ratio	0.00	0.48	0.73	0.00	0.82	0.81	0.37
Control Delay	0.0	50.2	9.9	11.0	40.5	52.9	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	50.2	9.9	11.0	40.5	52.9	9.4
Queue Length 50th (ft)	0	94	0	0	424	252	142
Queue Length 95th (ft)	0	159	108	2	#635	296	231
Internal Link Dist (ft)	68	1420			4542		2223
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	514	359	800	352	1300	1020	2276
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.36	0.67	0.00	0.82	0.61	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕↔		↕↔	↕↔	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	0	1	844	219	619	844	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	126	14	98	222	0		494	1368	355	710	2407	0
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.00	0.05	0.54	0.54	0.24	0.74	0.00
Sat Flow, veh/h	730	117	847	1441	0	1490	1714	2520	654	2937	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	0	1	537	526	619	844	0
Grp Sat Flow(s),veh/h/ln	1694	0	0	1441	0	1490	1714	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.4	0.0	0.0	0.0	29.9	30.1	26.3	11.9	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	11.6	0.0	0.0	0.0	29.9	30.1	26.3	11.9	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	224	0	0	211	0		494	870	852	710	2407	0
V/C Ratio(X)	0.01	0.00	0.00	0.62	0.00		0.00	0.62	0.62	0.87	0.35	0.00
Avail Cap(c_a), veh/h	463	0	0	443	0		507	870	852	1039	2407	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	56.5	0.0	0.0	11.0	20.4	20.6	47.3	6.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.3	3.3	5.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.3	0.0	0.0	0.0	11.2	11.1	9.9	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	0.0	0.0	59.4	0.0	0.0	11.0	23.7	24.0	53.1	6.4	0.0
LnGrp LOS	D	A	A	E	A		B	C	C	D	A	A
Approach Vol, veh/h		2			131			1064			1463	
Approach Delay, s/veh		51.4			59.4			23.8			26.2	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	35.4	75.6		19.0	10.0	101.0		19.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	28.3	32.1		13.6	2.0	13.9		2.1				
Green Ext Time (p_c), s	2.1	1.2		0.5	0.0	6.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1034	378	684	1262	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	30.0	30.0		21.0	21.0	21.0	10.0	42.0	42.0	17.0	49.0	
Total Split (%)	27.3%	27.3%		19.1%	19.1%	19.1%	9.1%	38.2%	38.2%	15.5%	44.5%	
Maximum Green (s)	25.0	25.0		16.0	16.0	16.0	5.0	37.0	37.0	12.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		22.2		17.0	17.0	17.0	41.8	41.3	41.3	13.0	50.3	
Actuated g/C Ratio		0.20		0.15	0.15	0.15	0.38	0.38	0.38	0.12	0.46	
v/c Ratio		0.24		3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91	
Control Delay		25.6		1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.6		1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6	
LOS		C		F	F	B	C	D	B	F	D	
Approach Delay		25.6			494.3			32.7			186.2	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		27		~243	~254	0	23	366	63	~384	~505	
Queue Length 95th (ft)		53		#392	#406	111	50	#497	163	#500	#642	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		618		60	53	647	134	1235	691	356	1381	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.21		3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.60
Intersection Signal Delay:	191.7
Intersection LOS:	F
Intersection Capacity Utilization	72.7%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1034	378	684	1262
v/c Ratio	0.24	3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91
Control Delay	25.6	1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	1012.6	1232.6	12.6	32.1	40.1	12.8	453.0	41.6
Queue Length 50th (ft)	27	~243	~254	0	23	366	63	~384	~505
Queue Length 95th (ft)	53	#392	#406	111	50	#497	163	#500	#642
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	618	60	53	647	134	1235	691	356	1381
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	3.12	3.60	0.76	0.36	0.84	0.55	1.92	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	0	48	1034	378	684	1253	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	50	111	65	457	0		130	1130	488	926	1873	13
Arrive On Green	0.06	0.07	0.06	0.14	0.00	0.00	0.04	0.34	0.34	0.30	0.60	0.59
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	0	48	1034	378	684	616	646
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	32.9	26.0	22.0	29.5	29.5
Cycle Q Clear(g_c), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	32.9	26.0	22.0	29.5	29.5
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	117	0	108	457	0		130	1130	488	926	920	966
V/C Ratio(X)	0.58	0.00	0.56	0.80	0.00		0.37	0.92	0.78	0.74	0.67	0.67
Avail Cap(c_a), veh/h	387	0	357	522	0		145	1130	488	926	920	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	49.7	46.1	0.0	0.0	30.1	34.7	32.5	34.5	14.8	14.8
Incr Delay (d2), s/veh	4.4	0.0	4.4	7.7	0.0	0.0	1.7	12.9	11.4	3.1	3.8	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	5.3	0.0	0.0	0.9	14.6	10.2	8.0	9.5	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	0.0	54.1	53.8	0.0	0.0	31.9	47.6	43.9	37.6	18.6	18.4
LnGrp LOS	D	A	D	D	A		C	D	D	D	B	B
Approach Vol, veh/h		128			365			1460				1946
Approach Delay, s/veh		54.1			53.8			46.1				25.2
Approach LOS		D			D			D				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.2	42.0		18.9	8.8	70.4		11.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	12.0	37.0		16.0	5.0	44.0		25.0				
Max Q Clear Time (g_c+I1), s	24.0	34.9		13.5	4.5	31.5		6.4				
Green Ext Time (p_c), s	0.0	1.5		0.3	0.0	5.8		0.6				

Intersection Summary













HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	121	16	68	290	74	39
Future Volume (vph)	121	16	68	290	74	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.9	7.9	16.5	16.5	16.5	16.5
Actuated g/C Ratio	0.25	0.25	0.52	0.52	0.52	0.52
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
LOS	B	A	A	A	A	A
Approach Delay	10.5		3.4			7.5
Approach LOS	B		A			A
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	31.6
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.34
Intersection Signal Delay:	5.7
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	18	76	322	82	43
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022





















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	121	16	68	290	74	39
Future Volume (veh/h)	121	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	134	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	250	223	417		674	372
Arrive On Green	0.15	0.15	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	134	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.4	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.4	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	250	223	417		674	372
V/C Ratio(X)	0.54	0.08	0.18		0.12	0.12
Avail Cap(c_a), veh/h	1922	1710	2334		2221	2082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	6.9	5.3	0.0	5.9	5.2
Incr Delay (d2), s/veh	1.8	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	7.1	5.5	0.0	6.0	5.3
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	152		76			125
Approach Delay, s/veh	8.9		5.5			5.8
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.7		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.4		3.7
Green Ext Time (p_c), s		0.3		0.4		0.4

Intersection Summary		
HCM 6th Ctrl Delay		7.1
HCM 6th LOS		A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
	ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↵	↵			↔		↵	↔	
Traffic Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	0	0	53	0	33	55	709	148	4

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.7	0	7.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	-	-	1023	1520	-
HCM Lane V/C Ratio	-	-	-	-	-	-	0.052	0.466	-
HCM Control Delay (s)	0	-	-	0	0	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	2.6	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	0	0	0
Future Volume (vph)	60	219	245	86	484	11	235	50	34	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	272	96	550	0	261	56	38	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	22.0	68.0	68.0	19.0	65.0		38.0	38.0	38.0			
Total Split (%)	17.6%	54.4%	54.4%	15.2%	52.0%		30.4%	30.4%	30.4%			
Maximum Green (s)	17.0	62.0	62.0	14.0	59.0		33.0	33.0	33.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	93.9	86.0	86.0	95.3	88.4		15.9	15.9	15.9			
Actuated g/C Ratio	0.75	0.69	0.69	0.76	0.71		0.13	0.13	0.13			
v/c Ratio	0.13	0.12	0.25	0.11	0.23		0.65	0.25	0.16			
Control Delay	4.0	7.3	1.6	3.7	7.6		59.4	50.7	3.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	4.0	7.3	1.6	3.7	7.6		59.4	50.7	3.7			
LOS	A	A	A	A	A		E	D	A			
Approach Delay		4.2			7.0			52.1				
Approach LOS		A			A			D				
Queue Length 50th (ft)	10	31	0	14	77		105	42	0			
Queue Length 95th (ft)	24	56	31	31	123		144	80	9			
Internal Link Dist (ft)		1908			346			3134				856
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

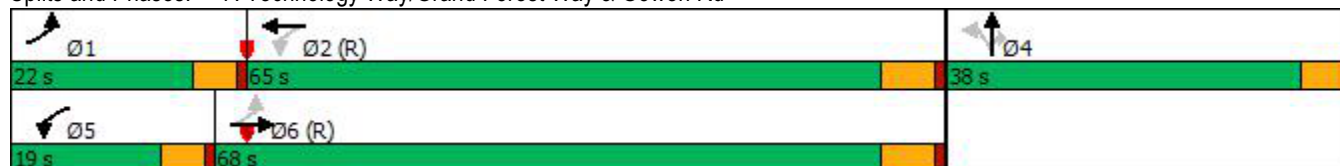


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	612	2047	1087	917	2342		833	461	422			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.11	0.12	0.25	0.10	0.23		0.31	0.12	0.09			

Intersection Summary

Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	125
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	16.1
Intersection LOS:	B
Intersection Capacity Utilization	39.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	67	243	272	96	550	261	56	38
v/c Ratio	0.13	0.12	0.25	0.11	0.23	0.65	0.25	0.16
Control Delay	4.0	7.3	1.6	3.7	7.6	59.4	50.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	7.3	1.6	3.7	7.6	59.4	50.7	3.7
Queue Length 50th (ft)	10	31	0	14	77	105	42	0
Queue Length 95th (ft)	24	56	31	31	123	144	80	9
Internal Link Dist (ft)	1908				346		3134	
Turn Bay Length (ft)	155	415		90	520		240	
Base Capacity (vph)	612	2047	1087	917	2342	833	461	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.12	0.25	0.10	0.23	0.31	0.12	0.09
Intersection Summary								

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	219	245	86	484	11	235	50	34	0	0	0
Future Volume (veh/h)	60	219	245	86	484	11	235	50	34	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	67	243	0	96	538	0	261	56	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	595	2202		938	2443		333	183				
Arrive On Green	0.04	0.73	0.00	0.04	0.73	0.00	0.10	0.10	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	67	243	0	96	538	0	261	56	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	1.5	3.0	0.0	1.7	6.4	0.0	10.0	3.7	0.0			
Cycle Q Clear(g_c), s	1.5	3.0	0.0	1.7	6.4	0.0	10.0	3.7	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	595	2202		938	2443		333	183				
V/C Ratio(X)	0.11	0.11		0.10	0.22		0.78	0.31				
Avail Cap(c_a), veh/h	734	2202		1064	2443		844	464				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	3.8	5.0	0.0	3.6	5.4	0.0	54.6	51.8	0.0			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	4.0	0.9	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.4	0.9	0.0	0.5	2.1	0.0	4.1	1.6	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	5.1	0.0	3.7	5.6	0.0	58.6	52.7	0.0			
LnGrp LOS	A	A		A	A		E	D				
Approach Vol, veh/h		310			634			317				
Approach Delay, s/veh		4.8			5.3			57.6				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.5	97.4		18.0	9.8	97.1						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	17.0	59.0		33.0	14.0	62.0						
Max Q Clear Time (g_c+I1), s	3.5	8.4		12.0	3.7	5.0						
Green Ext Time (p_c), s	0.1	4.0		1.1	0.1	1.7						

Intersection Summary
































HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	  	 	 	 	 			
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	11.3	38.0	38.0	9.1	33.0	33.0	8.6	18.3	18.3	10.6	19.4	31.7
Actuated g/C Ratio	0.13	0.42	0.42	0.10	0.37	0.37	0.10	0.20	0.20	0.12	0.22	0.35
v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.26	0.12	0.02	0.47	0.58	0.69
Control Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
LOS	E	B	B	D	C	A	D	C	A	D	C	B
Approach Delay		25.4			22.2			31.4			27.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	88	52	61	46	99	0	21	15	0	50	104	52

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

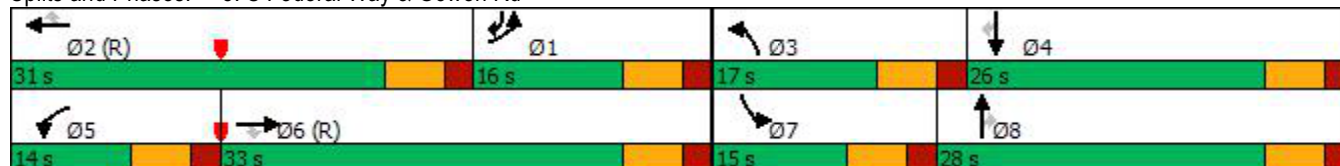
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#161	90	#328	93	133	39	42	32	0	82	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1256	864	168	1699	659	413	753	580	376	836	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.19	0.09	0.02	0.47	0.50	0.69

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.5 Intersection LOS: C
 Intersection Capacity Utilization 68.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.26	0.12	0.02	0.47	0.58	0.69
Control Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	19.1	13.0	49.3	23.4	4.4	39.4	27.4	0.1	42.0	34.5	14.1
Queue Length 50th (ft)	88	52	61	46	99	0	21	15	0	50	104	52
Queue Length 95th (ft)	#161	90	#328	93	133	39	42	32	0	82	154	116
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	358	1256	864	168	1699	659	413	753	580	376	836	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.27	0.71	0.50	0.35	0.25	0.19	0.09	0.02	0.47	0.50	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1034	1363		150	867		185	450	229	281	601	725
Arrive On Green	0.12	0.15	0.00	0.09	0.19	0.00	0.06	0.15	0.15	0.09	0.18	0.18
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	8.5	9.1	0.0	4.3	10.5	0.0	2.2	1.8	0.6	4.8	10.5	4.2
Cycle Q Clear(g_c), s	8.5	9.1	0.0	4.3	10.5	0.0	2.2	1.8	0.6	4.8	10.5	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1034	1363		150	867		185	450	229	281	601	725
V/C Ratio(X)	0.29	0.25		0.56	0.68		0.42	0.15	0.05	0.63	0.70	0.58
Avail Cap(c_a), veh/h	1034	1363		169	1353		419	765	390	358	786	800
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	24.9	0.0	39.3	34.2	0.0	40.9	33.3	32.7	39.7	34.7	4.1
Incr Delay (d2), s/veh	0.1	0.4	0.0	3.0	4.0	0.0	1.5	0.2	0.1	2.4	1.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.5	0.0	1.9	4.2	0.0	0.8	0.6	0.2	1.9	4.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	25.3	0.0	42.3	38.2	0.0	42.4	33.4	32.8	42.1	36.5	5.1
LnGrp LOS	C	C		D	D		D	C	C	D	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		27.3			38.7			37.8			24.4	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	21.7	10.3	21.1	13.0	45.6	12.8	18.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.5	12.5	4.2	12.5	6.3	11.1	6.8	3.8				
Green Ext Time (p_c), s	0.0	3.1	0.1	2.6	0.0	1.9	0.1	0.3				

Intersection Summary

HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		90.2		100.0	100.0					40.0		40.0
Actuated g/C Ratio		0.60		0.67	0.67					0.27		0.27
v/c Ratio		0.21		0.08	0.12					0.76		0.55
Control Delay		15.0		10.4	10.0					54.8		7.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		15.0		10.4	10.0					54.8		7.3
LOS		B		B	A					D		A
Approach Delay		15.0			10.0							42.2
Approach LOS		B			B							D
Queue Length 50th (ft)		83		12	41					299		0
Queue Length 95th (ft)		123		31	70					324		77
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

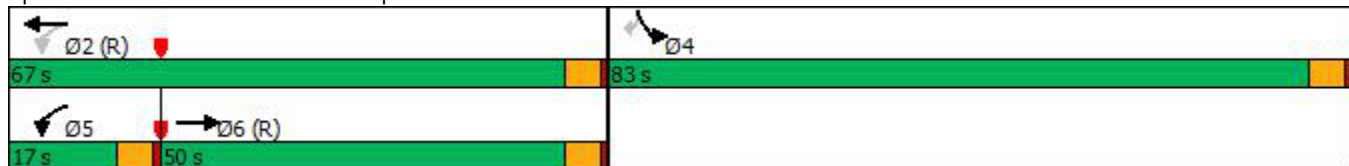


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2530		503	1949					2365		871
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.08	0.12					0.39		0.39

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	31.0
Intersection LOS:	C
Intersection Capacity Utilization	53.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.21	0.08	0.12	0.76	0.55
Control Delay	15.0	10.4	10.0	54.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	10.4	10.0	54.8	7.3
Queue Length 50th (ft)	83	12	41	299	0
Queue Length 95th (ft)	123	31	70	324	77
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2530	503	1949	2365	871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.12	0.39	0.39
Intersection Summary					

HCM 6th Signalized Intersection Summary




















10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2472	160	518	1939	0				1288	0	387
Arrive On Green	0.00	0.59	0.59	0.03	0.65	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4308	269	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	8.1	8.2	1.4	4.6	0.0				27.2	0.0	34.7
Cycle Q Clear(g_c), s	0.0	8.1	8.2	1.4	4.6	0.0				27.2	0.0	34.7
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1717	915	518	1939	0				1288	0	387
V/C Ratio(X)	0.00	0.20	0.20	0.08	0.12	0.00				0.72	0.00	0.87
Avail Cap(c_a), veh/h	0	1717	915	599	1939	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.0	14.1	10.7	9.8	0.0				48.7	0.0	51.4
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				0.8	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	3.0	0.5	1.5	0.0				10.1	0.0	24.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.3	14.5	10.7	9.9	0.0				49.5	0.0	57.5
LnGrp LOS	A	B	B	B	A	A				D	A	E
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		14.4			10.0						51.6	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		103.1		46.9	9.0	94.1						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		6.6		36.7	3.4	10.2						
Green Ext Time (p_c), s		1.7		5.2	0.0	3.6						
Intersection Summary												
HCM 6th Ctrl Delay				36.6								
HCM 6th LOS				D								

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	174	0	500	0	544	62	316	590	0
Future Volume (vph)	1	0	1	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	193	556	0	673	0	351	656	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		27.1			29.1	29.1		65.5		22.4	91.9	
Actuated g/C Ratio		0.21			0.22	0.22		0.50		0.17	0.71	
v/c Ratio		0.00			0.67	0.73		0.43		0.71	0.29	
Control Delay		0.0			56.7	9.3		23.0		58.4	8.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		0.0			56.7	9.3		23.0		58.4	8.0	
LOS		A			E	A		C		E	A	
Approach Delay					21.5			23.0			25.6	
Approach LOS					C			C			C	
Queue Length 50th (ft)		0			146	0		186		145	102	
Queue Length 95th (ft)		0			220	103		281		188	148	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)							190			420		

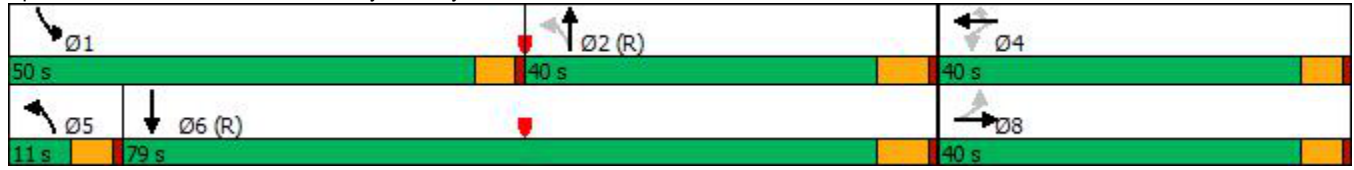
Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		511			359	813		1566		1020	2281	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.00			0.54	0.68		0.43		0.34	0.29	

Intersection Summary	
Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	23.6
Intersection LOS:	C
Intersection Capacity Utilization	65.6%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

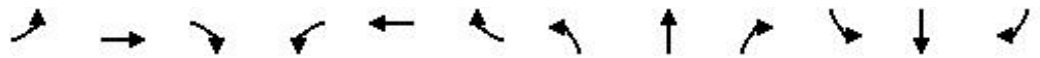
10/14/2022



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	2	193	556	673	351	656
v/c Ratio	0.00	0.67	0.73	0.43	0.71	0.29
Control Delay	0.0	56.7	9.3	23.0	58.4	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	56.7	9.3	23.0	58.4	8.0
Queue Length 50th (ft)	0	146	0	186	145	102
Queue Length 95th (ft)	0	220	103	281	188	148
Internal Link Dist (ft)	68	1420		4542		2223
Turn Bay Length (ft)			190		420	
Base Capacity (vph)	511	359	813	1566	1020	2281
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.54	0.68	0.43	0.34	0.29
Intersection Summary						

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕↔	↕↔	
Traffic Volume (veh/h)	1	0	1	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	1	0	1	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	193	0	0	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	165	13	137	286	0		524	1717	196	435	2513	0
Arrive On Green	0.15	0.00	0.15	0.15	0.00	0.00	0.00	0.59	0.58	0.15	0.77	0.00
Sat Flow, veh/h	770	83	854	1441	0	1490	1714	2901	331	2937	3346	0
Grp Volume(v), veh/h	2	0	0	193	0	0	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	1707	0	0	1441	0	1490	1714	1603	1628	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	16.9	0.0	0.0	0.0	13.9	14.0	15.0	7.5	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	17.0	0.0	0.0	0.0	13.9	14.0	15.0	7.5	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	302	0	0	275	0		524	949	964	435	2513	0
V/C Ratio(X)	0.01	0.00	0.00	0.70	0.00		0.00	0.35	0.35	0.81	0.26	0.00
Avail Cap(c_a), veh/h	475	0	0	443	0		615	949	964	1039	2513	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.3	0.0	0.0	53.5	0.0	0.0	0.0	13.7	13.7	53.6	4.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.3	0.0	0.0	0.0	1.0	1.0	3.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	6.3	0.0	0.0	0.0	5.0	5.1	5.6	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	0.0	0.0	56.8	0.0	0.0	0.0	14.7	14.8	57.2	4.5	0.0
LnGrp LOS	D	A	A	E	A		A	B	B	E	A	A
Approach Vol, veh/h		2			193			673			1007	
Approach Delay, s/veh		46.4			56.8			14.7			22.9	
Approach LOS		D			E			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.3	81.9		24.8	0.0	105.2		24.8				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	17.0	16.0		19.0	0.0	9.5		2.1				
Green Ext Time (p_c), s	1.2	3.5		0.8	0.0	4.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	860	327	304	789	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	35.0	35.0		20.0	20.0	20.0	10.0	39.0	39.0	16.0	45.0	
Total Split (%)	31.8%	31.8%		18.2%	18.2%	18.2%	9.1%	35.5%	35.5%	14.5%	40.9%	
Maximum Green (s)	30.0	30.0		15.0	15.0	15.0	5.0	34.0	34.0	11.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		26.1		16.0	16.0	16.0	42.0	41.5	41.5	12.0	51.5	
Actuated g/C Ratio		0.24		0.15	0.15	0.15	0.38	0.38	0.38	0.11	0.47	
v/c Ratio		0.15		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57	
Control Delay		23.4		976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		23.4		976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0	
LOS		C		F	F	B	C	D	A	F	C	
Approach Delay		23.4			449.2			28.4			42.5	
Approach LOS		C			F			C			D	
Queue Length 50th (ft)		15		~234	~243	0	15	295	37	111	247	
Queue Length 95th (ft)		35		#384	#393	115	37	376	120	#194	322	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

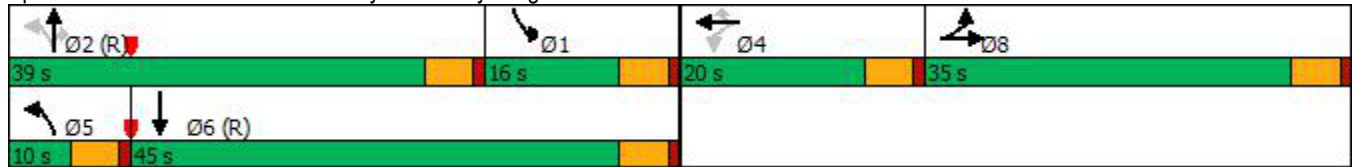


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		611		60	55	649	164	1240	693	329	1383	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.13		3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.36
Intersection Signal Delay:	145.8
Intersection LOS:	F
Intersection Capacity Utilization	67.0%
ICU Level of Service	C
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	860	327	304	789
v/c Ratio	0.15	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57
Control Delay	23.4	976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	976.1	1125.0	13.4	28.9	35.4	10.0	82.9	27.0
Queue Length 50th (ft)	15	~234	~243	0	15	295	37	111	247
Queue Length 95th (ft)	35	#384	#393	115	37	376	120	#194	322
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	611	60	55	649	164	1240	693	329	1383
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	3.03	3.36	0.78	0.18	0.69	0.47	0.92	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	0	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	86	32	50	447	0		189	1039	449	1073	1829	126
Arrive On Green	0.05	0.05	0.05	0.13	0.00	0.00	0.04	0.31	0.31	0.35	0.63	0.62
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	358	0	0	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.5	22.4	7.9	13.9	13.9
Cycle Q Clear(g_c), s	3.1	0.0	2.2	11.3	0.0	0.0	1.6	26.5	22.4	7.9	13.9	13.9
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	86	0	82	447	0		189	1039	449	1073	964	991
V/C Ratio(X)	0.53	0.00	0.38	0.80	0.00		0.16	0.83	0.73	0.28	0.40	0.40
Avail Cap(c_a), veh/h	449	0	425	491	0		216	1039	449	1073	964	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	0.0	50.5	46.3	0.0	0.0	28.7	35.0	33.6	25.8	10.2	10.3
Incr Delay (d2), s/veh	5.0	0.0	2.9	8.5	0.0	0.0	0.4	7.6	10.0	0.1	1.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	5.3	0.0	0.0	0.6	11.3	8.7	2.7	4.2	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	53.4	54.8	0.0	0.0	29.1	42.6	43.6	26.0	11.5	11.5
LnGrp LOS	E	A	D	D	A		C	D	D	C	B	B
Approach Vol, veh/h		77			358			1217			1093	
Approach Delay, s/veh		55.1			54.8			42.5			15.5	
Approach LOS		E			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	39.0		18.6	8.0	73.5		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	34.0		15.0	5.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	9.9	28.5		13.3	3.6	15.9		5.1				
Green Ext Time (p_c), s	0.1	3.1		0.2	0.0	4.3		0.4				

Intersection Summary













HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	309	120	49	122	17	74
Future Volume (vph)	309	120	49	122	17	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	11.3	11.3	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.37	0.37	0.27	0.27	0.27	0.27
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
LOS	B	A	B	A	B	B
Approach Delay	8.9		6.2			11.3
Approach LOS	A		A			B
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	8.5
Intersection LOS:	A
Intersection Capacity Utilization	34.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	343	133	54	136	19	82
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

10/14/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	309	120	49	122	17	74
Future Volume (veh/h)	309	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	343	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	524	466	339		555	302
Arrive On Green	0.31	0.31	0.22	0.00	0.22	0.22
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	343	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	4.0	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	4.0	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	524	466	339		555	302
V/C Ratio(X)	0.65	0.29	0.16		0.03	0.27
Avail Cap(c_a), veh/h	1562	1390	1897		1839	1693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	6.1	7.3	0.0	7.7	7.5
Incr Delay (d2), s/veh	1.4	0.3	0.2	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.3	0.1	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.4	7.5	0.0	7.7	8.0
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	476		54			101
Approach Delay, s/veh	7.8		7.5			7.9
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		12.0		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		6.0		3.1
Green Ext Time (p_c), s		0.2		1.4		0.4

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0% ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/14/2022

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	0	0	639	0	182	27	126	51	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	27.6		16.7			0			5.6		
HCM LOS	D		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	-	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	-	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	0	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	5.6	0.3	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	0	0	0
Future Volume (vph)	248	567	227	38	360	10	294	46	83	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	0		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	630	252	42	411	0	327	51	92	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm			
Protected Phases	1	6		5	2			4				
Permitted Phases	6		6	2			4		4			
Detector Phase	1	6	6	5	2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	5.0	5.0			
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	10.0	10.0			
Total Split (s)	35.0	59.0	59.0	16.0	40.0		45.0	45.0	45.0			
Total Split (%)	29.2%	49.2%	49.2%	13.3%	33.3%		37.5%	37.5%	37.5%			
Maximum Green (s)	30.0	53.0	53.0	11.0	34.0		40.0	40.0	40.0			
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0			
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None			
Walk Time (s)		5.0	5.0		5.0							
Flash Dont Walk (s)		17.0	17.0		15.0							
Pedestrian Calls (#/hr)		50	50		50							
Act Effct Green (s)	91.7	81.6	81.6	80.0	72.8		18.2	18.2	18.2			
Actuated g/C Ratio	0.76	0.68	0.68	0.67	0.61		0.15	0.15	0.15			
v/c Ratio	0.46	0.31	0.24	0.08	0.20		0.68	0.19	0.29			
Control Delay	7.2	9.3	1.7	5.3	12.0		55.3	44.5	6.1			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay	7.2	9.3	1.7	5.3	12.0		55.3	44.5	6.1			
LOS	A	A	A	A	B		E	D	A			
Approach Delay		7.1			11.4			44.5				
Approach LOS		A			B			D				
Queue Length 50th (ft)	52	99	0	7	68		125	35	0			
Queue Length 95th (ft)	102	155	32	18	122		165	69	27			
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240			

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

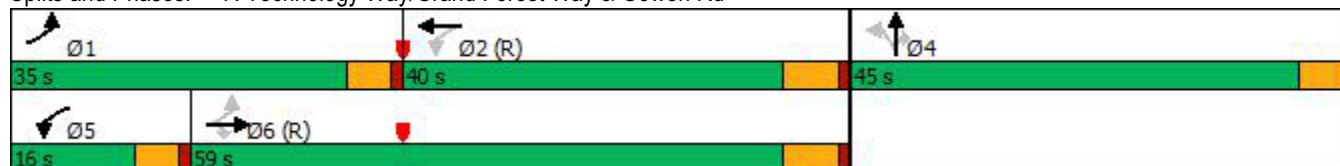


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	700	2022	1071	613	2007		1053	582	546			
Starvation Cap Reductn	0	0	0	0	0		0	0	0			
Spillback Cap Reductn	0	0	0	0	0		0	0	0			
Storage Cap Reductn	0	0	0	0	0		0	0	0			
Reduced v/c Ratio	0.39	0.31	0.24	0.07	0.20		0.31	0.09	0.17			

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	16.5
Intersection LOS:	B
Intersection Capacity Utilization	47.5%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	276	630	252	42	411	327	51	92
v/c Ratio	0.46	0.31	0.24	0.08	0.20	0.68	0.19	0.29
Control Delay	7.2	9.3	1.7	5.3	12.0	55.3	44.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	9.3	1.7	5.3	12.0	55.3	44.5	6.1
Queue Length 50th (ft)	52	99	0	7	68	125	35	0
Queue Length 95th (ft)	102	155	32	18	122	165	69	27
Internal Link Dist (ft)		1908			346		3134	
Turn Bay Length (ft)	155		415	90		520		240
Base Capacity (vph)	700	2022	1071	613	2007	1053	582	546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.31	0.24	0.07	0.20	0.31	0.09	0.17

Intersection Summary

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗			
Traffic Volume (veh/h)	248	567	227	38	360	10	294	46	83	0	0	0
Future Volume (veh/h)	248	567	227	38	360	10	294	46	83	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674			
Adj Flow Rate, veh/h	276	630	0	42	400	0	327	51	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9			
Cap, veh/h	671	2138		624	2190		407	224				
Arrive On Green	0.08	0.71	0.00	0.03	0.66	0.00	0.13	0.13	0.00			
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418			
Grp Volume(v), veh/h	276	630	0	42	400	0	327	51	0			
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418			
Q Serve(g_s), s	7.2	9.2	0.0	0.9	5.6	0.0	11.9	3.1	0.0			
Cycle Q Clear(g_c), s	7.2	9.2	0.0	0.9	5.6	0.0	11.9	3.1	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	671	2138		624	2190		407	224				
V/C Ratio(X)	0.41	0.29		0.07	0.18		0.80	0.23				
Avail Cap(c_a), veh/h	903	2138		727	2190		1065	586				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	4.8	6.5	0.0	6.1	8.1	0.0	50.9	47.1	0.0			
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	3.7	0.5	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	2.7	0.0	0.3	2.0	0.0	4.9	1.4	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	6.8	0.0	6.1	8.3	0.0	54.6	47.6	0.0			
LnGrp LOS	A	A		A	A		D	D				
Approach Vol, veh/h		906			442			378				
Approach Delay, s/veh		6.3			8.1			53.7				
Approach LOS		A			A			D				
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	15.0	84.7		20.3	8.8	90.9						
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0						
Max Green Setting (Gmax), s	30.0	34.0		40.0	11.0	53.0						
Max Q Clear Time (g_c+I1), s	9.2	7.6		13.9	2.9	11.2						
Green Ext Time (p_c), s	0.8	2.6		1.4	0.0	4.8						

Intersection Summary

























HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8			4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	7.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	30.0	30.0	12.0	19.0	19.0	11.0	28.0	28.0	11.0	24.0	12.0
Total Split (s)	23.0	30.0	30.0	12.0	19.0	19.0	24.0	28.0	28.0	20.0	24.0	23.0
Total Split (%)	25.6%	33.3%	33.3%	13.3%	21.1%	21.1%	26.7%	31.1%	31.1%	22.2%	26.7%	25.6%
Maximum Green (s)	18.0	25.0	25.0	7.0	14.0	14.0	19.0	23.0	23.0	15.0	19.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	19.0	38.5	38.5	8.0	17.9	17.9	21.9	22.2	22.2	14.9	17.4	35.0
Actuated g/C Ratio	0.21	0.43	0.43	0.09	0.20	0.20	0.24	0.25	0.25	0.17	0.19	0.39
v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.54	0.13	0.68	0.15	0.88
Control Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
LOS	E	C	A	D	D	A	D	C	A	D	C	C
Approach Delay		38.5			33.2			39.1			33.0	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	169	146	0	6	124	0	189	100	0	98	23	89

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/14/2022

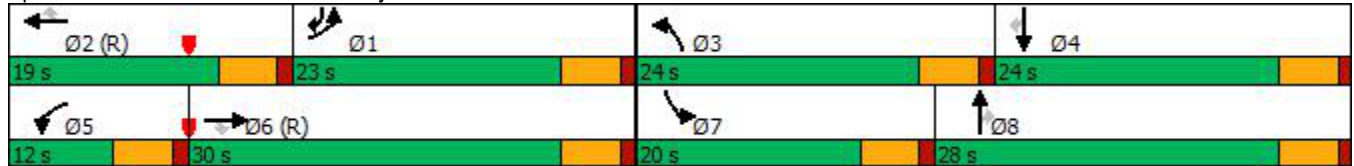


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#275	252	44	23	#169	47	#296	145	0	144	44	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1272	731	148	921	411	754	796	563	567	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.49	0.12	0.63	0.13	0.88

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 36.4 Intersection LOS: D
 Intersection Capacity Utilization 72.1% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	581	674	157	12	616	140	652	394	69	359	98	534
v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.54	0.13	0.68	0.15	0.88
Control Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	23.1	4.7	39.1	38.8	8.2	47.4	32.1	0.5	42.2	29.2	27.4
Queue Length 50th (ft)	169	146	0	6	124	0	189	100	0	98	23	89
Queue Length 95th (ft)	#275	252	44	23	#169	47	#296	145	0	144	44	#209
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	603	1272	731	148	921	411	754	796	563	567	745	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.53	0.21	0.08	0.67	0.34	0.86	0.49	0.12	0.63	0.13	0.88

































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 		 	 	
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	662	1096		53	781		699	847	431	468	693	589
Arrive On Green	0.23	0.36	0.00	0.03	0.17	0.00	0.22	0.28	0.28	0.15	0.21	0.21
Sat Flow, veh/h	2911	3020	1502	1688	4684	1490	3144	2993	1525	3222	3367	1359
Grp Volume(v), veh/h	581	674	0	12	616	0	652	394	69	359	98	534
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1561	1490	1572	1497	1525	1611	1683	1359
Q Serve(g_s), s	17.3	16.5	0.0	0.6	11.4	0.0	18.3	9.8	3.1	9.6	2.1	14.9
Cycle Q Clear(g_c), s	17.3	16.5	0.0	0.6	11.4	0.0	18.3	9.8	3.1	9.6	2.1	14.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	662	1096		53	781		699	847	431	468	693	589
V/C Ratio(X)	0.88	0.62		0.23	0.79		0.93	0.47	0.16	0.77	0.14	0.91
Avail Cap(c_a), veh/h	662	1096		150	781		699	847	431	573	748	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	23.5	0.0	42.5	36.0	0.0	34.3	26.7	24.2	37.0	29.2	7.8
Incr Delay (d2), s/veh	12.1	2.4	0.0	2.0	7.3	0.0	19.5	0.4	0.2	5.0	0.1	17.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	5.9	0.0	0.3	4.7	0.0	8.5	3.4	1.1	4.0	0.8	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	25.9	0.0	44.5	43.3	0.0	53.9	27.1	24.4	42.0	29.3	24.8
LnGrp LOS	D	C		D	D		D	C	C	D	C	C
Approach Vol, veh/h		1255			628			1115			991	
Approach Delay, s/veh		35.1			43.3			42.6			31.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.5	19.0	24.0	22.5	6.8	36.7	17.1	29.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	18.0	14.0	19.0	19.0	7.0	25.0	15.0	23.0				
Max Q Clear Time (g_c+I1), s	19.3	13.4	20.3	16.9	2.6	18.5	11.6	11.8				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.6	0.0	2.4	0.4	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			37.6									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	3		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	74	371	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		50.0		17.0	67.0					83.0		83.0
Total Split (%)		33.3%		11.3%	44.7%					55.3%		55.3%
Maximum Green (s)		45.0		12.0	62.0					78.0		78.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		81.0		94.5	94.5					45.5		45.5
Actuated g/C Ratio		0.54		0.63	0.63					0.30		0.30
v/c Ratio		0.35		0.21	0.20					0.78		0.41
Control Delay		20.9		13.7	12.9					51.7		6.0
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		20.9		13.7	12.9					51.7		6.0
LOS		C		B	B					D		A
Approach Delay		20.9			13.0							43.3
Approach LOS		C			B							D
Queue Length 50th (ft)		152		27	76					342		0
Queue Length 95th (ft)		218		57	120					363		60
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/14/2022

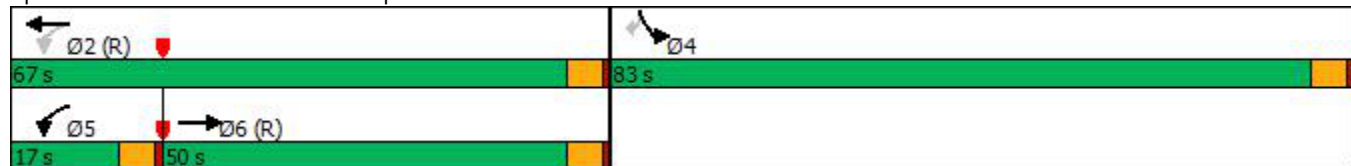


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2264		371	1841					2365		825
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.35		0.20	0.20					0.46		0.29

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	31.1
Intersection LOS:	C
Intersection Capacity Utilization	81.9%
ICU Level of Service	D
Analysis Period (min)	15

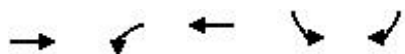
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/14/2022















Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	74	371	1077	240
v/c Ratio	0.35	0.21	0.20	0.78	0.41
Control Delay	20.9	13.7	12.9	51.7	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	13.7	12.9	51.7	6.0
Queue Length 50th (ft)	152	27	76	342	0
Queue Length 95th (ft)	218	57	120	363	60
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2264	371	1841	2365	825
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.20	0.20	0.46	0.29
Intersection Summary					

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/14/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑↑		↑
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	74	371	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2445	190	413	1960	0				1256	0	377
Arrive On Green	0.00	0.60	0.60	0.03	0.66	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	4248	320	1527	3045	0				4608	0	1383
Grp Volume(v), veh/h	0	512	273	74	371	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1483	0				1536	0	1383
Q Serve(g_s), s	0.0	13.0	13.2	2.7	7.3	0.0				33.3	0.0	22.9
Cycle Q Clear(g_c), s	0.0	13.0	13.2	2.7	7.3	0.0				33.3	0.0	22.9
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1723	912	413	1960	0				1256	0	377
V/C Ratio(X)	0.00	0.30	0.30	0.18	0.19	0.00				0.86	0.00	0.64
Avail Cap(c_a), veh/h	0	1723	912	487	1960	0				2396	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.9	14.9	11.0	9.9	0.0				51.8	0.0	48.0
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.2	0.2	0.0				1.8	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	4.8	0.9	2.4	0.0				12.5	0.0	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.3	15.8	11.2	10.1	0.0				53.6	0.0	49.8
LnGrp LOS	A	B	B	B	B	A				D	A	D
Approach Vol, veh/h		785			445						1317	
Approach Delay, s/veh		15.5			10.3						52.9	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		104.1		45.9	9.8	94.3						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		62.0		78.0	12.0	45.0						
Max Q Clear Time (g_c+I1), s		9.3		35.3	4.7	15.2						
Green Ext Time (p_c), s		2.7		5.6	0.1	5.6						
Intersection Summary												
HCM 6th Ctrl Delay				33.9								
HCM 6th LOS				C								

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	0	484	1	779	216	607	838	0
Future Volume (vph)	0	0	0	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		1	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			2303	
Travel Time (s)		4.0			22.7			70.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	538	1	1106	0	674	931	0
Turn Type				Perm	NA	Perm	pm+pt	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	11.0	40.0		50.0	79.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	8.5%	30.8%		38.5%	60.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	6.0	34.0		45.0	73.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					27.3	27.3	60.2	52.7		37.0	91.6	
Actuated g/C Ratio					0.21	0.21	0.46	0.41		0.28	0.70	
v/c Ratio					0.53	0.73	0.00	0.89		0.82	0.41	
Control Delay					51.7	9.9	12.0	47.2		51.9	9.8	
Queue Delay					0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay					51.7	9.9	12.0	47.2		51.9	9.8	
LOS					D	A	B	D		D	A	
Approach Delay					18.7			47.1			27.5	
Approach LOS					B			D			C	
Queue Length 50th (ft)					104	0	0	466		273	162	
Queue Length 95th (ft)					173	108	2	#702		319	263	
Internal Link Dist (ft)		68			1420			4542			2223	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

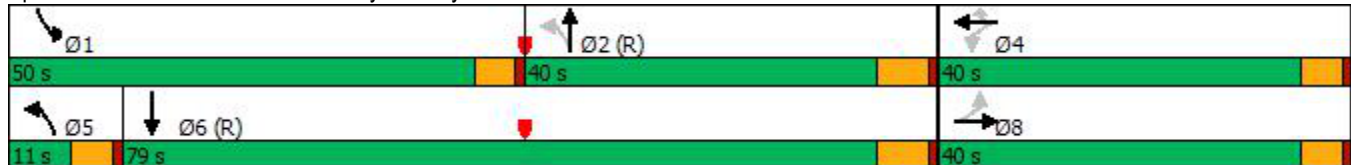
10/14/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					359	800	320	1239		1020	2272	
Starvation Cap Reductn					0	0	0	0		0	0	
Spillback Cap Reductn					0	0	0	0		0	0	
Storage Cap Reductn					0	0	0	0		0	0	
Reduced v/c Ratio					0.40	0.67	0.00	0.89		0.66	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 32.1
 Intersection LOS: C
 Intersection Capacity Utilization 69.1%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/14/2022



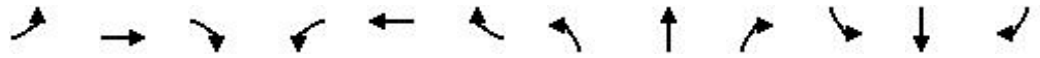
Lane Group	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	143	538	1	1106	674	931
v/c Ratio	0.53	0.73	0.00	0.89	0.82	0.41
Control Delay	51.7	9.9	12.0	47.2	51.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	9.9	12.0	47.2	51.9	9.8
Queue Length 50th (ft)	104	0	0	466	273	162
Queue Length 95th (ft)	173	108	2	#702	319	263
Internal Link Dist (ft)	1420			4542		2223
Turn Bay Length (ft)		190	130		420	
Base Capacity (vph)	359	800	320	1239	1020	2272
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.67	0.00	0.89	0.66	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕↔		↕↔	↕↔	
Traffic Volume (veh/h)	0	0	0	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	0	0	0	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	143	0	0	1	866	240	674	931	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	224	0	234	0		449	1278	354	765	2378	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.00	0.05	0.52	0.51	0.26	0.73	0.00
Sat Flow, veh/h	0	1800	0	1440	0	1490	1714	2481	687	2937	3346	0
Grp Volume(v), veh/h	0	0	0	143	0	0	1	559	547	674	931	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1490	1714	1603	1564	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	12.7	0.0	0.0	0.0	33.8	34.0	28.6	14.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	12.7	0.0	0.0	0.0	33.8	34.0	28.6	14.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	0	224	0	223	0		449	826	806	765	2378	0
V/C Ratio(X)	0.00	0.00	0.00	0.64	0.00		0.00	0.68	0.68	0.88	0.39	0.00
Avail Cap(c_a), veh/h	0	498	0	443	0		462	826	806	1039	2378	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	55.9	0.0	0.0	12.5	23.5	23.7	46.1	6.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	4.4	4.6	6.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.7	0.0	0.0	0.0	13.0	12.8	10.9	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	58.9	0.0	0.0	12.5	27.9	28.2	53.1	7.1	0.0
LnGrp LOS	A	A	A	E	A		B	C	C	D	A	A
Approach Vol, veh/h		0			143			1107			1605	
Approach Delay, s/veh		0.0			58.9			28.1			26.4	
Approach LOS					E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.9	72.0		20.2	10.0	99.8		20.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	45.0	34.0		35.0	6.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	30.6	36.0		14.7	2.0	16.1		0.0				
Green Ext Time (p_c), s	2.2	0.0		0.6	0.0	7.4		0.0				

Intersection Summary























HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			935			2378				857
Travel Time (s)		9.6			21.3			40.5				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	187	191	494	48	1056	378	684	1275	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	30.0	30.0		21.0	21.0	21.0	10.0	42.0	42.0	17.0	49.0	
Total Split (%)	27.3%	27.3%		19.1%	19.1%	19.1%	9.1%	38.2%	38.2%	15.5%	44.5%	
Maximum Green (s)	25.0	25.0		16.0	16.0	16.0	5.0	37.0	37.0	12.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0	-1.0	-0.5	-0.5	-1.0	-0.5	
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.5	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		22.2		17.0	17.0	17.0	41.8	41.3	41.3	13.0	50.3	
Actuated g/C Ratio		0.20		0.15	0.15	0.15	0.38	0.38	0.38	0.12	0.46	
v/c Ratio		0.24		3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92	
Control Delay		25.6		1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.6		1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7	
LOS		C		F	F	B	C	D	B	F	D	
Approach Delay		25.6			494.3			33.8			186.0	
Approach LOS		C			F			C			F	
Queue Length 50th (ft)		27		~243	~254	0	23	378	67	~384	~515	
Queue Length 95th (ft)		53		#392	#406	111	50	#515	167	#500	#653	
Internal Link Dist (ft)		273			855			2298			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		618		60	53	647	134	1235	688	356	1381	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.21		3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	3.60
Intersection Signal Delay:	191.1
Intersection LOS:	F
Intersection Capacity Utilization	73.3%
ICU Level of Service	D
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	187	191	494	48	1056	378	684	1275
v/c Ratio	0.24	3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92
Control Delay	25.6	1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	1012.6	1232.6	12.6	32.1	41.2	13.2	453.0	42.7
Queue Length 50th (ft)	27	~243	~254	0	23	378	67	~384	~515
Queue Length 95th (ft)	53	#392	#406	111	50	#515	167	#500	#653
Internal Link Dist (ft)	273		855			2298			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	618	60	53	647	134	1235	688	356	1381
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	3.12	3.60	0.76	0.36	0.86	0.55	1.92	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/14/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	365	0	0	48	1056	378	684	1266	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	50	111	65	457	0		130	1130	488	926	1873	13
Arrive On Green	0.06	0.07	0.06	0.14	0.00	0.00	0.04	0.34	0.34	0.30	0.60	0.59
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3128	22
Grp Volume(v), veh/h	68	0	60	365	0	0	48	1056	378	684	622	653
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	33.9	26.0	22.0	30.0	30.0
Cycle Q Clear(g_c), s	4.4	0.0	4.3	11.5	0.0	0.0	2.5	33.9	26.0	22.0	30.0	30.0
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	117	0	108	457	0		130	1130	488	926	920	966
V/C Ratio(X)	0.58	0.00	0.56	0.80	0.00		0.37	0.93	0.78	0.74	0.68	0.68
Avail Cap(c_a), veh/h	387	0	357	522	0		145	1130	488	926	920	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	49.7	46.1	0.0	0.0	30.1	35.1	32.5	34.5	14.9	14.9
Incr Delay (d2), s/veh	4.4	0.0	4.4	7.7	0.0	0.0	1.7	15.1	11.4	3.1	4.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	5.3	0.0	0.0	0.9	15.4	10.2	8.0	9.7	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	0.0	54.1	53.8	0.0	0.0	31.9	50.2	43.9	37.6	18.8	18.6
LnGrp LOS	D	A	D	D	A		C	D	D	D	B	B
Approach Vol, veh/h		128			365			1482			1959	
Approach Delay, s/veh		54.1			53.8			48.0			25.3	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.2	42.0		18.9	8.8	70.4		11.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	12.0	37.0		16.0	5.0	44.0		25.0				
Max Q Clear Time (g_c+I1), s	24.0	35.9		13.5	4.5	32.0		6.4				
Green Ext Time (p_c), s	0.0	0.8		0.3	0.0	5.8		0.6				

Intersection Summary

HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Roundabout
7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	7.5								
Intersection LOS	A								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	526		591		316		186		
Demand Flow Rate, veh/h	589		607		332		197		
Vehicles Circulating, veh/h	87		394		366		848		
Vehicles Exiting, veh/h	958		283		83		141		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.4		12.0		5.7		8.2		
Approach LOS	A		B		A		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.814	0.186		0.234	0.766
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	227	4.544	12	4.544	4.544	21	4.544	4.544
Entry Flow, veh/h	362	1890	595	1195	253	58	1034	46	151
Cap Entry Lane, veh/h	1312	0.952	992	1.000	1018	1018	0.917	656	656
Entry HV Adj Factor	0.855	216	0.973	12	0.953	0.971	19	1.000	0.927
Flow Entry, veh/h	310	1800	579	1195	241	56	949	46	140
Cap Entry, veh/h	1122	0.120	965	0.010	970	988	0.020	656	609
V/C Ratio	0.276	0.0	0.600	3.1	0.249	0.057	4.0	0.070	0.230
Control Delay, s/veh	5.8	A	12.2	A	6.2	4.1	A	6.2	8.8
LOS	A	0	B	0	A	A	0	A	A
95th %tile Queue, veh	1		4		1	0		0	1

HCM 6th Roundabout
7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	13.4								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	1133		429		385		151		
Demand Flow Rate, veh/h	1304		441		406		161		
Vehicles Circulating, veh/h	39		692		1074		727		
Vehicles Exiting, veh/h	849		732		32		395		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	13.5		13.7		15.5		7.2		
Approach LOS	B		B		C		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.849	0.151		0.130	0.870
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	238	4.544	11	4.544	4.544	56	4.544	4.544
Entry Flow, veh/h	1066	1890	430	922	297	53	654	21	140
Cap Entry Lane, veh/h	1371	0.952	756	1.000	534	534	0.917	733	733
Entry HV Adj Factor	0.849	227	0.972	11	0.953	0.971	51	1.000	0.929
Flow Entry, veh/h	906	1800	418	922	283	51	600	21	130
Cap Entry, veh/h	1164	0.126	735	0.012	509	519	0.085	733	680
V/C Ratio	0.778	0.0	0.568	4.0	0.556	0.099	7.0	0.029	0.191
Control Delay, s/veh	16.8	A	14.0	A	18.3	8.2	A	5.2	7.5
LOS	C	0	B	0	C	A	0	A	A
95th %tile Queue, veh	8		4		3	0		0	1

HCM 6th Roundabout
7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	8.4								
Intersection LOS	A								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	582		646		355		186		
Demand Flow Rate, veh/h	648		662		373		197		
Vehicles Circulating, veh/h	142		415		366		924		
Vehicles Exiting, veh/h	979		283		138		141		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	3.3		14.2		5.8		8.9		
Approach LOS	A		B		A		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.825	0.175		0.234	0.766
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	286	4.544	12	4.544	4.544	41	4.544	4.544
Entry Flow, veh/h	362	1890	650	1195	274	58	1034	46	151
Cap Entry Lane, veh/h	1248	0.952	973	1.000	1018	1018	0.917	612	612
Entry HV Adj Factor	0.855	272	0.975	12	0.953	0.971	38	1.000	0.927
Flow Entry, veh/h	310	1800	634	1195	261	56	949	46	140
Cap Entry, veh/h	1067	0.151	949	0.010	969	988	0.040	612	568
V/C Ratio	0.290	0.0	0.668	3.1	0.269	0.057	4.2	0.075	0.247
Control Delay, s/veh	6.2	A	14.4	A	6.4	4.1	A	6.7	9.6
LOS	A	1	B	0	A	A	0	A	A
95th %tile Queue, veh	1		5		1	0		0	1

HCM 6th Roundabout
 7: Technology Way/Grand Forest Way & Gowen Rd

10/14/2022

Intersection									
Intersection Delay, s/veh	14.9								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	1158		453		470		151		
Demand Flow Rate, veh/h	1331		465		496		161		
Vehicles Circulating, veh/h	63		738		1074		797		
Vehicles Exiting, veh/h	895		732		56		395		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	14.1		16.1		17.8		7.7		
Approach LOS	B		C		C		A		
Lane	Left	Bypass	Left	Bypass	Left	Right	Bypass	Left	Right
Designated Moves	LT	R	LT	R	L	TR	R	LT	R
Assumed Moves	LT	R	LT	R	L	TR	R	LT	R
RT Channelized		Free		Yield			Yield		
Lane Util	1.000		1.000		0.866	0.134		0.130	0.870
Follow-Up Headway, s	2.535		2.535		2.535	2.535		2.535	2.535
Critical Headway, s	4.544	265	4.544	11	4.544	4.544	100	4.544	4.544
Entry Flow, veh/h	1066	1890	454	922	343	53	654	21	140
Cap Entry Lane, veh/h	1341	0.952	725	1.000	534	534	0.917	688	688
Entry HV Adj Factor	0.849	252	0.974	11	0.953	0.971	92	1.000	0.929
Flow Entry, veh/h	906	1800	442	922	327	51	600	21	130
Cap Entry, veh/h	1139	0.140	706	0.012	509	519	0.153	688	638
V/C Ratio	0.795	0.0	0.626	4.0	0.642	0.099	7.8	0.031	0.204
Control Delay, s/veh	18.1	A	16.4	A	22.1	8.2	A	5.6	8.1
LOS	C	0	C	0	C	A	1	A	A
95th %tile Queue, veh	9		4		4	0		0	1

APPENDIX E: CRASH DATA

Node 4 Federal Way at Gate C					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Concrete Traffic Barrier	None

Node 5 Federal Way at Gate B					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2018	Turning Right	Angle Turning	Improper Turn
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention

Node 6 Federal Way at Silicon Lane					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Changing Lanes	Side Swipe Same	None
local	B Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Turning Right	Rear-End	None

Node 7 Gowan Road at Technology Way					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	Property Dmg Report	2018	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2019	Merging	Rear-End	Failed to Yield
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2019	Going Straight	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Head-On Turning	Failed to Obey Signal
state	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2021	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2021	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2021	Going Straight	Rear-End	Speed Too Fast For Conditions
state	B Injury Accident	2021	Starting in Traffic	Rear-End	Inattention
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close

Node 8 Gowan Road at Federal Way					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2017	Going Straight	Angle	None
local	A Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	A Injury Accident	2017	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Changing Lanes	Side Swipe Same	Improper Lane Change
local	Property Dmg Report	2017	Going Straight	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2018	Turning Left	Side Swipe Same	Improper Turn
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2018	Merging	Side Swipe Same	Improper Lane Change
state	C Injury Accident	2018	Merging	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Rear-End	None
state	C Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
state	Property Dmg Report	2019	Slowing in Traffic	Angle	Speed Too Fast For Conditions
local	Property Dmg Report	2019	Turning Right	Rear-End	Failed to Yield
local	B Injury Accident	2019	Left Turn on Red	Angle Turning	Alcohol Impaired
local	Property Dmg Report	2019	Going Straight	Angle	Distracted IN or ON Vehicle
local	B Injury Accident	2019	Turning Right	Rear-End Turning	Following Too Close
state	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2020	Going Straight	Rear-End	Asleep, Drowsy, Fatigued
local	Property Dmg Report	2020	Going Straight	Rear-End	Inattention
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2021	Turning Left	Same Direction Turning	Improper Turn
local	Property Dmg Report	2021	Changing Lanes	Side Swipe Same	Inattention
local	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal
state	B Injury Accident	2021	Left Turn on Red	Angle Turning	Inattention
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Node 9 Gowan Road at I-84 NB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
state	Fatal Accident	2017	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2017	Negotiating Curve	Side Swipe Same	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Negotiating Curve	Angle	Speed Too Fast For Conditions
state	B Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	B Injury Accident	2018	Going Straight	Rear-End	Alcohol Impaired
state	B Injury Accident	2019	Left Turn on Red	Angle Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Brakes
state	C Injury Accident	2019	Turning Left	Head-On Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2020	Slowing in Traffic	Traffic Sign Support	Speed Too Fast For Conditions
state	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2020	Turning Right	Head-On Turning	Inattention
state	B Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Turning Left	Head-On Turning	Failed to Yield

Node 10 Gowan Road at I-84 SB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	A Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
state	Property Dmg Report	2017	Turning Left	Curb	Alcohol Impaired
state	Property Dmg Report	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2018	Going Straight	Rear-End	Alcohol Impaired
state	C Injury Accident	2018	Negotiating Curve	Rear-End	Inattention
state	Property Dmg Report	2019	Turning Left	Separation of Units	Other
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	B Injury Accident	2020	Turning Left	Curb	Other
state	Property Dmg Report	2021	Turning Left	Side Swipe Same	Failed to Maintain Lane
state	Property Dmg Report	2021	Starting in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2021	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal

Node 14 Gowan Road ar Warm Spring					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	None
state	B Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2019	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2020	Going Straight	Angle	Inattention
state	C Injury Accident	2021	Turning Right	Angle Turning	Inattention

Node 15 Federal Way at Amity Road					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Right	Side Swipe Same	Improper Use of Turn Lane
local	Property Dmg Report	2018	Turning Left	Angle Turning	None
local	C Injury Accident	2018	Turning Left	Side Swipe Same	Failed to Yield
local	Property Dmg Report	2019	Turning Right	Same Direction Turning	Improper Turn
local	B Injury Accident	2019	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2019	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2019	Turning Left	Head-On Turning	None
local	Property Dmg Report	2020	Turning Right	Angle Turning	Failed to Yield
local	B Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Going Straight	Rear-End	Alcohol Impaired
local	Property Dmg Report	2021	Backing	Backed Into	Improper Backing
local	Property Dmg Report	2021	Turning Right	Side Swipe Same	Improper Turn
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2021	Going Straight	Head-On Turning	Other Vehicle Defect
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Stop Sign
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Intersection Crash Rates															
Int No.	Intersection	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Pk Hr Int. Vol.	DHV*	AADT*	K**	Daily Int. Vol. (V)***	Crash Rate (R)	Crashes by Type				
											Angle	Rear-End	Side Swipe	Head On	Obstacle
1	Eisenman Rd at I-84 SB Ramp	0	0/0/0	5	236	120	1000	12%	1967	0.00	0	0	0	0	0
2	Eisenman Rd at I-84 NB On-Ramp	0	0/0/0	5	198	120	1000	12%	1650	0.00	0	0	0	0	0
3	Memory Ln at Federal Way/I-84 NB Off-Ramp	1	0/1/0	5	182	120	1000	12%	1517	0.36	1	0	0	0	0
4	Federal Way at Gate C	1	0/1/0	5	240	204	1700	12%	2000	0.27	0	1	0	0	0
5	Federal Way at Gate B	2	2/0/0	5	820	1104	9200	12%	6833	0.16	1	1	0	0	0
6	Federal Way at Silcon Ln	3	1/2/0	5	1043	1620	13500	12%	8692	0.19	1	1	1	0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	5	1540	680	6800	10%	15400	0.50	1	10	3	0	0
8	Gowen Rd at Federal Way	33	22/11/0	5	3341	1450	14500	10%	33410	0.54	9	16	5	3	0
9	Gowen Rd at I-84 NB Ramp	16	5/10/1	5	2946	2200	22000	10%	29460	0.30	8	1	1	5	1
10	Gowen Rd at I-84 SB Ramp	15	12/3/0	5	2154	1800	18000	10%	21540	0.38	6	5	1	0	3
11	Technology Way at Circuit Ln	0	0/0/0	5	439	406	2900	14%	3136	0.00	0	0	0	0	0
13	Federal Way at Gate A	0	0/0/0	5	776	1104	9200	12%	6467	0.00	0	0	0	0	0
14	Gowen Rd at Warm Springs Ave	6	4/2/0	5	701	1075	5700	19%	3717	0.88	3	2	0	1	0
15	Federal Way at Amity Rd	29	18/11/0	5	2277	1050	10500	10%	22770	0.70	3	8	4	14	0
16	Federal Way at Bergeson Ave	13	9/4/0	5	3063	1200	12000	10%	30630	0.23	1	5	3	1	3

*Source: Idaho AADT ArcGIS map, 2021 volumes

**K = DHV / AADT

***V = Intersection Peak Volume / K

Crashes for spots (such as intersections) are normally expressed in terms of crashes per million entering vehicles (MEV). Use the following formula:

$$R = (A \times 10^6) / (365 \times T \times V)$$

where,
 R = crash rate
 A = number of reported crashes
 T = time period of the analysis in years
 V = daily entering volume at the intersection

Segment Crash Rates							
Seg.	Segment Location	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Seg. Lnth (mi)	AADT (V)*	Crash Rate (R)
A	S Federal Way, btwn Gowen Rd and Memory Ln	11	9/2/0	5	2.51	8133	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	5	0.89	20000	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	5	0.56	18250	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	5	2.69	6800	44.93
E	Memory Ln, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	5	0.18	1000	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	5	0.59	2900	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	5	1.42	2900	13.31

*Source: Idaho AADT ArcGIS map, 2021 volumes

Crashes for roadway segments are normally expressed in terms of crashes per 100 million vehicle-miles (100MVM). Use the following formula:

$$R = (A \times 10^8) / (365 \times T \times V \times L)$$

where,
 R = crash rate
 A = number of reported crashes
 T = time period of the analysis in years
 V = AADT
 L = Length of the segment in miles

Timing Plans Used in Analysis - Source: ACHD Congestion Management Dept

4 Federal & Gigabit Ln (Gate C)

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	15	31	13	31	17	29	13	31	90	Free	
PM Peak	15:30	18:30	4	15	31	13	31	17	29	13	31	90	Free	

7 Gowen & Technology

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	15	31	13	31	17	29	13	31	90	70	1
PM Peak	15:30	18:30	4	15	31	13	31	17	29	13	31	90	70	1

8 Federal Way & Gowen

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	16	31	17	26	14	33	15	28	90	24	3 Lag: 1
PM Peak	15:30	18:30	3	16	31	17	26	14	33	15	28	90	24	3 Lag: 1

9 Gowen & I-84 WB Ramps (NB)

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	12	25	0	0	0	37	0	53	90	27	1
PM Peak	16:00	18:00	1	12	25	0	0	0	37	0	53	90	27	1

10 Gowen & I-84 EB Ramps (SB)

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	0	25	0	65	0	25	0	65	90	27	1
PM Peak	16:00	18:00	1	0	25	0	65	0	25	0	65	90	27	1

15 Federal Way & Amity Road

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	21	40	0	21	21	40	0	28	110	50	2 Split: 8, 4
PM Peak	16:15	18:15	3	33	40	0	21	21	52	0	36	130	126	2 Split: 8, 4

16 Federal Way & Bergeson

	Start	End	Plan	1	2	3	4	5	6	7	8	Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	19	43	0	35	15	47	0	13	110	36	6 Split: 4, 8 Lag: 1
PM Peak	16:15	18:15	3	27	43	0	39	18	52	0	21	130	74	2 Split: 4, 8

Controller Database Timing Sheet



Station: 190 - Federal Way & Amity-Scout 85.2.3 980 ATC (Standard-4/4/2022 9:28:01 AM)

Type: Scout Ethernet v85.2

Firmware: 85.2.194

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	0	6	5	10	0	6
Gap Ext	2.5	3	0	2.5	2.5	3	0	2.5
MAX 1	25	50	0	30	15	50	0	15
Max 2	35	60	0	40	25	60	0	15
Yel Clr	4	5	0	4	4	5	0	4
Red Clr	2	1	0	2	2	1	0	2
Walk	0	5	0	0	0	0	0	5
Ped Clr	0	26	0	0	0	0	0	25
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	0	0	0	0	0	0	0
Max Step	5	0	0	0	0	0	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	.	.	X	X	.	.
Guarant'd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	1
Startup	RED	WALK	RED	RED	RED	GREEN	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
Table - 1																																	
Cycle	110	0	130	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	50	0	126	0	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Split	1	0	3	4	5	0	0	0	0	0	0	0	0	14	15	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	31	0	
seqnc	2	0	2	2	2	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	21	40	0	21	21	40	0	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 3								
Time	33	40	0	21	21	52	0	36
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON
Table - 4								
Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 5								
Time	21	37	0	21	13	45	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 8								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 11								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 12								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 13								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 14								
Time	35	10	0	20	10	35	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 15								
Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 19								
Time	0	0	0	0	0	0	0	0

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 20								
Time	15	100	0	15	10	100	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	MIN	NON	NON	OMT	MIN	NON	NON

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	1	4	5	3	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20														
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0														
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0														
Actions(4.5)																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
Table - 1																																		
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	254	
Aux 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 241 - Federal Way & Bergeson_Gekeler-Scout 85.3 (Standard-4/1/2022 7:31:17 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	5	0	10	5	10	0	5
Gap Ext	2.5	3	0	2	2	3	0	2
MAX 1	30	60	0	40	25	60	0	40
Max 2	35	45	0	45	35	45	0	45
Yel Clr	4	4	0	4	4	4	0	4
Red Clr	2	1.5	0	2	2	1.5	0	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	32	0	28	0	23	0	31
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	45	80	0	0	0	80	0	0
Max Step	5	10	0	0	0	10	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarant'd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	0	1	2	2	0	1
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																	
Cycle	110	0	130	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	36	0	74	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
seqnc	6	1	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	19	43	0	35	15	47	0	13
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 3								
Time	27	43	0	39	18	52	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON
Table - 4								
Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 5								
Time	21	43	0	42	21	43	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	45	45	0	50	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 9								
Time	45	45	0	5	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 11								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 12								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 13								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 14								
Time	30	30	0	40	10	30	0	50
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 15								
Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 19								
Time	0	0	0	0	0	0	0	0

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	25	100	0	20	15	100	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	25	40	0	25	10	40	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	MAX	MAX	NON	MAX	MAX	MAX	NON	MAX
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	5	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	1	4	5	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	6	9	15	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	30	0	15	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20														
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0														
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0														
Actions(4.5)																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
Table - 1																																		
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
Aux 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 3322 - Federal Way & Gigabit IP (Standard-3/19/2020 4:23:00 PM)

Type: NTCIP 61.x TS2 Ethernet

Firmware:

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aux 1
Aux 2
Aux 3
Special 1
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Pattern Plus																																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
Olp Off 1	
Olp Off 2	
Olp Off 3	
Olp Off 4	
Olp Off 5	
Olp Off 6	
Olp Off 7	
Olp Off 8	
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T		
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Patterns																																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
Table - 1																																						
Cycle Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Phase Entries																																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																						
Table - 1																																						
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Ped Clearance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Min Green	0	5	0	5	0	0	0	5	0	0	0	0	0	0	0																							
Passage	0	2	0	2	0	0	0	2	0	0	0	0	0	0	0																							
Max1	0	30	0	45	0	0	0	45	0	0	0	0	0	0	0																							
Max2	0	45	0	60	0	0	0	60	0	0	0	0	0	0	0																							
Yellow	0	4	0	4	0	0	0	4	0	0	0	0	0	0	0																							
Red	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0																							
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	60	0	80	0	0	0	80	0	0	0	0	0	0	0	0
Dynamic Max Step	0	15	0	20	0	0	0	20	0	0	0	0	0	0	0	0
Startup	RED	RED	RED	GREEN	RED	RED	RED	GREEN	RED	RED	RED	RED	RED	RED	RED	RED
Enable	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Controller Database Timing Sheet



Station: 273 - Federal Way & Gowen-Scout 85.3 980 ATC (Standard-9/27/2022 11:08:39 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	6	8	5	5	8	8	5	10
Gap Ext	2	2	2	2	2	2	2	2
MAX 1	60	60	40	60	35	60	40	60
Max 2	80	100	80	100	80	100	80	100
Yel Clr	4	4	4	4	4	4	4	4
Red Clr	2	2	2	2	2	2	2	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	31	0	34	0	29	0	27
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	20	0	20	0	20
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	10	0	10	0	10
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.4	0	1.2	0	1.4	0	1.2
DyMaxLim	0	0	0	0	0	0	0	0
Max Step	0	0	0	0	0	0	0	0
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	.	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	X	.	X	.	X
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarant'd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	7	7	1	1	3	3
C 2	6	6	8	8	2	2	4	4
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Table - 1																																
Cycle	90	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0
Offset	24	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	1	1	1	1

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	16	31	17	26	14	33	15	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 3								
Time	39	30	50	31	17	52	25	56
Coord Phase	.	.	X	.	.	.	.	.
Mode	NON	NON	MAX	NON	NON	NON	NON	MIN
Table - 4								
Time	20	25	20	20	15	25	15	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	25	30	100	30	15	30	25	100
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 11								
Time	80	40	25	35	15	110	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 12								
Time	65	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 13								
Time	50	50	65	45	15	60	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 14								
Time	40	30	30	50	15	50	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON
Table - 15								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 19								
Time	10	10	10	100	20	10	20	100

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	NON	OMT	MIN	NON	OMT	NON	MIN
Table - 20								
Time	25	70	35	40	45	25	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 25								
Time	30	40	40	30	20	40	20	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 28								
Time	41	44	18	47	15	70	18	47
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON

Table - 29

Time	0	70	40	30	15	70	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	NON	NON	NON	NON	MIN	OMT	NON

Table - 30

Time	40	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 31

Time	55	45	35	40	25	110	25	35
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 32

Time	65	55	65	70	15	70	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	.	X	.	.	X
Mon	X	.	.	X	X
Tue	X	.	.	X	X
Wed	X	.	.	X	X
Thu	X	.	.	X	.	.	.	X	X
Fri	X	.	.	X	X
Sat	.	X	.	.	X	.	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	10	10	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	8	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	29	32	29	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 275 - GOWEN & I-84 EB OFF RAMP-Scout 85.3 980 ATC (Standard-9/27/2022 11:11:23 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	0	5	0	6	5	10	0	0
Gap Ext	0	3	0	2.5	2	3	0	0
MAX 1	0	40	0	110	25	40	0	0
Max 2	0	20	0	100	20	20	0	0
Yel Clr	0	4	0	4	4	4	0	0
Red Clr	0	1.5	0	2	2	1.5	0	0
Walk	0	0	0	0	0	5	0	0
Ped Clr	0	0	0	0	0	17	0	0
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	60	0	20	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	15	0	10	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.5	0	1.8	0	2	0	0
DyMaxLim	0	70	0	140	35	70	0	0
Max Step	0	10	0	10	5	10	0	0
Enable P	.	X	.	X	X	X	.	.
Min Recall	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
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Table - 1																																
Cycle	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	90	0	0	120	150	0	0	0	0
Offset	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	89	0	0	116	35	0	0	0	0	
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	0	25	0	65	0	25	0	65
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON
Table - 2								
Time	0	36	0	44	0	36	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON
Table - 3								
Time	0	43	0	42	0	43	0	42
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON
Table - 4								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 11								
Time	0	70	0	130	20	70	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	MIN	NON	NON	NON	NON
Table - 12								
Time	0	80	0	60	20	80	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 13								
Time	0	100	0	70	20	100	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 14								
Time	0	60	0	40	20	60	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 15								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 16								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 17								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 18								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 19								
Time	0	0	0	0	0	0	0	0

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	80	0	40	11	69	0	40
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 24								
Time	0	53	0	37	11	42	0	37
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 25								
Time	0	70	0	30	15	45	0	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	0	60	0	60	15	250	0	45
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	0	90	0	30	15	75	0	30
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON
Table - 28								
Time	0	117	0	33	18	99	0	33
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	.	X
Mon	X	.	.	X
Tue	X	.	.	X
Wed	X	.	.	X
Thu	X	.	.	X
Fri	X	.	.	X
Sat	.	X	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X
Apr	X	X	X
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	13	14	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	11	11	13	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 444 - Gowen & I-84 WB Off Ramp (Standard-8/12/2021 9:56:14 AM)

Type: NTCIP 61.x TS2 Ethernet

Firmware: 61.04q

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
Table - 1																																						
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aux 1		
Aux 2		
Aux 3		
Special 1		
Special 2	
Special 3	
Special 4	
Special 5	
Special 6	
Special 7
Special 8

Coord Plus																
	Value															
Table - 1																
Mode	FRC															
Leave Before	TIMED															
Leave After	TIMED															
Recycle	NO_RECYCLE															
Stop In Walk	.															
External	.															
Auto Reset	.															
Latch Sec Foff	.															
Coord Easy Float	.															
Yield Value	0															
Coord NTCIP Yield Sign	+															
Closed Loop Active	.															
Shortway+	.															

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1																
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	15	15	0	0	0	0	0	0	0	0	0	0	0

Table - 2																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 4																
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	13	14	15	0	0	0	0	0	0	0	0	0	0

Table - 5																
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 6																
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																
Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0
Action	15	11	11	11	13	15	15	0	0	0	0	0	0	0	0	0
Table - 8																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flashing Yellow Arrow																
	Value															
Table - 1																
Channel 1	13															
Channel 2	0															
Channel 3	0															
Channel 4	0															
Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Included P1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	R-T/OTH	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	4	3.5	3.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.5	1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Overlap+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1

Conflict P1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conflict Ped 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LeadGreen	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA After Preempt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green Delay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	.	FL YEL4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA Delay	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Short	10	10	10	0	0	0	0	0	0	0	10	10	10	10	0	0	0	0	0	0	0	0	10	10	10	10	10	10	0	0	0	0	0	0	0	0
Long	25	25	25	17	17	17	17	17	17	17	25	25	25	25	17	17	17	17	17	17	17	24	24	24	24	24	24	17	17	17	17	17	17	17	17	
Dwell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	
No Short P 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Early Yield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Offset	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN		
CNA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Flt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Ped	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ret Hold	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CIC Plan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ph Opt Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ph Time Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Det Grp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Inh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patterns																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35

Table - 1																																				
Cycle Time	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	90	0	0	12 0	15 0	0	0	0	0	0	0	0	0
Offset Time	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	76	0	0	15	54	0	0	0	0	0	0	0	0
Split Number	1	2	3	0	0	0	0	0	0	0	11	12	13	14	15	0	0	0	0	0	0	0	23	24	25	26	27	28	0	0	31	32	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1	1	1

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Table - 1																
Walk	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
Min Green	5	10	0	0	0	5	0	10	0	0	0	0	0	0	0	0
Passage	4	3	0	0	0	3	0	2.5	0	0	0	0	0	0	0	0
Max1	30	75	0	0	0	75	0	25	0	0	0	0	0	0	0	0
Max2	40	20	0	0	0	20	0	40	0	0	0	0	0	0	0	0
Yellow	4	4	0	0	0	4	0	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	0	0	0	1.5	0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Startup	RED	GREEN	RED	RED	RED	WALK	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
Enable	X	X	.	.	.	X	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Reservice	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Walk Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Skip Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Delay	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Conf Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Ped Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Omit Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inhibit P1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Call Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Table - 1

Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Scheduler																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Time	12	25	0	53	0	37	0	53	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 2

Time	12	24	0	44	0	36	0	44	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 3

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	12	31	0	42	0	43	0	42	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Table - 4																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 5																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 6																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 7																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 8																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 9																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 10																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 11																
Time	30	130	0	0	0	130	0	20	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 12																
Time	30	90	0	0	0	90	0	25	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 284 - Hwy 21 & Technology_Grand Forest-Scout 85.3 (Standard-9/27/2022 10:53:12 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	5	5	5	10	5	10
Gap Ext	2	5	2	2	2	5	2	2
MAX 1	20	45	20	30	20	45	20	30
Max 2	30	55	30	40	30	55	30	40
Yel Clr	4	5	4	4	4	5	4	4
Red Clr	1	1	1	1	1	1	1	1
Walk	0	5	0	0	0	5	0	5
Ped Clr	0	15	0	0	0	17	0	20
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	60	40	50	40	60	40	50
Max Step	5	5	5	5	5	5	5	5
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																	
Cycle	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)								
	1	2	3	4	5	6	7	8
Table - 1								
Time	15	31	13	31	17	29	13	31
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON
Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 3								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 4								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 8								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 10								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20															
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
Actions(4.5)																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33		
Table - 1																																			
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	254		
Aux 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aux 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Special 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX F: SIGNAL TIMING PARAMETERS

TRAFFIC IMPACT STUDY FOR

FAB1 MANUFACTURING FACILITY

DATE:

January 18, 2023

LOCATION:

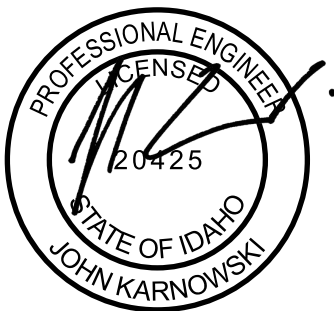
Boise, ID

PREPARED FOR:

Micron

PREPARED BY:

NV5
690 S. Industry Way, Suite 10
Meridian, ID 83642



1-18-2023

NV5
nv5.com

EXECUTIVE SUMMARY

A new advanced memory fabrication facility, called FAB1, will be located on the Micron R&D campus along S. Federal Way in Boise, ID. FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot “clean” room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots.

The following study scenarios were included:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Project Build with Existing Roadway Conditions

FAB1 will include 2,750 employees of Micron and onsite vendors and, for the purposes of estimating number of trips, is considered a manufacturing land use. The new development will produce 6,174 trips per day with 11% occurring between 7:00 and 8:00 am and 10% occurring between 4:00 and 5:00 pm.

The traffic impact study was conducted in accordance with the approved scoping memorandum and the ACHD Policy Manual. The study network included 12 intersections and four (4) road segments. New traffic counts were collected to set a baseline for the analysis. Traffic growth was estimated using COMPASS’s model output. The expected distribution of auto traffic is approximately 25% to the south via I-84, 10% to the east on SH 21, 10% to the west on Gowen Road and the remaining 55% to the north and west via either Federal Way or I-84. FAB1’s parking lots will be close to the existing Gate C (aka Gigabit Lane). The intersection of Gigabit Lane and S Federal Way will be the primary employee access for the site. Secondary access and parking for utility areas is located on the north side of the campus. Construction traffic will access the site via an extension of Memory Road Rd and the Eisenman exit from I-84. All roads internal to the Micron campus are private roads.

For the **existing traffic conditions**, two (2) intersections were found to have capacity deficiencies.

- Federal Way at Amity Road
 - The typical commute pattern includes a heavy westbound right turn in the morning and a heavy southbound left turn in the evening. The high volume of traffic results in a level of service F in both the AM and PM for the westbound right and a level of service E in the PM for the southbound left. The traffic volume from the small business on the west side of the intersection is very low and should not be a factor in the mitigation. The recommended improvements include:
 - Add a right-turn overlap signal for the westbound right turns

- Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
- Reconfigure the southbound left turn traffic signal for protected-only operation
- Reconfigure the northbound left turn traffic signal for permitted operation
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be right-of-way along Amity Road to accomplish the improvements

- Federal Way at Bergeson Avenue

Similar commute patterns as Amity Road exist along Bergeson Avenue. The westbound right turn volume is high. There is a short acceleration lane but it does not allow for a free-flow movement and therefore long delays for right turning vehicles heading toward Boise. That movement experiences a level of service F in the both the morning and evening peak hours. The split-phased signal hinders efficient operations but it is necessary based on the lane assignments. While there is a delay for the southbound left turn (LOS E), the recommended improvements, combined with the necessary signal re-timing, will bring the intersection to acceptable levels of service. An illustration of the recommendation is below

- Add a channelizing island for the westbound right turn movement
- Add a right-turn overlap signal for the westbound right turn movement
- Extend the left turn lane on Bergeson to a total of 500 feet to allow for thru and right turning vehicles to bypass the queue
- Change the eastbound shared left-thru lane to an exclusive left turn lane
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be sufficient right-of-way to accomplish the improvements.



When general growth in traffic volume is added to the existing conditions (i.e., background growth), the aforementioned conditions will naturally worsen but no new intersections be negatively impacted. Federal Way at Bergeson Street will degrade to an overall v/c ratio of 0.94. Per ACHD policy, this would require additional improvements. There are no solutions other than adding more capacity on Federal Way (i.e., three thru lanes in each direction) that would improve the v/c to acceptable levels. However, this solution would require extensive construction and may not be feasible considering topography and right-of-way limitations. The overall level of service would be a D with the improvements recommended for the existing condition. No additional improvements are recommended.

For the build-out of the site, the new traffic will negatively impact the unsignalized Gate B at S Federal Way intersection. While a traffic signal is not likely to be justified with the new traffic, the delays for the left turning traffic leaving the Micron campus will be high. The following is options are recommended:

- Install traffic signal
- < OR >
- Eliminate left turns leaving Micron's Campus

Memory Road will be extended to the east through a temporary easement to provide construction access to the site. A detailed analysis of construction traffic is not a part of this study. However, since the road does not currently exist, the intersection with S Federal Way will need to be modified. The following is the recommended configuration to accommodate the construction traffic, subject to more detailed analysis:

- Re-configure the southbound approach to the intersection to include a left turn lane
 - Restripe the existing flush median
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane

Federal Way at Bergeson Street will degrade to an overall v/c ratio of 0.95. As discussed above, no additional improvements are recommended.

The recommendations for mitigation to the impacts identified above are summarized in the table that follows. In general, the impacts from the site are manageable by the roadway network. S Federal Way is primarily utilized by Micron's current operations with a few additional businesses nearby. The four-lane road has capacity to spare and can accommodate the additional load from FAB1. Similarly, the interchange of Eisenman Road and I-84 is underutilized and, based on the proximity of FAB1, should be the primary access point of choice for employees, delivery vehicles, and contractors.

Intersection Mitigation Summary

Int	Intersection	Control	Recommended Improvements		
			2022 Existing Traffic	2025 Traffic	2025 Traffic with Project
3	Memory Rd & Federal Way/I-84 WB Off-Ramp	Side Street Stop	None	None	- Re-configure the southbound approach to the intersection to include a left turn lane - Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
5	Federal Way at Gate B	Side Street Stop	None	None	Install traffic signal < OR > Eliminate left movement out of Micron's campus
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	None	None	None
8	Gowen Rd at Federal Way	Signal	None	None	None
10	Gowen Rd at I-84 EB Ramp	Signal	None	None	None
15	Federal Way at Amity Rd	Signal	- Add a right-turn overlap signal for the westbound right turns - Construct dual southbound left turn lanes - Add 1000 foot receiving lane east of the intersection - Reconfigure the southbound left turn signal for protected-only operation - Reconfigure the northbound left turn signal for permitted operation - Remove the split-phased operation and retime signal	No additional improvements	No additional improvements
16	Federal Way at Bergeson Ave	Signal	- Add a channelizing island for the westbound right turn movement - Add a right-turn overlap signal for the westbound right turn movement - Extend the left turn lane on Bergeson to a total of 500 feet - Change the eastbound left-thru lane to an exclusive left turn lane - Remove the split-phased operation and retime signal	No additional improvements	No additional improvements

The following table shows the new site traffic at each intersection as a percentage of total volume.

No.	Intersection	AM	PM
1	Eisenman Rd at I-84 EB Ramp	59.7%	45.1%
2	Eisenman Rd at I-84 WB On-Ramp	71.2%	57.2%
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	80.8%	63.3%
4	Federal Way at Gate C	77.3%	62.7%
5	Federal Way at Gate B	17.7%	15.2%
6	Federal Way at Silicon Ln	12.9%	9.9%
7	Gowen Rd at Technology Way/Grand Forest Dr	8.5%	6.0%
8	Gowen Rd at Federal Way	6.6%	4.6%
9	Gowen Rd at I-84 WB Ramp	6.1%	3.7%
10	Gowen Rd at I-84 EB Ramp	6.2%	3.5%
11	Technology Way at Circuit Ln	16.3%	15.6%
13	Federal Way at Gate A	28.6%	25.7%
14	Gowen Rd at Warm Springs Ave	11.4%	7.3%
15	Federal Way at Amity Rd	3.0%	2.0%
16	Federal Way at Bergeson Ave	1.1%	0.8%

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Proposed Development

The Micron R&D facility located along S. Federal Way in Boise, ID will be the site of a new Fab (an advanced memory fabrication facility). The facility, called FAB1, will utilize both undeveloped and developed area within Micron's larger campus. In conjunction with FAB1, a new childcare facility will be constructed along S. Federal Way, opposite Gate A. The childcare facility is not part of this study but is considered in the future build traffic volume and analysis. A separate, limited traffic study was conducted for the childcare facility.

FAB1 includes several buildings. The primary structure will be a manufacturing facility that includes an approximately 600,000 square foot "clean" room plus support spaces. To support the Fab, there will be utility buildings, administration buildings, and a vendor/contractor support facility along with parking structures and surface lots. FAB1 will support approximately 2000 new Micron employees plus 750 new onsite vendor/contractor employees. For the purposes of this study, the entire FAB1 development will be considered a manufacturing facility with 2,750 employees.

FAB1 is expected to commence limited operation in the end of the second quarter of 2024, and be fully operational with the full complement of employees by 2025.

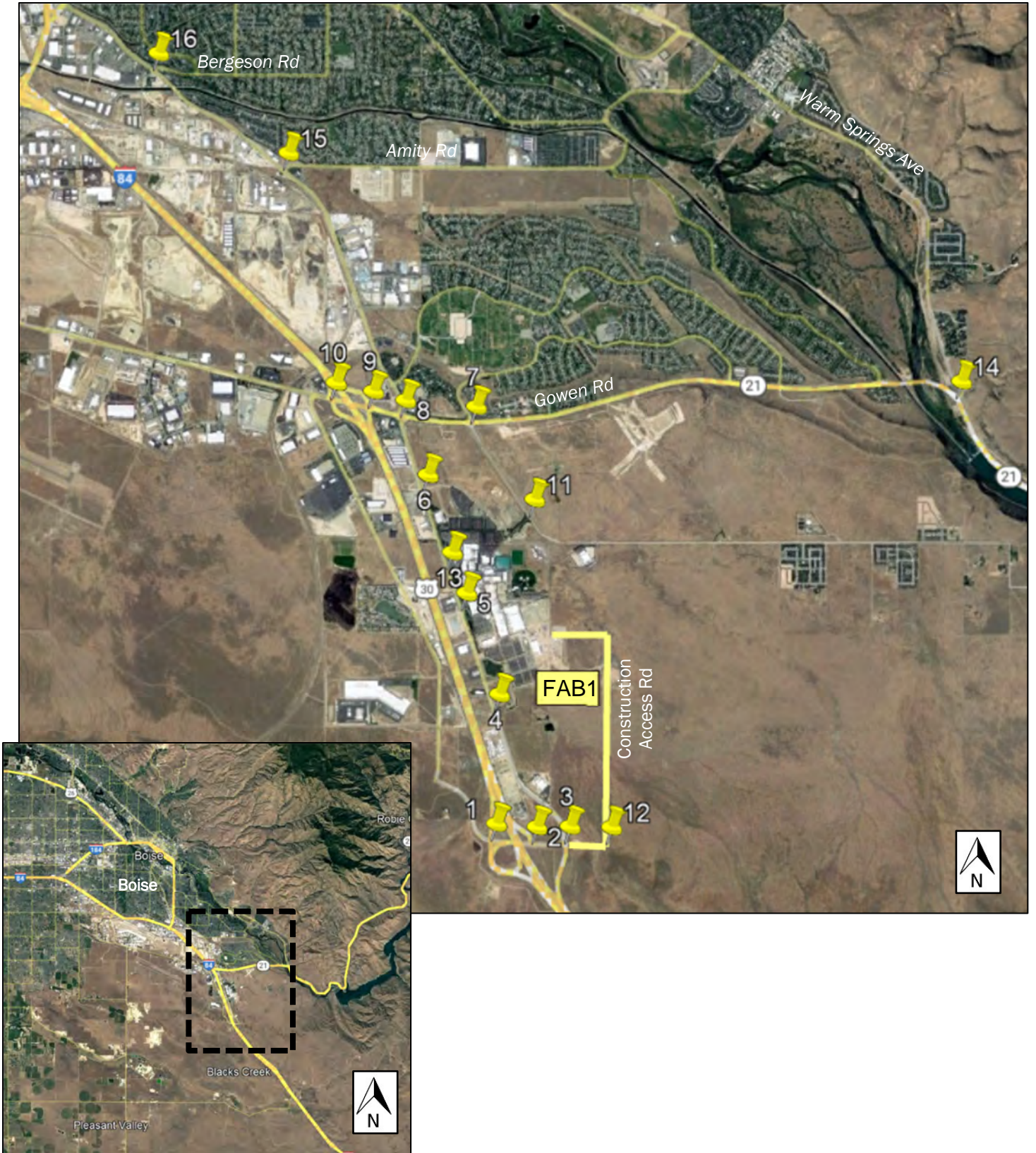
The following intersections and road segments (as illustrated in Figure 1) are included in this study:

- Intersections
 1. Eisenman Rd & I-84 EB Ramp
 2. Eisenman Rd & I-84 WB On-Ramp
 3. Memory Rd & S Federal Way/I-84 WB Off-Ramp
 4. S Federal Way & Gate C / Gigabit Ln (signal)
 5. S Federal Way & Gate B
 6. S Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & S Federal Way (signal)
 9. Gowen Road & I-84 WB Ramp (signal)
 10. Gowen Road & I-85 EB Ramp (signal)
 11. Technology Ln & Circuit Way
 12. ~~Memory Rd & Construction Access Road~~ (not studied)
 13. S Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)

- Segments
 - A. S Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn S Federal Way and Technology Way
 - C. Memory Road, Btwn I-84 WB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way

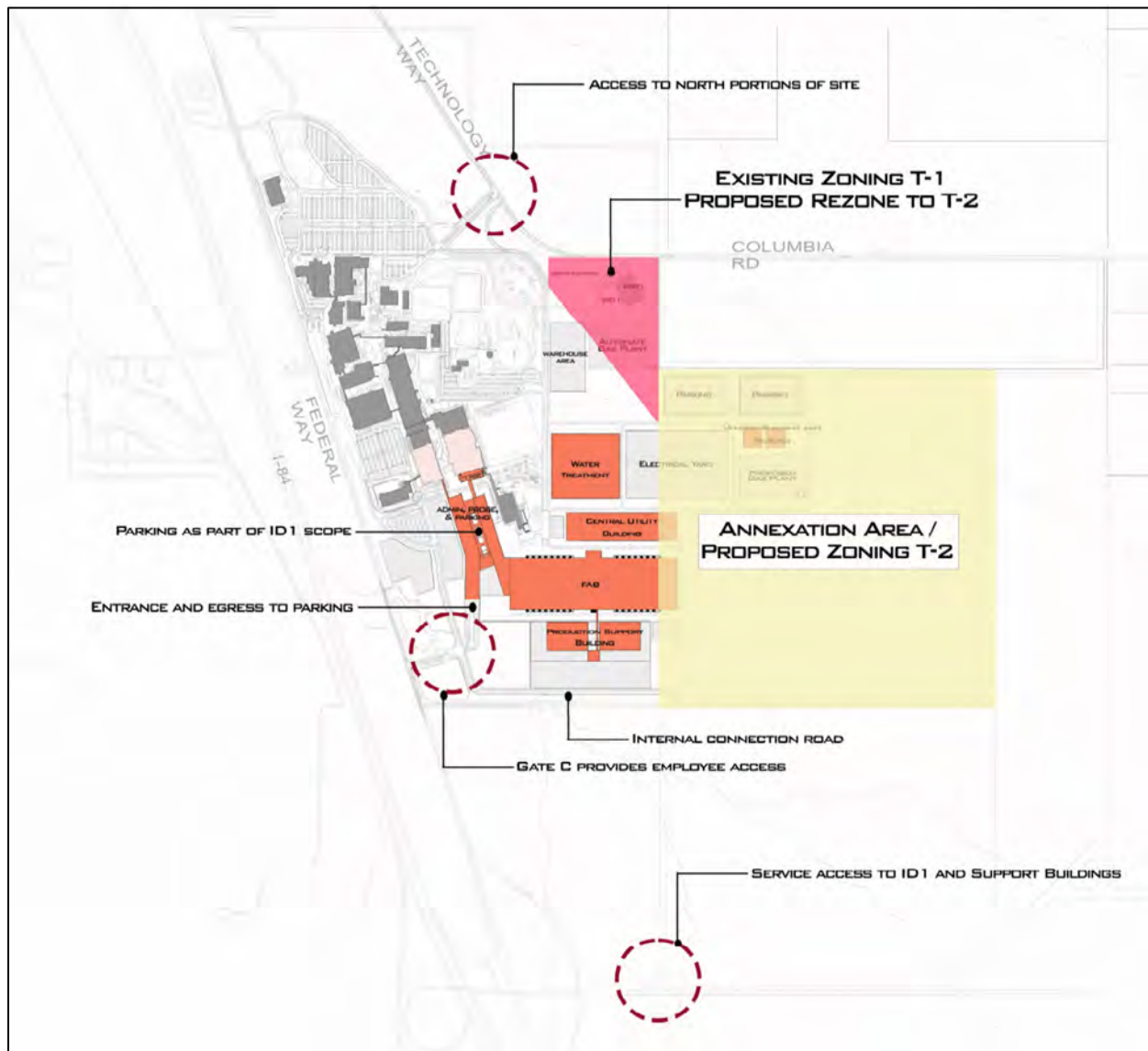
Figure 1 shows the general location of the Fab on Micron's campus. The site plan is shown in Figure 2.

Figure 1. Vicinity Map



Traffic Impact Study for
FAB1 - Micron
NV5-3122133.00

Figure 2. Site Plan



***See Appendix A for a more detailed site plan

Existing Conditions

A.1. Transportation Facilities

A.1.1. Roadways

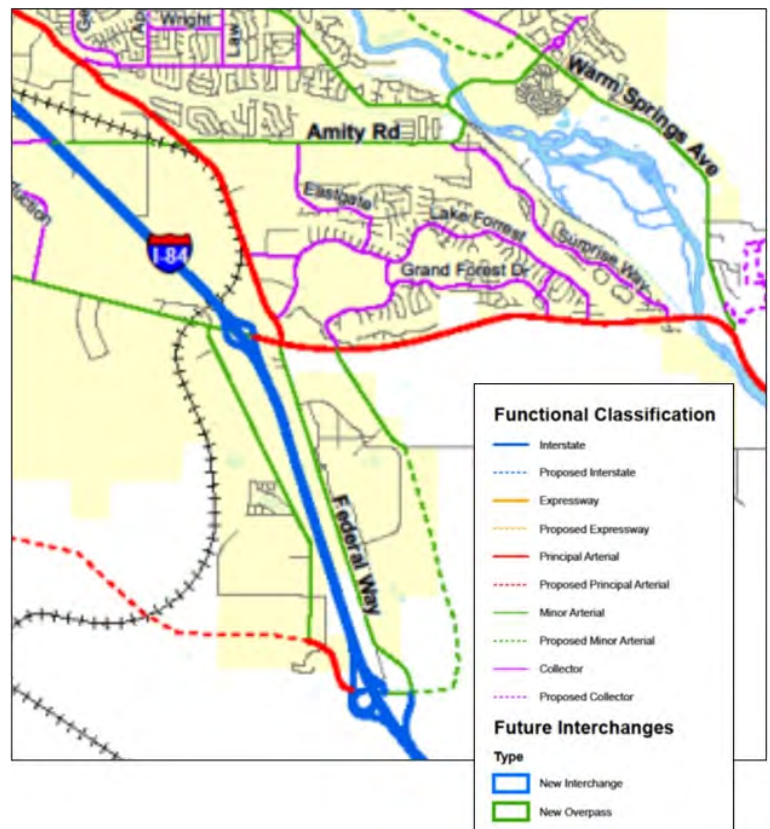
S. FEDERAL WAY is a four-lane arterial with a posted speed limit that varies between 35 and 45 MPH within the vicinity of the study area. The section of S. Federal Way that is south of Gate B is a two-lane divided roadway, and the section between Gate B and Technology Lane has a center two-way left-turn lane. S. Federal Way originates as the north leg of its intersection with Memory Road and the I-84 westbound exit ramp, and heads in a primarily northerly direction, before ending at US 20/26.

The speed limit of S. Federal Way changes to 40 MPH north of its intersection with E. Gowen Road. S. Federal Way is classified as a Minor Arterial roadway south of its intersection with E. Gowen Road. To the north, it is classified as a Principal Arterial roadway. Land uses within the study area are primarily industrial, with residential and commercial uses north of E. Gowen Road.

E. GOWEN ROAD (SH 21) is a four-lane undivided principal arterial with a posted speed limit of 35 MPH near the Micron Campus. The roadway narrows to a two-lane roadway east of its intersection with Technology Way / Grand Forest Drive and the speed limit eventually increases to 55 MPH. Land uses in the study area are industrial, commercial, residential, and undeveloped.

MEMORY ROAD / EISENMAN ROAD is a four-lane undivided Minor Arterial and has a posted speed limit of 35 MPH. Memory Road originates as the west leg of the intersection with S. Federal Way and the I-84 westbound exit ramp and runs west to its intersection with the I-84 westbound ramp where it becomes S. Eisenman Road. There are no developed uses along Memory Road but there is a new convenience store at the corner in the northwest corner of Eisenman Road and the I-84 EB off ramp.

AMITY ROAD is a two-lane undivided Minor Arterial with a posted speed limit of 45 MPH. The road runs east from its intersection with S. Federal Way towards Warm Springs Avenue. Land uses along its length are residential and industrial.



E. WARM SPRINGS AVENUE is a two-lane undivided Minor Arterial roadway with a posted speed limit of 45 MPH. The road runs north from its intersection with SR 21 to the Riverland East and Barber Valley neighborhoods. At the intersection with SH 21, there is a fourth leg that is a maintenance access driveway to a water pump station. This driveway, which has little or no volume, was not factored into the analysis.

E. GRAND FOREST DRIVE AND E. BERGESON STREET are collector roads that lead to several residential developments. They both have a posted speed limit of 30 MPH.

S. GIGABIT LANE (AKA GATE C), TECHNOLOGY LANE (AKA GATE A), SILICON LANE, AND CIRCUIT LANE are private roadways accessing the Micron Facilities.

Table 1: Roadway Classification

Roadway	Segment	Functional Classification
Gowen Rd (SH 21)	I-84 to Warm Springs Rd	Principal Arterial
S. Federal Way	Bergeson Rd to Gowen Rd	Principal Arterial
S. Federal Way	Gowen Rd to Memory Rd	Minor Arterial
Technology Way	Gowen Rd to Circuit Ln	Minor Arterial
Amity Rd	S. Federal Way to Surprise Way	Minor Arterial
Bergeson Rd	S. Federal Way to Apple St	Collector
Grand Forest Dr	Gowen Rd to Gowen Rd	Collector
Warm Springs Rd	Gowen Rd to Eckert Rd	Minor Arterial
Eisenman Rd / Memory Rd	I-84 to S. Federal Way	Minor Arterial
Columbia Rd	Circuit Ln to End	Unclassified / Local Road

A.1.2. Transit Service

There are no fixed-route transit services in the study area that would serve the Micron campus.

A.1.3. Bicycle and Pedestrian Facilities

There are sidewalks/multi-use paths on the south side of Gowen Road (SH 21), west of S. Federal Way; on the north side of Gowen Road between S. Federal Way and Technology Way; on both sides of Federal Way, north of Gowen Road; and, on the east side of S. Federal Way, south of Gowen Road for 1.25 miles.

Gowen Road has bike lanes west of S. Federal Way. S. Federal Way has bike lanes north of Gowen Road and for a few hundred feet south of Gowen Road. Technology Way features a southbound bike lane between Gowen Road and Circuit Lane.

A.1.1. Geometrics

The specific roadway lanes, traffic control, and turn bay lengths are shown in Figure 3. The future extension of Memory Road and the Fab construction access road are shown on the plan for context. Similarly, the access point to the new childcare center opposite Gate A is shown.

A.2. Traffic Volume

Daily (24-hour) counts, and intersection turning movement counts were recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Counts were taken on September 22, 2022 for all locations except at intersection 13. Those counts were taken April 26, 2022 as part of the aforementioned childcare center traffic study. **A single common peak hour was determined for all intersections; the AM Peak Hour is 7:00 to 8:00 am and the PM Peak Hour is between 4:00 and 5:00p.** There are small deviations in the peak hour times from the chosen peak hour along S Federal Way in the vicinity of the Micron campus but the differences are not significant.

There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low. For the purposes of this study, and to be conservative in the results, the site traffic for the new Fab is assumed to be concentrated in the typical AM and PM peak hours.

Existing traffic volumes are shown in Figure 4. The peak hour volumes are shown in Table 2 and the segment volumes are shown in Table 3.

Table 2: Existing Peak Hour Turning Movement Volume

DIR	Intersection Number															
	1		2		3		4		5		6		7		8	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	27	5	0	0	0	1	50	6	596	93	0	0	4	6	110	251
SBT	0	0	0	0	0	0	21	36	108	34	778	153	38	13	284	62
SBR	50	71	0	0	16	128	0	0	4	0	3	1	126	117	306	385
NBL	0	0	0	0	11	25	0	0	0	0	0	0	142	167	43	515
NBT	0	0	0	0	16	15	18	26	20	144	60	742	33	30	51	326
NBR	0	0	0	0	0	0	32	4	2	3	0	0	11	30	10	60
EBL	0	0	32	30	39	12	0	0	0	2	2	1	51	212	270	521
EBT	39	32	41	13	1	0	0	0	0	0	0	0	187	484	284	593
EBR	34	43	0	0	0	0	0	0	0	0	1	0	166	174	483	111
WBL	7	50	0	0	0	0	4	67	1	6	3	1	29	13	60	9
WBT	17	35	23	83	1	1	0	0	0	0	0	0	384	286	413	423
WBR	0	0	4	72	0	0	7	101	31	538	20	145	9	8	113	85

DIR	Intersection Number													
	9		10		11		13		14		15		16	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SBL	0	0	765	923	0	0	103	11	10	44	240	461	208	468
SBT	0	0	0	0	93	174	445	69	0	1	430	628	486	857
SBR	0	0	295	211	141	29	0	0	111	112	0	0	46	8
NBL	26	36	0	0	12	1	0	0	0	0	0	1	27	43
NBT	0	0	0	0	169	147	35	649	1	1	406	577	581	707
NBR	25	61	0	0	0	0	3	0	0	1	40	150	223	258
EBL	165	349	0	0	21	73	0	0	74	131	0	1	41	26
EBT	1005	1156	375	604	0	0	0	0	95	246	0	0	11	57
EBR	0	0	28	49	3	11	0	0	2	4	0	1	17	32
WBL	0	0	35	67	0	0	2	9	0	1	114	90	230	229
WBT	198	335	200	300	0	0	0	0	153	142	0	0	27	40
WBR	555	1009	0	0	0	0	3	38	22	18	380	368	346	338

Table 3: Segment ADTs

Road Segment	ADT*	%HV
Federal Way, South of Silicon Way	8,000	4.2%
Gowen Road, Btwn Federal Way and Technology Way	6,800	7.6%
Memory Rd, Btwn I-84 NB On-Ramp and Federal Way	1,000	unk
Technology Way, Btwn Gowen Road and Circuit Way	2,900	4.8%
Columbia Road, east of Circuit Way	3,350	0.4%

*Values rounded to nearest significant digit

Figure 3. Roadway Geometrics

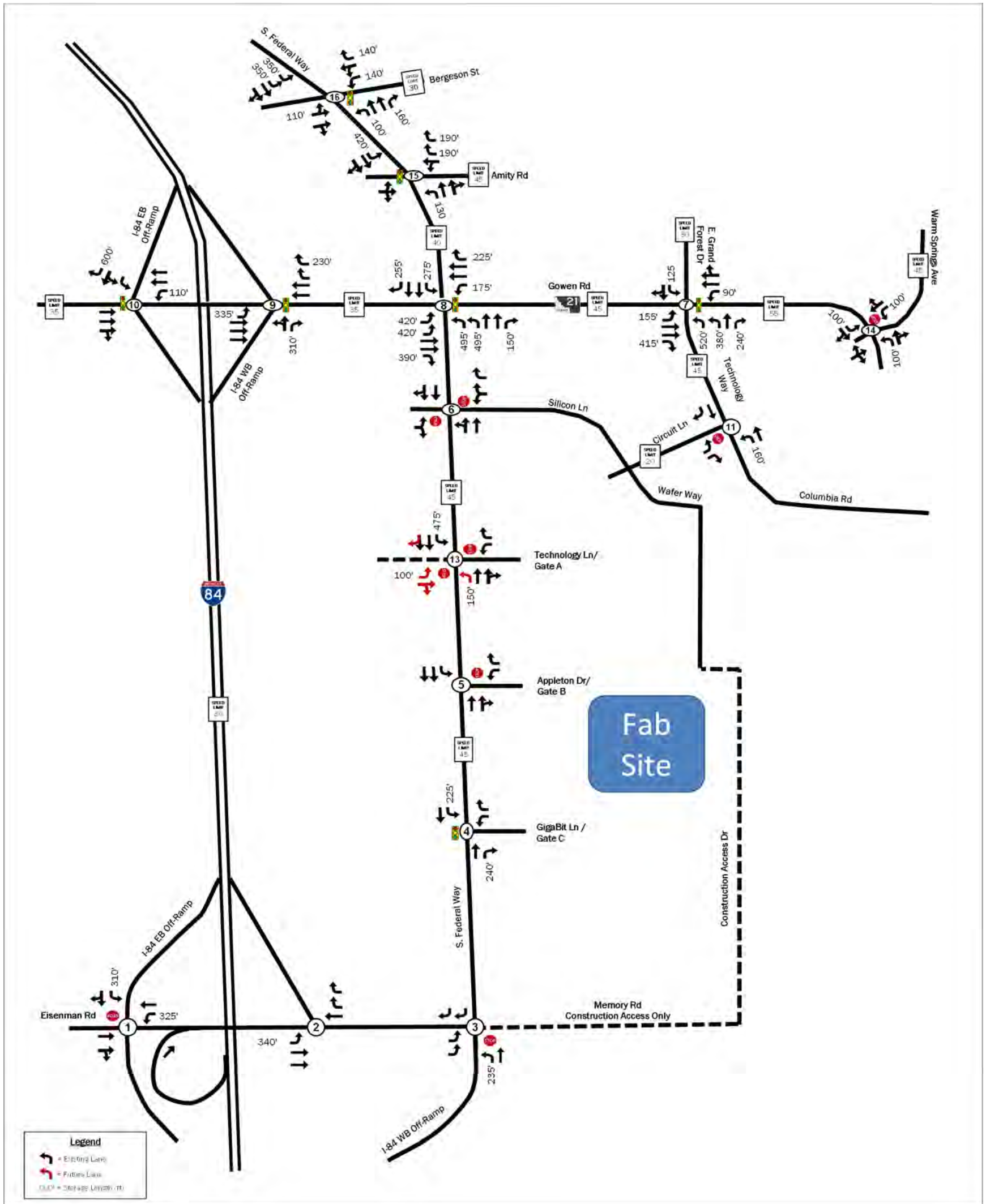
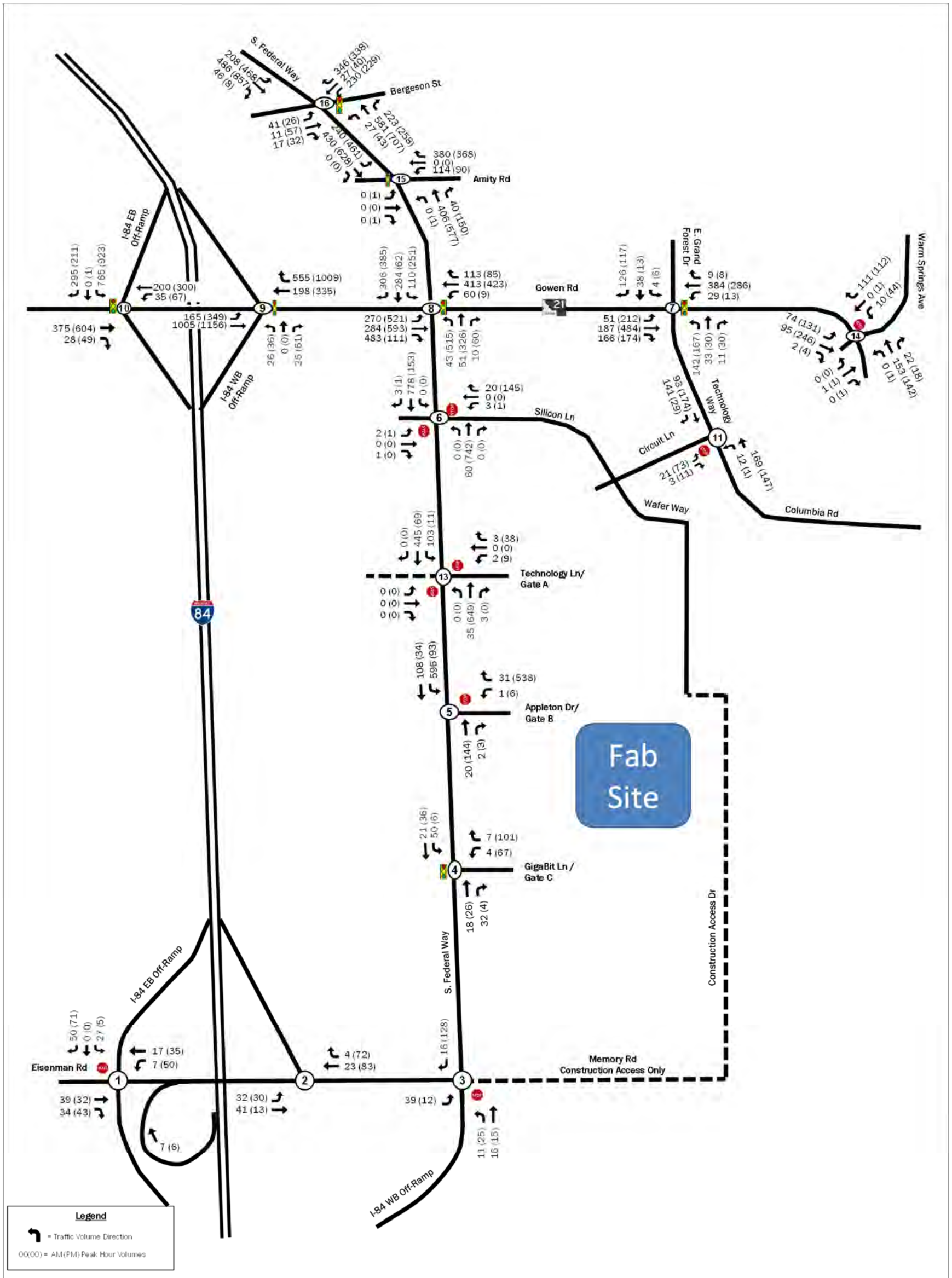


Figure 4. Existing Traffic Volumes (2022)



A.3. Existing Levels of Service

The LOS is based on the Highway Capacity Manual (6th Ed.), as calculated in the software Synchro® 11. Table 4 shows the criteria used to determine level of service for signalized, unsignalized, and roundabout intersections. Table 5 shows the level of service criteria for segments as outlined in ACHD standard 7106.4. The values shown are one-way, peak hour volumes.

Table 4: Level of Service Criteria

Level of Service	Average Control Delay		
	Signal	Stop Control	Roundabout
A	0 - 10	0 - 10	0 - 10
B	>10 - 20	>10 - 15	>10 - 15
C	>20 - 35	>15 - 25	>15 - 25
D	>35 - 55	>25 - 35	>25 - 35
E	>55 - 80	>35 - 50	>35 - 50
F	>80	>50	>50

Table 5: ACHD Segment Capacity Guidelines

Functional Classification		Lanes	Volume Thresholds	
			D	E
Princ. Arterials	No Left-turn Lane	1	600	690
	Continuous TWTL	1	770	880
		2	1,680	1,780
		3	2,560	2,720
	Median Control, Channelized Left-turn Lanes	1	850	920
		2	1,860	1,960
3		2,800	3,000	
Minor Arterials	No Left-turn Lane	1	540	575
	Continuous TWTL	1	675	720
		2	1,395	1,540
		3	2,155	2,370
	Median Control, Channelized Left-turn Lanes	1	710	770
		2	1,465	1,670
3		2,270	2,530	
Coltrs.	No Left-turn Lane	1	425	525
	Continuous TWTL	1	530	660
		2	1,080	1,250

Many of the analysis parameters are established by ACHD. These are shown in Appendix D. The results of the existing conditions analysis are shown in Table 6. Movements that appear highlighted in red are LOS F and those in orange are LOS E. Table 7 shows the segment analysis for the roadways that are proximate to the development.

Table 6: Intersection Level of Service Results – Existing Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.05	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	A	9.9	0
			SBR	-	0.07	A	9.1	4	0.11	A	9.4	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.03	A	8.0	2	0.04	A	8.6	2
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	0.10	A	5.3	-	0.16	A	7.8	-
			WBL	-	0.16	A	9.3	5	0.28	A	7.4	18
			WBR	-	0.32	B	11.8	4	0.48	A	8.5	11
			NBT	-	0.04	A	4.1	7	0.09	A	5.6	9
			NBR	240	-	A	0.0	7	-	A	0.0	2
			SBL	225	0.09	A	4.4	13	0.01	A	5.7	3
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	26.4	0
			WBL	-	0.02	F	57.4	2	0.02	B	12.5	0
			WBT	-	0.04	A	8.5	2	0.69	C	16.9	116
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.08	A	7.8	6
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.03	C	22.9	2	0.01	C	20.4	0
			EBR	-	0.01	B	14.9	0	-	A	0.0	-
			WBL	-	0.01	B	12.2	0	0.01	C	18.1	0
			WBR	-	0.02	A	8.7	2	0.40	C	16.0	38
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.35	C	22.3	-	0.42	B	17.9	-
			EBL	155	0.11	A	5.1	38	0.34	A	5.6	116
			EBT	-	0.11	A	6.2	73	0.23	A	6.7	156
			EBR	415	-	A	0.0	23	-	A	0.0	34
			WBL	90	0.04	A	5.0	24	0.02	A	6.7	11
			WBTR	-	0.21	A	7.1	152	0.17	A	8.4	116
			NBL	520	0.78	E	73.1	111	0.80	E	69.0	119
			NBT	-	0.22	E	60.4	59	0.20	E	56.3	55
			NBR	240	-	A	0.0	0	-	A	0.0	0
			SBL	125	0.04	E	66.1	11	0.06	E	62.5	16
8	Gowen Rd at Federal Way	Signal	Overall	-	0.49	C	30.5	-	0.79	E	62.9	-
			EBL	420	0.27	C	29.1	159	0.95	F	92.3	443
			EBT	-	0.21	C	23.8	80	0.51	D	37.6	383

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			EBR	390	-	A	0.0	63	-	A	0.0	42
			WBL	175	0.55	D	44.0	78	0.35	F	93.3	34
			WBT	-	0.78	D	44.4	162	0.63	E	64.6	335
			WBR	225	-	A	0.0	14	-	A	0.0	43
			NBL	495	0.41	D	44.2	29	0.93	F	88.4	406
			NBT	-	0.18	D	36.6	27	0.46	D	53.7	248
			NBR	150	0.07	D	36.0	0	0.17	D	48.9	9
			SBL	275	0.35	C	32.4	77	0.65	D	45.4	285
			SBT	-	0.59	D	36.8	111	0.09	E	55.7	59
			SBR	255	0.47	A	4.9	43	0.74	D	47.1	479
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.34	A	5.4	-	0.54	A	7.8	-
			EBL	335	0.23	A	3.3	36	0.49	A	3.9	97
			EBT	-	0.32	A	2.6	67	0.34	A	2.7	100
			WBT	-	0.10	B	13.0	22	0.18	A	6.6	88
			WBR	230	-	A	0.0	0	-	A	0.0	18
			NBLT	-	0.26	D	39.1	39	0.40	E	57.6	64
			NBR	310	0.29	D	39.9	0	0.83	E	72.9	20
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.42	D	54.8	-	0.58	D	47.6	-
			EBTR	-	0.18	B	17.5	157	0.35	C	23.4	217
			WBL	110	0.07	B	13.7	45	0.21	B	17.7	64
			WBT	-	0.11	B	13.0	100	0.18	B	15.9	121
			SBL	-	0.92	F	80.9	598	0.96	E	79.9	761
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	11.3	2	0.16	B	12.6	12
			EBR	-	-	A	0.0	0	-	A	0.0	-
13	Federal Way at Gate A	Side Street Stop	NBL	160	0.01	A	7.4	0	0.00	A	7.7	0
			WBL	-	0.01	C	16.4	0	0.08	C	23.9	6
			WBR	-	0.01	A	8.5	0	0.13	B	12.4	8
			NBL	150	-	A	0.0	0	-	A	0.0	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	SBL	475	0.10	A	7.5	6	0.02	A	9.8	2
			EBL	100	0.07	A	7.9	4	0.11	A	7.9	8
			SBL	100	0.02	B	12.6	2	0.21	C	20.9	16
15	Federal Way at Amity Rd	Signal	SBR	-	0.15	B	10.1	10	0.18	B	10.1	12
			Overall	-	0.50	D	53.8	-	0.76	D	47.4	-
			EBLTR	-	0.00	A	0.0	-	0.46	F	126.3	-
			WBLT	-	0.57	D	46.8	143	0.53	D	54.7	141
			WBR	190	1.25	F	177.7	24	1.27	F	199.6	52
			NBL	130	0.00	A	0.0	0	0.00	A	10.4	3
			NBTR	-	0.27	A	9.5	196	0.49	B	19.1	486
16	Federal Way at	Signal	SBL	420	0.40	A	5.8	140	0.95	B	20.4	537
			SBTR	-	0.18	A	3.9	117	0.30	A	8.7	188
			Overall	-	1.28	D	37.3	-	1.57	D	46.9	-
			EBLTR	-	0.68	E	62.5	45	0.71	E	69.4	71

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
	Bergeson Ave		WBL	140	0.30	C	31.9	265	0.68	D	39.1	325
		WBT	-	0.00	A	0.0	283	0.00	A	0.0	348	
		WBR	140	0.96	E	73.1	72	0.95	F	80.5	82	
		NBL	100	0.15	C	27.7	16	0.19	C	25.4	12	
		NBT	-	0.59	C	31.5	128	0.64	D	35.3	133	
		NBR	160	0.52	C	32.1	7	0.54	D	34.0	5	
		SBL	350	0.50	D	43.4	121	0.97	F	85.3	335	
		SBTR	-	0.42	C	20.7	216	0.59	C	26.7	451	

Table 7: Segment Level of Service Results – Existing Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Pk Hr (Dir)*	Pk Dir Vol	Threshold		LOS
							LOS D	LOS E	
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	AM (SB)	782	1,395	1,540	>D
B	Gowen Road, West of Technology Way	Principal Arterial	2	Continuous LT Lane	PM (EB)	870	1,680	1,780	>D
C	Memory Road, West of Federal Way	Minor Arterial	2	Continuous LT Lane	PM (WB)	153	1,395	1,540	>D
D	Technology Way, South of Gowen Road	Minor Arterial	1 NB 2 SB	No LT Lane	PM (NB)	233	540	575	>D

*Highest peak hour volume in one direction

A.4. Existing Conditions Mitigation

Federal Way & Amity Road (signal)

Amity Road is uniquely situated in an area that funnels traffic from the east towards Federal Way. There is a large volume of traffic in the AM Peak hour that turns right onto Federal Way towards Boise and the surrounding communities and performs the reverse pattern in the PM Peak hour.

To resolve the PM Peak hour deficiency, adding a southbound left turn lane in the existing gore area is feasible. However, while there are two receiving lanes on Amity Road, one lane is not very long short. This will have the effect of creating an uneven distribution of traffic in the dual left turn lanes. There should be a minimum of 1000 feet of two lanes heading east on Amity Road to make the dual left turns effective.

One possible geometric improvement is to create a free-flow right turn lane in the westbound direction. This would mean adding a receiving lane on Federal Way, north of the intersection for at least 1000 feet. The improvement would require significant work since there is a sidewalk along the east side of Federal Way and a business with limited offset space from the sidewalk. The road would need to be widened on the west side, which would extend the construction limits. While adding a free-flow right turn would allow for acceptable levels of service in the AM Peak Hour, it is a departure

from recent ACHD practice regarding pedestrian safety. Another solution would be to use the time allocated for the southbound left turn and give the westbound right turns an overlap signal.

The greatest inefficiency in the traffic signal is the split-phased operation. Because the west side of the intersection is a very low volume private driveway, it isn't necessary to operate the intersection as split phased. The westbound left turn phase can be eliminated in favor a permissive movement – shared with the westbound thru.

Recommendation(s):

- Add a right-turn overlap signal for the westbound right turns
- Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
- Reconfigure the southbound left turn traffic signal for protected-only operation
- Reconfigure the northbound left turn traffic signal for permitted operation
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be right-of-way along Amity Road to accomplish the improvements

Federal Way and Bergeson Street (signal)

Similar to Amity Road, Bergeson Street serves a residential area of south Boise with commuter traffic heading towards Federal Way and then north. Unlike the Amity Road intersection, the Bergeson Street intersection already features dual southbound left turn lanes. There is no more room to add additional lanes. In the westbound direction, the right turn lane has a short receiving lane / merge area on Federal Way but the effect on LOS is minimal. Channelizing the right turn with a yield sign would improve the flow of traffic without necessarily affecting pedestrian safety.

Similar to Amity Road, one improvement may be to extend the westbound left to northbound Federal Way acceleration lane and provide a free-flow right turn lane. While this would provide acceptable levels of service for most of movements, it would impact pedestrian safety.

The split-phased signal hinders efficient operations but it is necessary based on the available storage area for westbound left turning traffic. The westbound left turn movement could be separated from the thru movement by extending the storage length on Bergeson to 500 feet. This would allow the right turning traffic to slip by when the left turn lane is backed up. The left turn lane should be the terminus of the westbound Bergeson Street traffic (i.e., the main flow lane) and the through lane and right turn lane would be created to the side. While there is a delay for the southbound left turn (LOS E), the recommended improvements, combined with the necessary signal re-timing, will bring the intersection to acceptable levels of service.

- Add a channelizing island for the westbound right turn movement
- Add a right-turn overlap signal for the westbound right turn movement

- Extend the left turn lane on Bergeson by 250 feet to a total of 500 feet to allow for thru and right turning vehicles to bypass the queue
- Change the eastbound shared left-thru lane to an exclusive left turn lane
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

There appears to be sufficient right-of-way to accomplish the improvements

Table 8: Intersection Level of Service Results – Mitigation for Existing Conditions

ID	Intersection	Mitigation	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
15	Federal Way at Amity Rd	- Right-turn overlap - Dual SB left turns - Remove the split-phase	Overall	-	0.43	C	24.2	-	0.62	C	23.7	-
			EBLTR	-	0.00	A	0.0	6	0.01	D	39.5	0
			WBLT	-	0.41	D	40.5	125	0.39	D	44.1	104
			WBR	190	0.61	C	33.8	57	0.45	C	28.2	91
			NBL	130	0.00	A	0.0	0	0.00	B	13.3	4
			NBTR	-	0.30	B	13.9	168	0.54	C	21.0	377
			SBL	420	0.79	D	52.0	127	0.86	D	46.4	215
			SBTR	-	0.19	A	5.6	110	0.27	A	4.7	174
16	Federal Way at Bergeson Ave	- Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase	Overall	-	0.57	C	23.0	-	0.70	C	29.6	-
			EBL	-	0.23	D	37.5	52	0.13	C	33.5	40
			EBTR	-	0.10	C	33.9	27	0.24	C	32.5	83
			WBL	-	0.73	D	45.7	237	0.74	D	49.2	253
			WBT	200	0.08	C	33.7	36	0.10	C	31.0	50
			WBR	500	-	A	0.0	186	-	A	0.0	182
			NBL	100	0.07	B	10.5	21	0.15	B	17.3	26
			NBT	-	0.38	B	15.1	234	0.56	C	25.6	356
			NBR	160	0.33	B	15.3	86	0.47	C	25.4	143
			SBL	350	0.80	D	54.6	117	0.87	D	52.4	225
SBTR	-	0.32	B	11.3	183	0.52	B	16.7	295			

A.5. Safety Analysis

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) was reviewed and is summarized at each of the study intersections and road segments. (See Table 9.) Appendix F includes a more detailed account of crash types at each intersection and road segment. None of the study intersections have crash rates higher than 1.0. No mitigation has been identified.

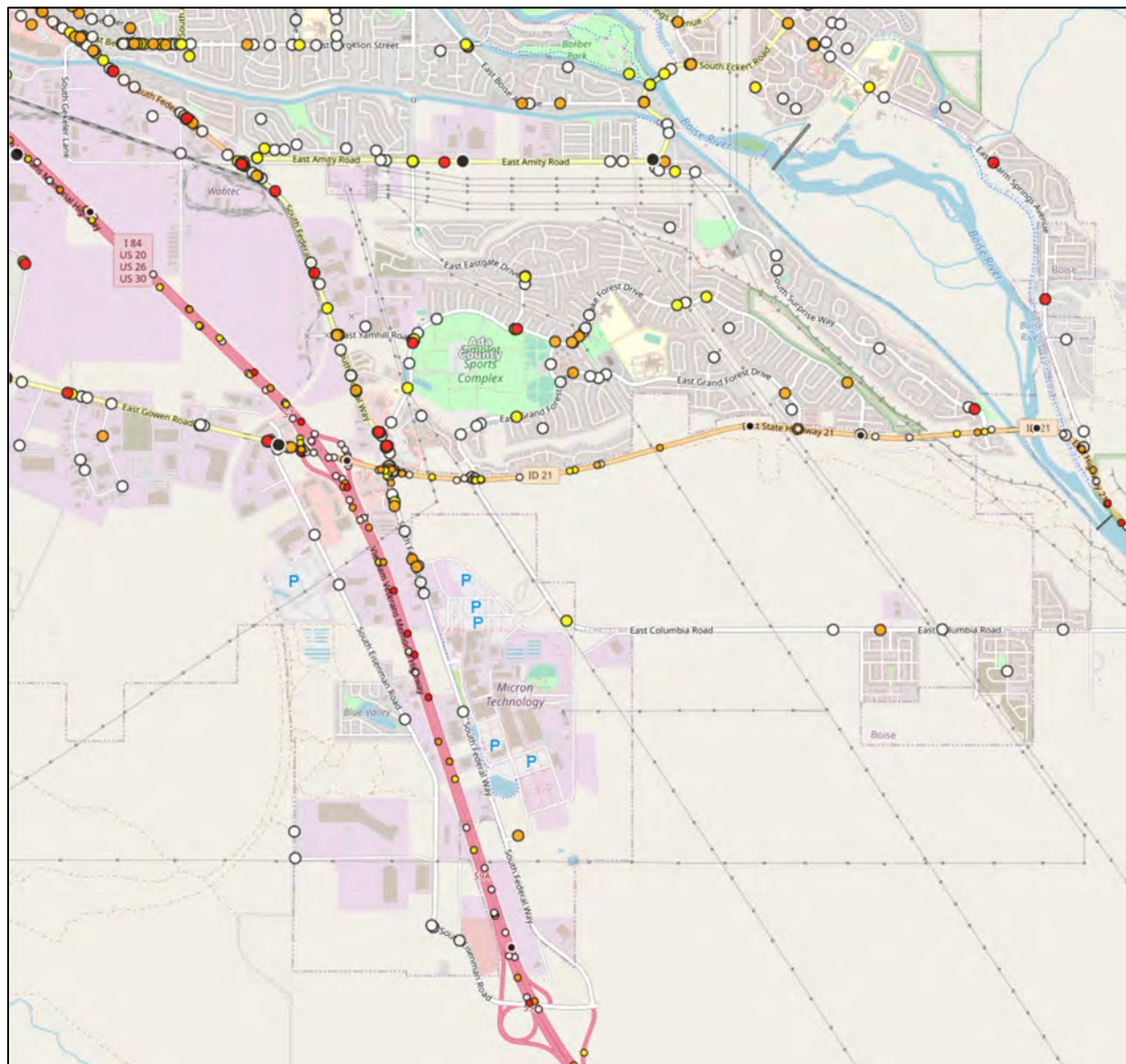
Table 9: Accident Summary

Int No.	Intersection	Total* Crashes	PDO/Inj/Fatal	Crash Rates
1	Eisenman Rd at I-84 EB Ramp	0	0/0/0	0.00
2	Eisenman Rd at I-84 WB On-Ramp	0	0/0/0	0.00
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	1	0/1/0	0.36
4	Federal Way at Gate C	1	0/1/0	0.27
5	Federal Way at Gate B	2	2/0/0	0.16
6	Federal Way at Silicon Ln	3	1/2/0	0.19
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	0.50
8	Gowen Rd at Federal Way	33	22/11/0	0.54
9	Gowen Rd at I-84 WB Ramp	16	5/10/1	0.30
10	Gowen Rd at I-84 EB Ramp	15	12/3/0	0.38
11	Technology Way at Circuit Ln	0	0/0/0	0.00
13	Federal Way at Gate A	0	0/0/0	0.00
14	Gowen Rd at Warm Springs Ave	6	4/2/0	0.88
15	Federal Way at Amity Rd	29	18/11/0	0.70
16	Federal Way at Bergeson Ave	13	9/4/0	0.23

Seg.	Segment	Total* Crashes	PDO/Inj/Fatal	Crash Rates
A	S Federal Way, btwn Gowen Rd and Memory Rd	11	9/2/0	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	44.93
E	Memory Rd, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	13.31

*Total number of crashes between 2017 and 2021

Figure 5. Illustration of Crashes within Study Area



A.6. Data Sources

Traffic counts were collected by Quality Counts, Inc. under contract to NV5. Roadway geometrics were observed by a site visit and field measurements. Level of Service criteria is from in the Highway Capacity Manual, 6th Ed, as shown in Table 4. Segment LOS is from ACHD 7106.4.1 Table 2. Crash data is reported by the Idaho Local Highway Technical Assistance Council. Annual average daily volume used in the calculation of crash rates are provided by ITD AADT on-line reference.

Background Conditions

B.1. Planned Roadway and Approved Development Projects

There is a planned connector road in the Capital Improvement Plan (CIP). The road would go between Memory Road and Columbia Road with a traffic signal on Columbia Road. The alignment of the road has not been determined and no plans currently exist. The road was not considered for this traffic study since the CIP indicates the project will be built in the 2036 to 2040 timeframe.

B.2. Background Data

Future 2025 turning movement conditions were forecast utilizing localized growth rates as provided by COMPASS. Table 10 shows the growth changes from the COMPASS model. Figure 6 shows the recommended annual growth rates for each corridor. These annual rates were applied to existing traffic counts for three years to determine future year background traffic conditions. No other background projects were considered.

Table 10: Growth Rates

Location	2025	2030	Calculated Growth	COMPASS Rate*	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	826	859	0.79%	2.5%	1.08
SH 21 w/o Federal Way	3535	3674	0.77%	1.6%	1.05
SH 21 e/o Federal Way	1747	2332	5.95%	8.0%	1.26
SH 21 e/o Technology Way	1095	1379	4.72%	5.4%	1.17
SH 21 w/o Warm Springs	666	697	0.91%	2.9%	1.09
Federal Way s/o SH 21	1582	1579	-0.04%	1.0%	1.03
Federal Way n/o Yamhill Rd	1011	1403	6.77%	9.6%	1.32
Technology Way, s/o SH 21	824	1314	9.78%	15.1%	1.52
Columbia Rd e/o Circuit Way	593	1023	11.52%	19.7%	1.72
Eisenman Rd/Memory Rd	-	-	-	6.1%	1.19

*This is the rate used in the study

Figure 6. Annual Growth Rates

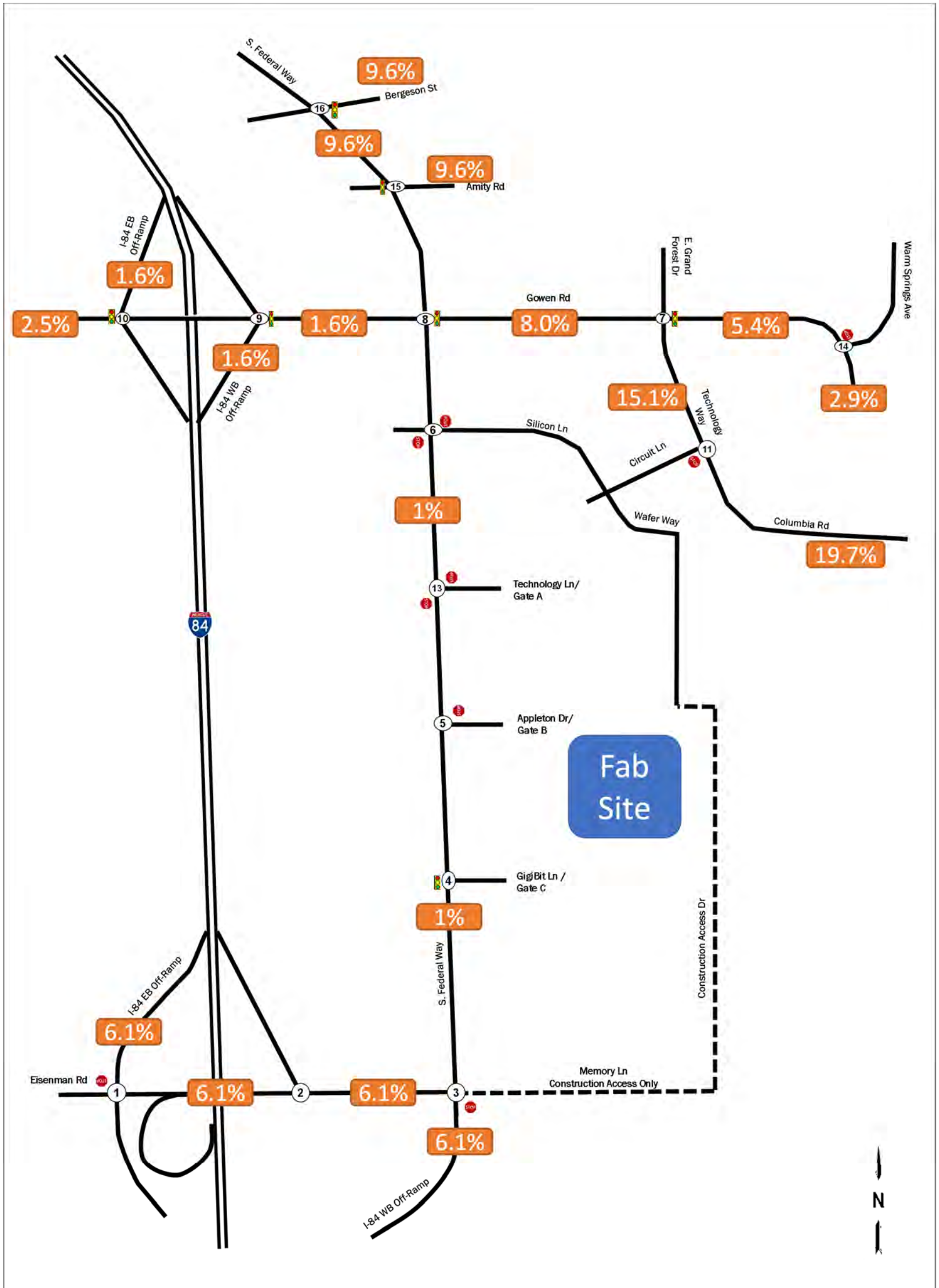
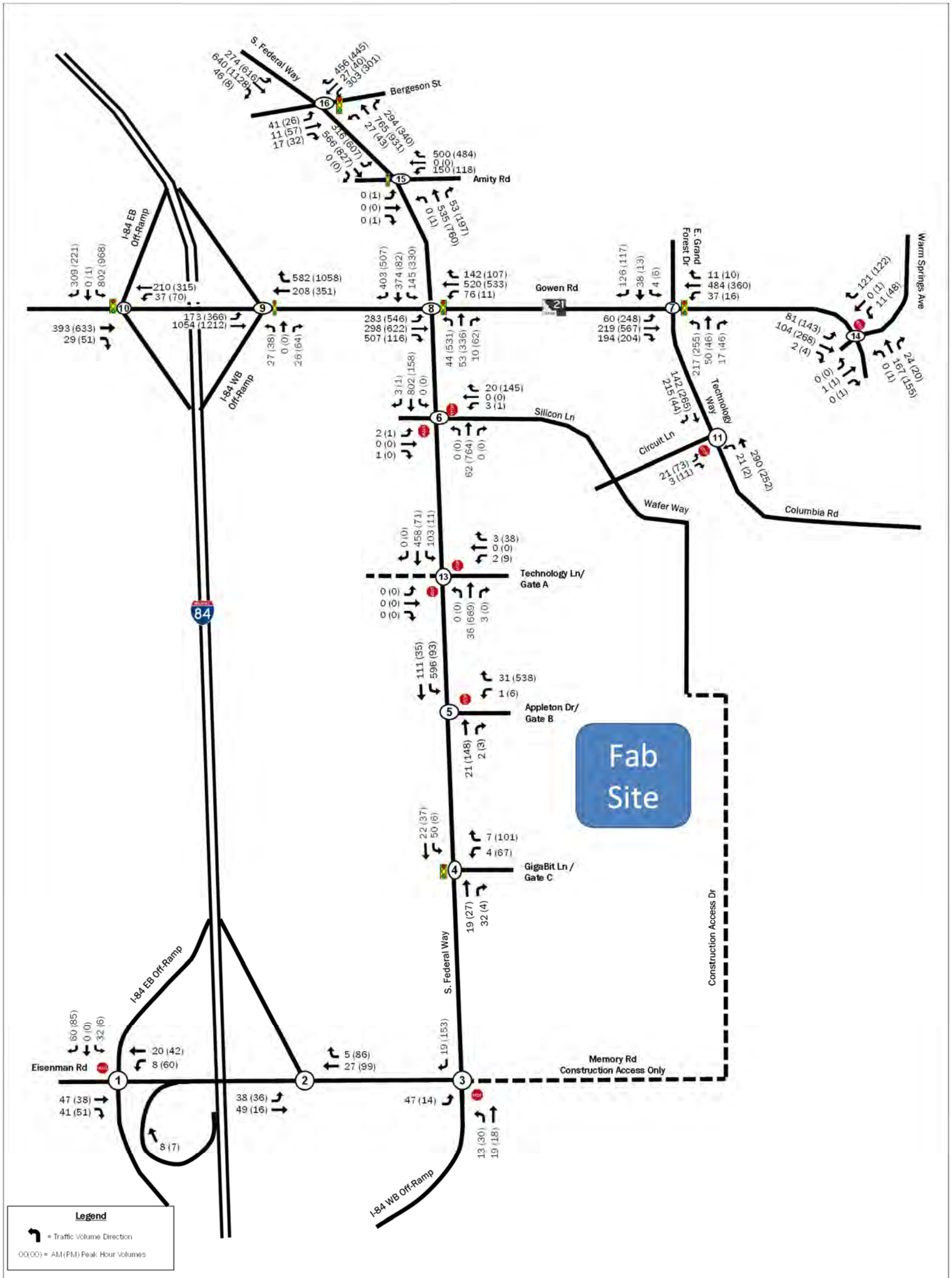


Figure 7. Existing + Background Growth Traffic Volumes (2025)



B.3. Background Levels of Service

The existing plus background growth levels of services for intersections are shown in Table 11. The segment analysis is shown in Table 12.

Table 11: Intersection Level of Service Results – Background Growth Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.01	A	7.9	0	0.05	A	8.0	4
			SBL	310	0.04	A	9.1	2	0.01	B	10.0	0
			SBR	-	0.07	A	9.1	4	0.10	A	9.4	6
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.03	A	8.0	2	0.03	A	8.6	2
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.1	2	0.02	A	9.1	2
4	Federal Way at Gate C	Signal	Overall	-	0.07	A	5.1	-	0.12	A	7.3	-
			WBL	-	0.14	B	10.2	6	0.26	A	7.5	18
			WBR	-	0.32	B	15.2	8	0.45	A	8.5	13
			NBT	-	0.04	A	4.0	7	0.07	A	5.4	10
			NBR	240	-	A	0.0	7	-	A	0.0	3
			SBL	225	0.07	A	4.2	14	0.01	A	5.5	4
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	-	D	25.6	0
			WBL	-	0.02	F	57.3	0	0.01	B	12.0	0
			WBT	-	0.03	A	8.5	2	0.70	C	16.7	118
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.41	A	8.8	40	0.07	A	7.7	4
6	Federal Way at Sillcon Ln	Side Street Stop	EBL	-	0.01	C	23.5	0	0.01	C	21.8	0
			EBR	-	0.00	C	15.1	0	-	A	0.0	-
			WBL	-	0.01	B	12.3	0	0.01	C	21.4	0
			WBR	-	0.02	A	8.7	2	0.27	B	13.9	22
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.36	C	26.9	-	0.51	C	23.0	-
			EBL	155	0.12	A	6.0	43	0.41	A	7.2	137
			EBT	-	0.11	A	7.2	83	0.29	A	8.4	187
			EBR	415	-	A	0.0	39	-	A	0.0	36
			WBL	90	0.05	A	5.7	29	0.03	A	8.7	14
			WBTR	-	0.23	A	8.2	192	0.19	B	10.9	157
			NBL	520	0.84	F	81.1	166	0.86	E	77.5	194
			NBT	-	0.26	E	58.5	84	0.23	D	53.2	77
NBR	240	-	A	0.0	0	-	A	0.0	0			

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
8	Gowen Rd at Federal Way	Signal	SBL	125	0.04	E	66.8	12	0.06	E	62.3	17
			SBTR	-	0.63	E	78.3	156	0.23	E	65.2	77
			Overall	-	0.61	C	31.1	-	0.88	E	66.9	-
			EBL	420	0.34	C	32.1	191	0.95	F	93.0	482
			EBT	-	0.24	C	25.2	90	0.51	D	37.4	408
			EBR	390	-	A	0.0	203	-	A	0.0	47
			WBL	175	0.64	D	46.8	103	0.35	F	92.5	39
			WBT	-	0.82	D	43.0	208	0.74	E	67.8	436
			WBR	225	-	A	0.0	34	-	A	0.0	76
			NBL	495	0.40	D	44.3	30	0.93	F	87.8	424
			NBT	-	0.18	D	36.5	29	0.52	E	59.8	265
			NBR	150	0.06	D	36.0	0	0.19	D	54.5	13
			SBL	275	0.42	C	30.6	98	0.78	D	49.2	391
			SBT	-	0.69	D	36.8	144	0.12	E	56.0	74
SBR	255	0.65	A	7.8	101	0.94	E	71.1	794			
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.34	A	5.4	-	0.55	A	6.4	-
			EBL	335	0.23	A	3.2	37	0.50	A	3.4	95
			EBT	-	0.32	A	2.5	70	0.35	A	2.3	97
			WBT	-	0.11	B	12.8	25	0.18	A	5.8	87
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
			NBR	310	0.28	D	40.1	0	0.79	E	73.0	48
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.42	E	55.2	-	0.57	D	50.6	-
			EBTR	-	0.17	B	18.6	234	0.31	C	23.9	235
			WBL	110	0.07	B	14.8	69	0.20	B	18.2	66
			WBT	-	0.11	B	14.1	150	0.19	B	16.9	127
			SBL	-	0.92	E	79.2	442	0.97	F	83.2	826
			SBTR	600	0.82	E	75.6	50	0.51	D	50.9	69
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.05	B	13.1	4	0.18	C	15.0	14
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	WBL	-	0.01	B	13.7	0	0.04	C	18.7	2
			WBR	-	0.00	A	8.4	0	0.07	B	11.1	4
			NBL	150	-	A	0.0	0	-	A	0.0	0
			SBL	475	0.07	A	7.5	4	0.01	A	9.2	0
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.07	A	7.8	4	0.11	A	7.9	8
			SBL	100	0.02	B	12.4	2	0.17	C	18.7	12
			SBR	-	0.16	B	10.1	12	0.16	A	9.9	12
15	Federal Way at Amity Rd	Signal	Overall	-	0.72	E	62.5	-	0.99	F	106.4	-
			EBLTR	-	0.00	A	0.0	-	0.46	F	126.3	-
			WBLT	-	0.67	D	51.3	209	0.62	E	59.6	187
			WBR	190	1.46	F	267.1	52	1.67	F	370.6	56
			NBL	130	0.00	A	0.0	0	0.00	B	14.0	3

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
16	Federal Way at Bergeson Ave	Signal	NBTR	-	0.33	B	11.7	273	0.67	C	29.2	740
			SBL	420	0.61	A	7.0	183	1.27	F	153.3	647
			SBTR	-	0.26	A	4.1	159	0.39	A	9.4	222
			Overall	-	1.58	D	54.8	-	1.95	E	77.9	-
			EBLTR	-	0.67	E	62.9	46	0.71	E	69.4	71
			WBL	140	0.39	C	32.8	347	0.41	D	40.0	412
			WBT	-	0.00	A	0.0	361	0.00	A	0.0	434
			WBR	140	1.25	F	170.6	223	1.24	F	177.0	137
			NBL	100	0.18	C	28.5	13	0.28	C	27.6	11
			NBT	-	0.74	C	35.0	246	0.86	D	39.5	258
			NBR	160	0.66	D	35.7	14	0.72	D	37.1	10
			SBL	350	0.63	D	46.0	173	1.28	F	192.5	489
SBTR	-	0.51	C	22.6	296	0.78	D	35.0	731			

Table 12: Segment Level of Service Results – Background Growth Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Pk Hr (Dir)*	Pk Dir Vol	Threshold		LOS
							LOS D	LOS E	
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	AM (SB)	806	1,395	1,540	>D
B	Gowen Road, West of Technology Way	Principal Arterial	2	Continuous LT Lane	PM (EB)	1019	1,680	1,780	>D
C	Memory Road, West of Federal Way	Minor Arterial	2	Continuous LT Lane	PM (WB)	183	1,395	1,540	>D
D	Technology Way, South of Gowen Road	Minor Arterial	1 NB 2 SB	No LT Lane	PM (NB)	347	540	575	>D

*Highest peak hour volume in one direction

B.4. Background Growth Conditions Mitigation

Federal Way and Bergeson Street (signal)

With the improvements identified for the existing conditions deficiency, the overall volume to capacity will still degrade to 0.94 in the future condition with the project background growth. Per ACHD policy, any value 0.90 or greater must be mitigated even though the overall level of service is a D.

A multi-lane roundabout at this location would not work. Besides being very large and requiring more right-of-way than is available, the amount of traffic would exceed the capacity of a two-lane roundabout with right turn by-pass lanes. While dual westbound left turn lanes might be constructable, the v/c ratio would be unchanged.

The high volume of traffic necessitates three thru lanes in each direction on Federal Way to obtain. The v/c ratio could be reduce to 0.88 but the alternative is not a feasible alternative since there is limited right of way available and a large grade difference in the northeast quadrant of the intersection.

Recommendation(s):

- o Same configuration as in Existing Conditions mitigation

Table 13 shows the results of mitigation from both the existing conditions improvements (see Section A.4) and the background growth conditions.

Table 13: Intersection Level of Service Results – Mitigation for Background Conditions

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
15	Federal Way at Amity Rd	- Right-turn overlap - Dual SB left turns - Remove the split-phase	Overall	-	0.54	C	24.3	-	0.78	C	28.1	-
			EBLTR	-	0.00	A	0.0	0	0.01	D	37.1	0
			WBLT	-	0.45	D	39.3	167	0.48	D	43.3	132
			WBR	190	0.59	C	29.5	115	0.48	C	22.8	113
			NBL	130	0.00	A	0.0	0	0.79	B	18.2	5
			NBTR	-	0.41	B	18.9	254	0.78	D	36.3	646
			SBL	420	0.84	D	50.1	162	0.89	D	45.0	218
			SBTR	-	0.28	A	7.0	166	0.37	A	6.4	175
16	Federal Way at Bergeson Ave	- Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase	Overall	-	0.73	C	27.8	-	0.92	D	39.3	-
			EBL	-	0.19	C	32.3	53	0.12	C	30.7	40
			EBTR	-	0.07	C	29.3	27	0.22	C	29.8	83
			WBL	-	0.79	D	46.3	354	0.86	E	59.7	396
			WBT	200	0.06	C	29.2	36	0.09	C	28.4	50
			WBR	500	-	A	0.0	331	-	A	0.0	286
			NBL	100	0.08	B	14.6	13	0.22	C	23.1	25
			NBT	-	0.55	C	22.3	349	0.90	D	41.2	424
			NBR	160	0.49	C	22.5	122	0.76	D	38.3	160
			SBL	350	0.84	E	58.7	154	0.92	E	57.7	337
			SBTR	-	0.44	B	15.8	251	0.72	C	24.6	445

B.5. Data Sources

COMPASS supplied the forecasts for 2025 and 2030 PM peak hour traffic. No other approved developments were provided or incorporated into the projections for 2025 'no-build' analysis.

Projected Traffic

C.1. Project Trip Generation

The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” using an independent variable of number of employees is the appropriate land-use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions. The land-use does not include separate values for pass-by traffic or internal trips and was not accounted for in this study.

Table 14: Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

C.2. Trip Distribution and Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home cities of current employees are shown in Figure 8. Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 10 through 13.

Figure 8. Existing Employee Home Origins

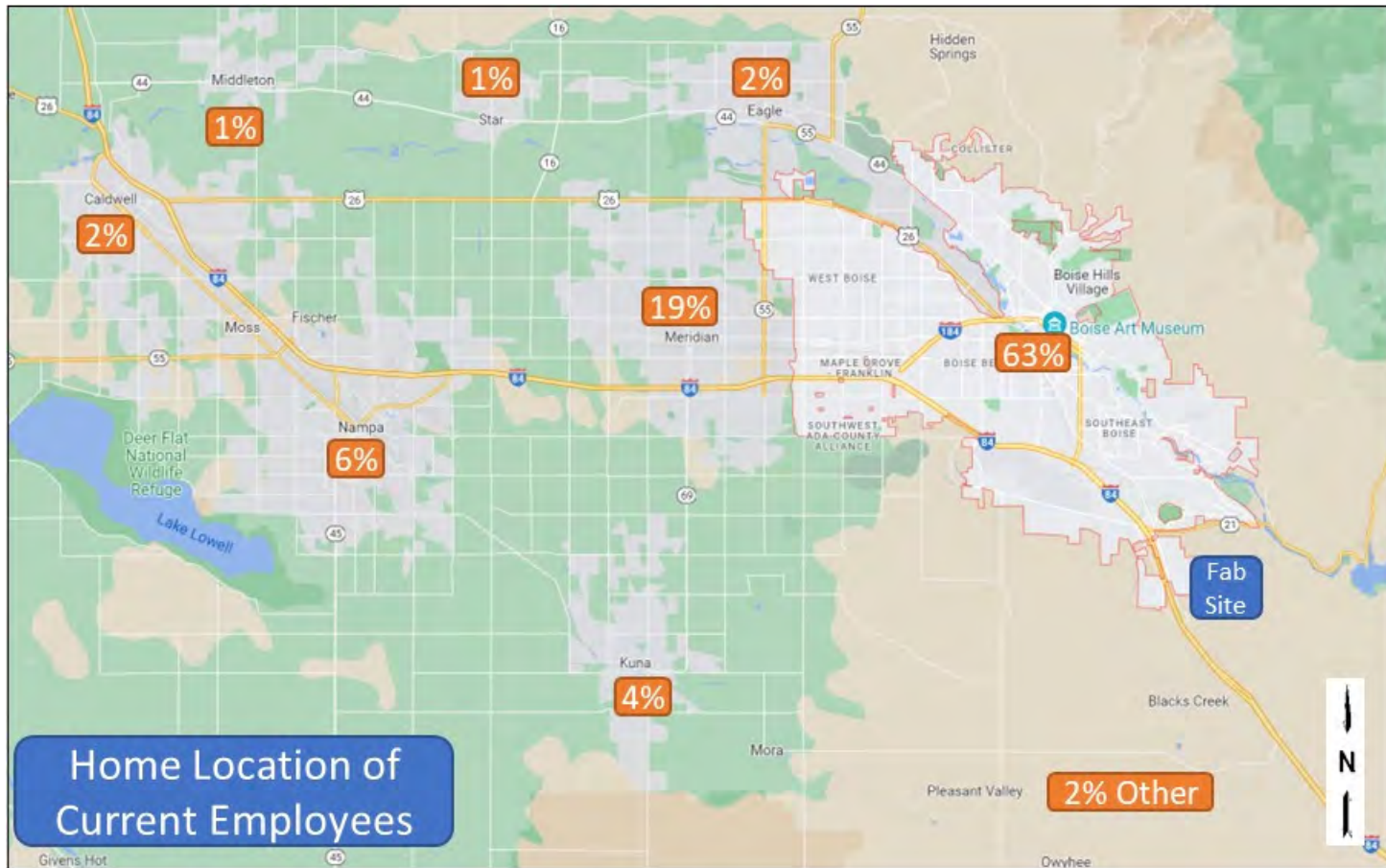


Figure 9. Macro Area Trip Distribution – Autos and Trucks



Figure 10. Auto Trip Distribution

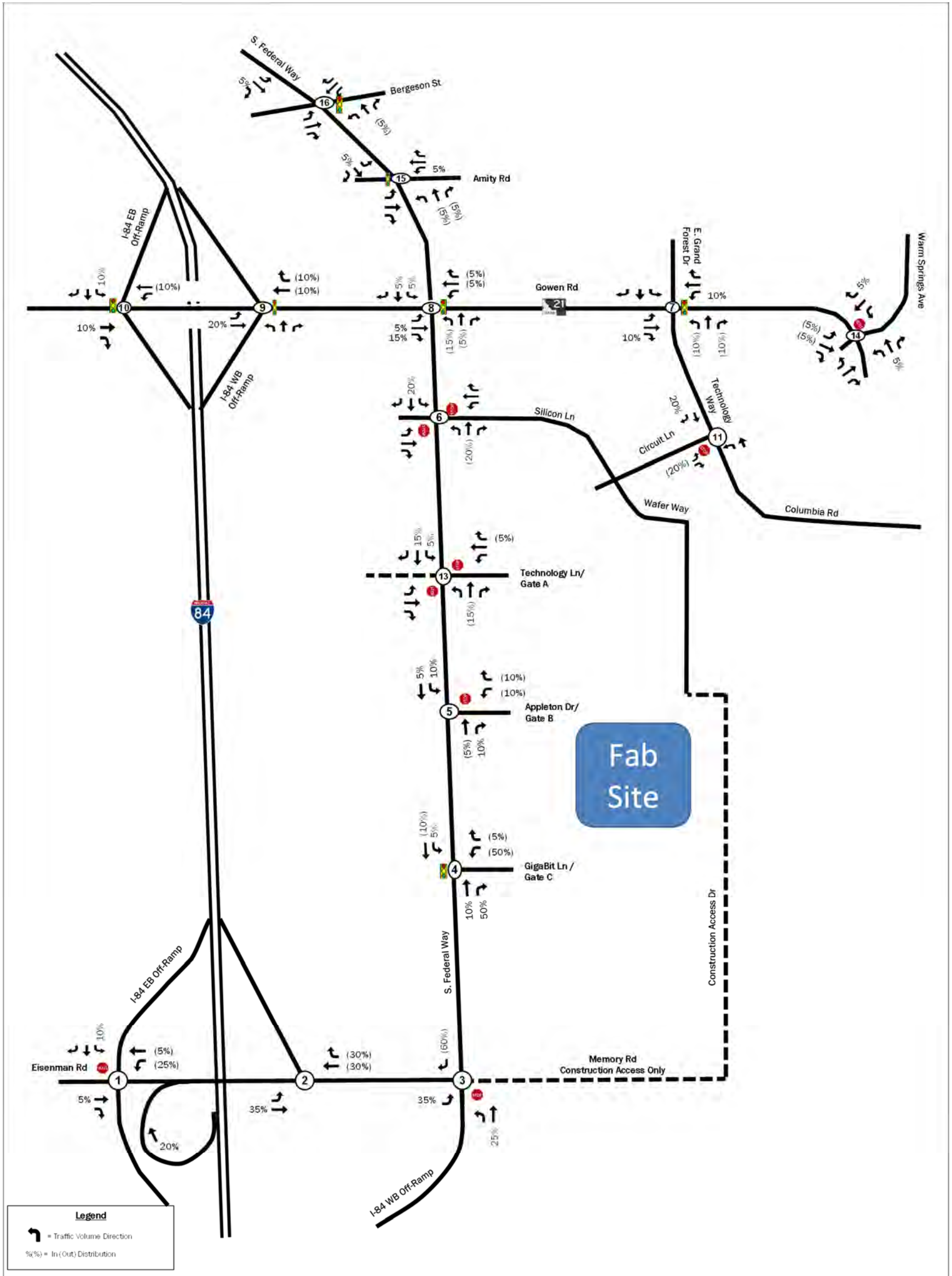


Figure 11. Truck Trip Distribution

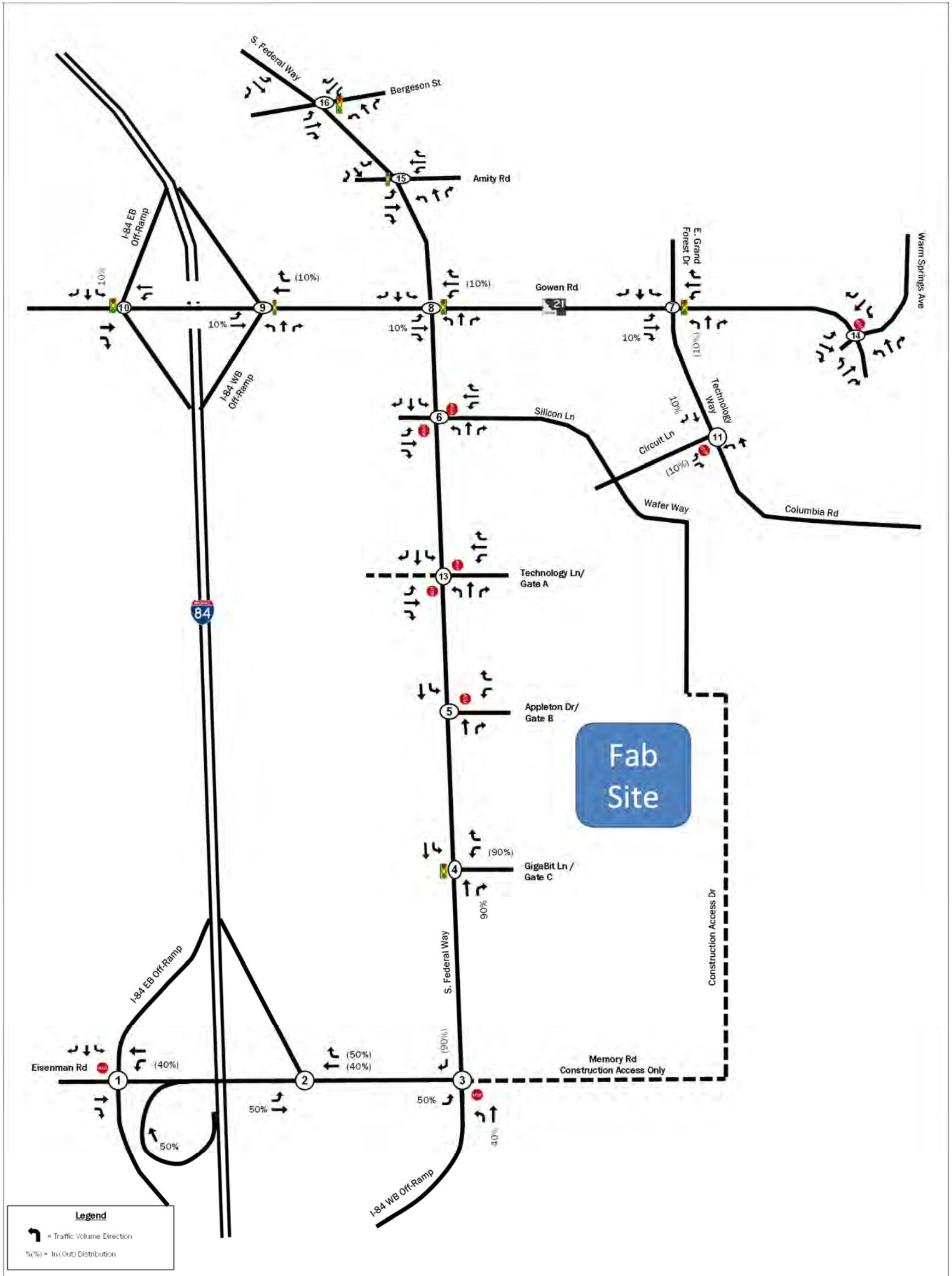


Figure 12. Site Trips

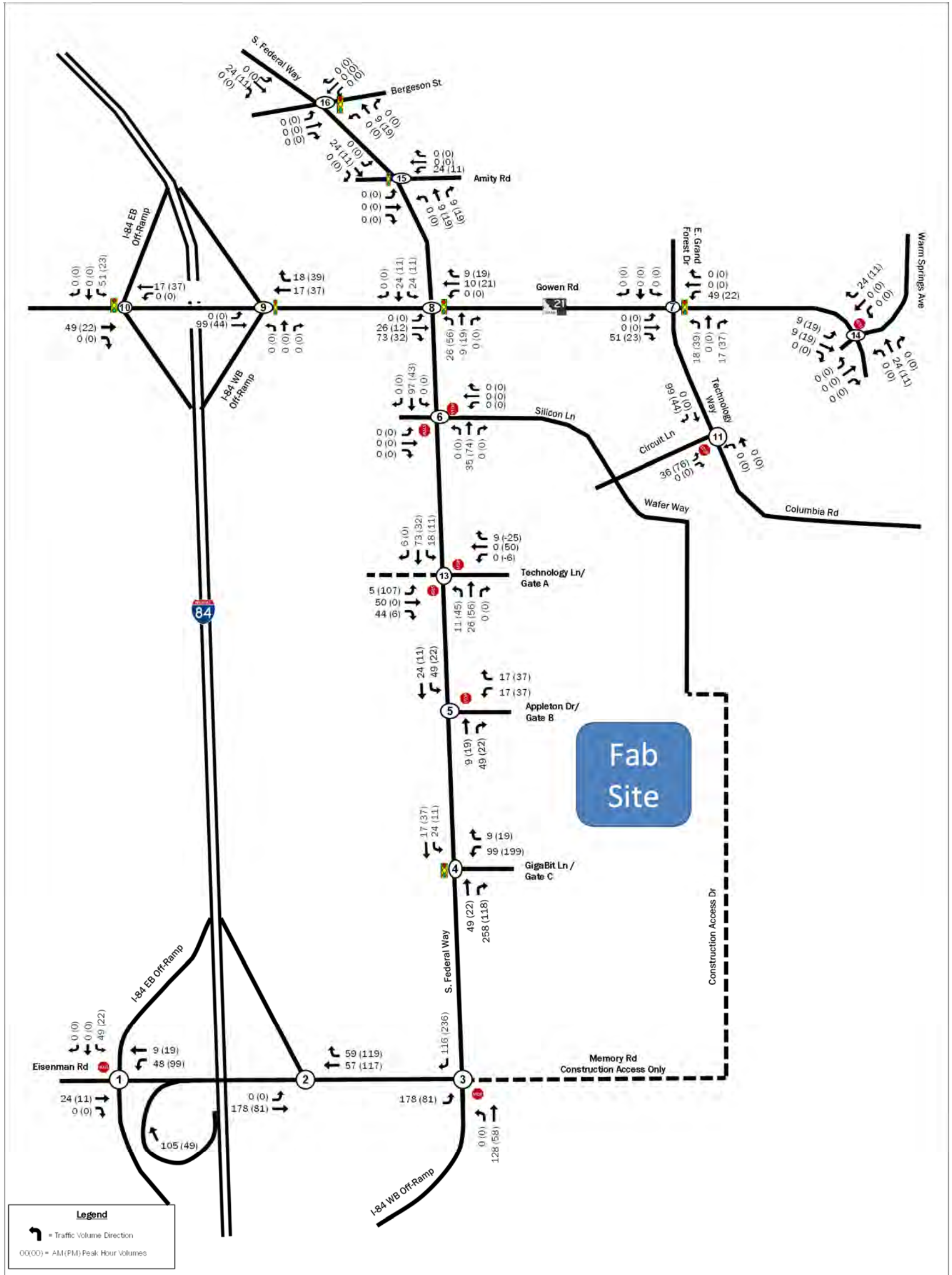
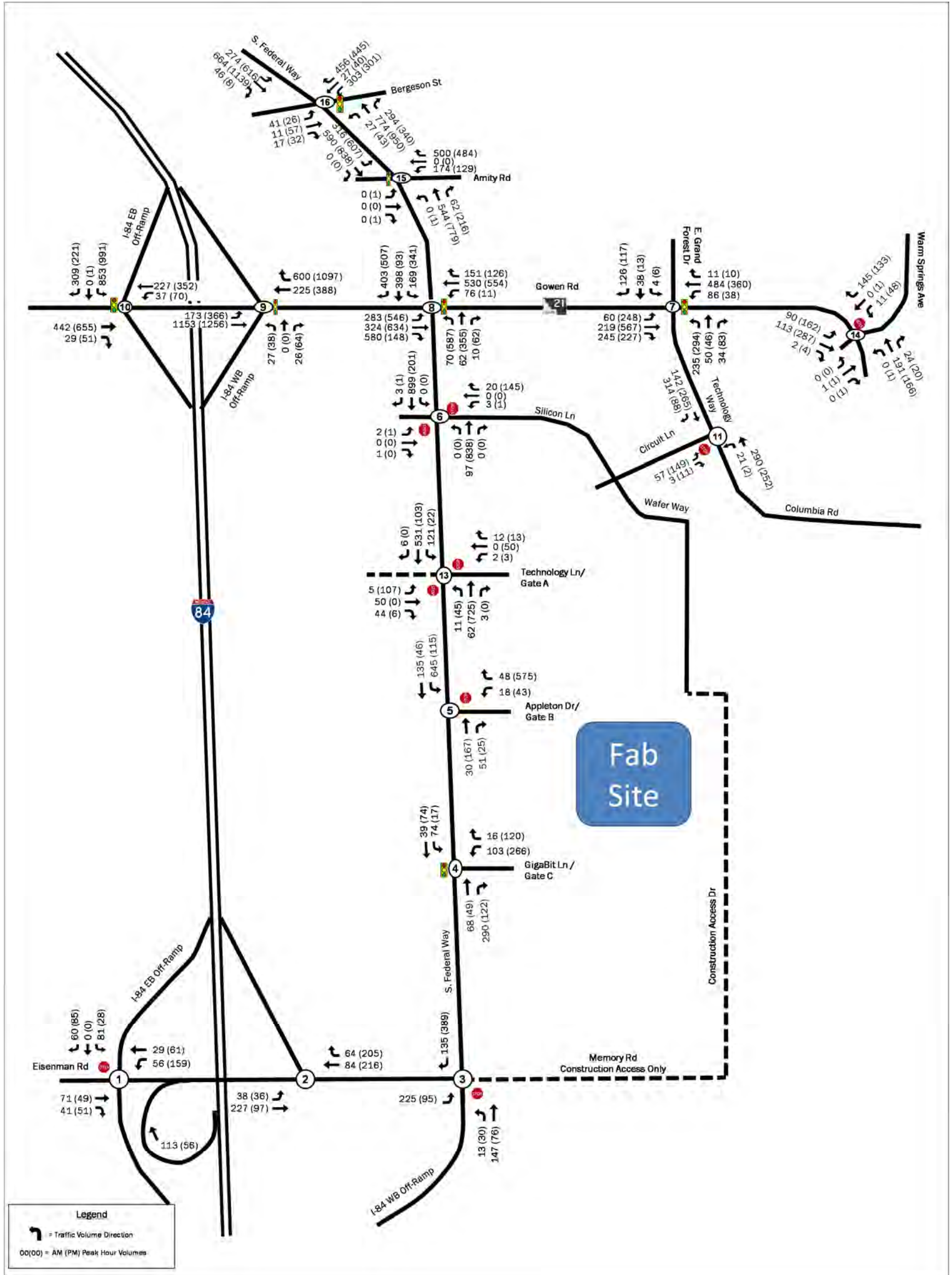


Figure 13. Existing + Background + Site Traffic (2025)



Traffic Analyses

D.1. Build Condition Capacity Analysis

The results of build conditions capacity for intersection (2022 volumes plus background growth plus site traffic) are shown in Table 15 and include the analysis of the volumes shown in Figure 13.

Table 15: Intersection Level of Service Results – Full Build Conditions

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
1	Eisenman Rd at I-84 EB Ramp	Side Street Stop	WBL	325	0.05	A	8.1	4	0.14	A	8.4	10
			SBL	310	0.12	B	10.6	8	0.07	B	13.2	4
			SBR	-	0.07	A	9.1	4	0.11	A	9.5	8
2	Eisenman Rd at I-84 WB On-Ramp	No-control	EBL	340	0.04	A	8.4	2	0.05	A	9.8	4
3	Memory Rd at Federal Way/I-84 WB Off-Ramp	Side Street Stop	NBL	-	0.02	A	8.9	0	0.04	A	9.0	2
			NBT	-	0.02	A	9.9	14	0.09	A	9.4	6
4	Federal Way at Gate C	Signal	Overall	-	0.26	A	6.9	-	0.36	A	7.7	-
			WBL	-	0.50	A	9.1	33	0.62	A	8.3	77
			WBR	-	0.09	A	7.2	7	0.32	A	6.8	18
			NBT	-	0.18	A	5.4	22	0.15	A	7.1	24
			NBR	240	-	A	0.0	26	-	A	0.0	24
			SBL	225	0.12	A	5.9	24	0.03	A	7.2	12
			SBT	-	0.11	A	5.2	14	0.26	A	7.5	33
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	0.41	F	122.0	30	0.11	B	14.1	8
			WBT	-	0.05	A	8.7	4	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
6	Federal Way at Silicon Ln	Side Street Stop	EBL	-	0.01	D	27.3	0	0.00	C	19.1	0
			EBR	-	0.00	C	16.2	0	-	A	0.0	0
			WBL	-	0.01	B	13.0	0	0.00	C	19.3	0
			WBR	-	0.02	A	8.8	2	0.29	B	14.7	24
			NBL	-	-	A	0.0	0	-	A	0.0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	Signal	Overall	-	0.37	C	27.5	-	0.53	C	31.0	-
			EBL	155	0.12	A	6.3	43	0.41	A	7.1	136
			EBT	-	0.12	A	7.7	86	0.29	A	8.9	189
			EBR	415	-	A	0.0	44	-	A	0.0	37
			WBL	90	0.11	A	6.0	56	0.07	A	8.4	26
			WBTR	-	0.23	A	8.5	192	0.19	B	11.0	155
			NBL	520	0.86	F	83.3	192	0.99	F	111.3	267

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
			NBT	-	0.25	E	57.7	84	0.23	E	57.3	83
			NBR	240	-	A	0.0	0	-	A	0.0	15
			SBL	125	0.04	E	66.8	12	0.06	E	67.2	19
			SBTR	-	0.63	E	77.3	156	0.24	E	70.5	82
8	Gowen Rd at Federal Way	Signal	Overall	-	0.69	C	31.8	-	0.91	E	68.6	-
			EBL	420	0.35	C	32.7	171	0.96	F	93.0	482
			EBT	-	0.26	C	26.0	98	0.54	D	39.9	414
			EBR	390	-	A	0.0	348	-	A	0.0	50
			WBL	175	0.64	D	46.7	103	0.35	E	88.9	39
			WBT	-	0.82	D	42.8	213	0.82	E	73.7	475
			WBR	225	-	A	0.0	40	-	A	0.0	97
			NBL	495	0.52	D	44.6	42	0.95	F	91.1	507
			NBT	-	0.20	D	36.2	33	0.52	E	58.2	280
			NBR	150	0.06	D	35.5	0	0.18	D	52.7	13
			SBL	275	0.48	C	31.3	113	0.79	D	48.4	407
			SBT	-	0.74	D	38.2	157	0.14	E	56.2	83
			SBR	255	0.67	A	8.3	134	0.94	E	71.1	794
9	Gowen Rd at I-84 WB Ramp	Signal	Overall	-	0.37	A	5.4	-	0.56	A	6.4	-
			EBL	335	0.23	A	3.3	37	0.51	A	3.5	95
			EBT	-	0.35	A	2.6	78	0.36	A	2.3	102
			WBT	-	0.12	B	13.0	26	0.20	A	5.9	97
			WBR	230	-	A	0.0	3	-	A	0.0	25
			NBLT	-	0.24	D	39.4	42	0.38	E	59.3	72
10	Gowen Rd at I-84 EB Ramp	Signal	Overall	-	0.46	D	53.8	-	0.59	D	52.2	-
			EBTR	-	0.20	C	20.6	262	0.32	C	24.2	241
			WBL	110	0.08	B	16.4	69	0.21	C	18.2	66
			WBT	-	0.13	B	15.7	162	0.22	C	17.3	143
			SBL	-	0.93	E	77.5	479	0.99	F	87.8	859
			SBTR	600	0.77	E	70.9	50	0.51	D	50.1	69
11	Technology Way at Circuit Ln	Side Street Stop	EBL	-	0.14	B	13.9	10	0.38	C	17.9	34
			EBR	-	-	A	0.0	-	-	A	0.0	-
			NBL	160	0.02	A	7.6	2	0.00	A	7.8	0
13	Federal Way at Gate A	Side Street Stop	EBL	100	0.03	C	22.7	2	0.48	D	32.4	48
			EBTR	-	0.31	C	20.2	26	0.01	A	8.6	0
			WBL	-	0.01	C	20.3	0	0.02	C	24.6	2
			WBTR	-	0.01	A	8.5	0	0.29	D	25.8	24
			NBL	150	0.01	A	8.7	0	0.03	A	7.5	2
			SBL	475	0.09	A	7.6	6	0.03	A	9.5	2
14	Gowen Rd at Warm Springs Ave	Side Street Stop	EBL	100	0.08	A	7.9	4	0.13	A	8.0	10
			SBL	100	0.03	B	13.0	2	0.19	C	20.8	14
			SBR	-	0.20	B	10.5	14	0.17	B	10.1	12
15		Signal	Overall	-	0.74	E	71.3	-	1.24	F	107.5	-

ID	Intersection	Control	Movement	Storage Len (ft)	AM				PM				
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)	
16	Federal Way at Amity Rd		EBLTR	-	0.00	A	0.0	0	0.46	F	115.6	0	
			WBLT	-	0.77	E	59.3	256	0.57	E	47.0	164	
			WBR	190	1.46	F	267.1	52	1.41	F	246.8	52	
			NBL	130	0.00	A	0.0	0	0.00	B	10.7	3	
			NBTR	-	0.34	B	11.9	283	0.68	C	24.3	614	
			SBL	420	0.62	A	7.2	202	1.57	F	281.3	916	
			SBTR	-	0.27	A	4.2	168	0.44	A	11.2	333	
			Overall	-	1.59	D	54.7	-	1.95	E	77.7	-	
		Federal Way at Bergeson Ave	Signal	EBLTR	-	0.56	E	62.9	46	0.72	E	64.0	71
				WBL	140	0.38	C	32.8	347	0.41	D	39.8	412
				WBT	-	0.00	A	0.0	361	0.00	A	0.0	434
				WBR	140	1.21	F	170.6	244	1.24	F	177.0	137
				NBL	100	0.17	C	28.7	13	0.28	C	27.7	42
				NBT	-	0.74	D	35.2	246	0.87	D	39.9	644
	NBR			160	0.65	D	35.6	14	0.72	D	37.1	247	
		SBL	350	0.60	D	46.0	173	1.28	F	192.5	489		
		SBTR	-	0.53	C	23.0	310	0.79	D	35.4	731		

Table 16: Segment Level of Service Results – Full Build Conditions

No.	Segment	Functional Class	No. Lanes	Left-Turn Treatment	Pk Hr (Dir)*	Pk Dir Vol	Threshold		LOS
							LOS D	LOS E	
A	Federal Way, South of Silicon Way	Minor Arterial	2	Continuous LT Lane	AM (SB)	903	1,395	1,540	>D
B	Gowen Road, West of Technology Way	Principal Arterial	2	Continuous LT Lane	PM (EB)	1042	1,680	1,780	>D
C	Memory Road, West of Federal Way	Minor Arterial	2	Continuous LT Lane	PM (WB)	419	1,395	1,540	>D
D	Technology Way, South of Gowen Road	Minor Arterial	1 NB 2 SB	No LT Lane	PM (SB)	423	1,080	1,150	>D

*Highest peak hour volume in one direction

D.2. Build Conditions Mitigation

Memory Rd at I-84 WB Off-Ramp

The intersection geometry is unique to the traffic conditions. There is currently no east side of the intersection so the eastbound left turning traffic (i.e., traffic heading north on S Federal Way) can move unimpeded. Only the northbound traffic coming from I-84 is stopped and that volume is projected to be manageable. HCM 6th Ed. does not include the ability to analyze the intersection in its current form but can if a dummy link is added to the east side of the intersection.

If Memory Road is to be used as a construction traffic route for FAB1, the intersection at S Federal Way will need to be reconfigured. At a minimum, the southbound movement on S Federal Way will need a left turn lane. Memory Road Ext will need one lane leaving and one lane entering the construction area. The analysis of construction period traffic is not included in this study but will be a separate effort. The intersection may need to be signalized if the construction traffic analysis shows a significant and sustained volume of traffic to/from the construction site.

Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

S Federal Way & Gate B

Gate B is the next closest access point for the parking lots on the southern end of the Micron campus. Currently, during shift change, there is a large volume of traffic leaving Gate B but almost all of it makes a right turn and heads north on S Federal Way. Conversely, in the AM peak hour, there is a large volume of southbound left turning vehicles entering the site. The intersection is stop controlled and already experiences some delays for left-out traffic. The additional load from FAB1 traffic will overburden the intersection. A traffic signal may be needed but does not meet the required MUTCD volume criteria. (See Section D.3. for a signal warrant discussion.)

Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

Federal Way and Bergeson Street (signal)

With additional project traffic, the v/c ratios will worsen slightly. The solutions discussed and discarded for existing and for background conditions were analyzed but with additional traffic, there

were found to be unacceptable. Given the adequate levels of service with the recommended mitigation from the existing conditions, those are the best solutions for the build traffic conditions.

Recommendation(s):

- o Same configuration as in Existing Conditions mitigation

Table 17 shows the results of mitigation from the existing conditions improvements (see Section A.4) the background growth conditions improvements (see Section B.4) and the build conditions improvements.

Table 17: Intersection Level of Service Results – Mitigation for Build Conditions

ID	Intersection	Control	Mvmt	Storage Len (ft)	AM				PM			
					V/C	LOS	Delay	Queue (ft)	V/C	LOS	Delay	Queue (ft)
4	Federal Way at Gate C	No WBL at Gate 5	Overall	-	-	A	6.9	-	-	A	7.8	-
			WBL	-	0.54	A	9.2	38	0.65	A	8.3	91
			WBR	-	0.08	A	7.1	7	0.29	A	6.8	18
			NBT	-	0.18	A	5.5	23	0.16	A	7.1	26
			NBR	240	-	A	0.0	27	-	A	0.0	26
			SBL	225	0.12	A	6.0	25	0.03	A	7.2	13
			SBT	-	0.12	A	5.3	15	0.27	A	7.5	36
5	Federal Way at Gate B	Side Street Stop	EBLTR	-	-	A	0.0	0	0.01	D	27.6	0
			WBL	-	-	-	-	-	-	-	-	-
			WBR	-	0.52	A	8.7	30	0.68	C	16.7	112
			NBL	-	-	A	0.0	0	-	A	0.0	0
			SBL	100	0.47	A	9.4	52	0.09	A	7.9	6
15	Federal Way at Amity Rd	- Right-turn overlap - Dual SB left turns - Remove the split-phase	Overall	-	0.57	C	24.6	-	0.81	C	29.1	-
			EBLTR	-	0.00	A	0.0	0	0.02	D	37.3	0
			WBLT	-	0.52	D	40.4	194	0.54	D	44.5	144
			WBR	190	0.60	C	29.6	110	0.48	C	22.8	117
			NBL	130	0.00	A	0.0	0	0.82	B	18.2	5
			NBTR	-	0.42	B	19.0	258	0.82	D	38.6	670
			SBL	420	0.84	D	51.4	159	0.89	D	45.2	211
			SBTR	-	0.29	A	7.0	164	0.38	A	6.5	161
16	Federal Way at Bergeson Ave	- Channelize WB right turn - Right-turn overlap - Change EBLT to EBL - Remove split-phase	Overall	-	0.73	C	27.8	-	0.93	D	38.6	-
			EBL	-	0.19	C	32.2	51	0.12	C	31.5	40
			EBTR	-	0.07	C	29.3	26	0.22	C	30.5	84
			WBL	-	0.78	D	45.5	321	0.89	E	65.4	405
			WBT	200	0.06	C	29.1	35	0.09	C	29.2	51
			WBR	500	-	A	0.0	232	-	A	0.0	133
			NBL	100	0.09	B	14.7	12	0.22	C	22.5	22
			NBT	-	0.56	C	22.5	341	0.90	D	40.0	421
			NBR	160	0.49	C	22.6	127	0.75	D	36.5	153
			SBL	350	0.84	E	57.7	154	0.92	E	55.8	326
SBTR	-	0.45	B	16.2	283	0.74	C	23.7	467			

Conclusions and Recommendations

E.1. Capacity Analysis Conclusions

An analysis of the v/c ratios, LOS, delay, and expected queuing results in a series of conclusions for each intersection. These are described in detail below.

E.1.1. Eisenman Road & I-84 EB Ramp

The intersection has ample capacity to accommodate the future traffic.

E.1.2. Eisenman Road & I-84 WB On-Ramp

While HCM 6th Ed. lacks the research to make the capacity calculations, an evaluation of the volume of traffic shows that the intersection can accommodate future traffic. The additional westbound traffic on Eisenman Road should pose no significant delay for eastbound left turning traffic.

E.1.3. Memory Road & S Federal Way/I-84 WB Off-Ramp

Build Conditions Recommendation(s):

- Re-configure the southbound approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the westbound direction and a single eastbound lane
- Consider a construction-era traffic signal if volumes are significant

E.1.4. S Federal Way & Gate C / Gigabit Lane (signal)

Gate C will serve as the primary access for the parking lots on the south side of the Micron campus – which is where most of the parking will be located. The FAB1 development and most of the parking will have direct access to Gate C and easy access to the Eisenman interchange with I-84. The intersection has ample capacity to accommodate the future traffic primarily because it is signalized and the volume on S Federal Way is low.

E.1.5. S Federal Way & Gate B

Build Conditions Recommendation(s):

- Consider a traffic signal (subject to warrant analysis) to accommodate site traffic demands
- If a traffic signal is not allowed, eliminate the left turns out of the Micron campus
 - This would force traffic leaving the campus heading south to use Gate A or Gate C.
 - The additional traffic load on the signal at Gate C would not degrade the level of service at that intersection. (See Appendix E – Mitigation Section)

E.1.6. S Federal Way & Silicon Way

The intersection has ample capacity to accommodate the future traffic.

E.1.7. Gowen Road & Technology Way (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.8. Gowen Road & Federal Way (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.9. Gowen Road & I-84 WB Ramp (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.10. Gowen Road & I-85 EB Ramp (signal)

The intersection meets the minimum standards established by ACHD; no improvements are recommended.

E.1.11. Technology Lane & Circuit Way

The intersection has ample capacity to accommodate future traffic.

~~E.1.12. Memory Road Ext & Construction Access Road (not studied)~~

E.1.13. Federal Way & Gate A / Childcare Center

This intersection was studied in detail in a separate report for the childcare center development. While the new Fab traffic will contribute more traffic on S Federal Way, it will not be enough to justify a traffic signal once the new childcare center is operational. There is additional land yet to be developed on the west side of S Federal Way that will share the access point. This intersection should be monitored for the need for a traffic signal as more development occurs. **No improvements are recommended.**

E.1.14. Gowen Road & Warm Springs Avenue

The intersection has ample capacity to accommodate future traffic.

E.1.15. Federal Way & Amity Road (signal)

Existing Conditions Recommendation(s):

- Add a right-turn overlap signal for the westbound right turns
- Construct dual southbound left turn lanes
 - Add 1000 foot receiving lane east of the intersection
- Reconfigure the southbound left turn traffic signal for protected-only operation
- Reconfigure the northbound left turn traffic signal for permitted operation
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

E.1.16. Federal Way and Bergeson Street (signal)

Existing Conditions Recommendation(s):

- Add a channelizing island for the westbound right turn movement
- Add a right-turn overlap signal for the westbound right turn movement
- Extend the left turn lane on Bergeson to a total of 500 feet to allow for thru and right turning vehicles to bypass the queue
- Change the eastbound shared left-thru lane to an exclusive left turn lane
- Remove the split-phased operation
- Re-time the traffic signal to account for the added road capacity

Background Traffic Conditions Recommendation(s):

- Same as Existing Conditions

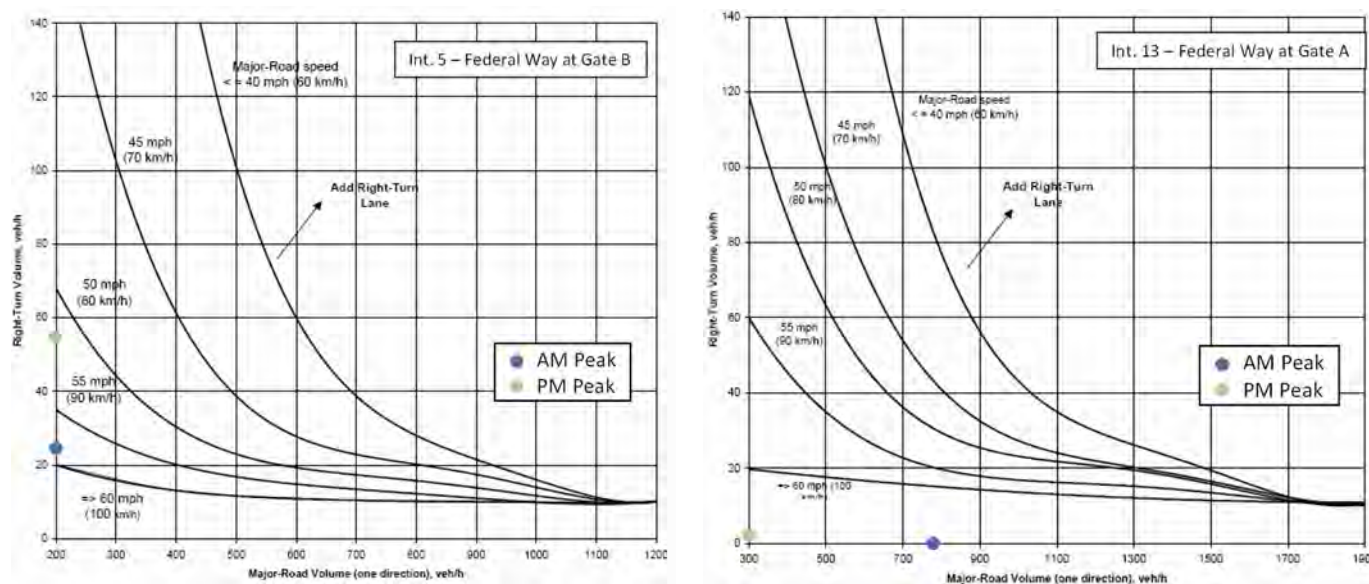
Build Traffic Conditions Recommendation(s):

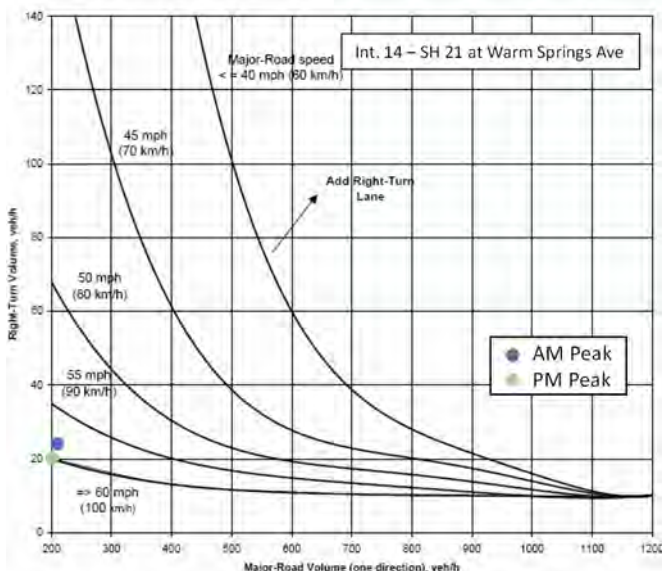
- Same as Existing Conditions

E.2. Driveway Analysis

There are four access points to the Micron study within the study area: Federal Way at Gate A, Gate B, and Gate C and Technology Way at Circuit Lane (aka Gate D). All of these access points have left turn lanes. Gates A and B do not have right turn deceleration lanes, however the northbound left turn volume into these driveways is very low. The only other unsignalized study intersection where a turn lane does not exist is SH 21 at Warm Spring Ave. The charts from ACHD Guideline 7106 (Figures 6 and 7) are shown in Figure 14. None of the analyzed movements meet the requirements for a right turn lane.

Figure 14. Turn Lane Analysis Figures





E.3. Parking Requirements

In order to construct the new Fab and associated office, utility, warehouses, and other ancillary building, the existing parking lot on the south side of the campus will be removed. New parking structures and surface parking lots are planned to be built and have been identified on the site plan. Approximately 3,800 parking spaces will be removed and approximately 7,100 parking spaces will be added with the project (a net change of about 3,300), which will sufficiently serve the new 2,750 employees.

E.4. Signal Warrant Analysis

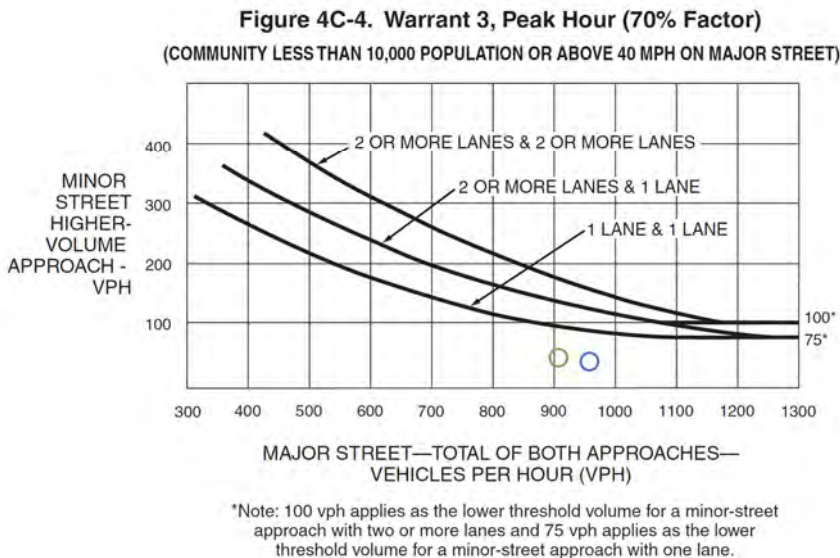
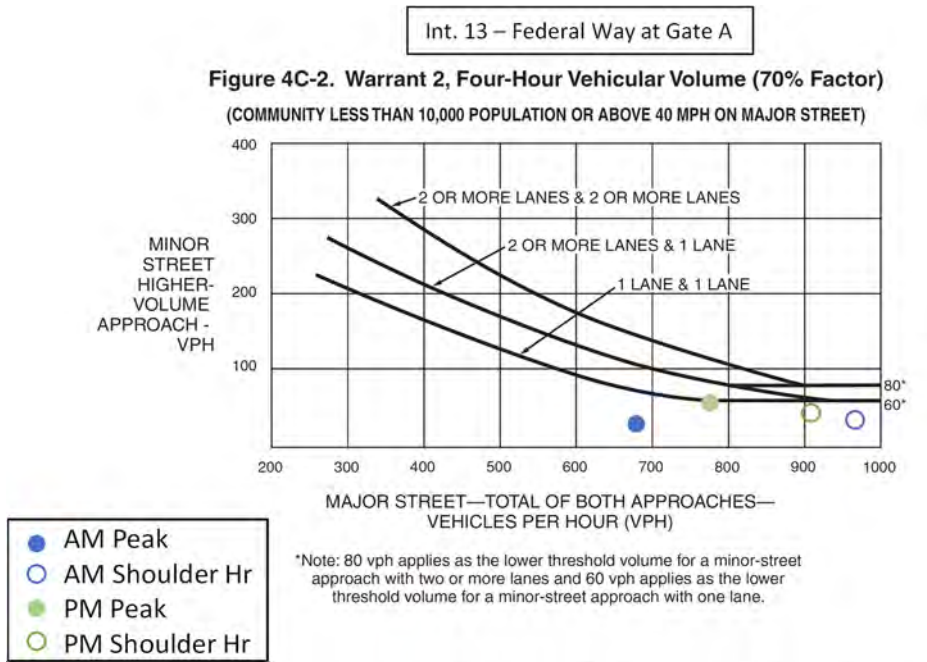
The unsignalized intersection of **S Federal Way and Silicon Lane** has one movement that will experience an LOS D. In the AM Peak hour, the westbound left turn has LOS D. Per ACHD guidelines, a signal warrant study is required. The 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD, 2009) were consulted to determine if the intersection would meet the criteria. The side street movements are very low during the peak hours (less than 10 vehicles) and would therefore not meet the standards.

The intersection of **S Federal Way and Gate A** was previously studied for a traffic signal and was denied by ACHD. The warrant study was revisited using additional project volume and a growth rate of 1% per year. Counts were collected for an extended day so new project traffic on the minor streets was estimated based on the daily volume of traffic expected at the intersection times the ratio of existing traffic over the existing daily traffic. In this way, the new daily site volume (accounting for the distribution percentages seen in Figure 10) could be factored into the warrant analysis along with the childcare center traffic. The results of the warrant analysis is shown in Table 18 and in Figure 15. A traffic signal is not warranted at this location.

Table 18: Signal Warrant Analysis Summary – S Federal Way at Gate A / Childcare Center

Hour Beginning			100% Criteria		70% Criteria	
	S Federal Way	Gate A/Childcare Center	Warrant 1		Warrant 1	
	Combined Volume	Approach Volume w/ Right Turns	Major Street Condition Met? (Major>600)	Minor Street Condition Met? (Minor>150)	Major Street Condition Met? (Major>420)	Minor Street Condition Met? (Minor>140)
5:00 AM	773	39	YES	NO	YES	NO
6:00 AM	561	32	NO	NO	YES	NO
7:00 AM	734	99	YES	NO	YES	NO
8:00 AM	966	46	YES	NO	YES	NO
9:00 AM	536	24	NO	NO	YES	NO
10:00 AM	286	21	NO	NO	NO	NO
11:00 AM	383	23	NO	NO	NO	NO
12:00 PM	425	27	NO	NO	YES	NO
1:00 PM	331	25	NO	NO	NO	NO
2:00 PM	341	22	NO	NO	NO	NO
3:00 PM	475	45	NO	NO	YES	NO
4:00 PM	895	113	YES	NO	YES	NO
5:00 PM	789	60	YES	NO	YES	NO
6:00 PM	499	30	NO	NO	YES	NO
7:00 PM	196	11	NO	NO	NO	NO
Number of Hours Needed			8	8	8	8
Number of Hours Met			5	0	10	0
Warrant Satisfied?			NO		NO	

Figure 15. Warrant 2 and 3 Figures – S Federal Way at Gate A / Childcare Center



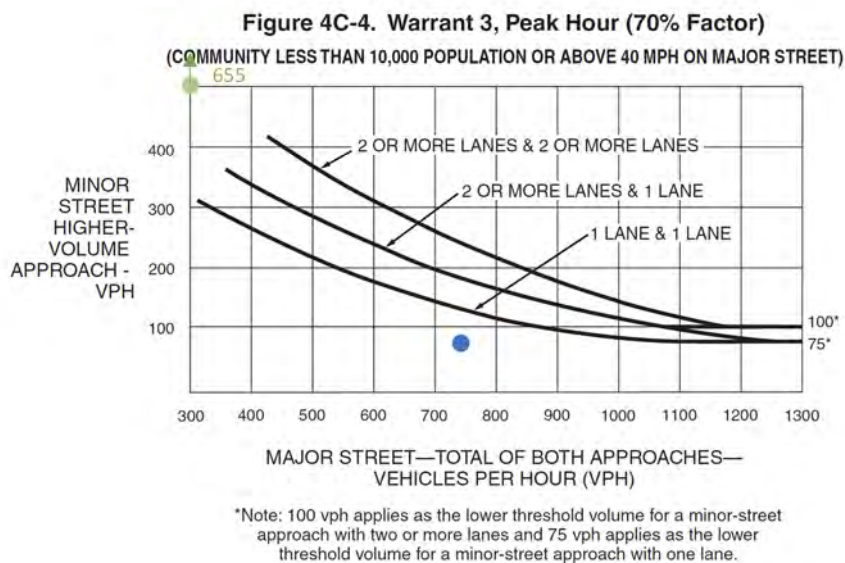
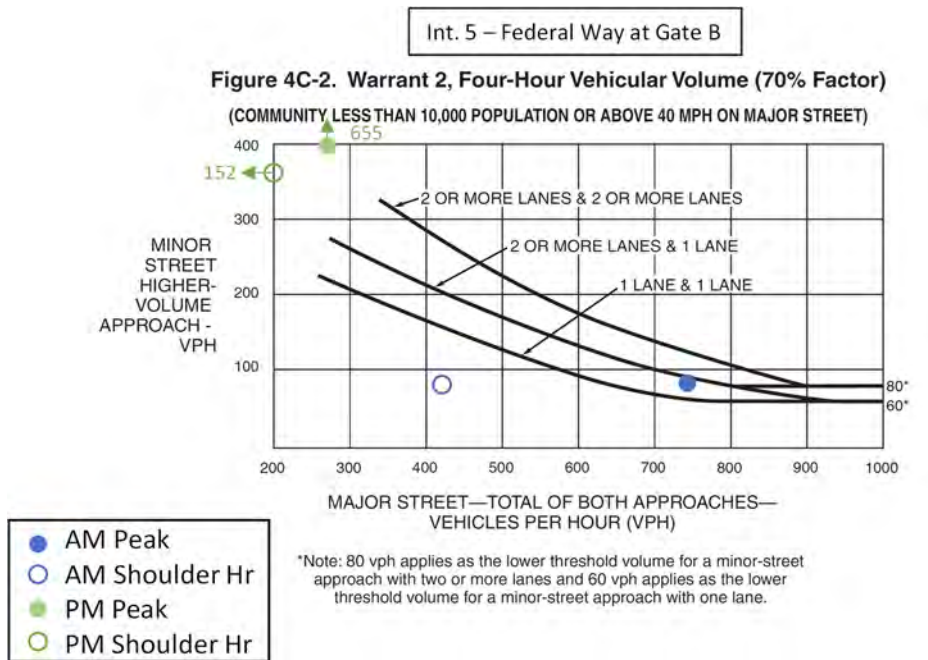
S Federal Way at Gate B may benefit from a traffic signal. It would reduce the delay for traffic turning left out of the site. Eight hours of traffic volume on the minor street side are not available; however, an analysis of the major street traffic shows that there is not enough traffic to meet the minimum criteria in the MUTCD. Even if the site traffic met the minimum threshold for eight hours of the day, the combination of the main street and minor street traffic would not trigger a need.

The base volume for the north and southbound movements on S Federal Way base volume is from data collected for the signal warrant study for the Gate A intersection and the proposed childcare center. The base volume was multiplied by the growth factor for S Federal Way as shown in Table 7. The 7-9a and 4-6p volumes are from the turning movement traffic counts with the growth factor applied. Future peak hour volumes are from Figure 13 and estimated for shoulder hours. Figure 15 shows the Warrant 2 (four-hour) and Warrant 3 (peak hour) warrant. While the peak hour volume may appear to meet the criteria, it is based primarily on side street right turning traffic which is not a strong justification for a traffic signal.

Table 19: Signal Warrant Analysis Summary – S Federal Way at Gate B

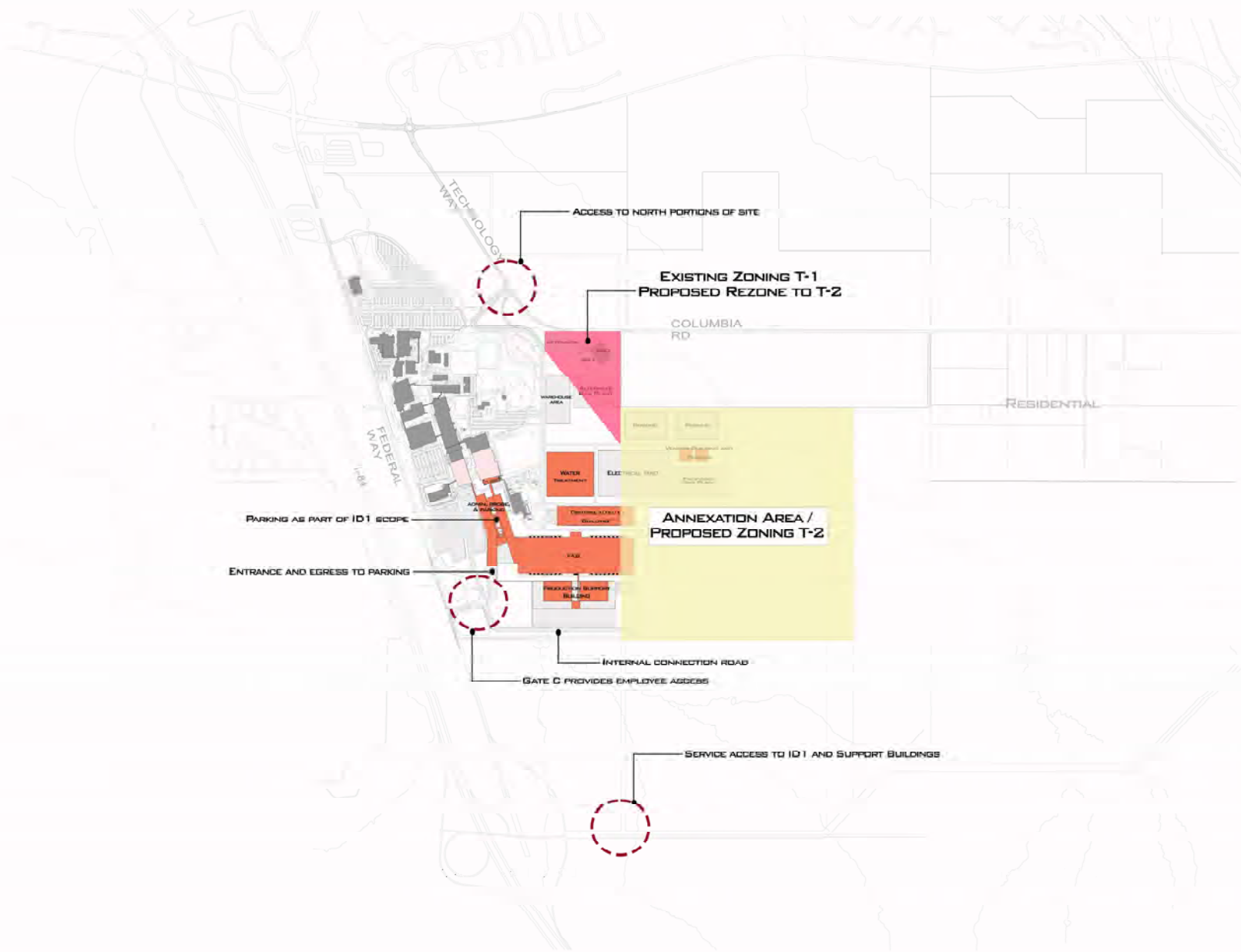
Hour Beginning	S Federal Way Combined Volume	Gate B Approach Volume w/ Right Turns	100% Criteria		70% Criteria	
			Warrant 1		Warrant 1	
			Major Street Condition Met? (Major>600)	Minor Street Condition Met? (Minor>150)	Major Street Condition Met? (Major>420)	Minor Street Condition Met? (Minor>140)
5:00 AM	490		NO		YES	
6:00 AM	385		NO		NO	
7:00 AM	861	66	YES	NO	YES	NO
8:00 AM	415	89	NO	NO	NO	NO
9:00 AM	407		NO		NO	
10:00 AM	221		NO		NO	
11:00 AM	313		NO		NO	
12:00 PM	337		NO		NO	
1:00 PM	271		NO		NO	
2:00 PM	279		NO		NO	
3:00 PM	404		NO		NO	
4:00 PM	353	618	NO	YES	NO	YES
5:00 PM	151	377	NO	YES	NO	YES
6:00 PM	440		NO		YES	
7:00 PM	173		NO		NO	
Number of Hours Needed			8	8	8	8
Number of Hours Met			1	2	3	2
Warrant Satisfied?			NO		NO	

Figure 16. Warrant 2 and 3 Figures – S Federal Way at Gate B



APPENDIX

APPENDIX A: Site Plan



REV	DESCRIPTION	DATE

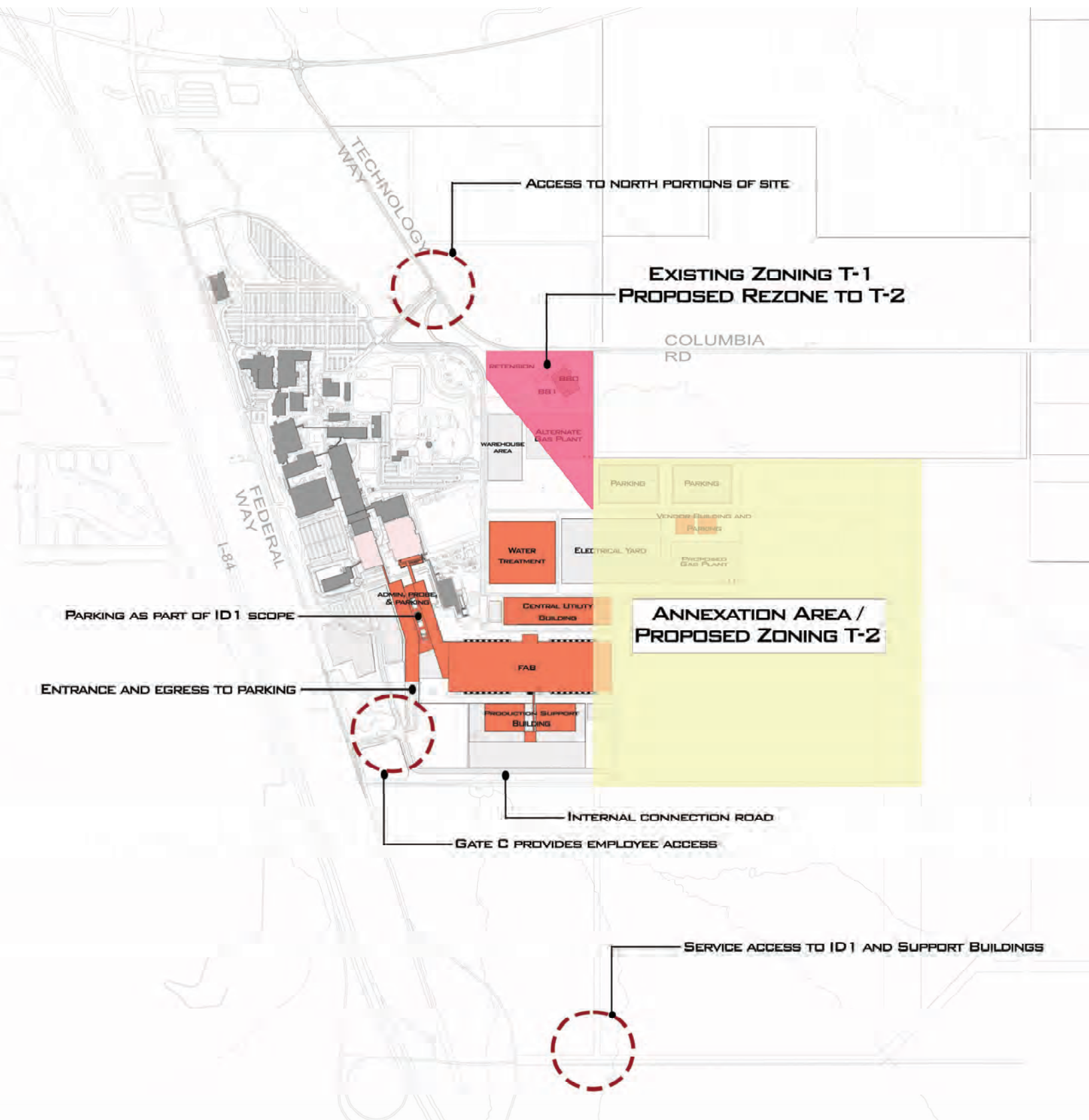
MICRON TRITON SITE PLAN

ISSUED FOR CONSTRUCTION (SMA TYPE)

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TOOL ROOM	
LOD	
TOOL KIT	
PROJECT COORD	
ENG. COORD	
DRAWN BY: <i>Autu</i>	
PROJECT NO.	
SHEET	A





ACCESS TO NORTH PORTIONS OF SITE

EXISTING ZONING T-1
PROPOSED REZONE TO T-2

COLUMBIA
RD

RETENSION
WAREHOUSE
AREA
WATER
TREATMENT
ELECTRICAL
YARD
CENTRAL
UTILITY
BUILDING
FAB
PRODUCTION
SUPPORT
BUILDING

PARKING
PARKING
VENDOR BUILDINGS AND
PARKINGS
PROPOSED
GAS PLANT
ANNEXATION AREA /
PROPOSED ZONING T-2

FEDERAL
WAY
L-84

PARKING AS PART OF ID1 SCOPE

ADMIN, PROBE
& PARKING

ENTRANCE AND EGRESS TO PARKING

INTERNAL CONNECTION ROAD

GATE C PROVIDES EMPLOYEE ACCESS

SERVICE ACCESS TO ID1 AND SUPPORT BUILDINGS

APPENDIX B: Traffic Counts

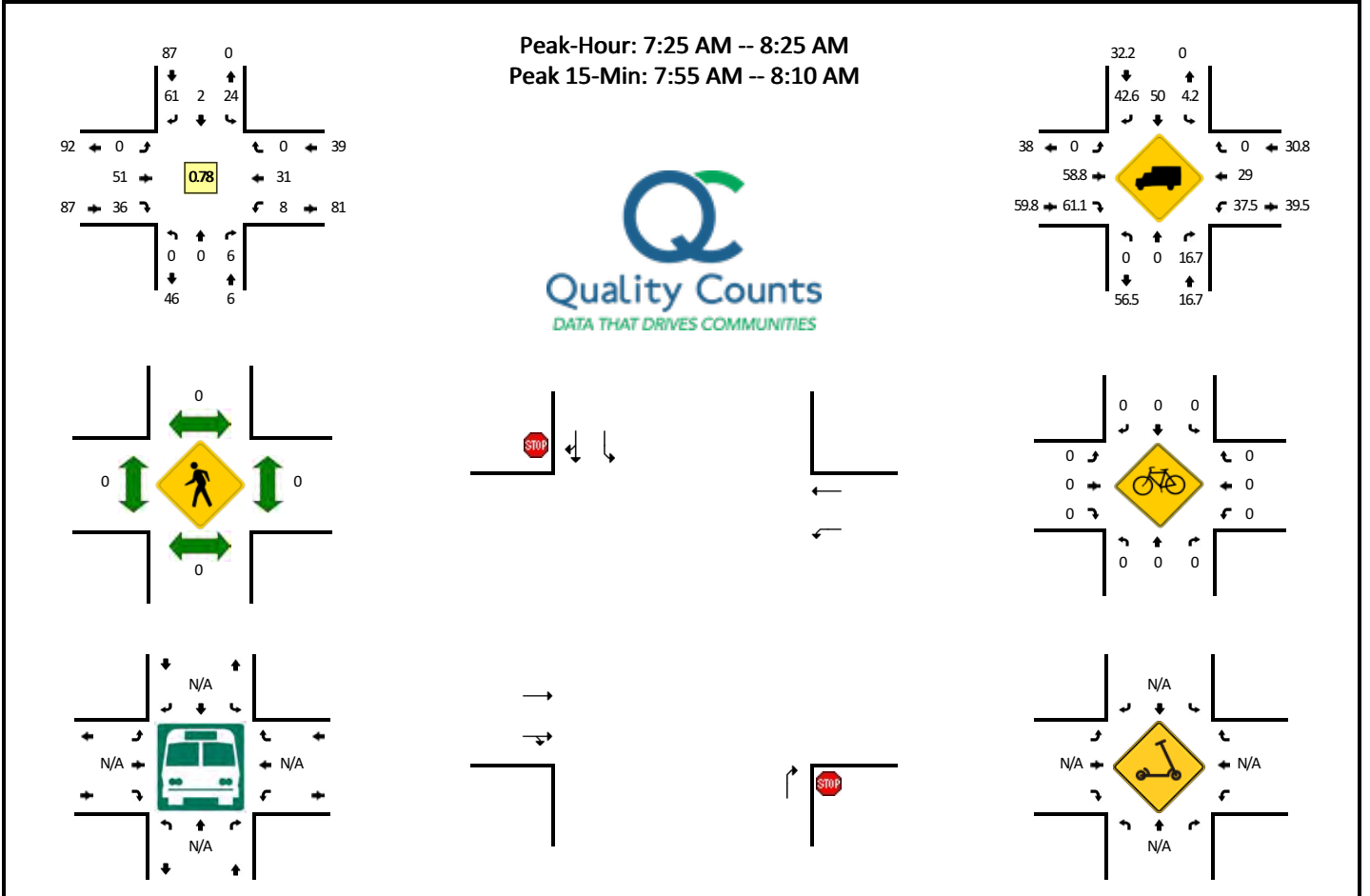
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952601
DATE: Thu, Sep 22 2022

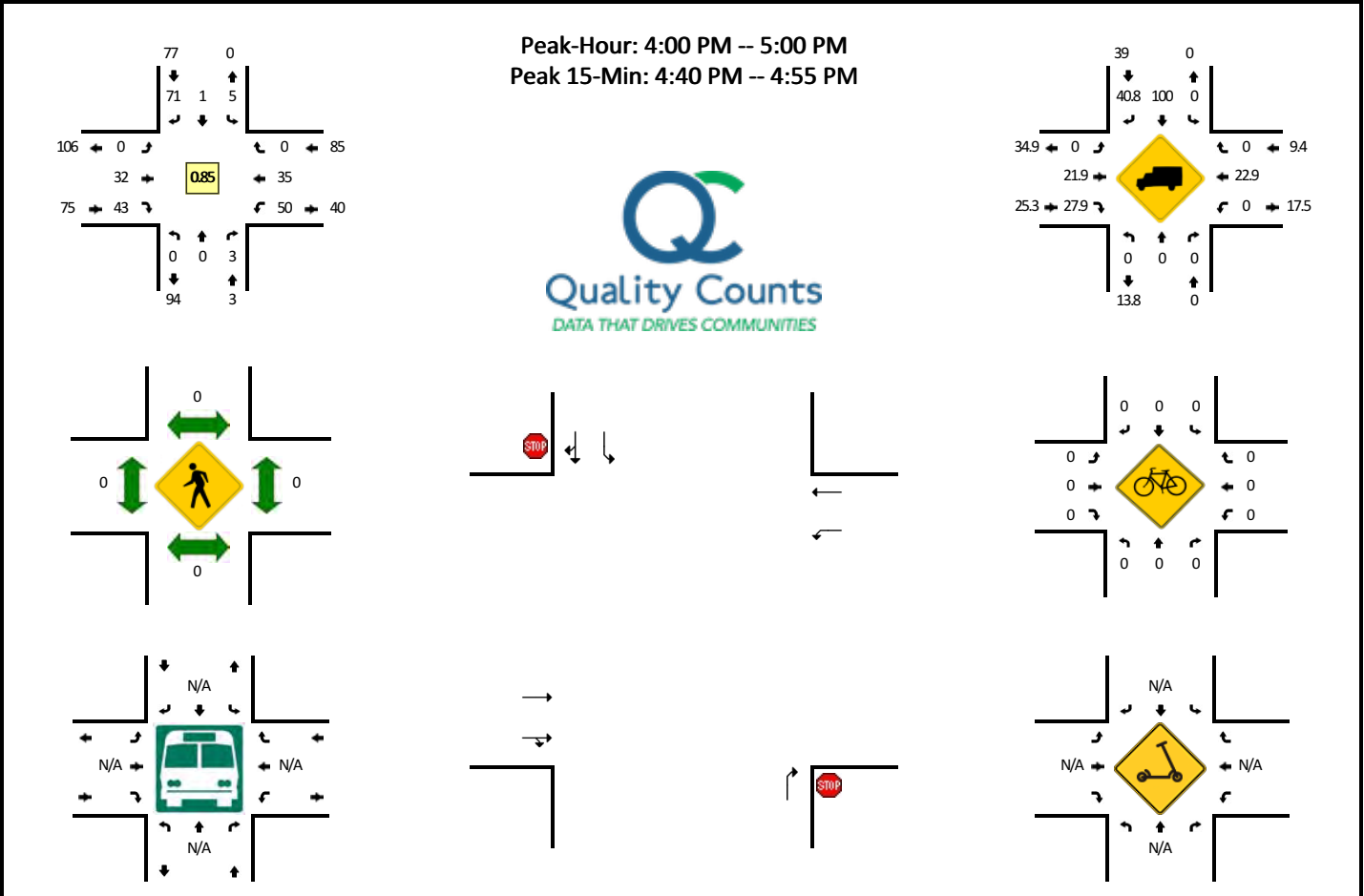


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	1	0	0	4	4	0	1	2	0	0	16	
7:05 AM	0	0	0	0	0	0	4	0	0	2	3	0	1	0	0	0	10	
7:10 AM	0	0	0	0	2	0	2	0	0	5	1	0	0	0	0	0	10	
7:15 AM	0	0	1	0	4	0	6	0	0	1	3	0	1	0	0	0	16	
7:20 AM	0	0	1	0	4	0	1	0	0	1	3	0	1	1	0	0	12	
7:25 AM	0	0	0	0	1	0	5	0	0	3	2	0	0	1	0	0	12	
7:30 AM	0	0	0	0	2	0	3	0	0	4	1	0	0	7	0	0	17	
7:35 AM	0	0	0	0	3	0	11	0	0	6	1	0	0	0	0	0	21	
7:40 AM	0	0	2	0	3	2	3	0	0	1	5	0	1	1	0	0	18	
7:45 AM	0	0	0	0	2	0	4	0	0	5	3	0	1	1	0	0	16	
7:50 AM	0	0	1	0	0	0	2	0	0	2	1	0	0	3	0	0	9	
7:55 AM	0	0	1	0	2	0	8	0	0	5	7	0	1	1	0	0	25	182
8:00 AM	0	0	0	0	3	0	12	0	0	2	1	0	1	2	0	0	21	187
8:05 AM	0	0	0	0	2	0	4	0	0	5	4	0	3	6	0	0	24	201
8:10 AM	0	0	2	0	3	0	0	0	0	6	5	0	0	3	0	0	19	210
8:15 AM	0	0	0	0	2	0	1	0	0	5	3	0	0	3	0	0	14	208
8:20 AM	0	0	0	0	1	0	8	0	0	7	3	0	1	3	0	0	23	219
8:25 AM	0	0	0	0	0	0	4	0	0	2	3	0	0	1	0	0	10	217
8:30 AM	0	0	0	0	1	0	5	0	0	0	5	0	1	1	0	0	13	213
8:35 AM	0	0	0	0	1	1	2	0	0	3	2	0	0	3	0	0	12	204
8:40 AM	0	0	0	0	2	0	2	0	0	4	6	0	0	4	0	0	18	204
8:45 AM	0	0	1	0	1	0	3	0	0	1	5	0	1	1	0	0	13	201
8:50 AM	0	0	0	0	1	0	8	0	0	5	3	0	1	3	0	0	21	213
8:55 AM	0	0	0	0	0	0	2	0	0	3	5	0	0	4	0	0	14	202
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	28	0	96	0	0	48	48	0	20	36	0	0	280	
Heavy Trucks	0	0	0	0	0	0	52	0	0	24	32	0	4	12	0	0	124	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: I-84 SB Ramps -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952602
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	8	0	0	1	5	0	4	5	0	0	23	
4:05 PM	0	0	0	0	0	0	4	0	0	3	3	0	6	2	0	0	18	
4:10 PM	0	0	0	0	1	0	6	0	0	4	1	0	5	6	0	0	23	
4:15 PM	0	0	0	0	1	0	5	0	0	3	2	0	5	1	0	0	17	
4:20 PM	0	0	0	0	1	0	3	0	0	1	10	0	8	1	0	0	24	
4:25 PM	0	0	0	0	1	0	2	0	0	3	2	0	3	2	0	0	13	
4:30 PM	0	0	0	0	0	0	4	0	0	2	3	0	4	1	0	0	14	
4:35 PM	0	0	0	0	1	1	2	0	0	4	3	0	2	5	0	0	18	
4:40 PM	0	0	0	0	0	0	10	0	0	1	4	0	3	3	0	0	21	
4:45 PM	0	0	1	0	0	0	8	0	0	3	2	0	6	3	0	0	23	
4:50 PM	0	0	1	0	0	0	10	0	0	4	5	0	2	5	0	0	27	
4:55 PM	0	0	1	0	0	0	9	0	0	3	3	0	2	1	0	0	19	240
5:00 PM	0	0	0	0	3	0	1	0	0	4	9	0	1	2	0	0	20	237
5:05 PM	0	0	0	0	1	0	7	0	0	1	4	0	2	3	0	0	18	237
5:10 PM	0	0	0	0	0	1	8	0	0	5	2	0	0	3	0	0	19	233
5:15 PM	0	0	0	0	0	0	3	0	0	7	1	0	1	1	0	0	13	229
5:20 PM	0	0	0	0	0	0	3	0	0	5	5	0	2	4	0	0	19	224
5:25 PM	0	0	0	0	0	1	7	0	0	3	2	0	2	1	0	0	16	227
5:30 PM	0	0	0	0	1	0	8	0	0	2	4	0	1	4	0	0	20	233
5:35 PM	0	0	0	0	0	0	3	0	0	2	1	0	0	2	0	0	8	223
5:40 PM	0	0	0	0	0	0	2	0	0	4	7	0	0	2	0	0	15	217
5:45 PM	0	0	0	0	0	0	6	0	0	2	2	0	1	2	0	0	13	207
5:50 PM	0	0	0	0	0	0	4	0	0	2	4	0	1	4	0	0	15	195
5:55 PM	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	5	181
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	8	0	0	0	112	0	0	32	44	0	44	44	0	0	284	
Heavy Trucks	0	0	0	0	0	0	48	0	0	0	8	0	0	4	0	0	60	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

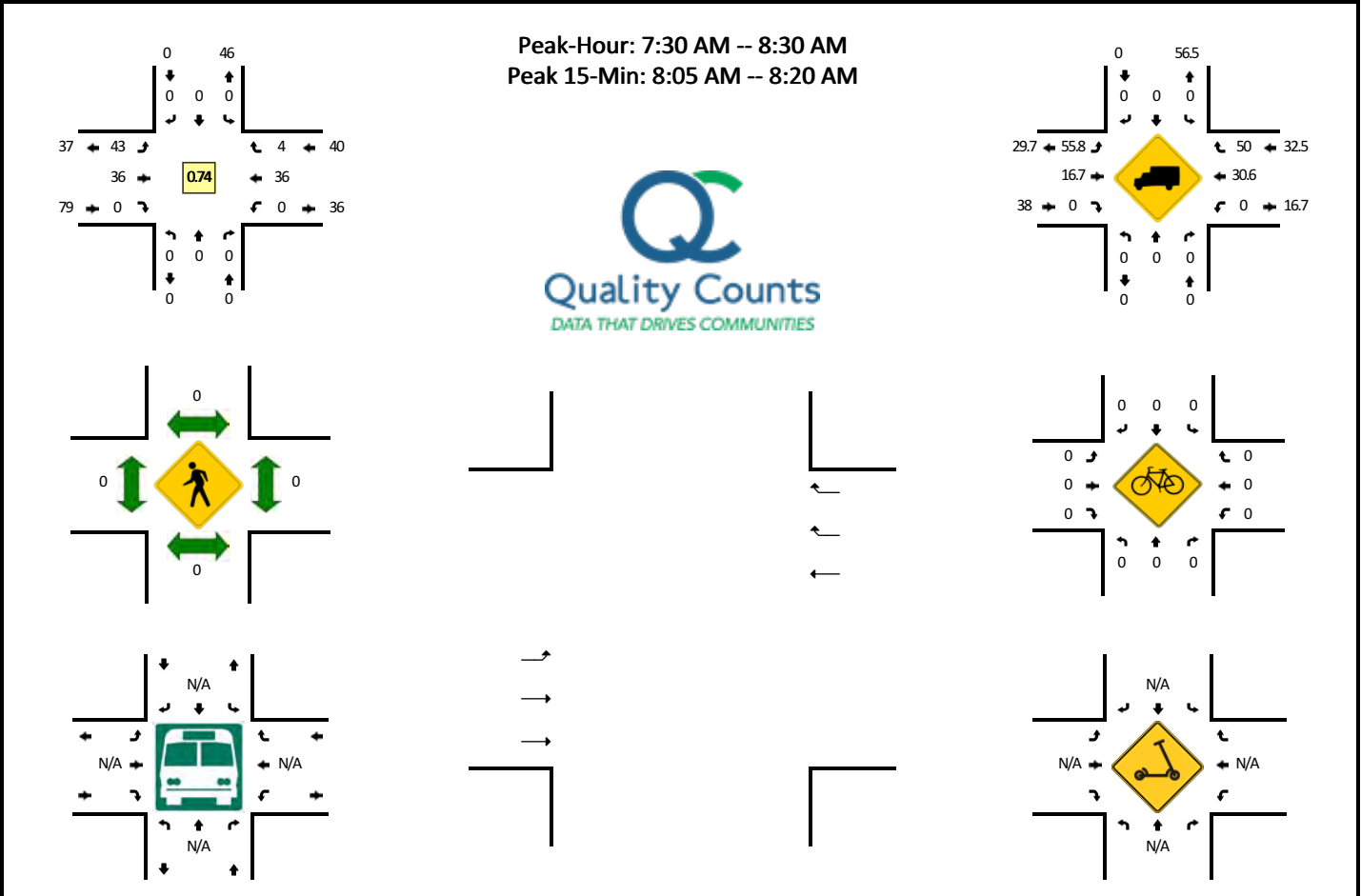
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952603
DATE: Thu, Sep 22 2022

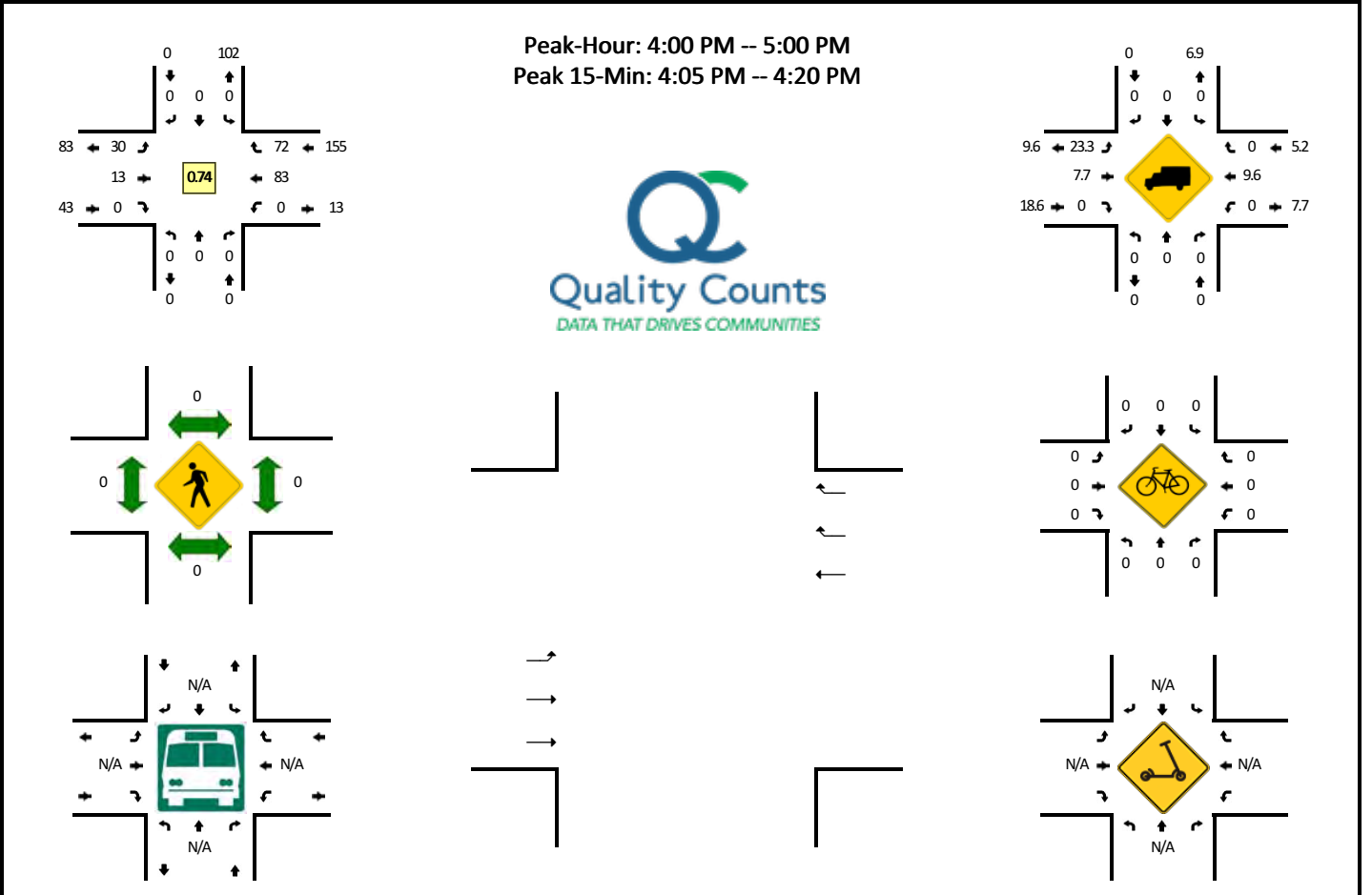


5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	0	0	0	0	0	0	2	5	0	0	0	3	1	0	0	11	
7:05 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4	
7:10 AM	0	0	0	0	0	0	0	0	1	5	0	0	0	0	1	2	0	9	
7:15 AM	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	6	
7:20 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	0	2	1	0	10	
7:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	0	5	
7:30 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	7	0	0	12	
7:35 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	8	
7:40 AM	0	0	0	0	0	0	0	0	2	6	0	0	0	0	2	0	0	10	
7:45 AM	0	0	0	0	0	0	0	0	4	2	0	0	0	0	1	0	0	7	
7:50 AM	0	0	0	0	0	0	0	0	4	1	0	0	0	0	4	0	0	9	
7:55 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	0	1	0	0	9	100
8:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	1	0	6	95
8:05 AM	0	0	0	0	0	0	0	0	3	4	0	0	0	0	9	0	0	16	107
8:10 AM	0	0	0	0	0	0	0	0	6	5	0	0	0	0	3	1	0	15	113
8:15 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	3	0	0	9	116
8:20 AM	0	0	0	0	0	0	0	0	4	3	0	1	0	0	3	1	0	12	118
8:25 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	1	0	6	119
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	4	111
8:35 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	0	0	7	110
8:40 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4	0	0	8	108
8:45 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	3	1	0	9	110
8:50 AM	0	0	0	0	0	0	0	0	1	1	0	1	0	0	2	1	0	6	107
8:55 AM	0	0	0	0	0	0	0	0	5	1	0	0	0	0	4	1	0	11	109
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
All Vehicles	0	0	0	0	0	0	0	0	56	40	0	0	0	60	4	0	160		
Heavy Trucks	0	0	0	0	0	0	0	0	40	8	0	0	0	20	0	0	68		
Buses																			
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Scoters																			

Comments:

LOCATION: I-84 NB On-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952604
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	I-84 NB On-Ramp (Northbound)				I-84 NB On-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	10	4	0	17	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	9	0	17	
4:10 PM	0	0	0	0	0	0	0	0	6	2	0	0	0	10	14	0	32	
4:15 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	6	8	0	18	
4:20 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	9	5	0	16	
4:25 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	3	5	0	12	
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	7	2	0	10	
4:35 PM	0	0	0	0	0	0	0	0	5	1	0	0	0	5	4	0	15	
4:40 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	7	5	0	14	
4:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	8	9	0	20	
4:50 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	7	2	0	15	
4:55 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	3	5	0	12	198
5:00 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	3	2	0	12	193
5:05 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	6	4	0	12	188
5:10 PM	0	0	0	0	0	0	0	0	4	1	0	0	0	2	3	0	10	166
5:15 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	1	3	0	10	158
5:20 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	7	1	0	13	155
5:25 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	147
5:30 PM	0	0	0	0	0	0	0	0	3	1	0	0	0	5	2	0	11	148
5:35 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	3	0	7	140
5:40 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	2	2	0	8	134
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	3	0	7	121
5:50 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	5	0	0	8	114
5:55 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3	105
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	0	0	32	16	0	0	0	96	124	0	268	
Heavy Trucks	0	0	0	0	0	0	0	0	8	4	0	0	0	12	0	0	24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

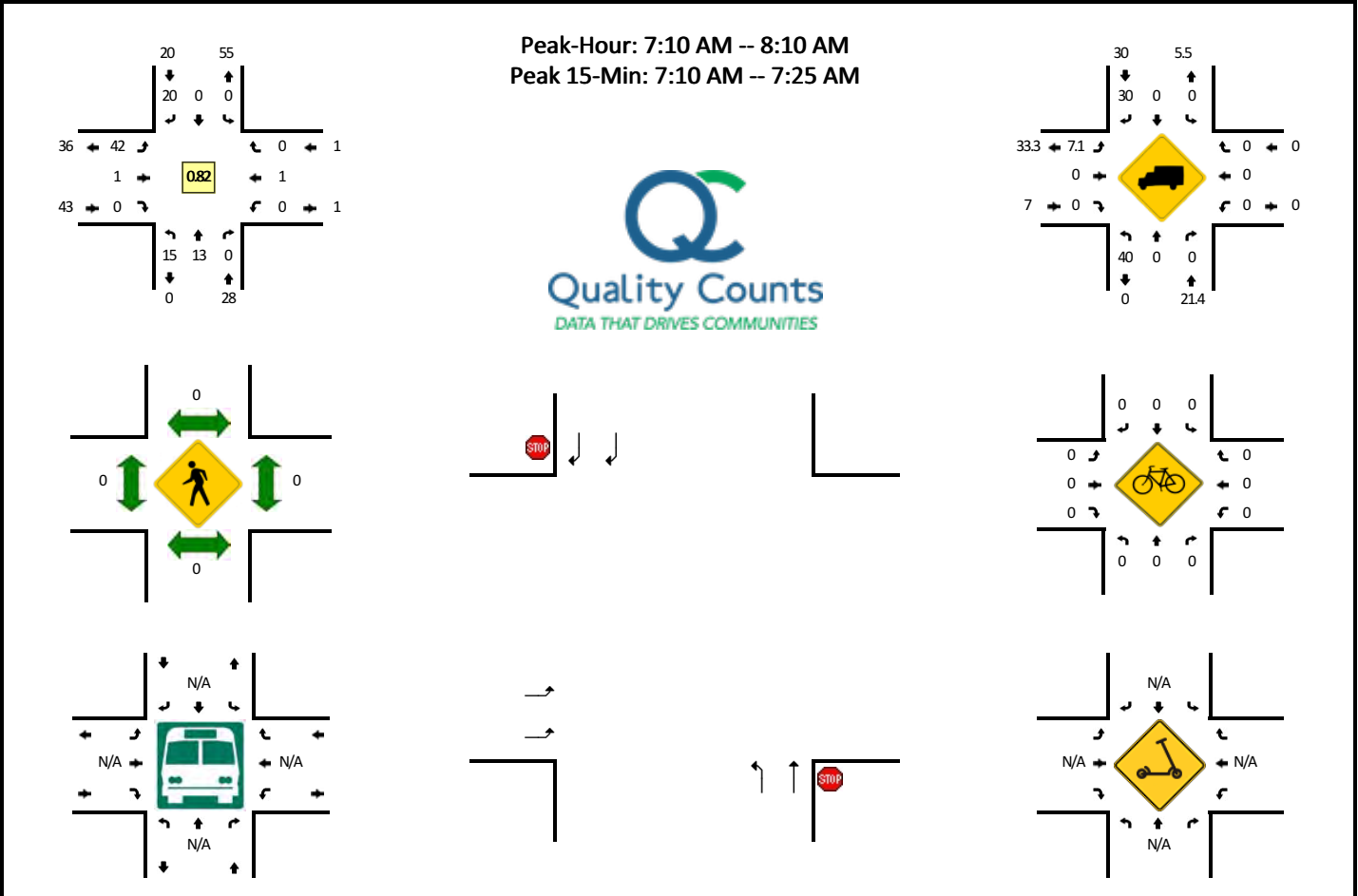
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
 CITY/STATE: Ada, ID

QC JOB #: 15952605
 DATE: Thu, Sep 22 2022

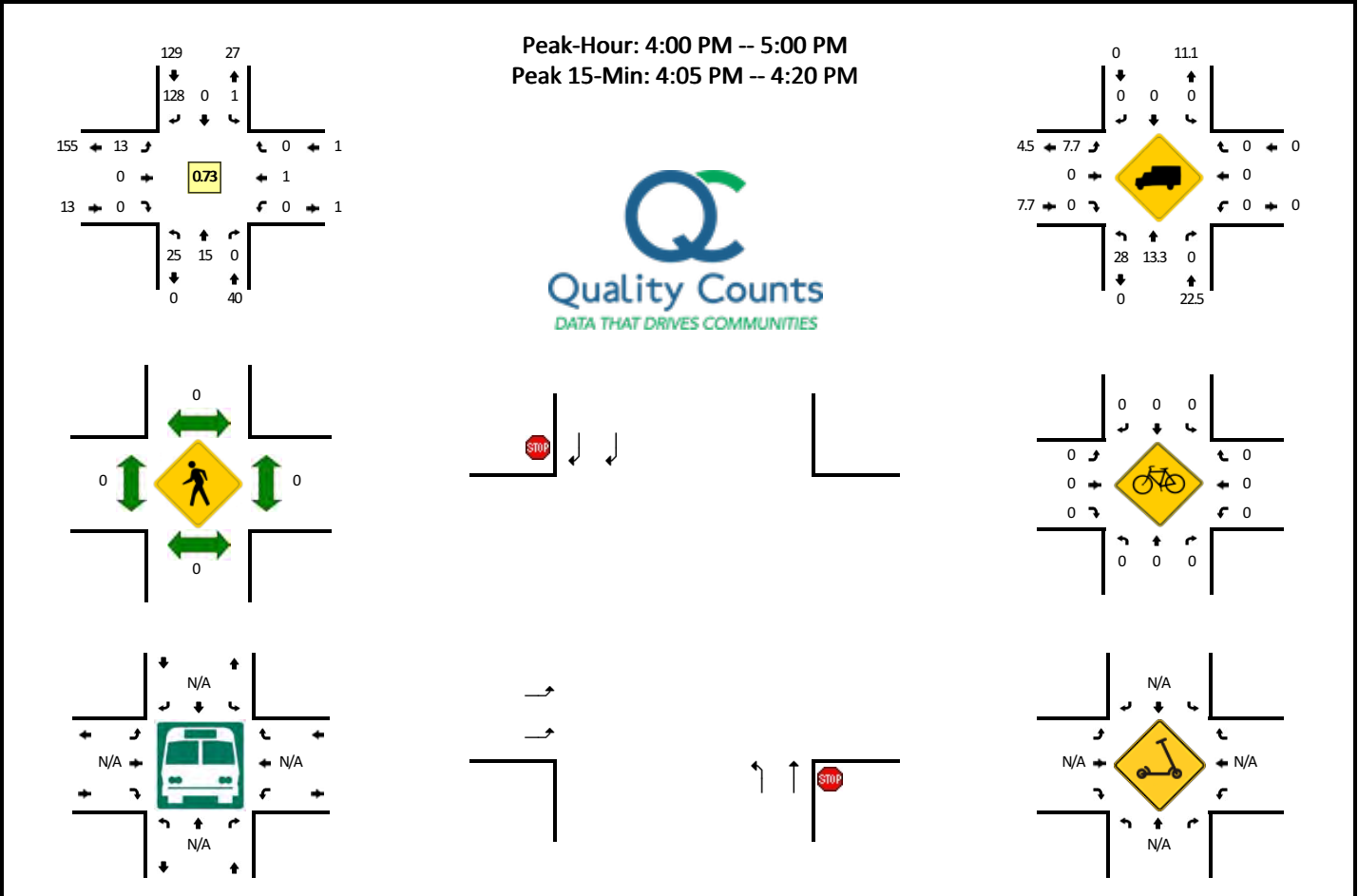


5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	2	0	0	0	0	3	0	5	0	0	0	0	0	0	0	11	
7:05 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	
7:10 AM	0	0	0	0	0	0	2	0	3	1	0	0	0	1	0	0	7	
7:15 AM	0	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	10	
7:20 AM	1	2	0	0	0	0	2	0	6	0	0	0	0	0	0	0	11	
7:25 AM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	
7:30 AM	3	2	0	0	0	0	4	0	1	0	0	0	0	0	0	0	10	
7:35 AM	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	
7:40 AM	1	1	0	0	0	0	1	0	6	0	0	0	0	0	0	0	9	
7:45 AM	1	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	5	
7:50 AM	2	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	8	
7:55 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	84
8:00 AM	1	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	7	80
8:05 AM	4	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	14	92
8:10 AM	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	6	91
8:15 AM	2	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	8	89
8:20 AM	2	1	0	0	0	0	2	0	3	0	0	0	0	0	0	0	8	86
8:25 AM	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	86
8:30 AM	1	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
8:35 AM	2	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	81
8:40 AM	2	1	0	0	0	0	2	0	2	0	0	0	0	0	0	0	7	79
8:45 AM	2	2	0	0	0	0	2	0	3	0	0	0	0	0	0	0	9	83
8:50 AM	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4	79
8:55 AM	1	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	6	82
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	28	0	0	0	0	16	0	56	4	0	0	0	4	0	0	112	
Heavy Trucks	4	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy/I-84 NB Off-Ramp -- Memory Rd
CITY/STATE: Ada, ID

QC JOB #: 15952606
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Wy/I-84 NB Off-Ramp (Northbound)				S Federal Wy/I-84 NB Off-Ramp (Southbound)				Memory Rd (Eastbound)				Memory Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	1	0	0	1	0	8	0	1	0	0	0	0	0	0	0	16	
4:05 PM	2	4	0	0	0	0	15	0	0	0	0	0	0	0	0	0	21	
4:10 PM	3	0	0	0	0	0	20	0	1	0	0	0	0	1	0	0	25	
4:15 PM	1	0	0	0	0	0	13	0	3	0	0	0	0	0	0	0	17	
4:20 PM	2	0	0	0	0	0	12	0	1	0	0	0	0	0	0	0	15	
4:25 PM	0	1	0	0	0	0	8	0	1	0	0	0	0	0	0	0	10	
4:30 PM	0	2	0	0	0	0	9	0	0	0	0	0	0	0	0	0	11	
4:35 PM	4	3	0	0	0	0	5	0	1	0	0	0	0	0	0	0	13	
4:40 PM	2	1	0	0	0	0	10	0	1	0	0	0	0	0	0	0	14	
4:45 PM	2	1	0	0	0	0	15	0	0	0	0	0	0	0	0	0	18	
4:50 PM	2	1	0	0	0	0	7	0	1	0	0	1	0	0	0	0	12	
4:55 PM	2	1	0	0	0	0	6	0	2	0	0	0	0	0	0	0	11	183
5:00 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	172
5:05 PM	2	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0	11	162
5:10 PM	2	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	7	144
5:15 PM	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	132
5:20 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	124
5:25 PM	1	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	119
5:30 PM	3	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	8	116
5:35 PM	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	108
5:40 PM	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	99
5:45 PM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	88
5:50 PM	2	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5	81
5:55 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	72
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	16	0	0	0	0	192	0	16	0	0	0	0	4	0	0	252	
Heavy Trucks	12	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	16	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

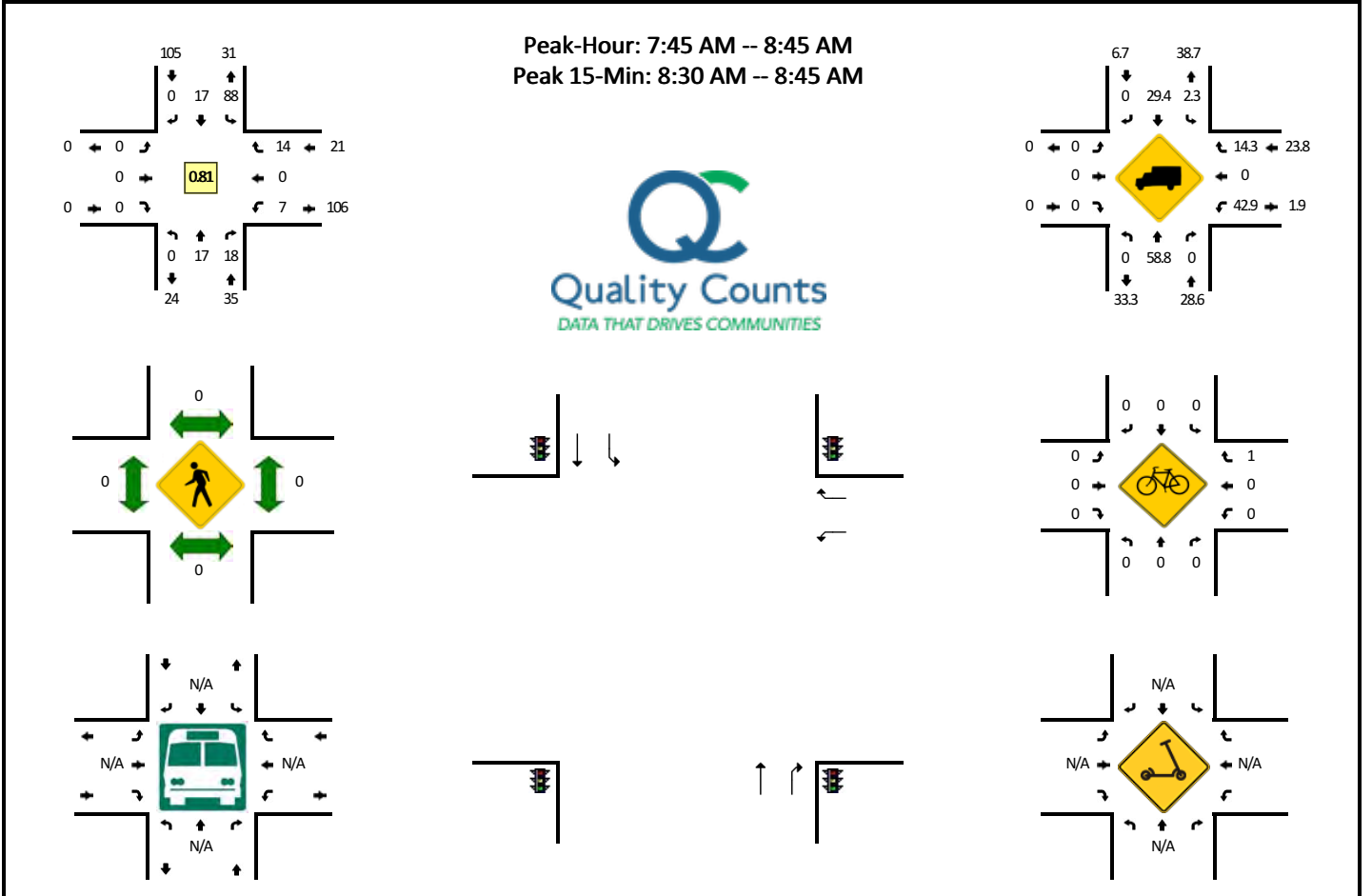
Note: Peak hour used in the study is 7a-8:00a.

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952607
DATE: Thu, Sep 22 2022

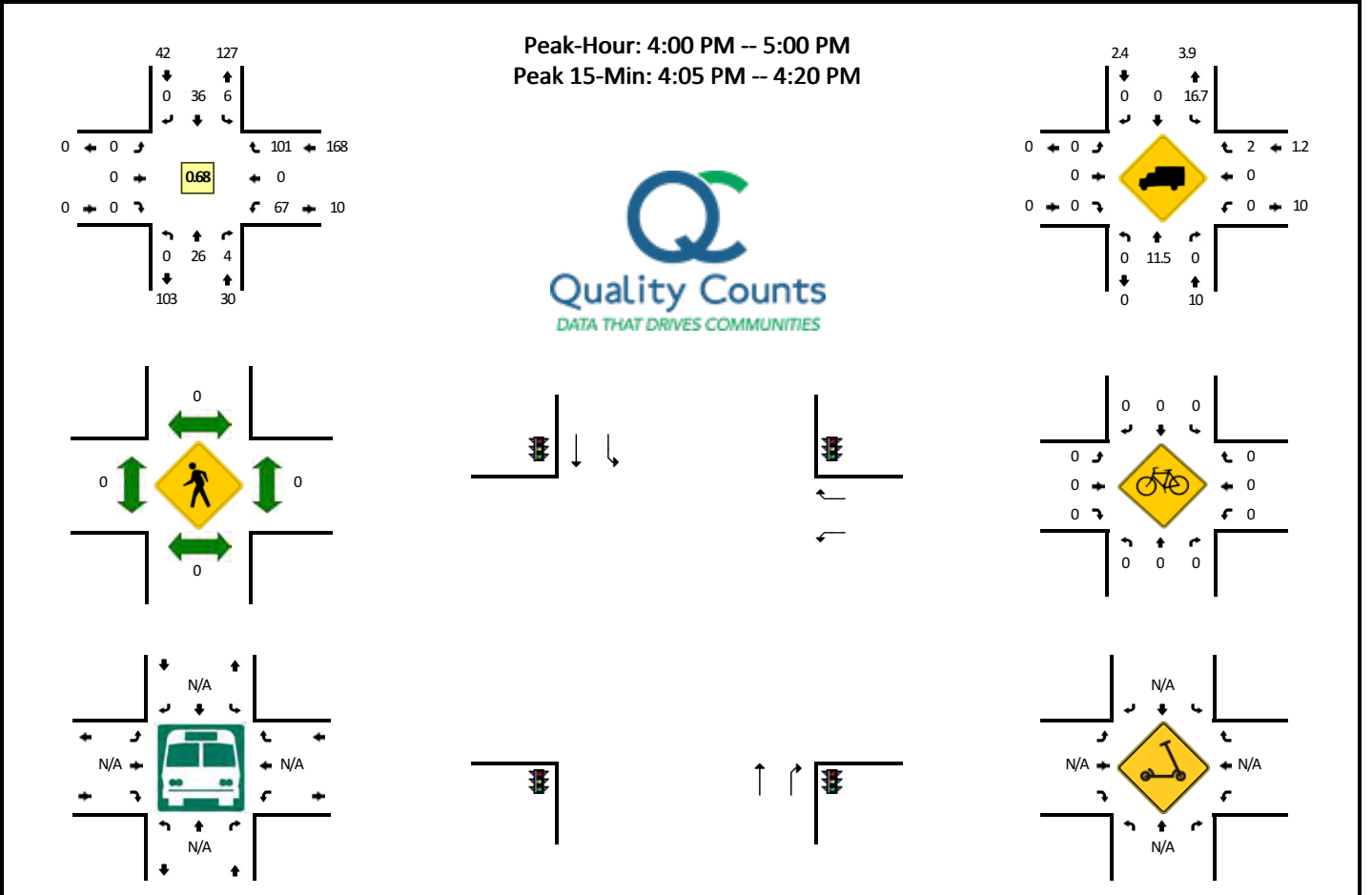


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	7	0	6	1	0	0	0	0	0	0	2	0	1	0	18	
7:05 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	4	
7:10 AM	0	1	2	0	2	1	0	0	0	0	0	0	0	0	2	0	8	
7:15 AM	0	4	2	0	4	1	0	0	0	0	0	0	0	0	0	0	11	
7:20 AM	0	3	4	0	5	2	0	0	0	0	0	0	0	0	0	0	14	
7:25 AM	0	1	0	0	4	2	0	0	0	0	0	0	0	0	0	0	7	
7:30 AM	0	3	1	0	4	5	0	0	0	0	0	0	1	0	0	0	14	
7:35 AM	0	1	2	0	3	1	0	0	0	0	0	0	0	0	0	0	7	
7:40 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
7:45 AM	0	2	4	0	6	2	0	0	0	0	0	0	0	0	2	0	16	
7:50 AM	0	1	1	0	5	2	0	0	0	0	0	0	0	0	1	0	10	
7:55 AM	0	1	4	0	11	0	0	0	0	0	0	0	1	0	1	0	18	133
8:00 AM	0	2	0	0	5	1	0	0	0	0	0	0	0	0	0	0	8	123
8:05 AM	0	1	4	0	8	3	0	0	0	0	0	0	0	0	4	0	20	139
8:10 AM	0	0	2	0	10	2	0	0	0	0	0	0	0	0	0	0	14	145
8:15 AM	0	1	1	0	4	1	0	0	0	0	0	0	1	0	0	0	8	142
8:20 AM	0	3	1	0	6	1	0	0	0	0	0	0	0	0	1	0	11	139
8:25 AM	0	1	0	0	4	0	0	0	0	0	0	0	0	0	1	0	6	138
8:30 AM	0	2	0	0	8	1	0	0	0	0	0	0	1	0	1	0	13	137
8:35 AM	0	1	1	0	9	3	0	0	0	0	0	0	1	0	4	0	19	149
8:40 AM	0	2	0	0	12	1	0	0	0	0	0	0	3	0	0	0	18	161
8:45 AM	0	4	3	0	5	1	0	0	0	0	0	0	1	0	0	0	14	159
8:50 AM	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	3	152
8:55 AM	0	0	1	0	3	1	0	0	0	0	0	0	1	0	2	0	8	142
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	20	4	0	116	20	0	0	0	0	0	0	20	0	20	0	200	
Heavy Trucks	0	12	0	0	0	12	0	0	0	0	0	0	8	0	0	0	32	
Buses																	0	
Pedestrians		0				0					0			0			0	
Bicycles	0	0	0		0	0	0			0	0	0	0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Federal Wy -- S Gigabit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952608
DATE: Thu, Sep 22 2022

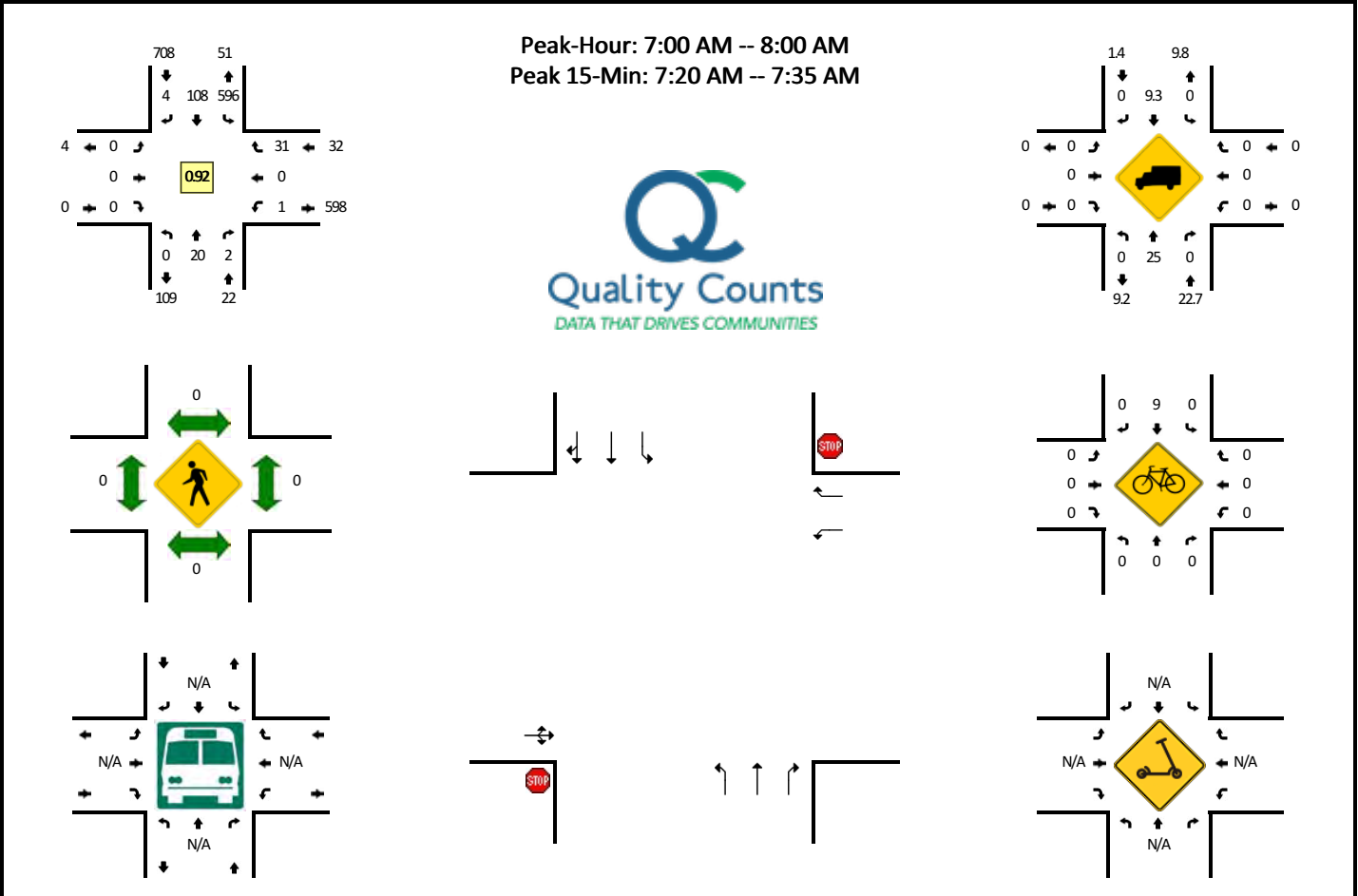


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Gigabit Ln (Eastbound)				S Gigabit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	1	0	0	4	0	0	0	0	0	0	6	0	9	0	21	
4:05 PM	0	5	0	0	0	8	0	0	0	0	0	0	7	0	13	0	33	
4:10 PM	0	3	0	0	1	5	0	0	0	0	0	0	7	0	12	0	28	
4:15 PM	0	3	0	0	1	3	0	0	0	0	0	0	11	0	9	0	27	
4:20 PM	0	0	0	0	0	2	0	0	0	0	0	0	7	0	8	0	17	
4:25 PM	0	1	0	0	0	2	0	0	0	0	0	0	5	0	11	0	19	
4:30 PM	0	3	1	0	1	3	0	0	0	0	0	0	5	0	2	0	15	
4:35 PM	0	2	2	0	1	0	0	0	0	0	0	0	3	0	7	0	15	
4:40 PM	0	1	0	0	0	5	0	0	0	0	0	0	4	0	10	0	20	
4:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	7	0	7	0	17	
4:50 PM	0	0	0	0	0	2	0	0	0	0	0	0	3	0	9	0	14	
4:55 PM	0	6	0	0	2	0	0	0	0	0	0	0	2	0	4	0	14	240
5:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	4	0	4	0	11	230
5:05 PM	0	1	1	0	1	2	0	0	0	0	0	0	1	0	7	0	13	210
5:10 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	7	189
5:15 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	4	0	9	171
5:20 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	6	0	9	163
5:25 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	9	0	14	158
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	6	0	9	152
5:35 PM	0	2	0	0	0	1	0	0	0	0	0	0	2	0	5	0	10	147
5:40 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	0	1	0	5	132
5:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	2	0	6	121
5:50 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	0	5	112
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	100
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	44	0	0	8	64	0	0	0	0	0	0	100	0	136	0	352	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952609
DATE: Thu, Sep 22 2022

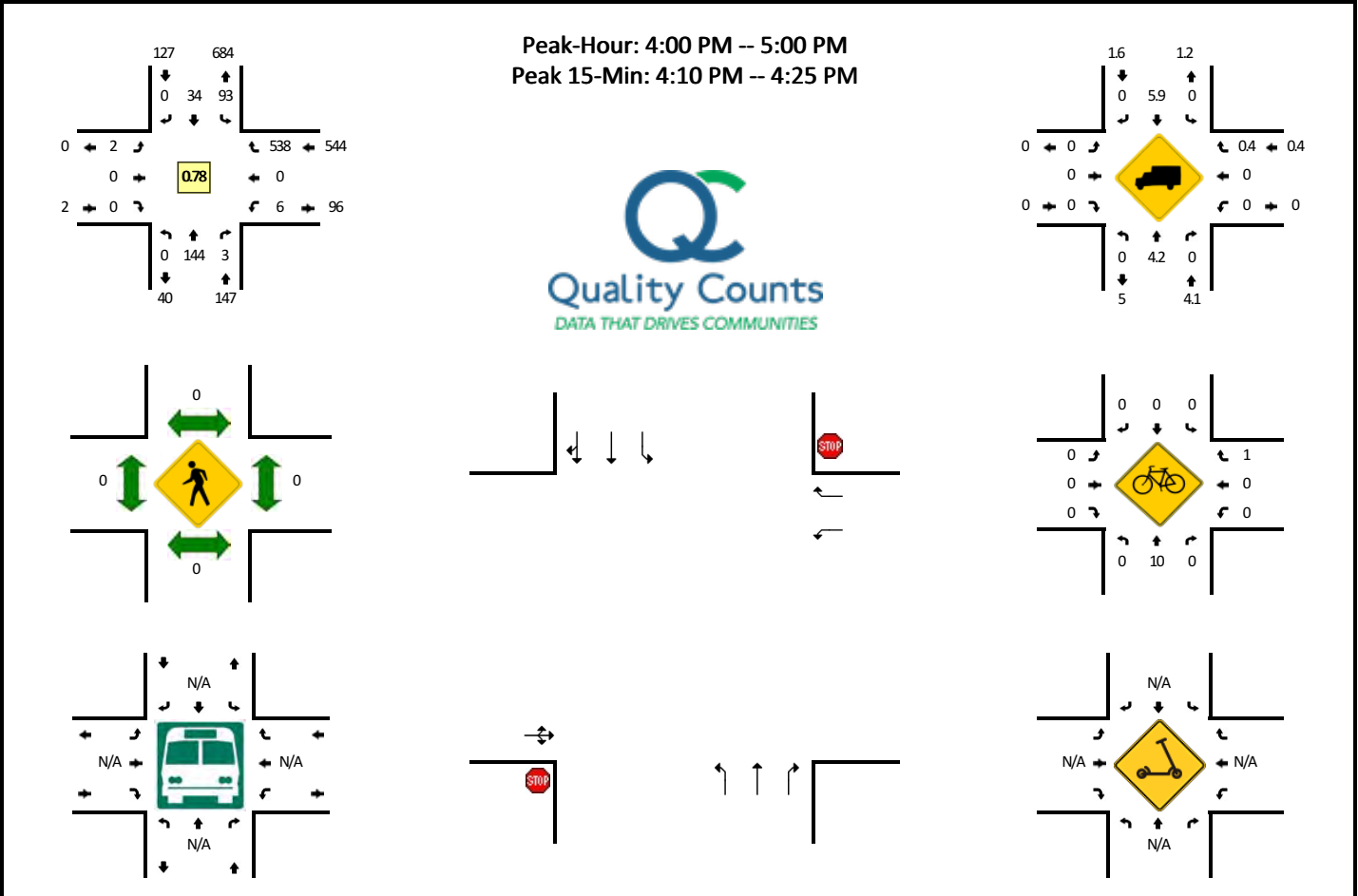


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	2	0	0	61	11	0	0	0	0	0	0	0	0	3	0	77	
7:05 AM	0	3	0	0	58	6	1	0	0	0	0	0	0	0	1	0	69	
7:10 AM	0	1	0	0	50	8	0	0	0	0	0	0	0	0	1	0	60	
7:15 AM	0	2	1	0	42	6	0	0	0	0	0	0	0	0	2	0	53	
7:20 AM	0	2	0	0	62	9	0	0	0	0	0	0	0	0	5	0	78	
7:25 AM	0	0	0	0	57	13	0	0	0	0	0	0	0	0	3	0	73	
7:30 AM	0	1	0	0	42	11	0	0	0	0	0	0	0	0	2	0	56	
7:35 AM	0	3	0	0	42	9	0	0	0	0	0	0	0	0	4	0	58	
7:40 AM	0	1	0	0	50	4	1	0	0	0	0	0	0	0	1	0	57	
7:45 AM	0	3	0	0	49	9	1	0	0	0	0	0	1	0	3	0	66	
7:50 AM	0	1	1	0	41	9	0	0	0	0	0	0	0	0	3	0	55	
7:55 AM	0	1	0	0	42	13	1	0	0	0	0	0	0	0	3	0	60	762
8:00 AM	0	5	0	0	42	9	0	0	0	0	0	0	0	0	6	0	62	747
8:05 AM	0	2	0	0	36	14	0	0	0	0	0	0	0	0	4	0	56	734
8:10 AM	0	3	0	0	33	5	0	0	0	0	0	0	1	0	1	0	43	717
8:15 AM	0	2	0	0	25	7	0	0	1	0	0	0	0	0	3	0	38	702
8:20 AM	0	2	0	0	29	7	0	0	0	0	0	0	0	0	0	0	38	662
8:25 AM	0	2	0	0	18	1	0	0	0	0	0	0	0	0	4	0	25	614
8:30 AM	0	2	0	0	29	10	0	0	0	0	0	0	0	0	4	0	45	603
8:35 AM	0	7	0	0	20	6	0	0	0	0	0	0	0	0	3	0	36	581
8:40 AM	0	3	0	0	21	11	0	0	0	0	0	0	0	0	2	0	37	561
8:45 AM	0	6	0	0	9	3	0	0	0	0	0	0	0	0	3	0	21	516
8:50 AM	0	0	0	0	6	3	0	0	0	0	1	0	0	0	0	0	10	471
8:55 AM	0	1	0	0	18	6	0	0	0	0	0	0	0	0	3	0	28	439
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	12	0	0	644	132	0	0	0	0	0	0	0	0	40	0	828	
Heavy Trucks	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- Teff Company Dwy/Technology Ln (Gate B)
CITY/STATE: Boise City, ID

QC JOB #: 15952610
DATE: Thu, Sep 22 2022

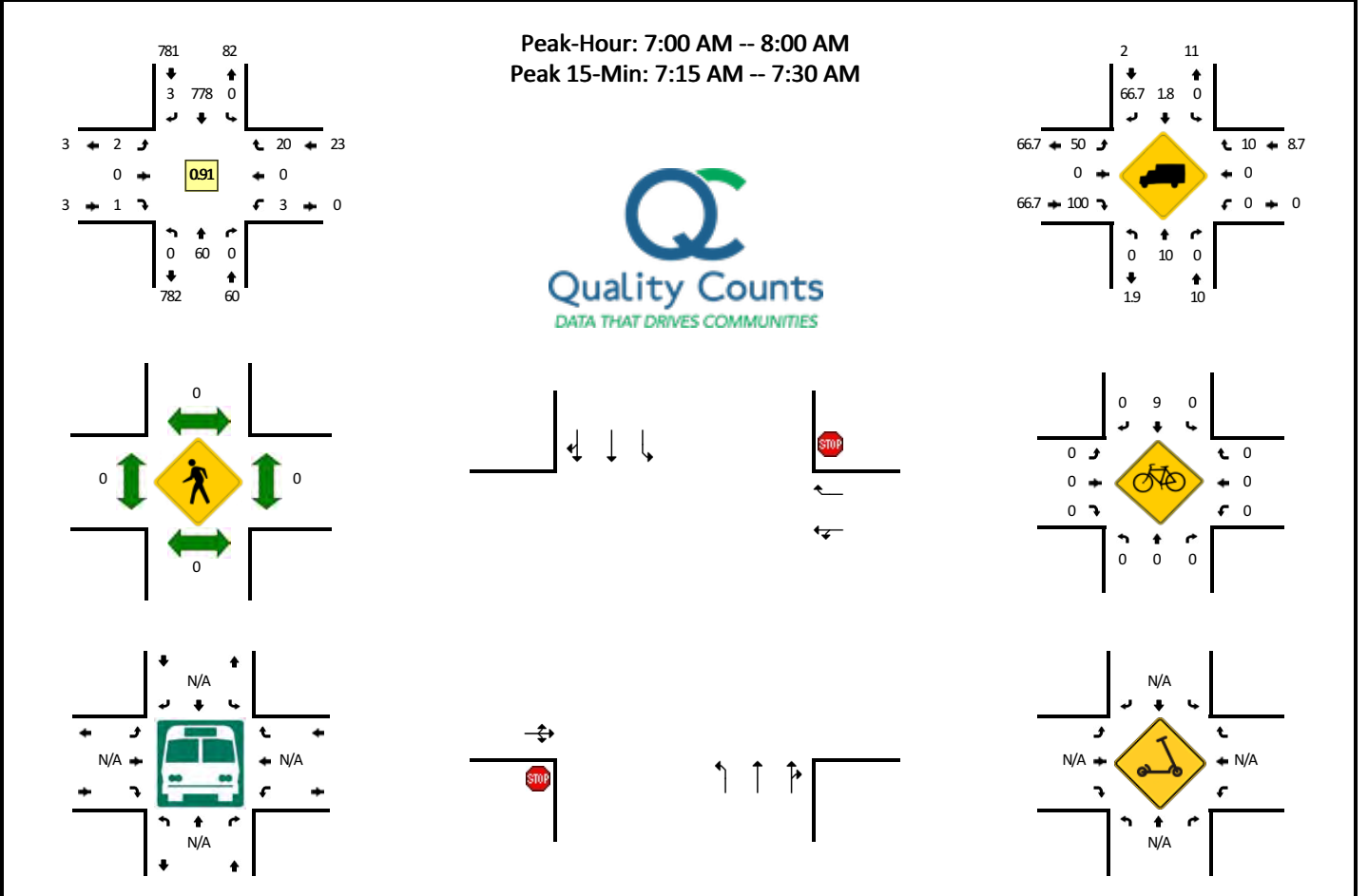


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				Teff Company Dwy/Technology Ln (Gate B) (Eastbound)				Teff Company Dwy/Technology Ln (Gate B) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	11	0	0	10	3	0	0	1	0	0	0	1	0	39	0	65	
4:05 PM	0	15	0	0	4	5	0	0	0	0	0	0	1	0	51	0	76	
4:10 PM	0	22	0	0	5	4	0	0	1	0	0	0	2	0	60	0	94	
4:15 PM	0	16	0	0	6	4	0	0	0	0	0	0	1	0	62	0	89	
4:20 PM	0	12	0	0	3	2	0	0	0	0	0	0	0	0	64	0	81	
4:25 PM	0	14	0	0	8	3	0	0	0	0	0	0	0	0	39	0	64	
4:30 PM	0	7	0	0	9	3	0	0	0	0	0	0	0	0	42	0	61	
4:35 PM	0	6	1	0	9	1	0	0	0	0	0	0	0	0	42	0	59	
4:40 PM	0	9	1	0	7	4	0	0	0	0	0	0	1	0	31	0	53	
4:45 PM	0	9	0	0	15	1	0	0	0	0	0	0	0	0	32	0	57	
4:50 PM	0	8	0	0	9	2	0	0	0	0	0	0	0	0	34	0	53	
4:55 PM	0	15	1	0	8	2	0	0	0	0	0	0	0	0	42	0	68	820
5:00 PM	0	3	0	0	6	3	0	0	0	0	0	0	0	0	33	0	45	800
5:05 PM	0	13	0	0	7	2	0	0	0	0	0	0	0	0	35	0	57	781
5:10 PM	0	12	0	0	7	0	0	0	0	0	0	0	0	0	36	0	55	742
5:15 PM	0	4	0	0	6	1	0	0	0	0	0	0	0	0	24	0	35	688
5:20 PM	0	9	0	0	5	3	0	0	0	0	0	0	0	0	25	0	42	649
5:25 PM	0	10	0	0	3	0	0	0	0	0	0	0	1	0	26	0	40	625
5:30 PM	0	10	0	0	0	1	0	0	0	0	0	0	0	0	23	0	34	598
5:35 PM	0	8	0	0	3	1	0	0	0	0	0	0	0	0	21	0	33	572
5:40 PM	0	4	0	0	2	1	0	0	0	0	0	0	0	0	23	0	30	549
5:45 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	0	20	0	27	519
5:50 PM	0	2	0	0	4	1	0	0	0	0	0	0	0	0	23	0	30	496
5:55 PM	0	4	0	0	5	0	0	0	0	0	0	0	0	0	23	0	32	460
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	200	0	0	56	40	0	0	4	0	0	0	12	0	744	0	1056	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	4	0	12	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	8	0		0	0	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952611
DATE: Thu, Sep 22 2022

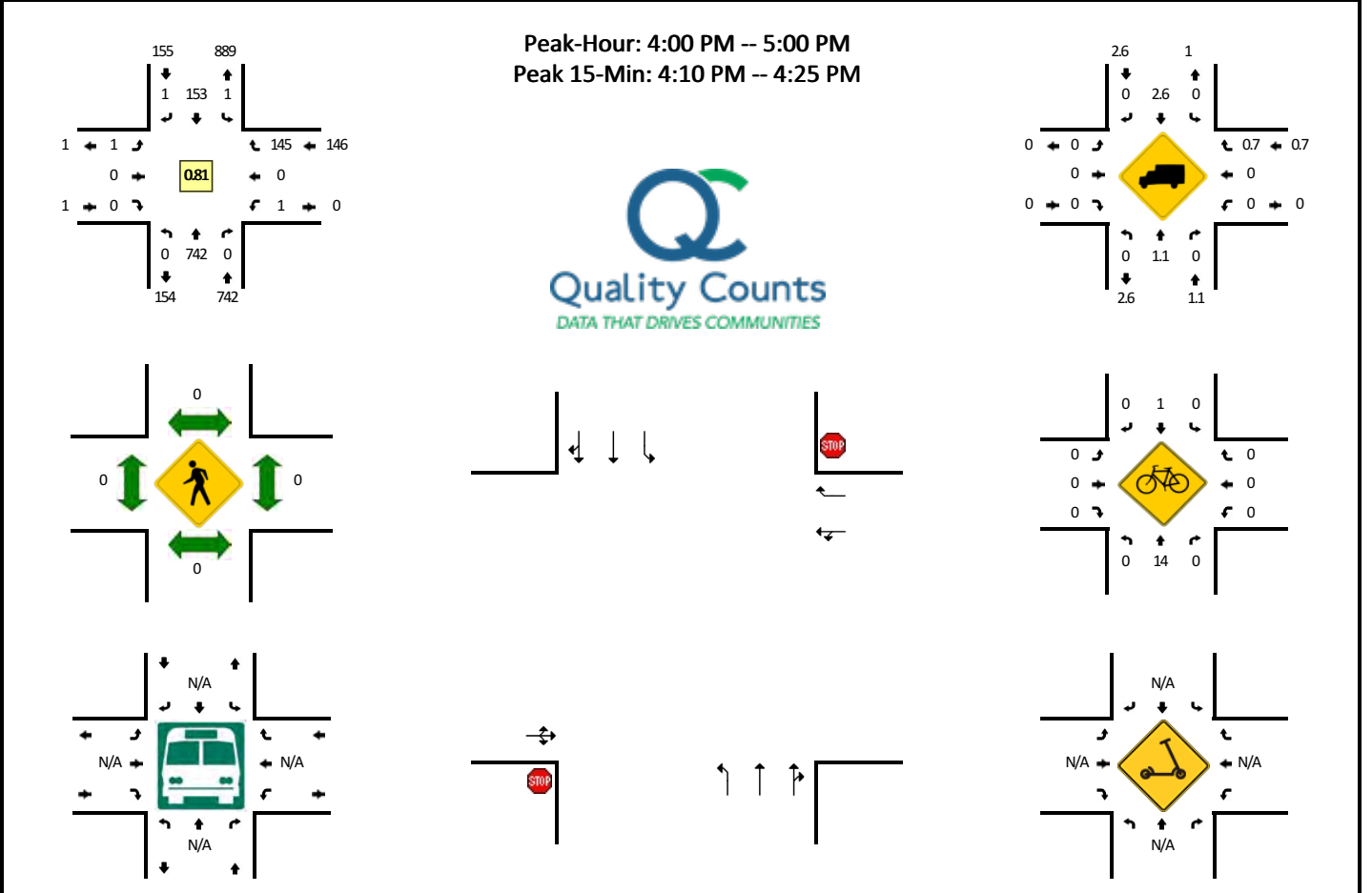


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	0	0	0	79	0	0	0	0	0	0	0	0	2	0	86	
7:05 AM	0	6	0	0	0	61	0	0	0	0	0	0	0	1	0	0	68	
7:10 AM	0	3	0	0	0	58	0	0	0	0	0	0	0	2	0	1	64	
7:15 AM	0	5	0	0	0	64	0	0	0	0	0	0	0	0	0	1	70	
7:20 AM	0	4	0	0	0	74	1	0	0	0	0	0	0	0	0	2	81	
7:25 AM	0	6	0	0	0	77	0	0	0	1	0	1	0	0	0	2	87	
7:30 AM	0	2	0	0	0	62	1	0	0	0	0	0	0	0	0	2	67	
7:35 AM	0	12	0	0	0	56	1	0	0	0	0	0	0	0	0	3	72	
7:40 AM	0	3	0	0	0	75	0	0	0	1	0	0	0	0	0	1	80	
7:45 AM	0	4	0	0	0	51	0	0	0	0	0	0	0	0	0	2	57	
7:50 AM	0	7	0	0	0	56	0	0	0	0	0	0	0	0	0	4	67	
7:55 AM	0	3	0	0	0	65	0	0	0	0	0	0	0	0	0	0	68	867
8:00 AM	0	9	0	0	0	48	0	0	0	0	0	0	0	1	0	1	59	840
8:05 AM	0	11	0	0	0	40	0	0	0	0	0	0	0	1	0	1	53	825
8:10 AM	0	6	0	0	0	45	0	0	0	0	0	0	0	0	0	1	52	813
8:15 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	782
8:20 AM	0	5	0	0	0	43	0	0	0	0	0	0	0	0	0	0	48	749
8:25 AM	0	7	0	0	0	20	1	0	0	1	0	0	0	0	0	3	32	694
8:30 AM	0	6	0	0	0	32	0	0	0	0	0	0	0	0	0	1	39	666
8:35 AM	0	11	0	0	0	41	0	0	0	0	0	0	0	1	0	2	55	649
8:40 AM	0	5	0	0	0	23	0	0	0	2	0	0	0	0	0	1	31	600
8:45 AM	0	10	0	0	0	17	2	0	0	0	0	0	0	0	0	2	31	574
8:50 AM	0	4	0	0	0	23	0	0	0	0	0	0	0	0	0	3	30	537
8:55 AM	0	2	0	0	0	16	0	0	0	0	0	0	0	0	0	1	19	488
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	60	0	0	0	860	4	0	4	4	0	4	0	0	0	20	0	952
Heavy Trucks	0	0	0	0	0	16	4	0	4	0	4	0	0	0	0	4	0	32
Buses																		0
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0			8
Scooters																		

Comments:

LOCATION: S Federal Wy -- S Silicon Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952612
DATE: Thu, Sep 22 2022

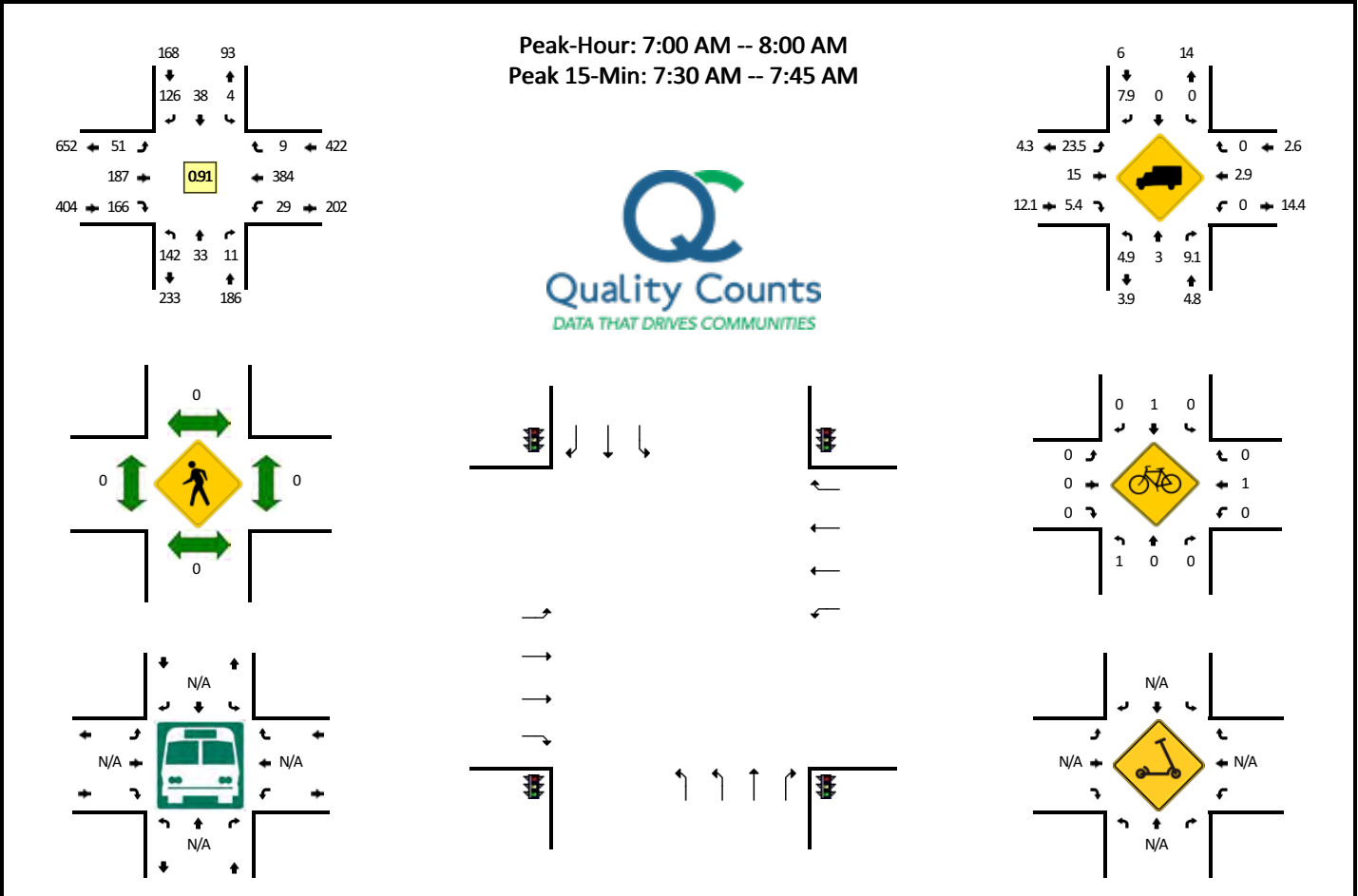


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				S Silicon Ln (Eastbound)				S Silicon Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	50	0	0	0	17	0	0	0	0	0	0	0	0	19	0	86	
4:05 PM	0	69	0	0	0	5	0	0	0	0	0	0	1	0	18	0	93	
4:10 PM	0	85	0	0	0	11	0	0	0	0	0	0	0	0	17	0	113	
4:15 PM	0	84	0	0	0	12	0	0	0	0	0	0	0	0	11	0	107	
4:20 PM	0	77	0	0	0	13	0	0	0	0	0	0	0	0	14	0	104	
4:25 PM	0	58	0	0	0	10	0	0	0	0	0	0	0	0	10	0	78	
4:30 PM	0	60	0	0	0	13	0	1	0	0	0	0	0	0	25	0	99	
4:35 PM	0	75	0	0	0	18	1	0	1	0	0	0	0	0	8	0	103	
4:40 PM	0	41	0	0	0	10	0	0	0	0	0	0	0	0	9	0	60	
4:45 PM	0	38	0	0	0	18	0	0	0	0	0	0	0	0	7	0	63	
4:50 PM	0	45	0	0	0	13	0	0	0	0	0	0	0	0	3	0	61	
4:55 PM	0	60	0	0	0	13	0	0	0	0	0	0	0	0	4	0	77	1044
5:00 PM	0	41	0	0	0	6	0	0	0	0	0	0	0	0	7	0	54	1012
5:05 PM	0	47	0	0	0	11	0	0	0	0	0	0	0	0	5	0	63	982
5:10 PM	0	51	0	0	0	8	0	0	0	0	0	0	0	0	11	0	70	939
5:15 PM	0	31	0	0	0	5	0	0	0	0	0	0	0	0	12	0	48	880
5:20 PM	0	33	0	0	0	9	0	0	1	0	0	0	0	0	5	0	48	824
5:25 PM	0	43	0	0	0	3	0	0	0	0	0	0	0	0	5	0	51	797
5:30 PM	0	30	0	0	0	4	0	0	0	0	0	0	0	0	5	0	39	737
5:35 PM	0	29	0	0	0	4	0	0	0	0	0	0	0	0	8	0	41	675
5:40 PM	0	33	0	0	0	4	0	0	0	0	0	0	0	0	5	0	42	657
5:45 PM	0	19	0	0	0	3	0	0	0	0	0	0	0	0	4	0	26	620
5:50 PM	0	25	0	0	0	6	0	0	0	0	0	0	0	0	4	0	35	594
5:55 PM	0	26	0	0	0	6	0	0	0	0	0	0	0	0	1	0	33	550
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	984	0	0	0	144	0	0	0	0	0	0	0	0	168	0	1296	
Heavy Trucks	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
Buses																		
Pedestrians	0				0				0				0				0	
Bicycles	0	24	0		0	0	0		0	0	0		0	0	0		24	
Scoters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952613
DATE: Thu, Sep 22 2022

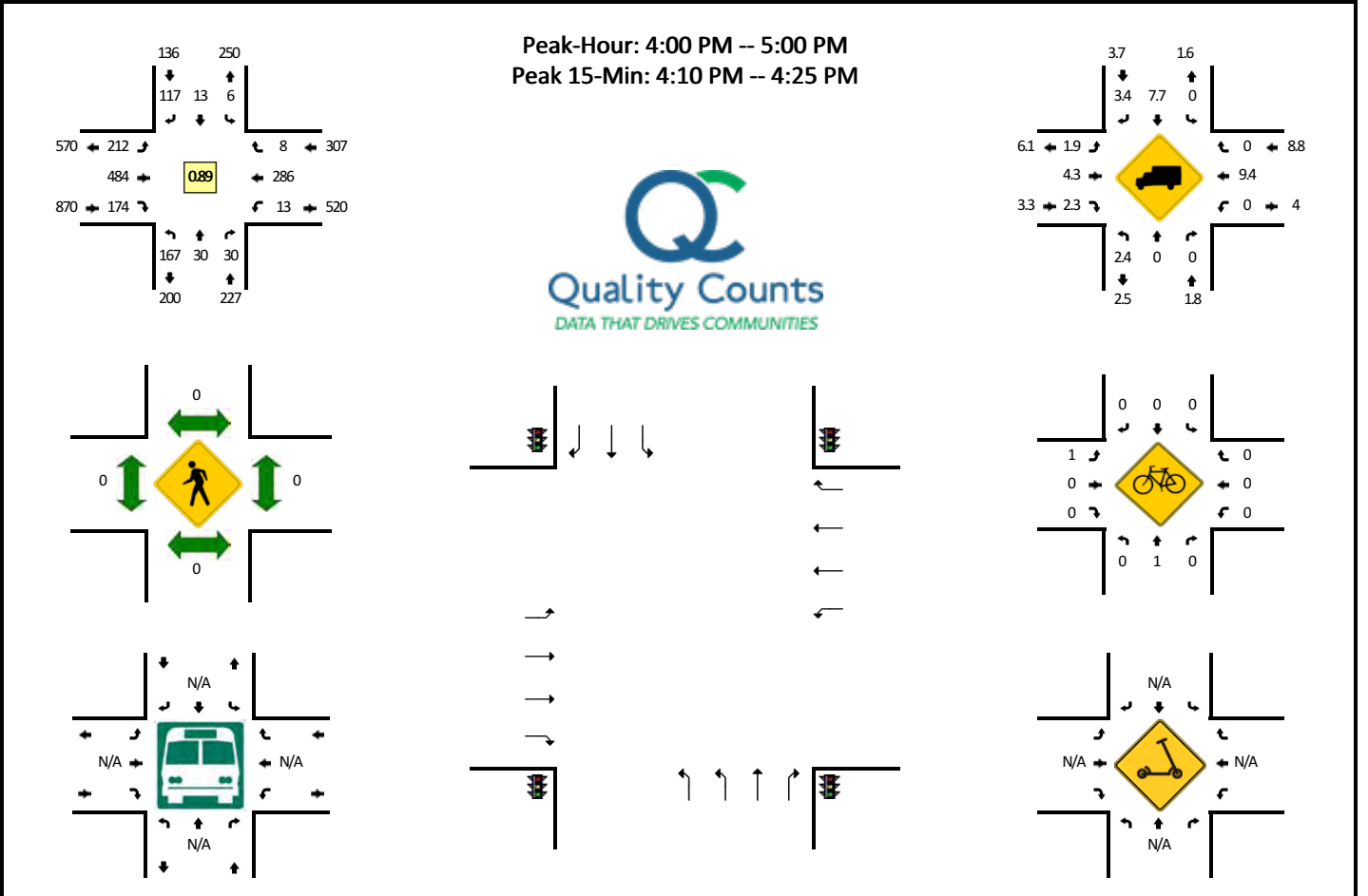


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	10	1	0	0	0	2	5	0	4	20	22	0	2	21	0	0	87	
7:05 AM	17	1	2	0	0	3	9	0	2	17	16	0	3	33	1	0	104	
7:10 AM	12	1	1	0	0	1	10	0	9	23	15	0	6	50	1	0	129	
7:15 AM	12	0	1	0	1	1	9	0	1	18	10	0	2	30	0	0	85	
7:20 AM	17	3	1	0	0	2	7	0	6	16	10	0	2	28	0	0	92	
7:25 AM	11	7	3	0	1	4	12	0	3	10	12	0	4	20	1	0	88	
7:30 AM	9	8	0	0	0	2	8	0	5	11	10	0	2	48	1	0	104	
7:35 AM	15	8	0	0	0	4	18	0	3	17	15	0	3	43	2	0	128	
7:40 AM	5	3	1	0	1	10	12	0	2	11	11	0	1	35	1	0	93	
7:45 AM	13	0	0	0	1	5	9	0	3	13	19	0	1	27	1	0	92	
7:50 AM	8	0	0	0	0	1	13	0	8	17	16	0	2	26	0	0	91	
7:55 AM	13	1	2	0	0	3	14	0	5	14	10	0	1	23	1	0	87	1180
8:00 AM	12	0	0	0	0	1	4	0	3	22	14	0	0	28	0	0	84	1177
8:05 AM	8	0	1	0	0	2	10	0	10	21	21	0	2	24	2	0	101	1174
8:10 AM	7	0	0	0	0	1	11	0	2	18	15	0	4	20	0	0	78	1123
8:15 AM	2	1	1	0	1	1	7	0	5	11	19	0	4	30	0	0	82	1120
8:20 AM	3	0	0	0	0	2	9	0	6	18	19	0	3	27	0	0	87	1115
8:25 AM	13	1	1	0	0	1	7	0	9	26	7	0	1	17	0	0	83	1110
8:30 AM	3	0	2	0	0	0	6	0	1	11	11	0	1	24	0	0	59	1065
8:35 AM	10	0	1	0	0	2	9	0	5	13	19	0	1	20	0	0	80	1017
8:40 AM	6	2	0	0	0	0	8	0	6	21	7	0	0	22	0	0	72	996
8:45 AM	4	0	0	0	0	1	7	0	4	11	7	0	1	34	0	0	69	973
8:50 AM	6	0	1	0	0	1	12	0	5	10	12	0	2	23	0	0	72	954
8:55 AM	5	0	1	0	0	2	7	0	6	12	13	0	1	14	0	0	61	928
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	116	76	4	0	4	64	152	0	40	156	144	0	24	504	16	0	1300	
Heavy Trucks	8	0	0		0	0	16		8	28	8		0	4	0		72	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: E Grand Forest Dr/S Technology Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952614
DATE: Thu, Sep 22 2022

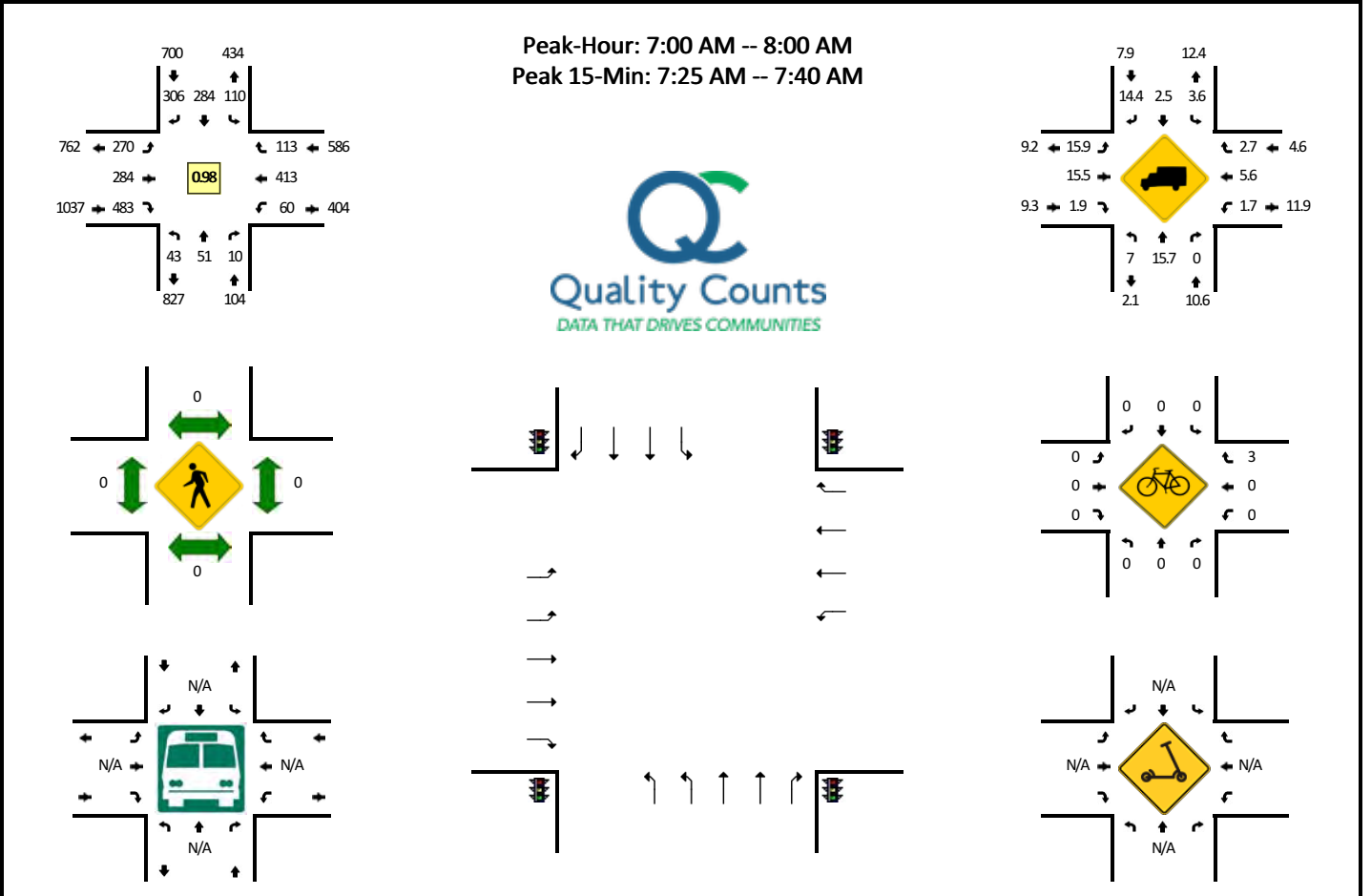


5-Min Count Period Beginning At	E Grand Forest Dr/S Technology Wy (Northbound)				E Grand Forest Dr/S Technology Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	4	3	0	0	1	12	0	8	38	8	0	0	20	0	0	115	
4:05 PM	15	1	3	0	1	0	12	0	25	36	11	0	2	29	0	0	135	
4:10 PM	14	3	2	0	0	1	13	0	27	38	21	0	0	22	3	0	144	
4:15 PM	13	3	5	0	0	3	6	0	17	46	11	0	0	32	0	0	136	
4:20 PM	15	1	4	0	0	2	11	0	18	55	8	0	4	31	2	0	151	
4:25 PM	16	1	1	0	1	1	11	0	18	37	20	0	0	34	0	0	140	
4:30 PM	12	2	2	0	0	0	9	0	22	42	20	0	1	20	0	0	130	
4:35 PM	18	2	2	0	0	2	13	0	17	29	10	0	2	20	0	0	115	
4:40 PM	13	1	3	0	3	0	8	0	15	37	21	0	1	16	0	0	118	
4:45 PM	12	4	3	0	1	0	9	0	20	32	23	0	0	18	1	0	123	
4:50 PM	10	5	1	0	0	1	8	0	7	37	14	0	1	30	2	0	116	
4:55 PM	8	3	1	0	0	2	5	0	18	57	7	0	2	14	0	0	117	1540
5:00 PM	10	3	3	0	2	0	11	0	19	23	11	0	2	18	1	0	103	1528
5:05 PM	13	1	5	0	2	1	10	0	14	28	19	0	1	35	0	0	129	1522
5:10 PM	6	2	3	0	1	2	16	0	6	44	10	0	1	17	0	0	108	1486
5:15 PM	11	2	1	0	0	1	5	0	5	41	13	0	2	26	1	0	108	1458
5:20 PM	8	3	2	0	0	3	7	0	15	36	11	0	1	11	0	0	97	1404
5:25 PM	7	2	1	0	0	2	9	0	9	27	8	0	0	14	0	0	79	1343
5:30 PM	2	4	3	0	4	3	13	0	10	31	12	0	2	18	0	0	102	1315
5:35 PM	5	0	1	0	0	5	8	0	12	41	12	0	2	20	1	0	107	1307
5:40 PM	5	1	3	0	0	1	4	0	8	36	7	0	1	7	0	0	73	1262
5:45 PM	3	2	1	0	0	2	13	0	9	35	9	0	1	15	1	0	91	1230
5:50 PM	8	0	0	0	0	0	12	0	17	37	6	0	1	24	1	0	106	1220
5:55 PM	6	1	1	0	1	0	9	0	12	25	5	0	1	22	1	0	84	1187
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	168	28	44	0	0	24	120	0	248	556	160	0	16	340	20	0	1724	
Heavy Trucks	4	0	0	0	0	4	0	0	4	28	4	0	0	36	0	0	80	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952615
DATE: Thu, Sep 22 2022



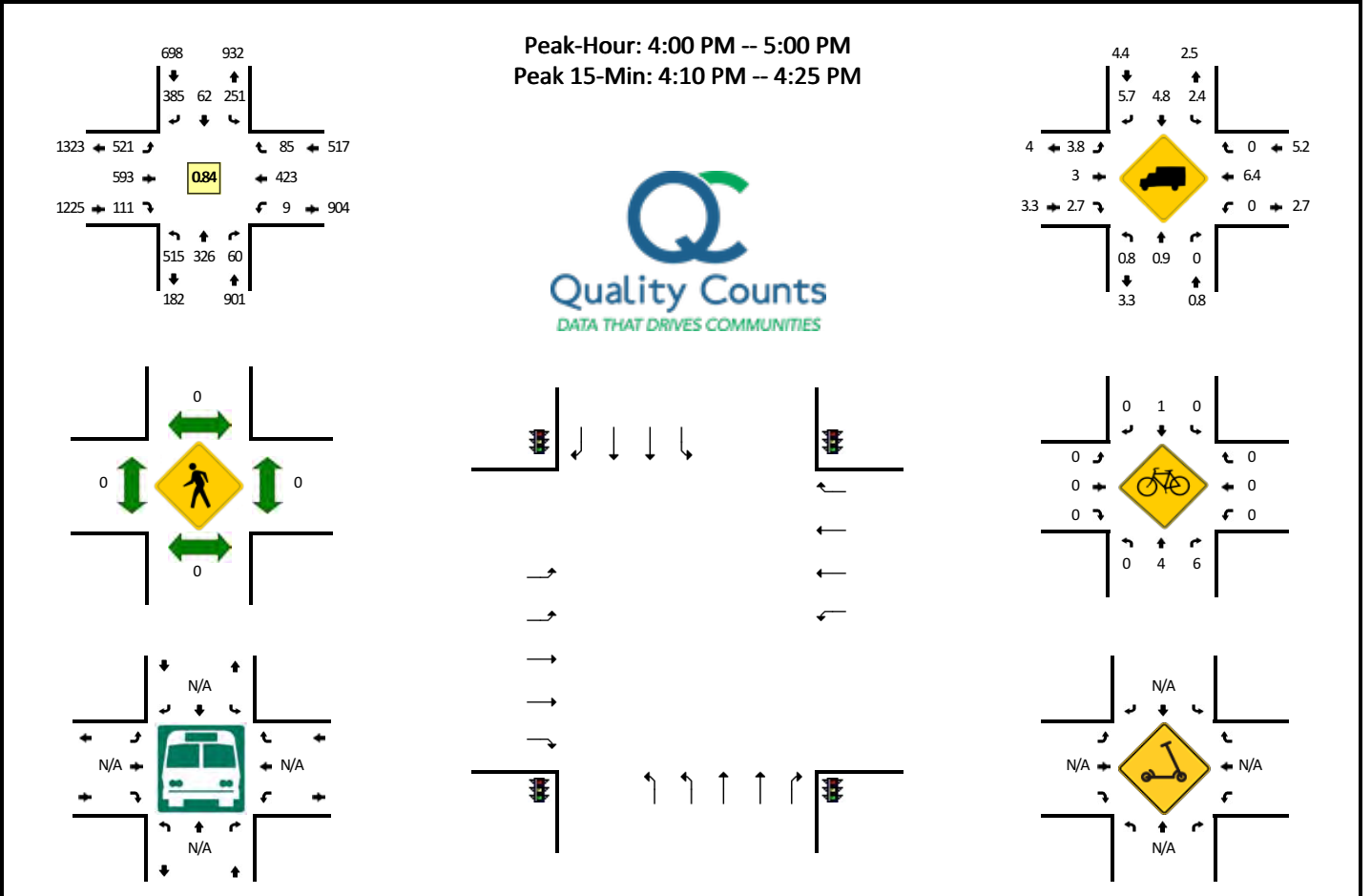
5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	1	1	0	12	26	29	0	21	27	49	0	1	31	5	0	208	
7:05 AM	2	2	1	0	6	17	18	0	24	34	36	0	4	42	9	0	195	
7:10 AM	4	4	1	0	10	22	30	0	16	29	40	0	9	40	8	0	213	
7:15 AM	0	5	3	0	9	19	17	0	25	18	41	0	6	27	15	0	185	
7:20 AM	1	5	1	0	6	29	27	0	24	25	42	0	4	30	14	0	208	
7:25 AM	6	2	0	0	9	47	21	0	15	13	43	0	6	26	9	0	197	
7:30 AM	4	6	0	0	11	18	23	0	25	22	34	0	8	32	9	0	192	
7:35 AM	7	5	1	0	10	27	26	0	22	23	40	0	4	49	14	0	228	
7:40 AM	3	4	1	0	6	14	31	0	21	21	42	0	2	41	8	0	194	
7:45 AM	3	6	0	0	12	21	27	0	19	23	30	0	6	40	3	0	190	
7:50 AM	4	9	1	0	9	19	25	0	28	29	52	0	5	28	8	0	217	
7:55 AM	4	2	0	0	10	25	32	0	30	20	34	0	5	27	11	0	200	2427
8:00 AM	2	7	2	0	11	17	24	0	32	30	27	0	3	24	9	0	188	2407
8:05 AM	10	7	2	0	22	28	38	1	16	24	17	0	2	22	6	0	195	2407
8:10 AM	4	5	0	0	9	13	24	0	21	36	32	0	5	25	10	0	184	2378
8:15 AM	5	3	1	0	7	14	24	0	27	21	18	0	6	23	7	0	156	2349
8:20 AM	4	6	2	0	14	12	17	0	19	25	22	0	3	24	8	0	156	2297
8:25 AM	5	6	4	0	10	9	24	0	11	23	23	0	2	20	7	0	144	2244
8:30 AM	9	5	0	0	6	10	23	0	25	26	23	0	1	22	5	0	155	2207
8:35 AM	9	6	4	0	11	12	20	0	15	23	22	0	2	24	3	0	151	2130
8:40 AM	8	4	0	0	8	10	28	0	24	16	18	0	0	24	3	0	143	2079
8:45 AM	4	10	2	0	7	9	26	0	26	18	12	0	1	29	5	0	149	2038
8:50 AM	4	5	1	0	6	10	19	0	21	22	11	0	4	31	6	0	140	1961
8:55 AM	1	7	1	0	8	14	19	0	18	25	6	0	2	19	4	0	124	1885

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	52	4	0	120	368	280	0	248	232	468	0	72	428	128	0	2468
Heavy Trucks	4	4	0		0	16	52		44	36	8		0	20	4		188
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

LOCATION: S Federal Wy -- E Gowen Rd
CITY/STATE: Ada, ID

QC JOB #: 15952616
DATE: Thu, Sep 22 2022

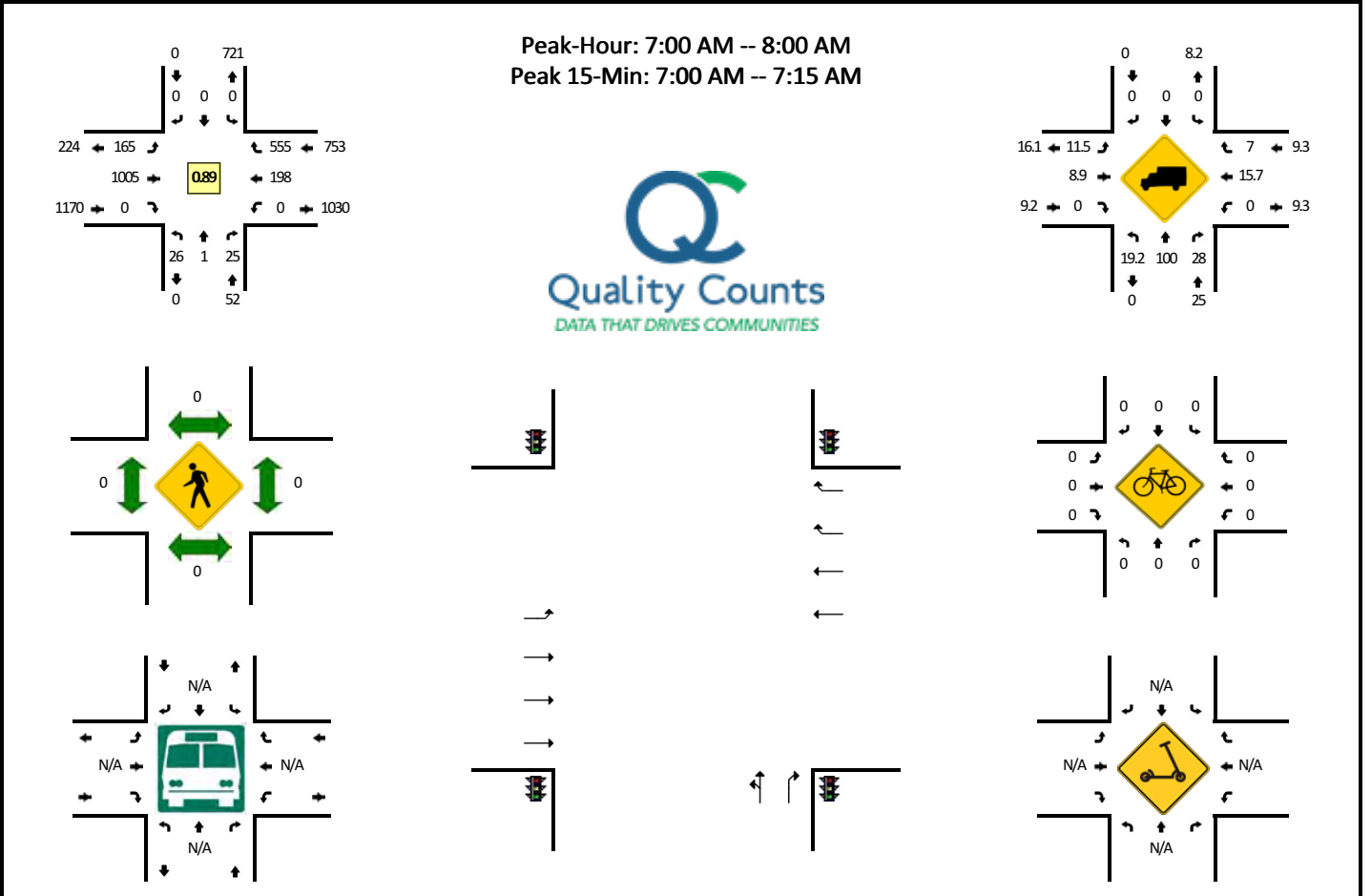


5-Min Count Period Beginning At	S Federal Wy (Northbound)				S Federal Wy (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	27	15	2	0	9	7	24	0	53	50	7	0	1	47	11	0	253	
4:05 PM	71	31	5	0	27	7	38	0	42	32	2	0	1	31	6	0	293	
4:10 PM	54	33	4	0	12	2	35	0	76	81	11	0	0	47	9	0	364	
4:15 PM	72	44	5	0	30	9	43	0	41	38	9	0	1	24	4	0	320	
4:20 PM	37	33	7	0	15	4	28	0	71	66	11	0	1	27	12	0	312	
4:25 PM	29	29	8	0	22	3	39	0	44	47	7	0	1	63	9	0	301	
4:30 PM	57	34	7	0	24	6	45	0	40	57	12	0	0	20	6	0	308	
4:35 PM	41	26	5	0	17	3	27	0	35	56	11	0	0	42	6	0	269	
4:40 PM	34	22	5	0	33	9	36	0	32	34	12	0	2	34	6	0	259	
4:45 PM	36	18	2	0	19	5	20	0	35	44	11	0	0	28	11	0	229	
4:50 PM	15	15	1	0	21	5	25	0	31	57	7	0	2	37	3	0	219	
4:55 PM	42	26	9	0	22	2	25	0	21	31	11	0	0	23	2	0	214	3341
5:00 PM	28	10	3	0	12	3	27	0	33	46	8	0	0	34	6	0	210	3298
5:05 PM	41	18	1	0	27	3	24	0	27	32	10	0	0	41	8	0	232	3237
5:10 PM	43	12	7	0	24	4	26	0	24	26	7	0	2	20	5	0	200	3073
5:15 PM	46	18	4	0	14	4	28	0	24	51	5	0	0	25	9	0	228	2981
5:20 PM	23	10	4	0	14	3	20	0	24	36	6	0	0	22	5	0	167	2836
5:25 PM	26	32	2	0	20	2	19	0	17	21	2	0	0	17	4	0	162	2697
5:30 PM	22	8	2	0	19	2	18	0	28	42	3	0	1	24	6	0	175	2564
5:35 PM	22	16	6	0	16	4	22	0	23	42	4	0	2	23	4	0	184	2479
5:40 PM	29	14	2	0	24	4	10	0	10	24	0	0	0	11	2	0	130	2350
5:45 PM	10	11	1	0	8	2	14	0	12	45	2	0	0	19	8	0	132	2253
5:50 PM	8	11	4	0	16	2	18	0	21	26	6	0	0	30	7	0	149	2183
5:55 PM	25	9	1	0	12	1	24	0	11	27	7	0	0	20	6	0	143	2112
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	652	440	64	0	228	60	424	0	752	740	124	0	8	392	100	0	3984	
Heavy Trucks	4	0	0		12	4	16		24	32	0		0	24	0		116	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	16	12		0	0	0		0	0	0		0	0	0		28	
Scoters																		

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952617
DATE: Thu, Sep 22 2022

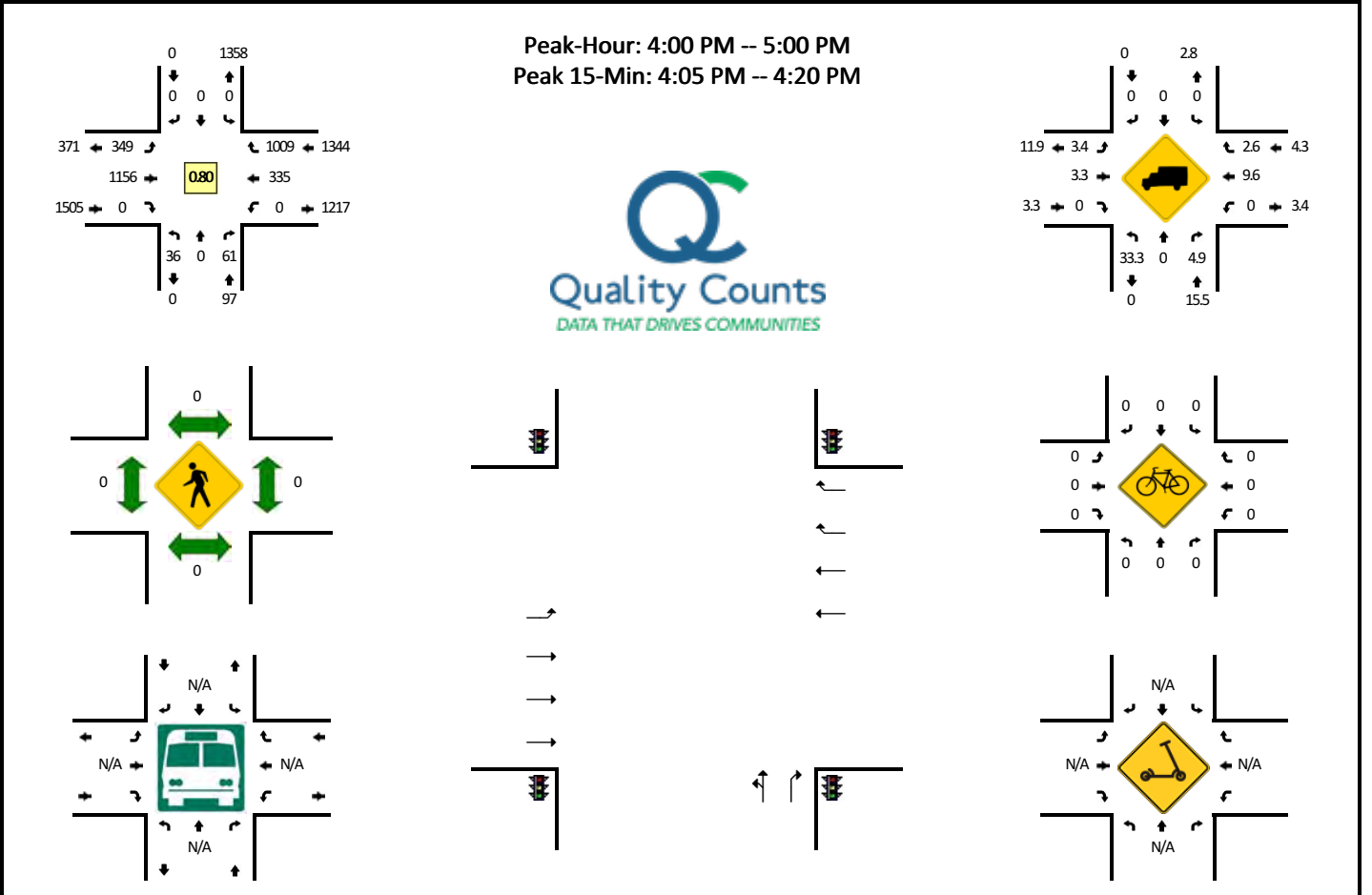


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	2	0	0	0	0	0	12	100	0	0	0	22	47	0	185	
7:05 AM	3	0	1	0	0	0	0	0	26	91	0	0	0	16	45	0	182	
7:10 AM	2	0	0	0	0	0	0	0	16	99	0	0	0	14	56	0	187	
7:15 AM	7	1	2	0	0	0	0	0	20	69	0	0	0	11	44	0	154	
7:20 AM	2	0	2	0	0	0	0	0	8	90	0	0	0	13	36	0	151	
7:25 AM	3	0	0	0	0	0	0	0	11	70	0	0	0	22	37	0	143	
7:30 AM	1	0	5	0	0	0	0	0	17	71	0	0	0	15	45	0	154	
7:35 AM	1	0	3	0	0	0	0	0	9	76	0	0	0	19	58	0	166	
7:40 AM	1	0	2	0	0	0	0	0	15	79	0	0	0	16	51	0	164	
7:45 AM	1	0	1	0	0	0	0	0	9	75	0	0	0	20	52	0	158	
7:50 AM	2	0	3	0	0	0	0	0	10	103	0	0	0	15	46	0	179	
7:55 AM	1	0	4	0	0	0	0	0	12	82	0	0	0	15	38	0	152	1975
8:00 AM	1	0	5	0	0	0	0	0	13	72	0	0	0	18	39	0	148	1938
8:05 AM	1	0	7	0	0	0	0	0	12	60	0	0	0	23	43	0	146	1902
8:10 AM	0	0	5	0	0	0	0	0	11	74	0	0	0	23	32	0	145	1860
8:15 AM	0	0	2	0	0	0	0	0	9	63	0	0	0	19	40	0	133	1839
8:20 AM	1	0	1	0	0	0	0	0	14	63	0	0	0	8	27	0	114	1802
8:25 AM	3	0	2	0	0	0	0	0	12	56	0	0	0	19	40	0	132	1791
8:30 AM	1	0	4	0	0	0	0	0	15	62	0	0	0	19	36	0	137	1774
8:35 AM	3	0	3	0	0	0	0	0	21	65	0	0	0	15	29	0	136	1744
8:40 AM	1	0	4	0	0	0	0	0	19	52	0	0	0	18	43	0	137	1717
8:45 AM	1	0	2	0	0	0	0	0	17	56	0	0	0	28	38	0	142	1701
8:50 AM	3	0	1	0	0	0	0	0	18	47	0	0	0	16	30	0	115	1637
8:55 AM	1	0	2	0	0	0	0	0	15	46	0	0	0	16	31	0	111	1596
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	0	12	0	0	0	0	0	216	1160	0	0	0	208	592	0	2216	
Heavy Trucks	8	0	0		0	0	0		16	72	0		0	32	36		164	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 NB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952618
DATE: Thu, Sep 22 2022

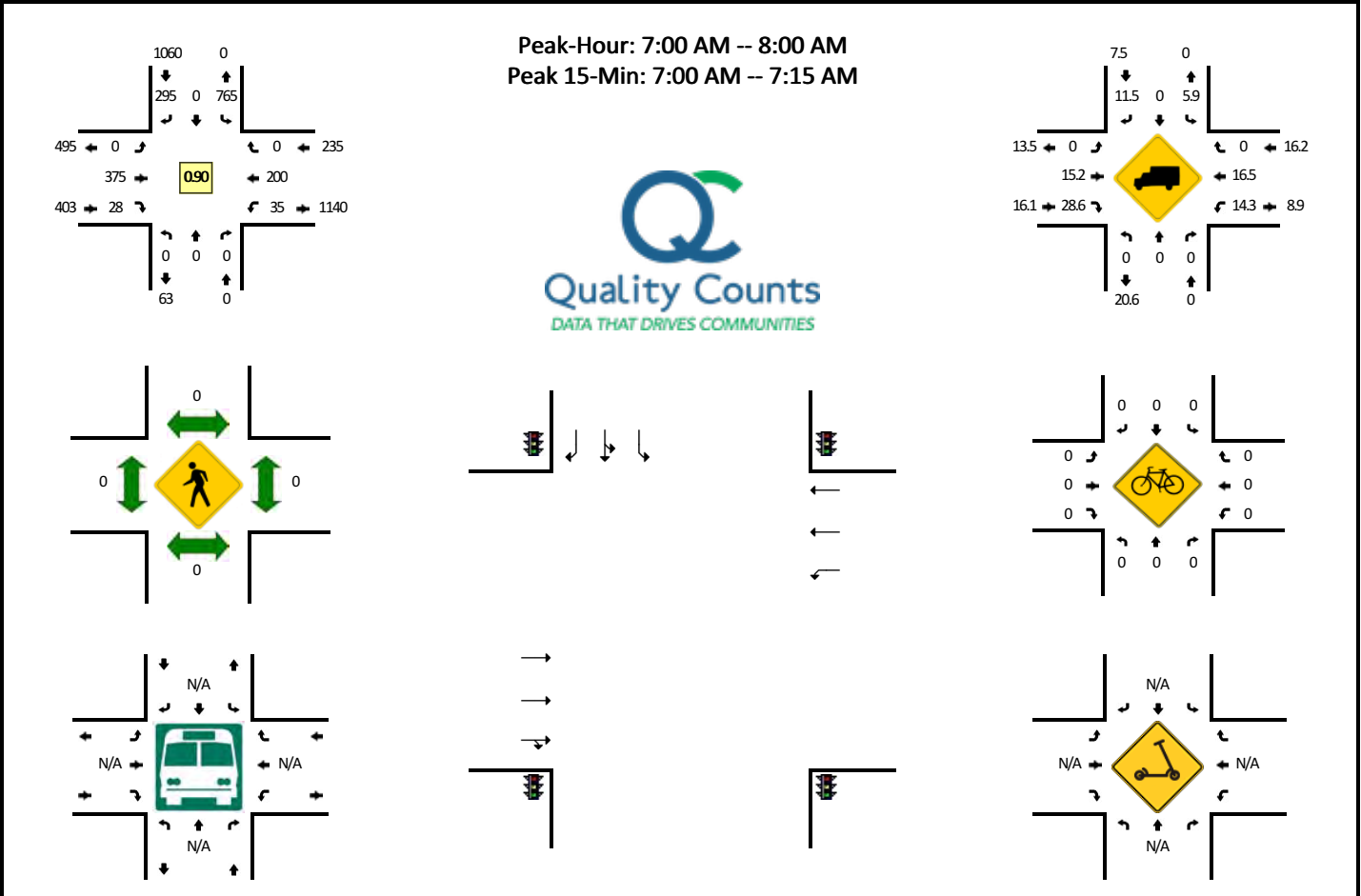


5-Min Count Period Beginning At	I-84 NB Ramps (Northbound)				I-84 NB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	7	0	0	0	0	0	29	91	0	0	0	25	64	0	221	
4:05 PM	3	0	11	0	0	0	0	0	27	117	0	0	0	31	126	0	315	
4:10 PM	5	0	5	0	0	0	0	0	41	109	0	0	0	32	98	0	290	
4:15 PM	3	0	5	0	0	0	0	0	53	113	0	0	0	34	104	0	312	
4:20 PM	5	0	10	0	0	0	0	0	27	104	0	0	0	25	89	0	260	
4:25 PM	1	0	2	0	0	0	0	0	26	108	0	0	0	29	74	0	240	
4:30 PM	0	0	5	0	0	0	0	0	24	97	0	0	0	39	109	0	274	
4:35 PM	2	0	6	0	0	0	0	0	21	100	0	0	0	21	85	0	235	
4:40 PM	4	0	2	0	0	0	0	0	39	72	0	0	0	25	81	0	223	
4:45 PM	3	0	2	0	0	0	0	0	24	97	0	0	0	19	49	0	194	
4:50 PM	2	0	2	0	0	0	0	0	16	87	0	0	0	22	56	0	185	
4:55 PM	3	0	4	0	0	0	0	0	22	61	0	0	0	33	74	0	197	2946
5:00 PM	3	0	6	0	0	0	0	0	14	79	0	0	0	18	57	0	177	2902
5:05 PM	1	1	5	0	0	0	0	0	17	69	0	0	0	22	85	0	200	2787
5:10 PM	1	0	2	0	0	0	0	0	16	51	0	0	0	19	83	0	172	2669
5:15 PM	5	0	9	0	0	0	0	0	17	69	0	0	0	13	82	0	195	2552
5:20 PM	1	0	7	0	0	0	0	0	18	60	0	0	0	23	42	0	151	2443
5:25 PM	1	0	2	0	0	0	0	0	21	48	0	0	0	17	57	0	146	2349
5:30 PM	1	0	6	0	0	0	0	0	9	62	0	0	0	10	52	0	140	2215
5:35 PM	1	0	3	0	0	0	0	0	19	63	0	0	0	15	50	0	151	2131
5:40 PM	3	0	1	0	0	0	0	0	14	43	0	0	0	11	38	0	110	2018
5:45 PM	1	0	7	0	0	0	0	0	11	52	0	0	0	7	43	0	121	1945
5:50 PM	2	0	3	0	0	0	0	0	11	46	0	0	0	11	33	0	106	1866
5:55 PM	3	0	3	0	0	0	0	0	12	47	0	0	0	19	50	0	134	1803
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	0	84	0	0	0	0	0	484	1356	0	0	0	388	1312	0	3668	
Heavy Trucks	20	0	8	0	0	0	0	0	16	44	0	0	0	24	28	0	140	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952619
DATE: Thu, Sep 22 2022

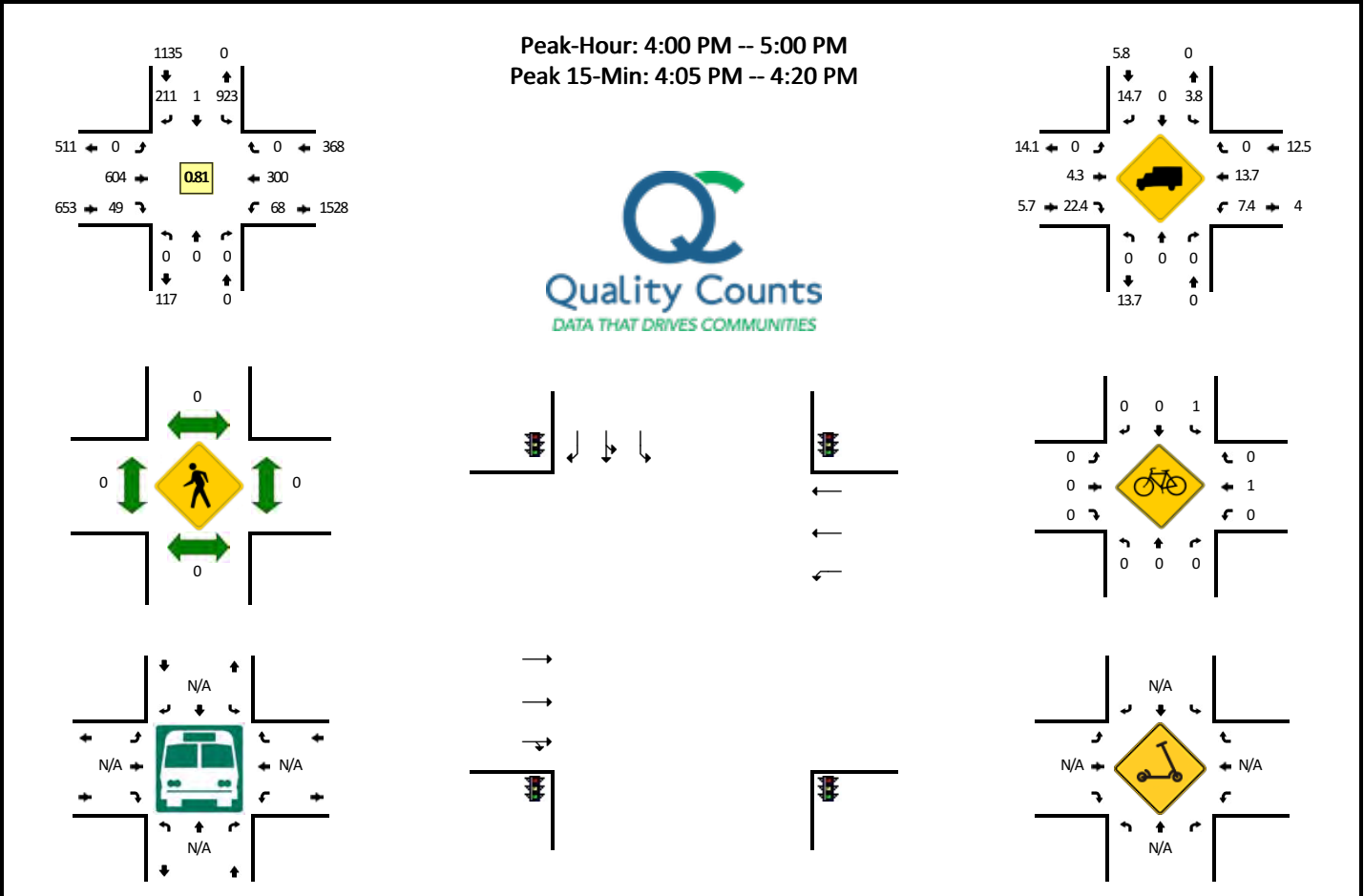


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	58	0	23	0	0	48	3	0	3	27	0	0	162	
7:05 AM	0	0	0	0	71	0	25	0	0	45	2	0	2	17	0	0	162	
7:10 AM	0	0	0	0	80	0	31	0	0	26	0	0	1	12	0	0	150	
7:15 AM	0	0	0	0	47	0	25	0	0	44	2	0	3	19	0	0	140	
7:20 AM	0	0	0	0	65	0	31	0	0	26	2	0	3	9	0	0	136	
7:25 AM	0	0	0	0	68	0	31	0	0	18	3	0	5	23	0	0	148	
7:30 AM	0	0	0	0	57	0	27	0	0	32	4	0	5	11	0	0	136	
7:35 AM	0	0	0	0	51	0	28	0	0	32	3	0	2	17	0	0	133	
7:40 AM	0	0	0	0	63	0	15	0	0	29	4	0	3	15	0	0	129	
7:45 AM	0	0	0	0	72	0	21	0	0	19	2	0	2	20	0	0	136	
7:50 AM	0	0	0	0	80	0	15	0	0	24	2	0	4	15	0	0	140	
7:55 AM	0	0	0	0	53	0	23	0	0	32	1	0	2	15	0	0	126	1698
8:00 AM	0	0	0	0	60	0	36	0	0	28	1	0	2	14	0	0	141	1677
8:05 AM	0	0	0	0	54	0	32	0	0	27	3	0	5	23	0	0	144	1659
8:10 AM	0	0	0	0	56	0	19	0	0	22	6	0	2	19	0	0	124	1633
8:15 AM	0	0	0	0	47	0	23	0	0	22	3	0	9	12	0	0	116	1609
8:20 AM	0	0	0	0	57	0	30	0	0	31	6	0	1	8	0	0	133	1606
8:25 AM	0	0	0	0	38	0	23	0	0	22	3	0	2	19	0	0	107	1565
8:30 AM	0	0	0	0	49	0	21	0	0	31	2	0	2	17	0	0	122	1551
8:35 AM	0	0	0	0	46	0	20	0	0	36	8	0	3	13	0	0	126	1544
8:40 AM	0	0	0	0	45	0	20	0	0	29	8	0	10	9	0	0	121	1536
8:45 AM	0	0	0	0	36	0	14	0	0	29	5	0	10	18	0	0	112	1512
8:50 AM	0	0	0	0	39	0	22	0	0	27	1	0	2	17	0	0	108	1480
8:55 AM	0	0	0	0	32	0	20	0	0	22	4	0	2	14	0	0	94	1448
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	836	0	316	0	0	476	20	0	24	224	0	0	1896	
Heavy Trucks	0	0	0	0	44	0	20	0	0	40	4	0	4	36	0	0	148	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: I-84 SB Ramps -- E Gowen Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952620
DATE: Thu, Sep 22 2022

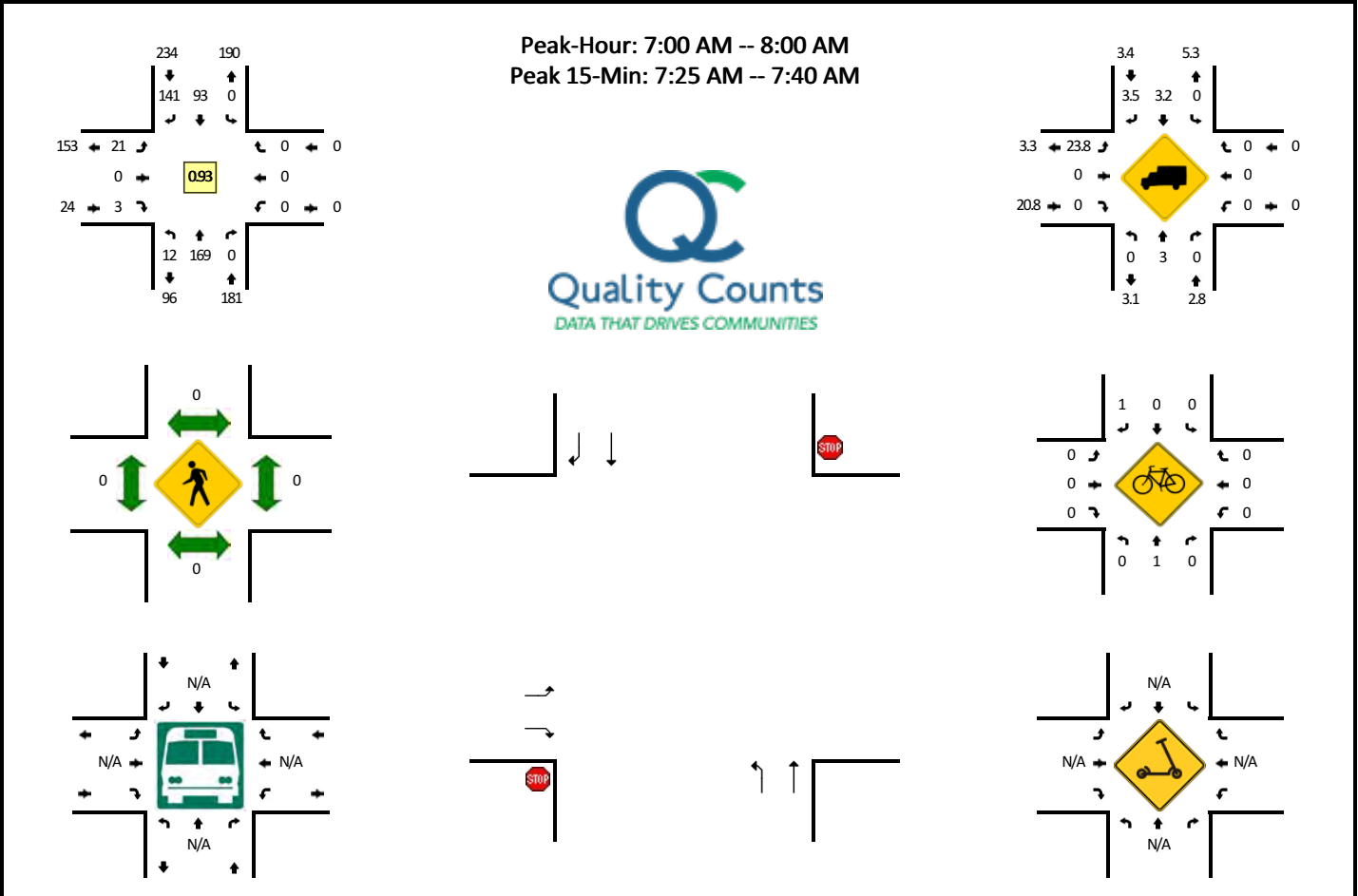


5-Min Count Period Beginning At	I-84 SB Ramps (Northbound)				I-84 SB Ramps (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	78	0	13	0	0	46	6	0	9	22	0	0	174	
4:05 PM	0	0	0	0	76	0	19	0	0	85	4	0	6	28	0	0	218	
4:10 PM	0	0	0	0	92	0	19	0	0	69	4	0	6	30	0	0	220	
4:15 PM	0	0	0	0	99	0	27	0	0	62	6	0	4	28	0	0	226	
4:20 PM	0	0	0	0	71	0	22	0	0	50	5	0	6	31	0	0	185	
4:25 PM	0	0	0	0	71	0	20	0	0	58	4	0	7	21	0	0	181	
4:30 PM	0	0	0	0	88	0	14	0	0	36	3	0	6	35	0	0	182	
4:35 PM	0	0	0	0	82	0	9	0	0	38	7	0	2	19	0	0	157	
4:40 PM	0	0	0	0	73	0	18	0	0	52	3	0	11	18	0	1	176	
4:45 PM	0	0	0	0	61	0	9	0	0	49	3	0	3	22	0	0	147	
4:50 PM	0	0	0	0	74	0	24	0	0	30	2	0	1	18	0	0	149	
4:55 PM	0	0	0	0	58	1	17	0	0	29	2	0	6	28	0	0	141	2156
5:00 PM	0	0	0	0	50	0	15	0	0	32	7	0	4	21	0	0	129	2111
5:05 PM	0	0	0	0	59	1	18	0	0	27	3	0	7	16	0	0	131	2024
5:10 PM	0	0	0	0	41	0	11	0	0	27	5	0	0	21	0	0	105	1909
5:15 PM	0	0	0	0	56	0	12	0	0	34	4	0	4	13	0	0	123	1806
5:20 PM	0	0	0	0	45	0	11	0	0	28	2	0	6	18	0	0	110	1731
5:25 PM	0	0	0	0	43	0	8	0	0	25	5	0	7	10	0	0	98	1648
5:30 PM	0	0	0	0	34	0	13	0	0	36	3	0	3	9	0	0	98	1564
5:35 PM	0	0	0	0	59	1	11	0	0	28	5	0	4	10	0	0	118	1525
5:40 PM	0	0	0	0	27	0	12	0	0	22	6	0	3	12	0	0	82	1431
5:45 PM	0	0	0	0	45	0	14	0	0	21	0	0	2	6	0	0	88	1372
5:50 PM	0	0	0	0	36	0	14	0	0	15	3	0	2	11	0	0	81	1304
5:55 PM	0	0	0	0	37	0	16	0	0	21	3	0	5	14	0	0	96	1259
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	1068	0	260	0	0	864	56	0	64	344	0	0	2656	
Heavy Trucks	0	0	0	0	28	0	44	0	0	44	8	0	0	44	0	0	168	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952621
DATE: Thu, Sep 22 2022

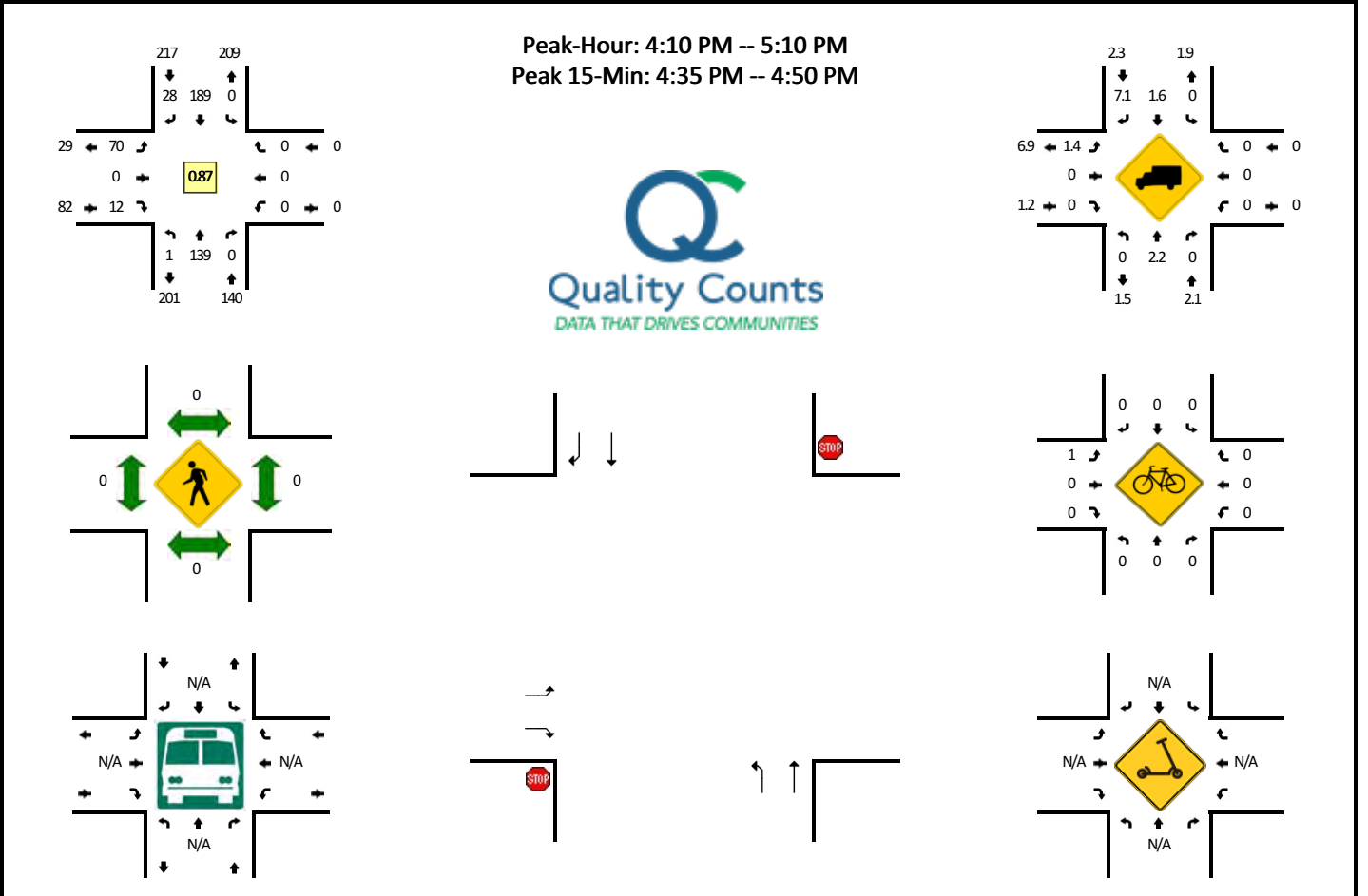


5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	0	0	0	8	16	0	0	0	0	0	0	0	0	0	38	
7:05 AM	2	15	0	0	0	7	12	0	3	0	1	0	0	0	0	0	40	
7:10 AM	0	10	0	0	0	15	10	0	2	0	0	0	0	0	0	0	37	
7:15 AM	1	15	0	0	0	6	9	0	1	0	0	0	0	0	0	0	32	
7:20 AM	2	23	0	0	0	3	9	0	2	0	0	0	0	0	0	0	39	
7:25 AM	2	15	0	0	0	2	19	0	2	0	0	0	0	0	0	0	40	
7:30 AM	0	20	0	0	0	4	11	0	2	0	0	0	0	0	0	0	37	
7:35 AM	0	17	0	0	0	9	14	0	1	0	0	0	0	0	0	0	41	
7:40 AM	2	6	0	0	0	11	11	0	1	0	1	0	0	0	0	0	32	
7:45 AM	2	11	0	0	0	10	12	0	2	0	0	0	0	0	0	0	37	
7:50 AM	1	11	0	0	0	9	11	0	2	0	1	0	0	0	0	0	35	
7:55 AM	0	12	0	0	0	9	7	0	3	0	0	0	0	0	0	0	31	439
8:00 AM	3	9	0	0	0	3	11	0	1	0	0	0	0	0	0	0	27	428
8:05 AM	1	6	0	0	0	5	20	0	0	0	1	0	0	0	0	0	33	421
8:10 AM	0	7	0	0	0	6	16	0	1	0	0	0	0	0	0	0	30	414
8:15 AM	0	3	0	0	0	10	15	0	0	0	0	0	0	0	0	0	28	410
8:20 AM	2	5	0	0	0	8	16	0	2	0	2	0	0	0	0	0	35	406
8:25 AM	2	9	0	0	0	3	7	0	2	0	1	0	0	0	0	0	24	390
8:30 AM	3	7	0	0	0	3	6	0	0	0	0	0	0	0	0	0	19	372
8:35 AM	0	9	0	0	0	4	18	0	0	0	0	0	0	0	0	0	31	362
8:40 AM	2	5	0	0	0	1	7	0	1	0	0	0	0	0	0	0	16	346
8:45 AM	1	5	0	0	0	5	5	0	0	0	0	0	0	0	0	0	16	325
8:50 AM	2	4	0	0	0	5	10	0	1	0	1	0	0	0	0	0	23	313
8:55 AM	0	5	0	0	0	6	6	0	2	0	1	0	0	0	0	0	20	302
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	208	0	0	0	60	176	0	20	0	0	0	0	0	0	0	472	
Heavy Trucks	0	4	0	0	0	4	12	0	4	0	0	0	0	0	0	0	24	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: S Technology Wy/E Columbia Rd -- E Circuit Ln
CITY/STATE: Boise City, ID

QC JOB #: 15952622
DATE: Thu, Sep 22 2022

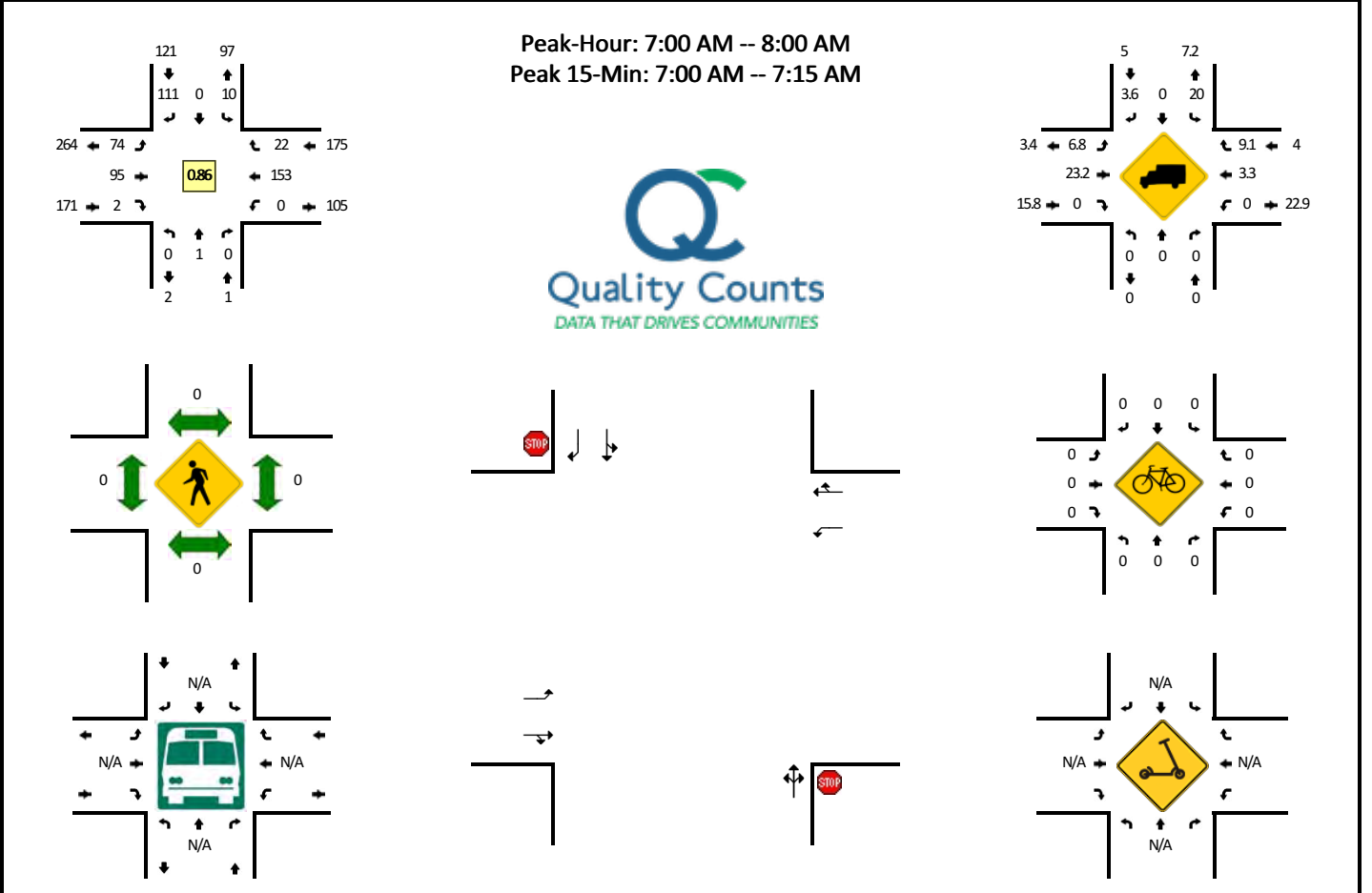


5-Min Count Period Beginning At	S Technology Wy/E Columbia Rd (Northbound)				S Technology Wy/E Columbia Rd (Southbound)				E Circuit Ln (Eastbound)				E Circuit Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	13	0	0	0	7	2	0	11	0	0	0	0	0	0	0	33	
4:05 PM	0	16	0	0	0	11	2	0	7	0	1	0	0	0	0	0	37	
4:10 PM	0	15	0	0	0	19	0	0	6	0	0	0	0	0	0	0	40	
4:15 PM	0	11	0	0	0	13	2	0	4	0	0	0	0	0	0	0	30	
4:20 PM	0	12	0	0	0	17	0	0	8	0	1	0	0	0	0	0	38	
4:25 PM	0	14	0	0	0	12	3	0	5	0	1	0	0	0	0	0	35	
4:30 PM	0	10	0	0	0	20	6	0	6	0	0	0	0	0	0	0	42	
4:35 PM	0	17	0	0	0	15	4	0	7	0	0	0	0	0	0	0	43	
4:40 PM	0	8	0	0	0	16	5	0	4	0	2	0	0	0	0	0	35	
4:45 PM	0	16	0	0	0	24	0	0	7	0	1	0	0	0	0	0	48	
4:50 PM	0	6	0	0	0	12	4	0	4	0	2	0	0	0	0	0	28	
4:55 PM	1	9	0	0	0	8	1	0	4	0	3	0	0	0	0	0	26	435
5:00 PM	0	12	0	0	0	14	2	0	4	0	1	0	0	0	0	0	33	435
5:05 PM	0	9	0	0	0	19	1	0	11	0	1	0	0	0	0	0	41	439
5:10 PM	0	9	0	0	0	10	2	0	2	0	1	0	0	0	0	0	24	423
5:15 PM	0	13	0	0	0	16	1	0	6	0	1	0	0	0	0	0	37	430
5:20 PM	0	5	0	0	0	15	2	0	3	0	1	0	0	0	0	0	26	418
5:25 PM	0	11	0	0	0	8	2	0	3	0	1	0	0	0	0	0	25	408
5:30 PM	0	5	0	0	0	14	3	0	1	0	0	0	0	0	0	0	23	389
5:35 PM	1	3	0	0	0	16	1	0	1	0	2	0	0	0	0	0	24	370
5:40 PM	1	9	0	0	0	8	2	0	1	0	0	0	0	0	0	0	21	356
5:45 PM	0	9	0	0	0	10	1	0	1	0	1	0	0	0	0	0	22	330
5:50 PM	0	5	0	0	0	9	0	0	1	0	1	0	0	0	0	0	16	318
5:55 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	303
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	164	0	0	0	220	36	0	72	0	12	0	0	0	0	0	504	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952626
DATE: Thu, Sep 22 2022



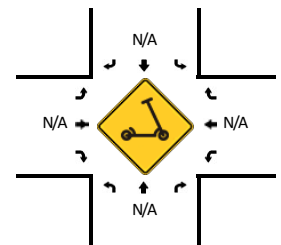
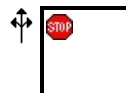
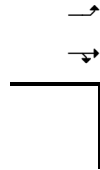
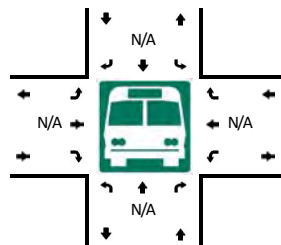
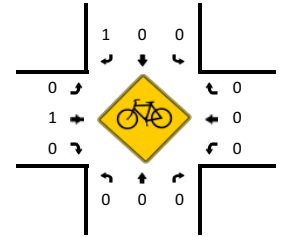
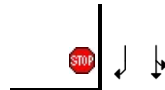
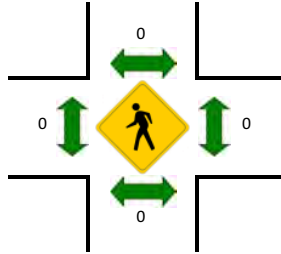
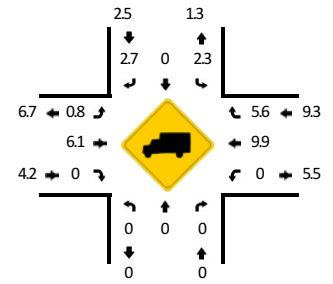
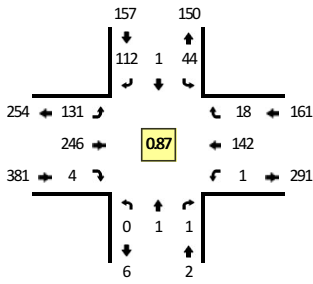
5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	9	0	9	9	0	0	0	18	2	0	48	
7:05 AM	0	1	0	0	0	0	12	0	12	5	0	0	0	12	2	0	44	
7:10 AM	0	0	0	0	0	0	12	0	9	10	0	0	0	12	1	0	44	
7:15 AM	0	0	0	0	2	0	10	0	5	10	1	0	0	8	3	0	39	
7:20 AM	0	0	0	0	1	0	11	0	9	7	0	0	0	10	1	0	39	
7:25 AM	0	0	0	0	1	0	9	0	6	9	0	0	0	15	3	0	43	
7:30 AM	0	0	0	0	0	0	11	0	6	6	0	0	0	20	4	0	47	
7:35 AM	0	0	0	0	0	0	11	0	2	8	0	0	0	21	3	0	45	
7:40 AM	0	0	0	0	0	0	7	0	2	10	1	0	0	9	0	0	29	
7:45 AM	0	0	0	0	1	0	7	0	2	7	0	0	0	10	0	0	27	
7:50 AM	0	0	0	0	1	0	6	0	6	6	0	0	0	12	2	0	33	
7:55 AM	0	0	0	0	3	0	6	0	6	8	0	0	0	6	1	0	30	468
8:00 AM	0	0	0	0	1	0	3	0	4	10	0	0	0	11	1	0	30	450
8:05 AM	1	0	0	0	3	1	13	0	5	15	0	0	0	11	2	0	51	457
8:10 AM	0	0	0	0	0	0	9	0	3	12	0	0	0	13	2	0	39	452
8:15 AM	0	0	0	0	1	0	10	0	4	12	1	0	0	12	2	0	42	455
8:20 AM	0	0	0	0	0	0	3	0	5	7	0	0	1	10	0	0	26	442
8:25 AM	0	0	0	0	3	0	7	0	7	10	1	0	2	15	3	0	48	447
8:30 AM	0	0	0	0	1	0	3	0	4	13	0	1	0	7	3	0	32	432
8:35 AM	0	0	0	0	2	0	9	0	4	11	0	0	0	10	3	0	39	426
8:40 AM	0	0	0	0	3	0	11	0	7	12	0	0	0	10	4	0	47	444
8:45 AM	0	0	0	0	2	0	9	0	3	11	0	0	0	16	4	0	45	462
8:50 AM	0	0	0	0	2	0	3	0	6	5	0	0	0	8	0	0	24	453
8:55 AM	0	0	0	0	1	0	7	0	2	8	0	0	0	9	4	0	31	454
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	4	0	0	4	0	132	0	120	96	0	0	0	168	20	0	544	
Heavy Trucks	0	0	0	0	0	0	4	0	4	12	0	0	0	4	0	0	24	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: E Warm Springs Ave -- E Gowen Rd
CITY/STATE: Boise, ID

QC JOB #: 15952627
DATE: Thu, Sep 22 2022

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

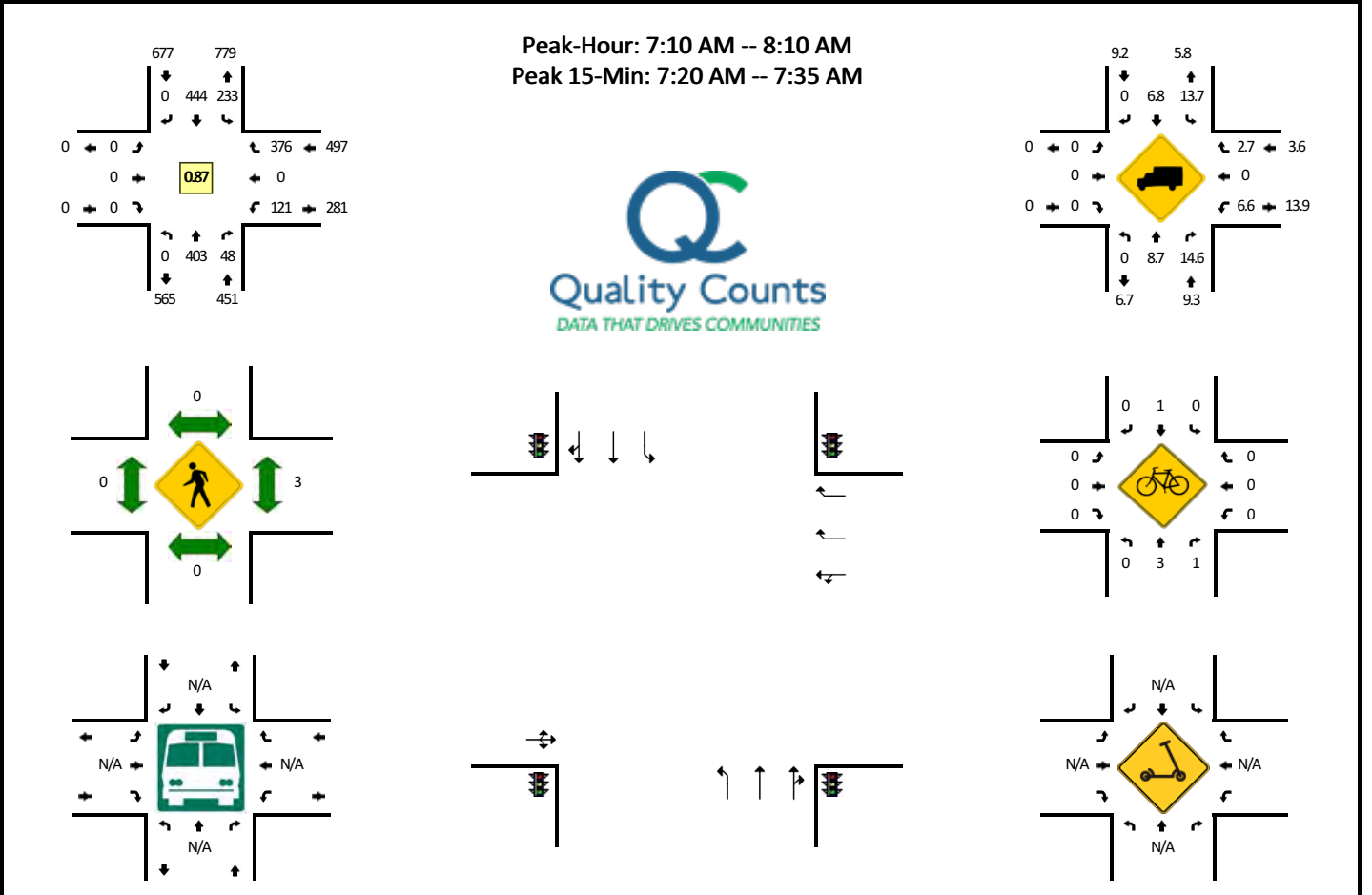


5-Min Count Period Beginning At	E Warm Springs Ave (Northbound)				E Warm Springs Ave (Southbound)				E Gowen Rd (Eastbound)				E Gowen Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	10	0	11	16	0	0	0	15	1	0	54	
4:05 PM	0	0	0	0	3	0	9	0	12	12	1	0	0	15	3	0	55	
4:10 PM	0	0	0	0	1	0	12	0	8	16	1	0	0	10	2	0	50	
4:15 PM	0	0	0	0	5	0	12	0	15	21	0	0	0	16	1	0	70	
4:20 PM	0	0	0	0	4	1	10	0	19	24	0	0	0	9	4	0	71	
4:25 PM	0	0	1	0	5	0	16	0	11	23	0	0	0	5	0	0	61	
4:30 PM	0	0	0	0	2	0	9	0	8	22	0	0	0	12	2	0	55	
4:35 PM	0	0	0	0	4	0	3	0	9	28	0	0	0	12	2	0	58	
4:40 PM	0	0	0	0	3	0	6	0	5	23	1	0	1	6	2	0	47	
4:45 PM	0	1	0	0	4	0	9	0	6	21	0	0	0	17	0	0	58	
4:50 PM	0	0	0	0	3	0	15	0	9	16	0	0	0	13	0	0	56	
4:55 PM	0	0	0	0	9	0	1	0	18	24	1	0	0	12	1	0	66	701
5:00 PM	0	0	1	0	3	0	12	0	12	13	0	0	0	10	1	0	52	699
5:05 PM	0	0	0	0	2	0	7	0	10	11	0	0	0	8	3	0	41	685
5:10 PM	0	0	0	0	1	0	4	0	18	18	0	0	0	14	1	0	56	691
5:15 PM	0	0	0	0	2	0	6	0	15	19	0	0	0	4	3	0	49	670
5:20 PM	0	0	0	0	3	0	12	0	12	20	0	0	0	1	1	0	49	648
5:25 PM	0	0	0	0	3	0	7	0	9	17	0	0	0	6	3	0	45	632
5:30 PM	2	0	0	0	0	0	9	0	12	13	0	0	0	7	0	0	43	620
5:35 PM	0	0	0	0	0	0	2	0	13	24	0	0	0	4	1	0	44	606
5:40 PM	0	0	0	0	2	1	4	0	12	21	0	0	0	2	1	0	43	602
5:45 PM	0	0	0	0	4	0	6	0	16	18	0	0	0	12	1	0	57	601
5:50 PM	0	0	0	0	2	0	6	0	11	17	0	0	0	3	2	0	41	586
5:55 PM	0	0	0	0	2	0	7	0	14	7	0	0	0	8	1	0	39	559
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	56	4	152	0	180	272	0	0	0	120	20	0	808	
Heavy Trucks	0	0	0	0	0	4	4	0	4	24	0	0	0	28	0	0	60	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952628
DATE: Thu, Sep 22 2022

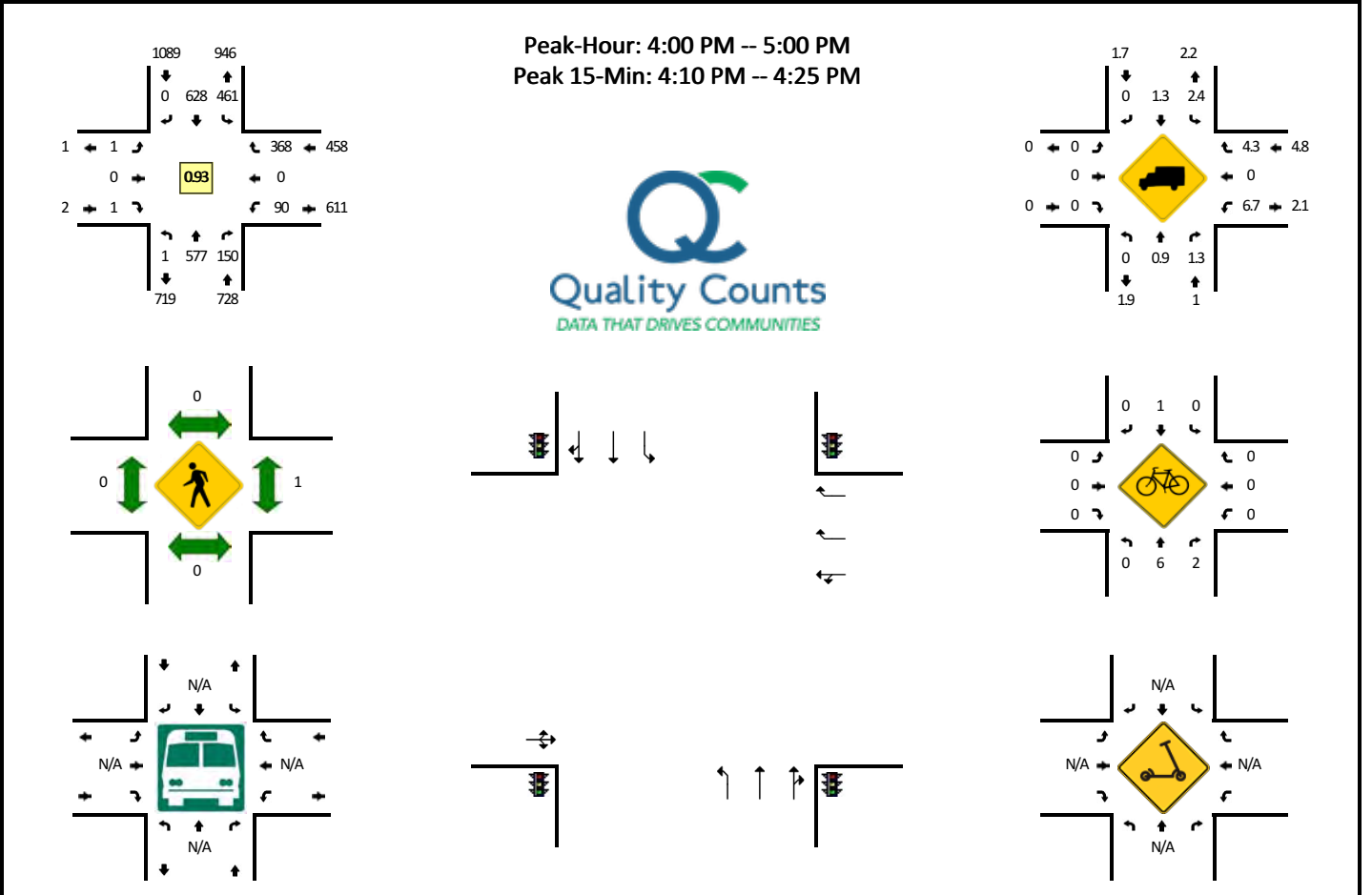


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	22	3	0	21	32	0	0	0	0	0	0	8	0	22	0	108	
7:05 AM	0	19	2	0	16	36	0	0	0	0	0	0	5	0	30	0	108	
7:10 AM	0	31	1	0	27	39	0	0	0	0	0	0	16	0	39	0	153	
7:15 AM	0	40	4	0	20	32	0	0	0	0	0	0	11	0	30	0	137	
7:20 AM	0	39	1	0	23	45	0	0	0	0	0	0	10	0	39	0	157	
7:25 AM	0	50	2	0	21	19	0	0	0	0	0	0	17	0	48	0	157	
7:30 AM	0	48	2	0	26	42	0	0	0	0	0	0	4	0	29	0	151	
7:35 AM	0	26	5	0	17	32	0	0	0	0	0	0	11	0	38	0	129	
7:40 AM	0	40	8	0	19	32	0	0	0	0	0	0	8	0	30	0	137	
7:45 AM	0	31	5	0	20	25	0	0	0	0	0	0	9	0	35	0	125	
7:50 AM	0	23	3	0	12	45	0	0	0	0	0	0	10	0	20	0	113	
7:55 AM	0	37	4	0	18	51	0	0	0	0	0	0	5	0	20	0	135	
8:00 AM	0	21	7	0	13	31	0	0	0	0	0	0	10	0	22	0	104	1610
8:05 AM	0	17	6	0	17	51	0	0	0	0	0	0	10	0	26	0	127	1606
8:10 AM	0	36	0	0	31	21	0	0	0	0	0	0	9	0	26	0	123	1595
8:15 AM	0	25	8	0	7	29	0	0	0	0	0	0	9	0	22	0	100	1558
8:20 AM	0	30	5	0	15	30	0	0	0	0	0	0	6	0	24	0	110	1511
8:25 AM	0	22	3	0	13	25	0	0	0	0	0	0	11	0	24	0	98	1452
8:30 AM	0	18	4	0	20	24	0	0	0	0	0	0	6	0	25	0	97	1398
8:35 AM	0	23	5	0	18	24	0	0	0	0	0	0	7	0	25	0	102	1371
8:40 AM	0	25	5	0	21	38	0	0	0	0	0	0	4	0	19	0	112	1346
8:45 AM	0	30	4	0	11	35	0	0	0	0	0	0	6	0	27	0	113	1334
8:50 AM	0	21	4	0	25	25	0	0	0	0	0	0	9	0	18	0	102	1323
8:55 AM	0	24	5	0	25	26	0	0	0	0	0	0	10	0	20	0	110	1298
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	548	20	0	280	424	0	0	0	0	0	0	124	0	464	0	1860	
Heavy Trucks	0	44	0	0	44	24	0	0	0	0	0	0	4	0	4	0	120	
Buses																		
Pedestrians		0				0					0			0			0	
Bicycles	0	0	4		0	0	0			0	0	0	0	0	0		4	
Scoters																		

Comments:

LOCATION: S Federal Way -- E Amity Rd
CITY/STATE: Boise City, ID

QC JOB #: 15952629
DATE: Thu, Sep 22 2022

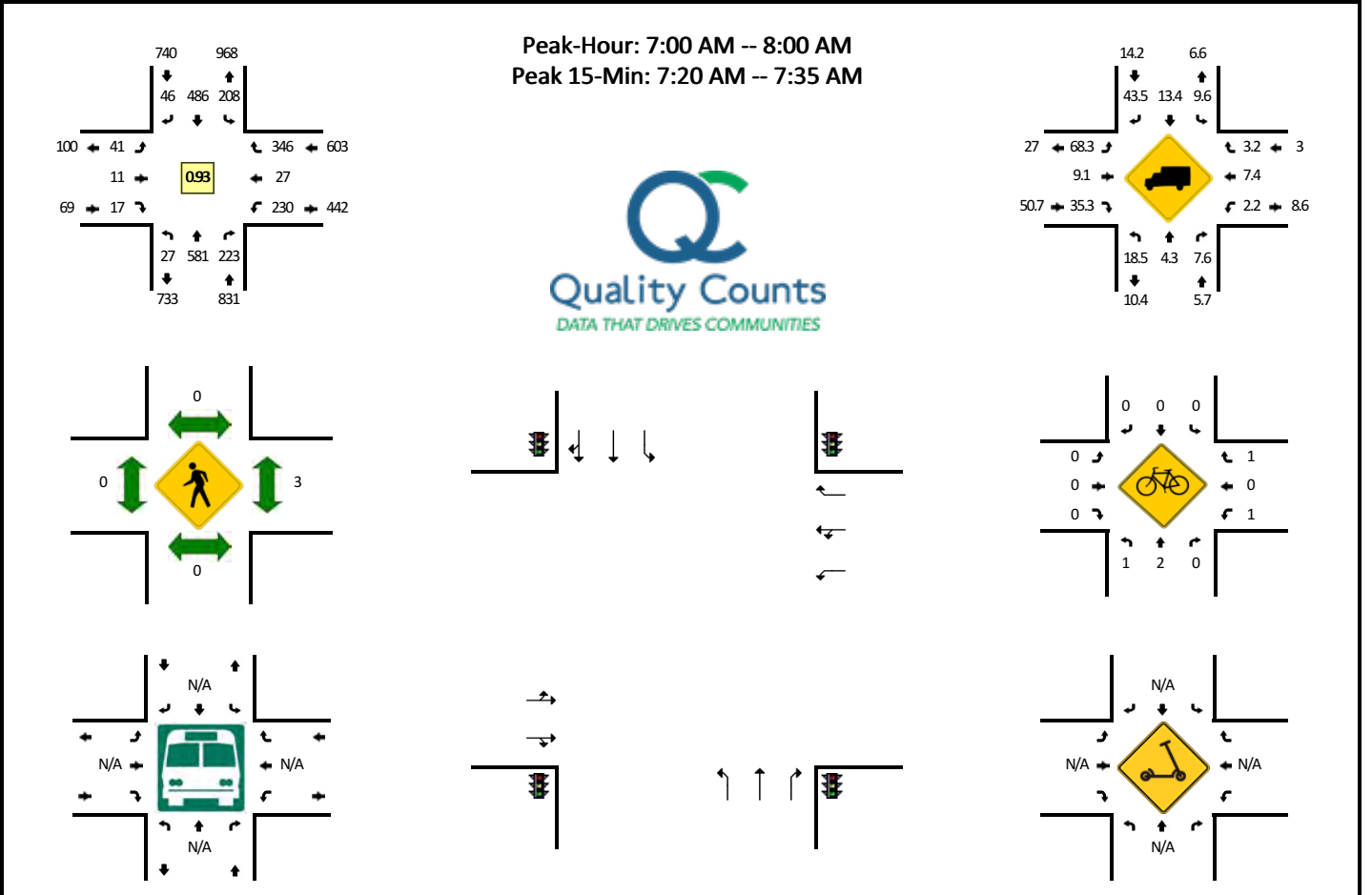


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				E Amity Rd (Eastbound)				E Amity Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	49	19	0	42	52	0	0	0	0	0	0	6	0	22	0	190	
4:05 PM	0	54	11	0	40	43	0	0	0	0	0	0	11	0	30	0	189	
4:10 PM	0	43	11	0	43	55	0	0	0	0	0	0	15	0	34	0	201	
4:15 PM	0	63	15	0	45	52	0	0	0	0	0	0	5	0	30	0	210	
4:20 PM	0	56	13	0	41	55	0	0	0	0	0	0	7	0	29	0	201	
4:25 PM	0	56	16	0	28	45	0	0	0	0	0	0	14	0	29	0	188	
4:30 PM	0	53	9	0	42	46	0	0	0	0	0	0	3	0	44	0	197	
4:35 PM	1	43	15	0	32	63	0	0	0	0	0	0	4	0	33	0	191	
4:40 PM	0	44	17	0	36	66	0	0	1	0	1	0	8	0	35	0	208	
4:45 PM	0	35	8	0	36	54	0	0	0	0	0	0	3	0	30	0	166	
4:50 PM	0	52	10	0	41	59	0	0	0	0	0	0	4	0	27	0	193	
4:55 PM	0	29	6	0	35	38	0	0	0	0	0	0	10	0	25	0	143	2277
5:00 PM	0	34	7	0	28	40	0	0	0	0	0	0	13	0	30	0	152	2239
5:05 PM	0	41	7	0	29	55	0	0	0	0	0	0	4	0	26	0	162	2212
5:10 PM	0	30	7	0	31	36	0	0	0	0	0	0	5	0	26	0	135	2146
5:15 PM	0	38	10	0	25	41	0	0	0	0	0	0	2	0	24	0	140	2076
5:20 PM	0	35	5	0	37	34	0	0	0	0	0	0	3	0	24	0	138	2013
5:25 PM	0	33	12	0	36	32	0	0	0	0	0	0	5	0	30	0	148	1973
5:30 PM	0	30	7	0	28	23	0	0	0	0	0	0	5	0	19	0	112	1888
5:35 PM	0	39	4	0	23	22	0	0	0	0	0	0	3	0	13	0	104	1801
5:40 PM	0	13	10	0	28	30	0	0	0	0	0	0	4	0	18	0	103	1696
5:45 PM	0	26	9	0	26	28	0	0	0	0	0	0	3	0	17	0	109	1639
5:50 PM	0	37	3	0	31	26	0	0	0	0	0	0	5	0	26	0	128	1574
5:55 PM	0	32	6	0	27	30	0	0	0	0	0	0	5	0	17	0	117	1548
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	648	156	0	516	648	0	0	0	0	0	0	108	0	372	0	2448	
Heavy Trucks	0	4	4	0	12	12	0	0	0	0	0	0	0	0	24	0	56	
Buses																		
Pedestrians	0				0				0				0				0	
Bicycles	0	0	8		0	0	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952630
DATE: Thu, Sep 22 2022

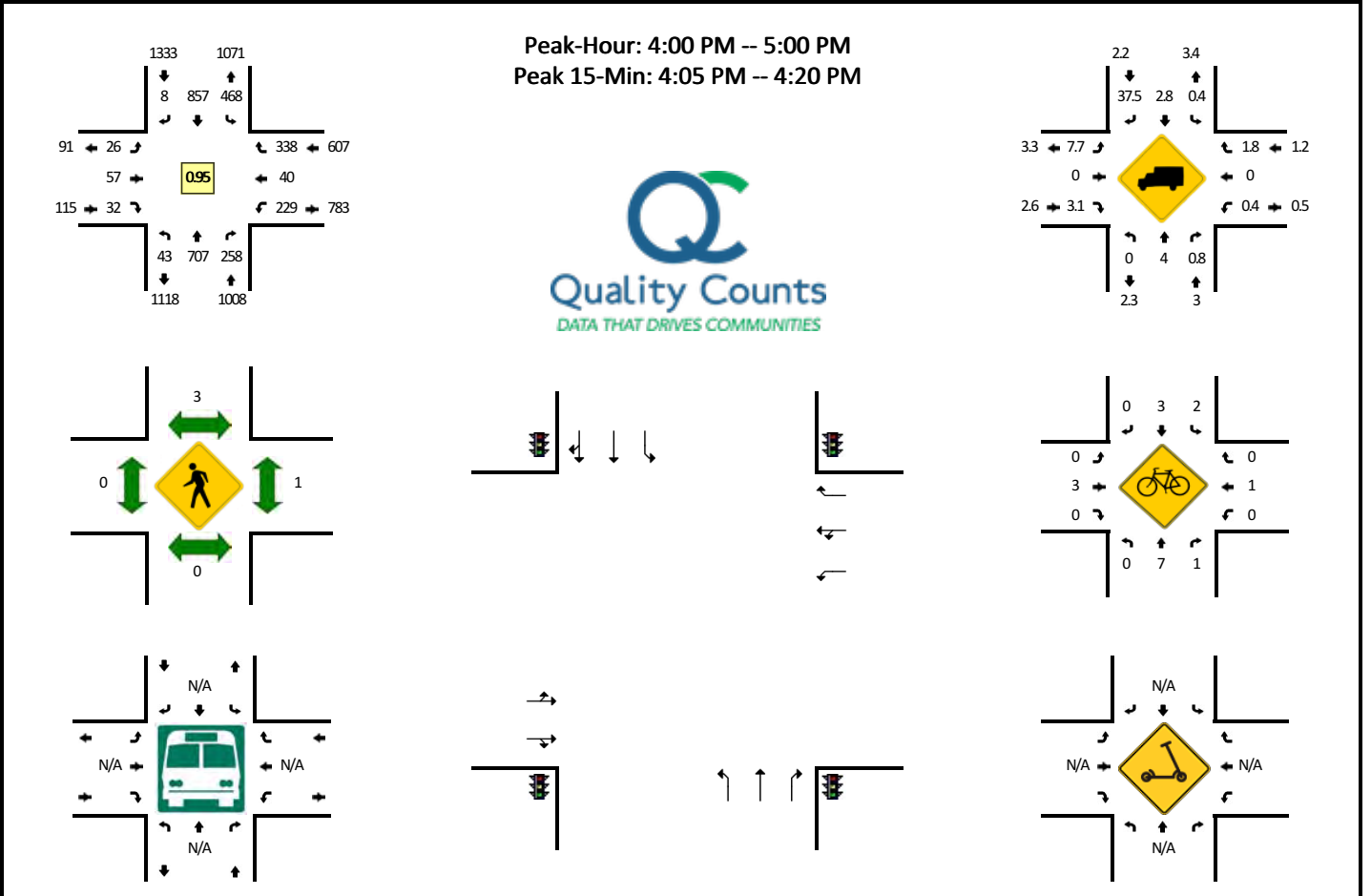


5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	44	12	0	17	33	6	0	3	2	2	0	22	3	24	0	168	
7:05 AM	2	35	5	0	26	50	2	0	5	1	0	0	23	0	17	0	166	
7:10 AM	2	58	15	0	24	49	5	0	2	2	2	0	15	1	28	0	203	
7:15 AM	3	48	20	0	11	39	5	0	0	0	2	0	15	0	27	0	170	
7:20 AM	3	52	20	0	18	47	4	0	4	0	2	0	21	3	28	0	202	
7:25 AM	2	58	36	0	18	35	1	0	5	1	1	0	11	3	25	0	196	
7:30 AM	3	52	29	0	15	36	5	0	5	1	1	0	20	0	37	0	204	
7:35 AM	2	51	19	0	14	40	5	0	4	2	0	0	18	5	30	0	190	
7:40 AM	2	45	21	0	21	48	2	0	5	1	1	0	16	0	41	0	203	
7:45 AM	4	61	17	0	9	36	3	0	1	1	1	0	20	3	35	0	191	
7:50 AM	3	36	20	0	21	40	4	0	6	0	3	0	21	2	27	0	183	
7:55 AM	1	41	9	0	14	33	4	0	1	0	2	0	28	7	27	0	167	2243
8:00 AM	6	24	11	0	19	37	1	0	7	2	3	0	26	4	14	0	154	2229
8:05 AM	4	35	7	0	17	45	2	0	3	2	3	0	18	4	29	0	169	2232
8:10 AM	4	48	13	0	20	42	2	0	4	0	3	0	9	3	20	0	168	2197
8:15 AM	5	40	9	0	11	27	5	0	5	2	1	0	14	5	29	0	153	2180
8:20 AM	5	46	11	0	11	40	1	0	1	1	1	0	17	5	18	0	157	2135
8:25 AM	7	32	7	0	18	29	4	0	3	3	2	0	10	3	16	0	134	2073
8:30 AM	2	36	11	0	23	36	2	0	3	1	4	0	15	1	21	0	155	2024
8:35 AM	6	38	8	0	16	30	0	0	6	2	3	0	6	1	17	0	133	1967
8:40 AM	5	27	14	0	21	50	2	0	4	2	3	0	12	7	29	0	176	1940
8:45 AM	6	36	10	0	13	36	2	0	3	2	6	0	8	3	29	0	154	1903
8:50 AM	8	35	11	0	9	34	2	0	5	3	4	0	14	3	31	0	159	1879
8:55 AM	2	31	9	0	13	40	3	0	3	3	3	0	6	7	23	0	143	1855
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	648	340	0	204	472	40	0	56	8	16	0	208	24	360	0	2408	
Heavy Trucks	4	28	20		16	68	16		40	0	4		8	0	12		216	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4	
Scooters																		

Comments:

LOCATION: S Federal Way -- S Gekeler Ln/E Bergeson St
CITY/STATE: Boise City, ID

QC JOB #: 15952631
DATE: Thu, Sep 22 2022



5-Min Count Period Beginning At	S Federal Way (Northbound)				S Federal Way (Southbound)				S Gekeler Ln/E Bergeson St (Eastbound)				S Gekeler Ln/E Bergeson St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	65	19	0	33	82	2	0	3	9	0	0	16	4	24	0	263	
4:05 PM	4	57	24	0	27	59	1	0	2	5	2	0	24	6	35	0	246	
4:10 PM	4	49	17	0	62	80	1	0	4	4	3	0	16	6	34	0	280	
4:15 PM	3	75	34	0	32	73	0	0	4	6	3	0	19	2	33	0	284	
4:20 PM	3	54	27	0	36	69	1	0	0	3	0	0	20	4	21	0	238	
4:25 PM	3	52	16	0	62	66	0	0	2	2	2	0	19	4	21	0	249	
4:30 PM	5	77	26	0	44	75	0	0	1	6	1	0	12	4	24	0	275	
4:35 PM	6	59	21	0	34	72	1	0	3	8	8	0	24	0	31	0	267	
4:40 PM	5	54	20	0	48	81	2	0	2	1	1	0	21	2	26	0	263	
4:45 PM	0	62	23	0	27	82	0	0	2	3	5	0	19	0	33	0	256	
4:50 PM	4	58	16	0	23	58	0	0	2	5	3	0	25	5	25	0	224	
4:55 PM	0	45	15	0	40	60	0	0	1	5	4	0	14	3	31	0	218	3063
5:00 PM	1	50	20	0	27	59	1	0	1	3	6	0	22	2	32	0	224	3024
5:05 PM	3	59	16	0	35	56	0	0	3	5	2	0	15	6	32	0	232	3010
5:10 PM	5	56	10	0	41	42	2	0	2	2	3	0	21	4	19	0	207	2937
5:15 PM	2	54	18	0	39	58	0	0	0	1	1	0	9	6	20	0	208	2861
5:20 PM	1	39	13	0	32	64	1	0	4	3	1	0	18	5	29	0	210	2833
5:25 PM	1	38	21	0	29	46	1	0	2	3	3	0	14	5	24	0	187	2771
5:30 PM	2	39	21	0	34	39	2	0	0	4	1	0	12	2	12	0	168	2664
5:35 PM	3	32	21	0	16	31	0	0	0	5	3	0	12	1	21	0	145	2542
5:40 PM	1	37	10	0	40	67	2	0	2	1	2	0	12	3	21	0	198	2477
5:45 PM	2	20	9	0	23	44	0	0	4	5	1	0	14	3	13	0	138	2359
5:50 PM	1	45	15	0	26	37	0	0	0	0	1	0	12	1	13	0	151	2286
5:55 PM	2	40	20	0	14	53	0	0	0	2	5	0	11	5	13	0	165	2233
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	724	300	0	484	848	8	0	40	60	32	0	236	56	408	0	3240	
Heavy Trucks	0	24	0	0	8	40	8	0	4	0	0	0	0	0	12	0	96	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	4	4		0	4	0		0	0	0		0	0	0		12	
Scooters																		

Comments:

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
Intersection: Federal Wy / Technology Ln
City, State: Boise, Idaho
Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
Site Code : 00000000
Start Date : 4/26/2022
Page No : 1

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
05:00 AM	57	14	0	71	0	0	0	0	1	1	0	2	73
05:15 AM	111	35	0	146	0	1	0	1	1	7	0	8	155
05:30 AM	127	61	0	188	2	0	0	2	2	8	0	10	200
05:45 AM	137	77	0	214	6	0	0	6	1	22	0	23	243
Total	432	187	0	619	8	1	0	9	5	38	0	43	671
06:00 AM	67	19	0	86	2	3	0	5	2	23	0	25	116
06:15 AM	62	32	2	96	1	2	0	3	2	25	0	27	126
06:30 AM	56	33	0	89	1	0	0	1	1	25	0	26	116
06:45 AM	81	28	2	111	0	1	0	1	0	24	3	27	139
Total	266	112	4	382	4	6	0	10	5	97	3	105	497
07:00 AM	74	16	0	90	1	1	0	2	2	12	0	14	106
07:15 AM	85	24	0	109	1	0	0	1	0	4	0	4	114
07:30 AM	118	33	2	153	1	0	0	1	1	5	0	6	160
07:45 AM	168	30	1	199	0	1	0	1	0	14	0	14	214
Total	445	103	3	551	3	2	0	5	3	35	0	38	594
08:00 AM	170	30	0	200	0	0	0	0	0	15	0	15	215
08:15 AM	146	28	0	174	0	1	0	1	0	14	0	14	189
08:30 AM	124	27	2	153	1	0	0	1	0	22	0	22	176
08:45 AM	154	20	2	176	0	0	0	0	1	24	1	26	202
Total	594	105	4	703	1	1	0	2	1	75	1	77	782
09:00 AM	117	24	0	141	0	0	0	0	0	14	0	14	155
09:15 AM	88	25	1	114	1	1	0	2	2	16	1	19	135
09:30 AM	56	11	0	67	1	0	0	1	1	19	0	20	88
09:45 AM	62	5	1	68	0	0	0	0	0	19	0	19	87
Total	323	65	2	390	2	1	0	3	3	68	1	72	465
10:00 AM	36	10	0	46	1	0	0	1	0	18	0	18	65
10:15 AM	31	3	0	34	2	0	0	2	0	18	0	18	54
10:30 AM	35	11	0	46	2	1	0	3	0	20	0	20	69
10:45 AM	27	8	1	36	3	1	0	4	0	28	0	28	68
Total	129	32	1	162	8	2	0	10	0	84	0	84	256
11:00 AM	28	2	0	30	1	0	0	1	0	42	0	42	73
11:15 AM	38	9	1	48	3	0	0	3	0	29	0	29	80
11:30 AM	39	6	0	45	2	0	0	2	0	41	0	41	88
11:45 AM	33	7	0	40	2	0	0	2	0	54	0	54	96
Total	138	24	1	163	8	0	0	8	0	166	0	166	337
12:00 PM	40	11	0	51	2	0	1	3	1	46	0	47	101
12:15 PM	40	7	0	47	1	0	0	1	0	43	0	43	91
12:30 PM	34	9	0	43	0	0	1	1	0	38	0	38	82
12:45 PM	52	10	0	62	7	0	1	8	0	33	0	33	103
Total	166	37	0	203	10	0	3	13	1	160	0	161	377
01:00 PM	50	11	0	61	5	1	1	7	0	29	0	29	97
01:15 PM	39	3	0	42	1	1	1	3	0	31	0	31	76
01:30 PM	36	3	0	39	2	0	1	3	0	30	0	30	72
01:45 PM	25	5	0	30	2	0	0	2	0	21	0	21	53
Total	150	22	0	172	10	2	3	15	0	111	0	111	298

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: NV50044
Intersection: Federal Wy / Technology Ln
City, State: Boise, Idaho
Control: Stop Sign

File Name : Federal Way & Technology Ln (Gate A)
Site Code : 00000000
Start Date : 4/26/2022
Page No : 2

Groups Printed- General Traffic

Start Time	Federal Way From North				Technology Lane From East				Federal Way From South				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
02:00 PM	29	8	0	37	1	0	0	1	0	38	0	38	76
02:15 PM	20	6	0	26	3	1	3	7	0	43	0	43	76
02:30 PM	22	7	0	29	3	0	0	3	0	52	0	52	84
02:45 PM	20	2	0	22	0	1	1	2	1	44	0	45	69
Total	91	23	0	114	7	2	4	13	1	177	0	178	305
03:00 PM	15	6	0	21	6	0	0	6	0	63	0	63	90
03:15 PM	21	3	0	24	4	1	0	5	0	69	0	69	98
03:30 PM	21	5	0	26	11	2	0	13	1	78	0	79	118
03:45 PM	12	4	0	16	2	0	0	2	0	109	0	109	127
Total	69	18	0	87	23	3	0	26	1	319	0	320	433
04:00 PM	14	5	0	19	8	2	1	11	0	169	0	169	199
04:15 PM	10	4	0	14	6	4	2	12	0	148	0	148	174
04:30 PM	23	1	0	24	17	3	3	23	0	223	0	223	270
04:45 PM	22	1	0	23	7	0	0	7	0	109	0	109	139
Total	69	11	0	80	38	9	6	53	0	649	0	649	782
05:00 PM	25	4	0	29	4	2	1	7	0	164	0	164	200
05:15 PM	19	6	0	25	6	1	1	8	0	125	0	125	158
05:30 PM	35	9	0	44	9	2	1	12	0	112	0	112	168
05:45 PM	39	4	0	43	4	1	0	5	1	133	0	134	182
Total	118	23	0	141	23	6	3	32	1	534	0	535	708
06:00 PM	24	4	0	28	5	0	0	5	0	129	0	129	162
06:15 PM	26	3	0	29	2	1	1	4	1	81	0	82	115
06:30 PM	7	3	0	10	1	0	0	1	0	84	0	84	95
06:45 PM	9	1	0	10	1	0	0	1	0	55	0	55	66
Total	66	11	0	77	9	1	1	11	1	349	0	350	438
07:00 PM	8	0	0	8	0	0	0	0	0	48	0	48	56
07:15 PM	9	0	0	9	2	0	1	3	0	46	0	46	58
07:30 PM	5	1	0	6	1	0	0	1	0	28	0	28	35
07:45 PM	4	1	0	5	0	0	0	0	0	18	0	18	23
Total	26	2	0	28	3	0	1	4	0	140	0	140	172
Grand Total	3082	775	15	3872	157	36	21	214	22	3002	5	3029	7115
Apprch %	79.6	20	0.4		73.4	16.8	9.8		0.7	99.1	0.2		
Total %	43.3	10.9	0.2	54.4	2.2	0.5	0.3	3	0.3	42.2	0.1	42.6	

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	17	10	0	0	0	0	0	0	0	0	0	0		27
01:00 AM	0	18	10	0	0	0	0	0	0	0	0	0	0		28
02:00 AM	0	4	1	0	0	2	0	0	0	0	0	0	0		7
03:00 AM	0	10	3	0	0	0	0	0	8	1	0	0	0		22
04:00 AM	0	17	10	0	0	0	0	0	2	0	0	0	0		29
05:00 AM	0	61	41	0	1	2	0	0	3	0	0	0	0		108
06:00 AM	1	18	13	0	1	3	0	2	5	0	0	0	0		43
07:00 AM	0	31	22	0	3	1	0	0	1	0	0	0	0		58
08:00 AM	0	42	29	0	5	1	0	3	5	1	0	0	0		86
09:00 AM	1	41	30	0	7	1	1	2	3	0	0	0	0		86
10:00 AM	2	111	75	1	5	2	1	2	3	0	0	0	0		202
11:00 AM	0	108	73	0	3	2	1	2	2	0	0	0	0		191
12:00 PM	1	81	53	0	2	4	0	0	5	1	0	0	0		147
01:00 PM	0	121	80	1	5	0	0	3	3	0	0	0	0		213
02:00 PM	9	204	136	0	2	0	0	3	4	1	0	0	0		359
03:00 PM	10	395	266	0	1	0	0	0	0	1	0	0	0		673
04:00 PM	9	414	277	0	5	0	0	1	0	0	0	0	0		706
05:00 PM	10	239	156	0	1	0	0	0	0	2	0	0	0		408
06:00 PM	4	100	64	0	0	1	0	0	0	0	0	0	0		169
07:00 PM	0	33	26	0	1	0	0	0	1	0	1	0	0		62
08:00 PM	0	15	8	0	0	0	0	0	0	0	0	0	0		23
09:00 PM	1	12	8	0	0	0	0	0	0	0	0	0	0		21
10:00 PM	0	12	7	0	0	1	0	0	0	0	0	0	0		20
11:00 PM	1	8	4	0	0	0	0	0	0	0	0	0	0		13
Day Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															
AM Peak Volume	10:00 AM 2	10:00 AM 111	10:00 AM 75	10:00 AM 1	9:00 AM 7	6:00 AM 3	9:00 AM 1	8:00 AM 3	3:00 AM 8	3:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0		10:00 AM 202
PM Peak Volume	3:00 PM 10	4:00 PM 414	4:00 PM 277	1:00 PM 1	1:00 PM 5	12:00 PM 4	12:00 PM 0	1:00 PM 3	12:00 PM 5	5:00 PM 2	7:00 PM 1	12:00 PM 0	12:00 PM 0		4:00 PM 706

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	49	2112	1402	2	42	20	3	18	45	7	1	0	0		3701
Percent	1.3%	57.1%	37.9%	0.1%	1.1%	0.5%	0.1%	0.5%	1.2%	0.2%	0%	0%	0%		
ADT 3701															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				27		27			27	
01:00 AM				28		28			28	
02:00 AM				7		7			7	
03:00 AM				22		22			22	
04:00 AM				29		29			29	
05:00 AM				108		108			108	
06:00 AM				43		43			43	
07:00 AM				58		58			58	
08:00 AM				86		86			86	
09:00 AM				86		86			86	
10:00 AM				202		202			202	
11:00 AM				191		191			191	
12:00 PM				147		147			147	
01:00 PM				213		213			213	
02:00 PM				359		359			359	
03:00 PM				673		673			673	
04:00 PM				706		706			706	
05:00 PM				408		408			408	
06:00 PM				169		169			169	
07:00 PM				62		62			62	
08:00 PM				23		23			23	
09:00 PM				21		21			21	
10:00 PM				20		20			20	
11:00 PM				13		13			13	
Day Total				3701		3701			3701	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				10:00 AM 202		10:00 AM 202			10:00 AM 202	
PM Peak Volume				4:00 PM 706		4:00 PM 706			4:00 PM 706	

Comments:

LOCATION: S Federal Wy south of S Silicon Ln

QC JOB #: 15952623

SPECIFIC LOCATION:

DIRECTION: NB, SB

CITY/STATE: Boise City, ID

DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	23	12	0	1	0	0	0	0	0	0	0	0	0	36
01:00 AM	0	22	10	0	0	0	0	0	0	0	0	0	0	0	32
02:00 AM	0	14	5	0	0	2	0	0	1	0	0	0	0	0	22
03:00 AM	0	55	34	0	1	0	0	0	8	1	0	0	0	0	99
04:00 AM	5	395	261	0	4	1	0	1	2	0	0	0	0	0	669
05:00 AM	10	289	195	0	5	3	0	1	5	0	0	0	0	0	508
06:00 AM	11	374	250	0	4	4	0	3	7	0	0	0	0	0	653
07:00 AM	7	487	328	0	9	1	0	0	6	1	0	0	0	0	839
08:00 AM	8	261	175	0	9	1	0	4	6	2	0	0	0	0	466
09:00 AM	4	139	94	0	13	3	2	5	3	0	0	0	0	0	263
10:00 AM	5	213	141	1	12	2	1	4	9	1	0	0	0	0	389
11:00 AM	2	227	150	0	6	3	1	4	6	2	0	0	0	0	401
12:00 PM	1	181	120	0	5	6	0	1	11	1	0	0	0	0	326
01:00 PM	0	180	118	1	10	1	0	6	7	0	0	0	0	0	323
02:00 PM	10	281	188	0	3	0	0	5	7	3	0	0	0	0	497
03:00 PM	10	445	298	0	5	0	0	0	1	1	0	0	0	0	760
04:00 PM	9	507	335	0	7	1	0	2	0	0	0	0	0	0	861
05:00 PM	11	279	180	0	2	0	0	0	0	2	0	0	0	0	474
06:00 PM	6	118	76	0	1	1	0	0	1	0	0	0	0	0	203
07:00 PM	0	44	32	0	2	0	0	0	2	0	1	0	0	0	81
08:00 PM	0	24	11	0	0	0	0	0	1	0	0	0	0	0	36
09:00 PM	1	19	10	0	1	0	0	0	0	0	0	0	0	0	31
10:00 PM	0	17	11	0	1	1	0	0	1	0	0	0	0	0	31
11:00 PM	1	9	4	0	1	0	0	0	0	0	0	0	0	0	15
Day Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															
AM Peak Volume	6:00 AM 11	7:00 AM 487	7:00 AM 328	10:00 AM 1	9:00 AM 13	6:00 AM 4	9:00 AM 2	9:00 AM 5	10:00 AM 9	8:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	7:00 AM 839
PM Peak Volume	5:00 PM 11	4:00 PM 507	4:00 PM 335	1:00 PM 1	1:00 PM 10	12:00 PM 6	12:00 PM 0	1:00 PM 6	12:00 PM 11	2:00 PM 3	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	4:00 PM 861

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** NB, SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	101	4603	3038	2	102	30	4	36	84	14	1	0	0	0	8015
Percent	1.3%	57.4%	37.9%	0%	1.3%	0.4%	0%	0.4%	1%	0.2%	0%	0%	0%	0%	
ADT 8015															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: NB, SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				36		36			36	
01:00 AM				32		32			32	
02:00 AM				22		22			22	
03:00 AM				99		99			99	
04:00 AM				669		669			669	
05:00 AM				508		508			508	
06:00 AM				653		653			653	
07:00 AM				839		839			839	
08:00 AM				466		466			466	
09:00 AM				263		263			263	
10:00 AM				389		389			389	
11:00 AM				401		401			401	
12:00 PM				326		326			326	
01:00 PM				323		323			323	
02:00 PM				497		497			497	
03:00 PM				760		760			760	
04:00 PM				861		861			861	
05:00 PM				474		474			474	
06:00 PM				203		203			203	
07:00 PM				81		81			81	
08:00 PM				36		36			36	
09:00 PM				31		31			31	
10:00 PM				31		31			31	
11:00 PM				15		15			15	
Day Total				8015		8015			8015	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 839		7:00 AM 839			7:00 AM 839	
PM Peak Volume				4:00 PM 861		4:00 PM 861			4:00 PM 861	

Comments:

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	6	2	0	1	0	0	0	0	0	0	0	0		9
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0		4
02:00 AM	0	10	4	0	0	0	0	0	1	0	0	0	0		15
03:00 AM	0	45	31	0	1	0	0	0	0	0	0	0	0		77
04:00 AM	5	378	251	0	4	1	0	1	0	0	0	0	0		640
05:00 AM	10	228	154	0	4	1	0	1	2	0	0	0	0		400
06:00 AM	10	356	237	0	3	1	0	1	2	0	0	0	0		610
07:00 AM	7	456	306	0	6	0	0	0	5	1	0	0	0		781
08:00 AM	8	219	146	0	4	0	0	1	1	1	0	0	0		380
09:00 AM	3	98	64	0	6	2	1	3	0	0	0	0	0		177
10:00 AM	3	102	66	0	7	0	0	2	6	1	0	0	0		187
11:00 AM	2	119	77	0	3	1	0	2	4	2	0	0	0		210
12:00 PM	0	100	67	0	3	2	0	1	6	0	0	0	0		179
01:00 PM	0	59	38	0	5	1	0	3	4	0	0	0	0		110
02:00 PM	1	77	52	0	1	0	0	2	3	2	0	0	0		138
03:00 PM	0	50	32	0	4	0	0	0	1	0	0	0	0		87
04:00 PM	0	93	58	0	2	1	0	1	0	0	0	0	0		155
05:00 PM	1	40	24	0	1	0	0	0	0	0	0	0	0		66
06:00 PM	2	18	12	0	1	0	0	0	1	0	0	0	0		34
07:00 PM	0	11	6	0	1	0	0	0	1	0	0	0	0		19
08:00 PM	0	9	3	0	0	0	0	0	1	0	0	0	0		13
09:00 PM	0	7	2	0	1	0	0	0	0	0	0	0	0		10
10:00 PM	0	5	4	0	1	0	0	0	1	0	0	0	0		11
11:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0		2
Day Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															
AM Peak Volume	5:00 AM 10	7:00 AM 456	7:00 AM 306	12:00 AM 0	10:00 AM 7	9:00 AM 2	9:00 AM 1	9:00 AM 3	10:00 AM 6	11:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0		7:00 AM 781
PM Peak Volume	6:00 PM 2	12:00 PM 100	12:00 PM 67	12:00 PM 0	1:00 PM 5	12:00 PM 2	12:00 PM 0	1:00 PM 3	12:00 PM 6	2:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0		12:00 PM 179

Comments:

LOCATION: S Federal Wy south of S Silicon Ln **QC JOB #:** 15952623
SPECIFIC LOCATION: **DIRECTION:** SB
CITY/STATE: Boise City, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	52	2491	1636	0	60	10	1	18	39	7	0	0	0		4314
Percent	1.2%	57.7%	37.9%	0%	1.4%	0.2%	0%	0.4%	0.9%	0.2%	0%	0%	0%		
ADT 4314															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: S Federal Wy south of S Silicon Ln SPECIFIC LOCATION: CITY/STATE: Boise City, ID							QC JOB #: 15952623 DIRECTION: SB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				9		9			9	
01:00 AM				4		4			4	
02:00 AM				15		15			15	
03:00 AM				77		77			77	
04:00 AM				640		640			640	
05:00 AM				400		400			400	
06:00 AM				610		610			610	
07:00 AM				781		781			781	
08:00 AM				380		380			380	
09:00 AM				177		177			177	
10:00 AM				187		187			187	
11:00 AM				210		210			210	
12:00 PM				179		179			179	
01:00 PM				110		110			110	
02:00 PM				138		138			138	
03:00 PM				87		87			87	
04:00 PM				155		155			155	
05:00 PM				66		66			66	
06:00 PM				34		34			34	
07:00 PM				19		19			19	
08:00 PM				13		13			13	
09:00 PM				10		10			10	
10:00 PM				11		11			11	
11:00 PM				2		2			2	
Day Total				4314		4314			4314	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				7:00 AM 781		7:00 AM 781			7:00 AM 781	
PM Peak Volume				12:00 PM 179		12:00 PM 179			12:00 PM 179	

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
03:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
04:00 AM	0	15	10	0	0	0	0	0	0	0	0	0	0		25
05:00 AM	0	13	7	1	1	0	0	0	0	0	0	0	0		22
06:00 AM	2	42	29	4	1	0	0	0	0	0	0	0	0		78
07:00 AM	0	56	39	0	0	0	0	0	0	0	0	0	0		95
08:00 AM	0	38	23	0	4	0	0	0	0	0	0	0	0		65
09:00 AM	0	36	21	0	2	0	0	0	0	0	0	0	0		59
10:00 AM	1	42	29	1	3	0	0	0	1	0	0	0	0		77
11:00 AM	0	56	38	0	3	0	0	1	0	0	0	0	0		98
12:00 PM	0	49	35	0	2	0	0	0	0	0	0	0	0		86
01:00 PM	1	58	40	1	3	1	0	0	0	0	0	0	0		104
02:00 PM	0	81	55	4	0	1	0	0	0	0	0	0	0		141
03:00 PM	0	98	68	2	1	0	0	0	0	0	0	0	0		169
04:00 PM	1	110	73	0	1	0	0	0	0	0	0	0	0		185
05:00 PM	0	92	60	0	0	0	0	0	0	0	0	0	0		152
06:00 PM	1	75	46	0	0	0	0	0	0	0	0	0	0		122
07:00 PM	0	53	38	0	0	0	0	0	1	0	0	0	0		92
08:00 PM	0	30	21	0	0	0	0	0	0	0	0	0	0		51
09:00 PM	0	20	13	0	0	0	0	0	0	0	0	0	0		33
10:00 PM	0	7	3	0	0	0	0	0	0	0	0	0	0		10
11:00 PM	0	4	1	0	0	0	0	0	0	0	0	0	0		5
Day Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															
AM Peak Volume	6:00 AM 2	7:00 AM 56	7:00 AM 39	6:00 AM 4	8:00 AM 4	12:00 AM 0	12:00 AM 0	11:00 AM 1	10:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0		11:00 AM 98
PM Peak Volume	1:00 PM 1	4:00 PM 110	4:00 PM 73	2:00 PM 4	1:00 PM 3	1:00 PM 1	12:00 PM 0	12:00 PM 0	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0		4:00 PM 185

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	6	984	649	13	21	2	0	1	2	0	0	0	0		1678
Percent	0.4%	58.6%	38.7%	0.8%	1.3%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1678															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				1		1			1	
03:00 AM				3		3			3	
04:00 AM				25		25			25	
05:00 AM				22		22			22	
06:00 AM				78		78			78	
07:00 AM				95		95			95	
08:00 AM				65		65			65	
09:00 AM				59		59			59	
10:00 AM				77		77			77	
11:00 AM				98		98			98	
12:00 PM				86		86			86	
01:00 PM				104		104			104	
02:00 PM				141		141			141	
03:00 PM				169		169			169	
04:00 PM				185		185			185	
05:00 PM				152		152			152	
06:00 PM				122		122			122	
07:00 PM				92		92			92	
08:00 PM				51		51			51	
09:00 PM				33		33			33	
10:00 PM				10		10			10	
11:00 PM				5		5			5	
Day Total				1678		1678			1678	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				11:00 AM 98		11:00 AM 98			11:00 AM 98	
PM Peak Volume				4:00 PM 185		4:00 PM 185			4:00 PM 185	

Comments:

LOCATION: Columbia Rd east of Circuit Way
SPECIFIC LOCATION:
CITY/STATE: Boise, ID

QC JOB #: 15952633
DIRECTION: EB, WB
DATE: Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
01:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
03:00 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
04:00 AM	0	41	26	0	0	0	0	0	0	0	0	0	0	0	67
05:00 AM	0	45	31	1	1	0	0	0	0	0	0	0	0	0	78
06:00 AM	4	159	108	6	2	0	0	0	0	0	0	0	0	0	279
07:00 AM	2	162	110	3	0	0	0	0	0	0	0	0	0	0	277
08:00 AM	0	91	57	0	6	0	0	0	0	0	0	0	0	0	154
09:00 AM	0	87	55	0	3	0	0	0	0	0	0	0	0	0	145
10:00 AM	2	95	65	1	6	0	0	0	2	0	0	0	0	0	171
11:00 AM	0	104	71	1	5	0	0	1	0	0	0	0	0	0	182
12:00 PM	0	94	66	0	8	0	0	0	0	0	0	0	0	0	168
01:00 PM	1	116	77	2	6	2	0	1	0	0	0	0	0	0	205
02:00 PM	0	154	103	8	3	2	0	0	0	0	0	0	0	0	270
03:00 PM	0	176	120	4	4	0	0	0	0	0	0	0	0	0	304
04:00 PM	3	197	130	0	2	0	0	0	0	0	0	0	0	0	332
05:00 PM	0	149	100	0	0	0	0	0	0	0	0	0	0	0	249
06:00 PM	1	105	64	0	0	0	0	0	0	0	0	0	0	0	170
07:00 PM	0	78	53	0	1	0	0	0	2	0	0	0	0	0	134
08:00 PM	0	48	33	0	0	0	0	0	0	0	0	0	0	0	81
09:00 PM	0	28	18	0	0	0	0	0	0	0	0	0	0	0	46
10:00 PM	0	12	3	0	0	0	0	0	0	0	0	0	0	0	15
11:00 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
Day Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															
AM Peak Volume	6:00 AM 4	7:00 AM 162	7:00 AM 110	6:00 AM 6	8:00 AM 6	12:00 AM 0	12:00 AM 0	11:00 AM 1	10:00 AM 2	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0	6:00 AM 279
PM Peak Volume	4:00 PM 3	4:00 PM 197	4:00 PM 130	2:00 PM 8	12:00 PM 8	1:00 PM 2	12:00 PM 0	1:00 PM 1	7:00 PM 2	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0	4:00 PM 332

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	13	1968	1293	26	47	4	0	2	4	0	0	0	0	0	3357
Percent	0.4%	58.6%	38.5%	0.8%	1.4%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%	0%	
ADT 3357															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way SPECIFIC LOCATION: CITY/STATE: Boise, ID							QC JOB #: 15952633 DIRECTION: EB, WB DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				6		6			6	
01:00 AM				4		4			4	
02:00 AM				4		4			4	
03:00 AM				10		10			10	
04:00 AM				67		67			67	
05:00 AM				78		78			78	
06:00 AM				279		279			279	
07:00 AM				277		277			277	
08:00 AM				154		154			154	
09:00 AM				145		145			145	
10:00 AM				171		171			171	
11:00 AM				182		182			182	
12:00 PM				168		168			168	
01:00 PM				205		205			205	
02:00 PM				270		270			270	
03:00 PM				304		304			304	
04:00 PM				332		332			332	
05:00 PM				249		249			249	
06:00 PM				170		170			170	
07:00 PM				134		134			134	
08:00 PM				81		81			81	
09:00 PM				46		46			46	
10:00 PM				15		15			15	
11:00 PM				6		6			6	
Day Total				3357		3357			3357	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 279		6:00 AM 279			6:00 AM 279	
PM Peak Volume				4:00 PM 332		4:00 PM 332			4:00 PM 332	
Comments:										

Report generated on 10/6/2022 12:24 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

Start Time	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0		3
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0		2
02:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0		3
03:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0		7
04:00 AM	0	26	16	0	0	0	0	0	0	0	0	0	0		42
05:00 AM	0	32	24	0	0	0	0	0	0	0	0	0	0		56
06:00 AM	2	117	79	2	1	0	0	0	0	0	0	0	0		201
07:00 AM	2	106	71	3	0	0	0	0	0	0	0	0	0		182
08:00 AM	0	53	34	0	2	0	0	0	0	0	0	0	0		89
09:00 AM	0	51	34	0	1	0	0	0	0	0	0	0	0		86
10:00 AM	1	53	36	0	3	0	0	0	1	0	0	0	0		94
11:00 AM	0	48	33	1	2	0	0	0	0	0	0	0	0		84
12:00 PM	0	45	31	0	6	0	0	0	0	0	0	0	0		82
01:00 PM	0	58	37	1	3	1	0	1	0	0	0	0	0		101
02:00 PM	0	73	48	4	3	1	0	0	0	0	0	0	0		129
03:00 PM	0	78	52	2	3	0	0	0	0	0	0	0	0		135
04:00 PM	2	87	57	0	1	0	0	0	0	0	0	0	0		147
05:00 PM	0	57	40	0	0	0	0	0	0	0	0	0	0		97
06:00 PM	0	30	18	0	0	0	0	0	0	0	0	0	0		48
07:00 PM	0	25	15	0	1	0	0	0	1	0	0	0	0		42
08:00 PM	0	18	12	0	0	0	0	0	0	0	0	0	0		30
09:00 PM	0	8	5	0	0	0	0	0	0	0	0	0	0		13
10:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0		5
11:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0		1
Day Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															
AM Peak Volume	6:00 AM 2	6:00 AM 117	6:00 AM 79	7:00 AM 3	10:00 AM 3	12:00 AM 0	12:00 AM 0	12:00 AM 0	10:00 AM 1	12:00 AM 0	12:00 AM 0	12:00 AM 0	12:00 AM 0		6:00 AM 201
PM Peak Volume	4:00 PM 2	4:00 PM 87	4:00 PM 57	2:00 PM 4	12:00 PM 6	1:00 PM 1	12:00 PM 0	1:00 PM 1	7:00 PM 1	12:00 PM 0	12:00 PM 0	12:00 PM 0	12:00 PM 0		4:00 PM 147

Comments:

LOCATION: Columbia Rd east of Circuit Way **QC JOB #:** 15952633
SPECIFIC LOCATION: **DIRECTION:** WB
CITY/STATE: Boise, ID **DATE:** Sep 22 2022

	Motorcycles	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	7	984	644	13	26	2	0	1	2	0	0	0	0		1679
Percent	0.4%	58.6%	38.4%	0.8%	1.5%	0.1%	0%	0.1%	0.1%	0%	0%	0%	0%		
ADT 1679															

Comments:



Type of report: Tube Count - Volume Data

LOCATION: Columbia Rd east of Circuit Way							QC JOB #: 15952633			
SPECIFIC LOCATION:							DIRECTION: WB			
CITY/STATE: Boise, ID							DATE: Sep 22 2022 - Sep 22 2022			
Start Time	Mon	Tue	Wed	Thu 22 Sep 22	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				3		3			3	
01:00 AM				2		2			2	
02:00 AM				3		3			3	
03:00 AM				7		7			7	
04:00 AM				42		42			42	
05:00 AM				56		56			56	
06:00 AM				201		201			201	
07:00 AM				182		182			182	
08:00 AM				89		89			89	
09:00 AM				86		86			86	
10:00 AM				94		94			94	
11:00 AM				84		84			84	
12:00 PM				82		82			82	
01:00 PM				101		101			101	
02:00 PM				129		129			129	
03:00 PM				135		135			135	
04:00 PM				147		147			147	
05:00 PM				97		97			97	
06:00 PM				48		48			48	
07:00 PM				42		42			42	
08:00 PM				30		30			30	
09:00 PM				13		13			13	
10:00 PM				5		5			5	
11:00 PM				1		1			1	
Day Total				1679		1679			1679	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				6:00 AM 201		6:00 AM 201			6:00 AM 201	
PM Peak Volume				4:00 PM 147		4:00 PM 147			4:00 PM 147	

Comments:

APPENDIX C: Scoping Document

TIS SCOPING MEMO

To: Christy Little, ACHD
From: John Karnowski, PE, PTOE, AICP (john.karnowski@NV5.com)
cc: Heather Baldwin, Micron
 Deborah E. Nelson, Givens Pursley, LLP
Date: October 10, 2022
Re: Traffic Impact Study Scoping Documentation
 Proposed Micron FAB1 Development, S Federal Way, Boise, ID

This memorandum conveys current information related to the preliminary scope of a Traffic Impact Study (TIS) for a microprocessor fabrication facility in Boise, Idaho. The following include trip generation, study area, background growth, nearby approved development, trip distribution and analysis scenarios.

Site Description

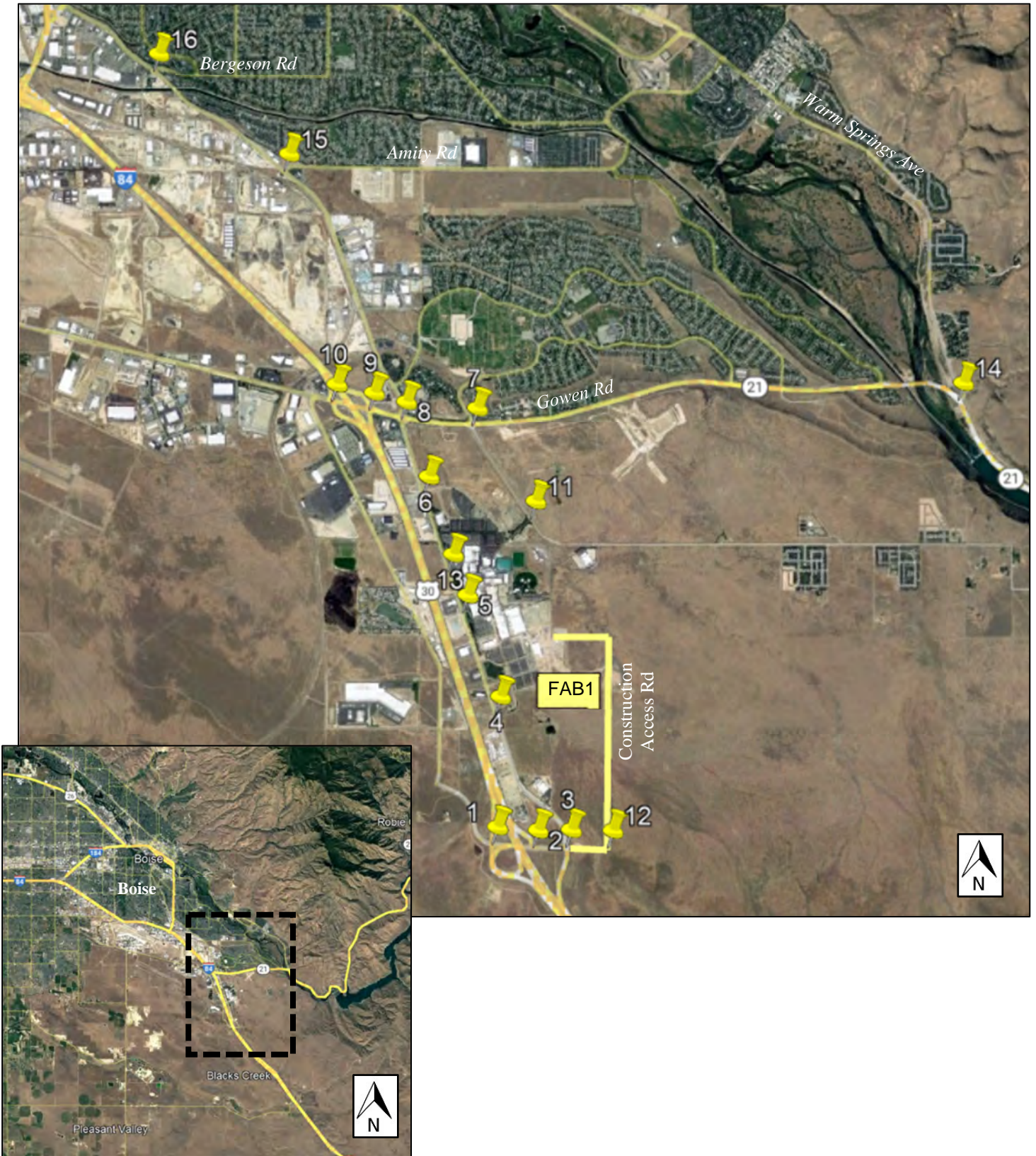
The TIS will comply with all the requirements of the ACHD including analysis, reporting, and development of any necessary mitigation measures meeting minimum design Level-of-Service (LOS) D for suburban roadways and intersections. The proposed development will include several buildings in support of the main fabrication building. The buildings will be east of S Federal Way, north of Memory Lane, and west of Columbia Road. There will be multiple points of egress for the development, all of which are existing. Construction traffic will utilize a temporary road, which will be the extension of Memory Lane.

This study will consider only the first phase of development which will be the Fab building, related office and support buildings, and a vendor building. The site location is shown in Figure 1.

Site Access

Access to the site will be available from existing driveways along S Federal Way and Technology Way.

Figure 1. Site Location and Study Area Map



Site Trip Generation

A new manufacturing facility will be built on land adjacent to the existing Micron R&D campus. The development will include 2,000 new Micron associates plus 750 “sustaining” contractors. Because there are several buildings that are needed to support the operation but a total of 2750 employees, “Manufacturing” with an independent variable of number of employees is the more prudent land use category. The number of trips generated by the proposed development was estimated using the equations provided in the ITE Trip Generation Manual, 11th Edition. The following table provides a summary of these results for daily, AM peak hour, and PM peak hour conditions.

Table 1. Trip Generation

Land Use	Trips	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Manufacturing (LU 140) 2,750 Employees*	Auto	5,661	487	173	660	215	370	585
	Trucks	513	16	13	29	11	15	26
	Total	6,174	503	186	689	226	385	611

*includes sustaining contractors

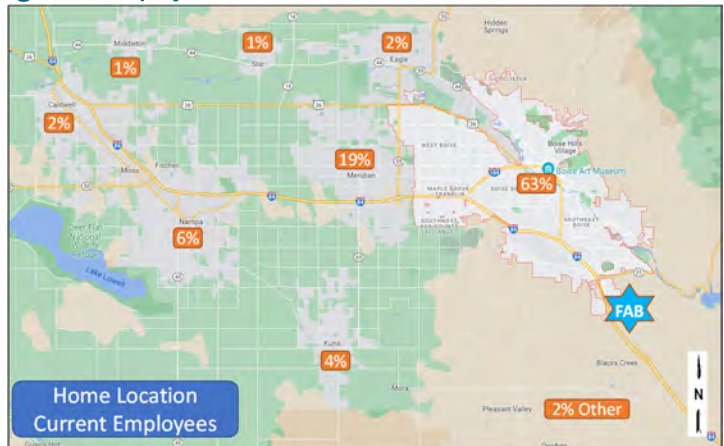
Trip Distribution and Trip Assignment

The assignment and directional distribution of new project trips on the transportation network are based on the expected facility’s employment service areas, population density in Boise, ID, and input from COMPASS. The home locations of current employees is tabulated in Table 2 and shown in Figure 2.

Table 2. Employee Home Base

Current Employee Home City	% of Total
Boise	63%
Meridian	19%
Nampa	6%
Kuna	4%
Caldwell	2%
Eagle	2%
Mountain Home	1%
Middleton	1%
Star	1%
Garden City	0.4%
Emmett	0.4%
Idaho City	0.2%

Figure 2. Employee Home Base



Truck distribution is based on the expected outlets to interstate travel. The intersection-specific percentages and assignment of the site trips are shown in Figures 3-5.

Figure 3. Macro Area Trip Distribution – Autos and Trucks



Study Locations

The following intersections and road segments (as illustrated in Figure 1) will be analyzed:

- Intersections
 1. Eisenman Rd & I-84 SB Ramp
 2. Eisenman Rd & I-84 NB On-Ramp
 3. Memory Ln & Federal Way/I-84 NB Off-Ramp
 4. Federal Way & Gate C (signal)
 5. Federal Way & Gate B
 6. Federal Way & Silicon Way
 7. Gowen Road & Technology Way (signal)
 8. Gowen Road & Federal Way (signal)
 9. Gowen Road & I-84 NB Ramp (signal)
 10. Gowen Road & I-85 SB Ramp (signal)
 11. Technology Ln & Circuit Way
 - ~~12. Memory Ln & Fab Access Road~~
 13. Federal Way & Gate A / Childcare Center
 14. Gowen Road & Warm Springs Ave
 15. Federal Way & Amity Rd (signal)
 16. Federal Way and Bergeson St (signal)
- Segments
 - A. Federal Way, South of Silicon Way
 - B. Gowen Road, Btwn I-84 NB Ramp and Federal Way
 - C. Memory Ln, Btwn I-84 NB On-Ramp and Federal Way
 - D. Technology Way, Btwn Gowen Road and Circuit Way
 - E. Columbia Road, east of Circuit Way

Traffic Counts

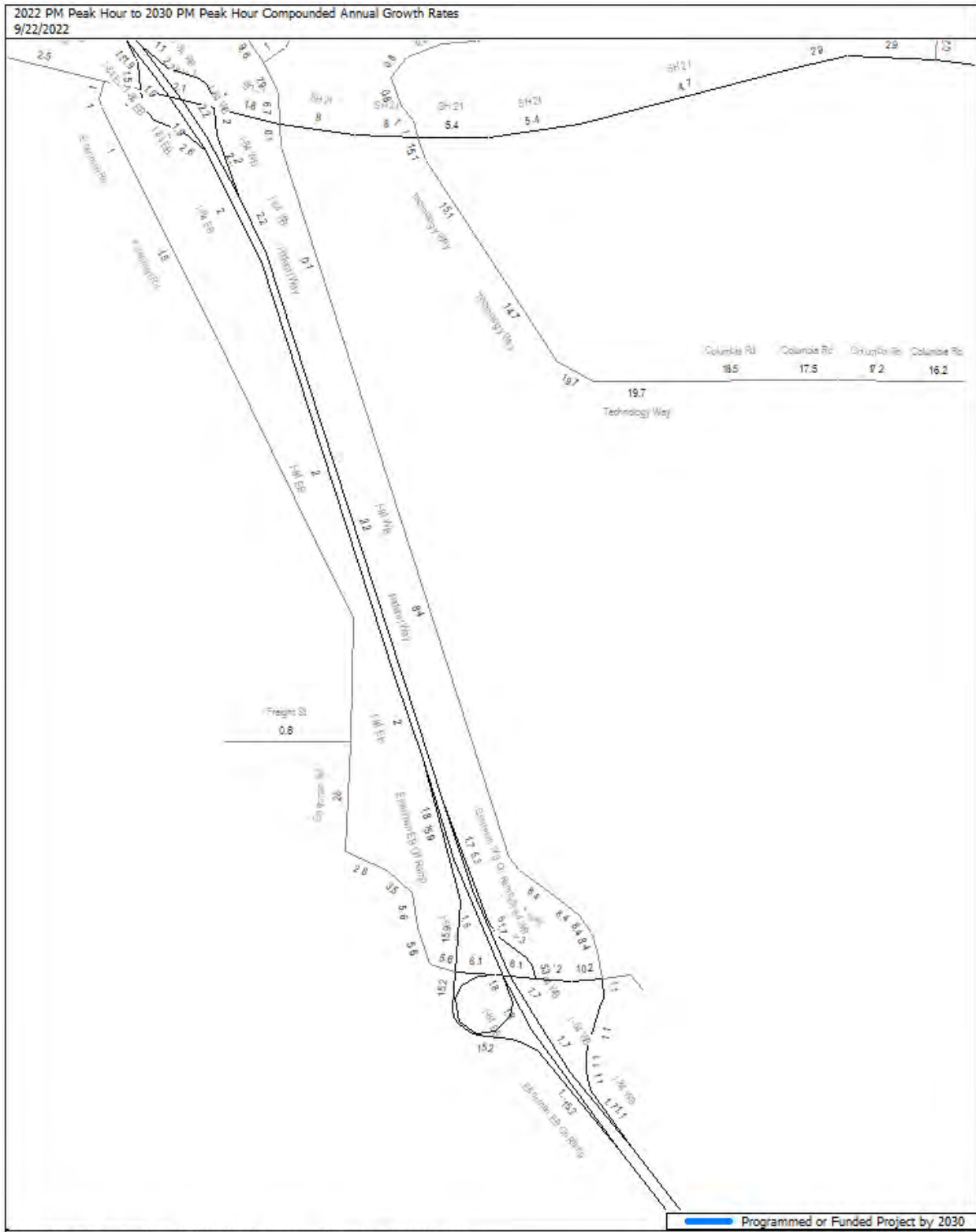
Daily (24-hour) counts, and Intersection turning movement counts will be recorded between 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM to isolate the AM and PM peak hour conditions. Based on previous traffic counts, the AM Peak Hour is generally between 7:45 and 8:45 am. The PM Peak Hour is between 4:15 and 5:15p. There is also an early morning peak between 5:15-6:15 am for Micron but the background traffic is very low.

Background Growth

Future 2025 turning movement conditions will be forecast utilizing growth rates provided by COMPASS. Table 3 shows the growth changes from the COMPASS model. Figure 7 shows the annual growth rates for each corridor. These rates will be applied to existing traffic counts for three years to determine future year background traffic conditions. No other background project traffic will be considered.

Location	2022-2030 Annual Growth	Growth Factor 2022-2025
SH 21 w/o Eisenman Rd	2.5%	1.08
SH 21 w/o Federal Way	1.6%	1.05
SH 21 e/o Federal Way	8.0%	1.26
SH 21 e/o Technology Way	5.4%	1.17
SH 21 w/o Warm Springs	2.9%	1.09
Federal Way s/o SH 21	1.0%	1.00
Federal Way n/o Yamhill Rd	9.6%	1.32
Technology Way, s/o SH 21	15.1%	1.52
Columbia Rd e/o Circuit Way	19.7%	1.72
Eisenman Pkwy/Memory Ln	6.1%	1.19

Figure 7. COMPASS 2022 to 2030 Compounded Annual Growth Rates



Signal Warrants

Signal warrant analysis will be performed for any intersection that is found to exceed ACHD's acceptable v/c ratio of 1.0 in the analysis.

Planned Roadway & Approved Development Projects

There is a planned connector road in the Integrated Five-Year Work Plan (2022-2026). The road would go between Memory Lane and Columbia Road. The alignment of the road has not been determined and no plans current exist. The road will not be considered for this traffic study. Also in the IFYWP is a future widening of Amity Road but the date of such a widening appears to be well into the future.

Analysis Scenarios

Capacity analyses will be completed utilizing Synchro 11® and *Highway Capacity Manual, 6th Edition* methodology. All study intersections will be analyzed during the surrounding roadways' weekday AM and PM peak hours under the following traffic scenarios:

- Existing (2022) Traffic Volume and Roadway Conditions
- Existing + Background Growth (2025) with Existing Roadway Conditions
- Existing + Background (2025) + Phase 1 Build with Existing Roadway Conditions

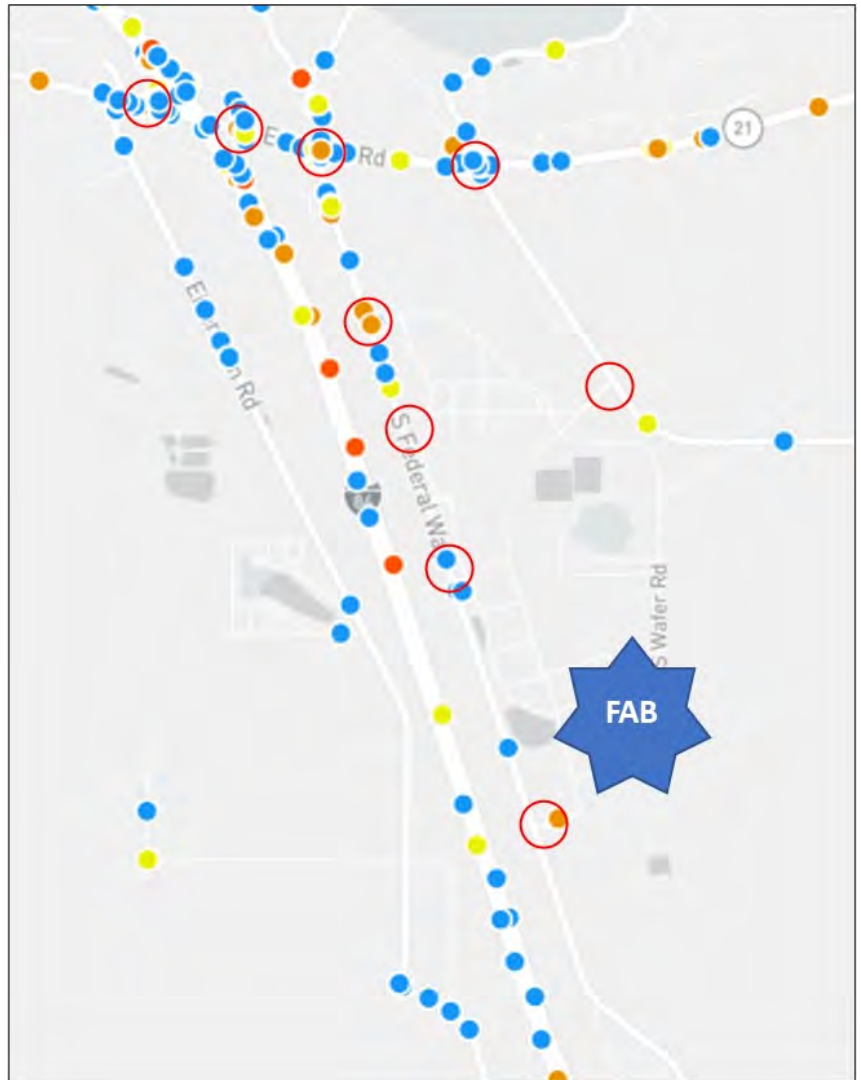
Traffic Operations and Safety Review

The most current crash data (2017-2021) as documented by the Local Highway Technical Assistance Council (LHTAC) website (<http://gis.lhtac.org/safety/>) will be reviewed and summarized at each of the project area intersections. If certain crash trends exist, they will be noted along with possible countermeasure improvements that could be implemented to reduce crash frequency. A further safety review at these locations will not be completed.

A traffic operations review will be performed at the previously noted intersections using Synchro 11 software. In accordance with ACHD Policy, the maximum overall intersection v/c ratio is 0.90 for signalized intersections while the maximum lane group v/c ratio for signalized and unsignalized intersections is 1.0, and 0.85 for roundabouts. Default values as summarized in Policy 7106.6 will be assumed.

Roadway segments will be evaluated using the ACHD LOS Planning Threshold table. Based on the current ACHD Policy Manual, the minimum acceptable LOS for a roadway segment is LOS E for principal arterials and minor arterials, and LOS D for collectors.

Driveway locations will be reviewed to determine if ACHD Access Spacing Policy is met. Additionally, a turn lane analysis in accordance with NCHRP 457 will be performed at the site access points to determine if auxiliary right and left turn lanes are warranted.



Study Area Crashes – 2017-2021 (Source LHTAC)

Report

The TIS report will be prepared with adherence to TIS requirements found in the ACHD General Requirements and Procedures for Development except as may be deviated by this document.

Construction Period Traffic

In a separate analysis and memo, the construction traffic will be assessed relative to the plans and recommendations identified in the TIS. The number of construction vehicles and contractor private vehicles – over time – will be estimated and the expected distribution and relative impacts will be considered. Graphics showing the volume of traffic through the study area will be included in the technical memo. No detailed capacity analysis will be performed unless the volume of traffic appears to be concentrated in any one area and believed to cause problems. In that case, limited capacity analysis will be performed to determine possible construction-time period mitigation.

APPENDIX D: Highway Capacity Worksheets

The following is the required setup for capacity analysis per ACHD guidelines. These were followed, as applicable, in the Synchro analysis.

Variable	Existing Analysis	Future Year Analysis
HCS Analysis Type ¹	Operations	
HCS Report Type	Full Report and Back of Queue Worksheets or Long Report	
HCM Analysis Duration	0.25 hours	
PHF	Actual by approach	0.90 ²
RTOR	Actual count or 0	Existing percentage or 0
Unit Extension	3 sec	
Arrival Type	HCM Exhibit 10-18	
Start Up Time	2 sec	
Extension of Effective Green Time	2 sec	
Walking Speed	4 ft/sec ³	3.5 ft/sec ³
Pedestrian Volume	Actual count or 400 CBD or 50 non-CBD	
Pedestrian Travel Distance	Distance from top of ramp to opposite curb	
Lane Utilization Factor	HCM Exhibit 10-23	
Phasing	Existing	Leading/Protected left turns
Actuation Type	Existing	Fully actuated except Boise CBD
Cycle Length	Use Cycle Length from Table	
Base (Ideal) Saturation Flow Rate	1800	
Lane Width Existing	Existing	Existing ⁴
% Heavy Vehicles	Existing %	
% Grade	Existing %	
Parking maneuvers per hour	HCM Exhibit 10-20	
Bus Stops per hour	HCM Exhibit 10-21	
Yellow Time	4 sec 40 mph and under; 5 sec over 40 mph	
Red Time	1 sec	
Min Vehicle Green Time	5 sec	
Min Pedestrian Green Time	5 sec	
Upstream filtering adjust factor	HCM Exhibit 15-7 5	

¹The preferred software is the latest version of the HCS or Synchro.

²Use existing PHF if existing PHF is > 0.90 and no capacity improvements are planned.

³Use walking speed of 3 ft/sec around certain land uses such as schools.



















⁴Use ACHD Policy Manual if improvements will be completed by analysis year.

⁵Use value of 1.0 if nearest upstream signal is greater than 1/2 mile away.

Synchro Output – Existing Conditions Analysis

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Future Volume (vph)	0	39	34	7	17	0	0	0	0	27	0	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.79	0.79	0.79	0.67	0.67	0.67	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	10	25	0	0	0	0	37	68	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Future Vol, veh/h	0	39	34	7	17	0	0	0	0	27	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	67	67	67	75	75	75	73	73	73
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	49	43	10	25	0	0	0	0	37	0	68

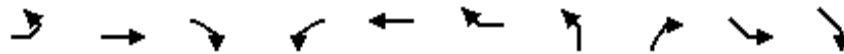
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	92	0	0		70	137	25
Stage 1	-	-	-	-	-	-		45	45	-
Stage 2	-	-	-	-	-	-		25	92	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1264	-	0		925	664	950
Stage 1	0	-	-	-	-	0		972	765	-
Stage 2	0	-	-	-	-	0		989	726	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1264	-	-		918	0	950
Mov Cap-2 Maneuver	-	-	-	-	-	-		918	0	-
Stage 1	-	-	-	-	-	-		972	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1264	-	918	950
HCM Lane V/C Ratio	-	-	0.008	-	0.04	0.072
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	32	41	0	0	23	4	0	0	0	0
Future Volume (vph)	32	41	0	0	23	4	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.87	0.87	0.90	0.90	0.75	0.75	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	37	47	0	0	31	5	0	0	0	0
Sign Control		Free			Free		Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022

Intersection											
Int Delay, s/veh	2.4										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗↗			↕	↗↗	↘				
Traffic Vol, veh/h	32	41	0	0	23	4	0	0	0	0	
Future Vol, veh/h	32	41	0	0	23	4	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	87	87	90	90	75	75	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	37	47	0	0	31	5	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	36	0	-	-	-	0	155 24
Stage 1	-	-	-	-	-	-	121 -
Stage 2	-	-	-	-	-	-	34 -
Critical Hdwy	5.045	-	-	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43 -
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1240	-	0	0	-	-	829 1047
Stage 1	-	-	0	0	-	-	892 -
Stage 2	-	-	0	0	-	-	988 -
Platoon blocked, %		-			-	-	
Mov Cap-1 Maneuver	1240	-	-	-	-	-	804 1047
Mov Cap-2 Maneuver	-	-	-	-	-	-	804 -
Stage 1	-	-	-	-	-	-	865 -
Stage 2	-	-	-	-	-	-	988 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1240	-	-	-
HCM Lane V/C Ratio	-	0.03	-	-	-
HCM Control Delay (s)	0	8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Future Volume (vph)	39	1	0	0	1	0	11	16	0	0	0	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.77	0.90	0.77	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.67	0.67
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1	0	0	1	0	15	21	0	0	0	24
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		TT				TT	
Traffic Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Future Vol, veh/h	39	1	0	0	1	0	11	16	0	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	90	77	90	90	90	75	75	90	90	67	67
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	51	1	0	0	1	0	15	21	0	0	0	24













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.016	0.024	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	18	32	50	21
Future Volume (vph)	4	7	18	32	50	21
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	14	20	36	74	31
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.9	5.9	27.2	27.2	27.2	27.2
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.6		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

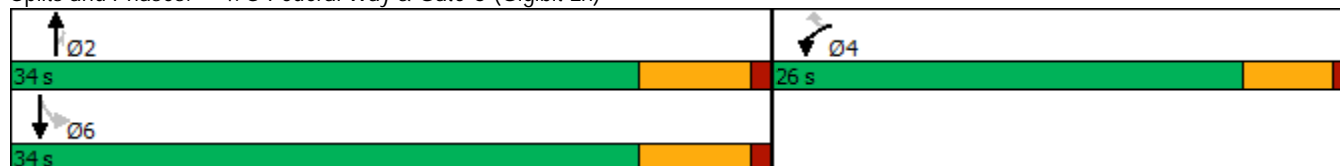
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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.07
Intersection Signal Delay:	2.8
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	14	20	36	74	31
v/c Ratio	0.02	0.04	0.01	0.03	0.07	0.02
Control Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.1	2.1	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	5	4	7	7	13	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1242	1115	1441	1436	1162	1307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.03	0.06	0.02
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑	↗	↙	↑
Traffic Volume (vph)	4	7	18	32	50	21
Future Volume (vph)	4	7	18	32	50	21
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.74	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1241	1395
Peak-hour factor, PHF	0.50	0.50	0.89	0.89	0.68	0.68
Adj. Flow (vph)	8	14	20	36	74	31
RTOR Reduction (vph)	0	14	0	13	0	0
Lane Group Flow (vph)	8	0	20	23	74	31
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	0.9	0.9	21.9	21.9	21.9	21.9
Effective Green, g (s)	0.9	0.9	21.9	21.9	21.9	21.9
Actuated g/C Ratio	0.03	0.03	0.65	0.65	0.65	0.65
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	45	40	996	991	804	903
v/s Ratio Prot	c0.00		0.01			0.02
v/s Ratio Perm		0.00		0.02	c0.06	
v/c Ratio	0.18	0.01	0.02	0.02	0.09	0.03
Uniform Delay, d1	16.1	16.0	2.1	2.1	2.2	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.1	0.0	0.0	0.0	0.0
Delay (s)	18.0	16.1	2.1	2.1	2.3	2.2
Level of Service	B	B	A	A	A	A
Approach Delay (s)	16.8		2.1			2.2
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	33.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	18	32	50	21
Future Volume (veh/h)	4	7	18	32	50	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	8	14	20	0	74	31
Peak Hour Factor	0.50	0.50	0.89	0.89	0.68	0.68
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	50	44	474		827	423
Arrive On Green	0.03	0.03	0.30	0.00	0.30	0.30
Sat Flow, veh/h	1714	1525	1561	1525	1326	1393
Grp Volume(v), veh/h	8	14	20	0	74	31
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1326	1393
Q Serve(g_s), s	0.1	0.1	0.1	0.0	0.7	0.3
Cycle Q Clear(g_c), s	0.1	0.1	0.1	0.0	0.8	0.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	50	44	474		827	423
V/C Ratio(X)	0.16	0.32	0.04		0.09	0.07
Avail Cap(c_a), veh/h	2185	1944	2653		2678	2367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.8	7.8	4.0	0.0	4.3	4.1
Incr Delay (d2), s/veh	1.5	4.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	11.8	4.1	0.0	4.4	4.2
LnGrp LOS	A	B	A		A	A
Approach Vol, veh/h	22		20			105
Approach Delay, s/veh	10.9		4.1			4.3
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.1		2.1		2.8
Green Ext Time (p_c), s		0.0		0.0		0.3

Intersection Summary

HCM 6th Ctrl Delay	5.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Future Volume (vph)	0	0	0	1	0	31	0	20	2	596	108	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	39	0	0	24	0	655	123	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Future Vol, veh/h	0	0	0	1	0	31	0	20	2	596	108	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	80	80	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	39	0	22	2	655	119	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1442	1455	62	1393	1456	12	123	0	0	24	0	0
Stage 1	1431	1431	-	23	23	-	-	-	-	-	-	-
Stage 2	11	24	-	1370	1433	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	95	131	996	103	131	1072	1477	-	-	1604	-	-
Stage 1	144	202	-	998	880	-	-	-	-	-	-	-
Stage 2	1014	879	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	78	996	70	78	1072	1477	-	-	1604	-	-
Mov Cap-2 Maneuver	62	78	-	70	78	-	-	-	-	-	-	-
Stage 1	144	120	-	998	880	-	-	-	-	-	-	-
Stage 2	977	879	-	93	119	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	0		10		0		7.4			
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1477	-	-	-	70	1072	1604	-	-
HCM Lane V/C Ratio	-	-	-	-	0.018	0.036	0.408	-	-
HCM Control Delay (s)	0	-	-	0	57.4	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Future Volume (vph)	2	0	1	3	0	20	0	60	0	0	778	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.38	0.38	0.38	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	0	3	3	0	21	0	68	0	0	867	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	
Traffic Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Future Vol, veh/h	2	0	1	3	0	20	0	60	0	0	778	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	96	96	96	88	88	88	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	5	0	3	3	0	21	0	68	0	0	864	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	900	-	434	500	-	34	867	0	-	-	-	0
Stage 1	866	-	-	68	-	-	-	-	-	-	-	-
Stage 2	34	-	-	432	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	170	0	367	458	0	1006	785	-	0	0	-	-
Stage 1	231	0	-	940	0	-	-	-	0	0	-	-
Stage 2	854	0	-	577	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	166	-	367	455	-	1006	785	-	-	-	-	-
Mov Cap-2 Maneuver	206	-	-	502	-	-	-	-	-	-	-	-
Stage 1	231	-	-	940	-	-	-	-	-	-	-	-
Stage 2	836	-	-	573	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.2		9.2		0		0	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	785	-	206	367	502	1006	-	-
HCM Lane V/C Ratio	-	-	0.026	0.007	0.006	0.021	-	-
HCM Control Delay (s)	0	-	22.9	14.9	12.2	8.7	-	-
HCM Lane LOS	A	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	237	210	37	504	0	167	39	13	5	216	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.7	90.0	90.0	95.2	88.7		12.6	29.8	29.8	22.8	16.9	
Actuated g/C Ratio	0.67	0.62	0.62	0.66	0.61		0.09	0.21	0.21	0.16	0.12	
v/c Ratio	0.14	0.13	0.21	0.05	0.25		0.61	0.11	0.03	0.02	0.82	
Control Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.6	13.6	2.6	9.4	15.2		73.2	43.5	0.2	37.5	56.6	
LOS	A	B	A	A	B		E	D	A	D	E	
Approach Delay		8.6			14.8			63.6			56.2	
Approach LOS		A			B			E			E	
Queue Length 50th (ft)	19	48	0	10	114		79	29	0	4	110	
Queue Length 95th (ft)	38	73	23	24	152		111	59	0	11	143	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	672	1845	983	860	2025		326	395	422	329	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25		0.51	0.10	0.03	0.02	0.63	

Intersection Summary

Area Type:	Other
Cycle Length:	145
Actuated Cycle Length:	145
Offset:	70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	25.9
Intersection LOS:	C
Intersection Capacity Utilization	47.7%
ICU Level of Service	A
Analysis Period (min)	15

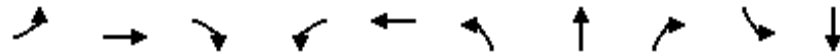
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	237	210	37	504	167	39	13	5	216
v/c Ratio	0.14	0.13	0.21	0.05	0.25	0.61	0.11	0.03	0.02	0.82
Control Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	13.6	2.6	9.4	15.2	73.2	43.5	0.2	37.5	56.6
Queue Length 50th (ft)	19	48	0	10	114	79	29	0	4	110
Queue Length 95th (ft)	38	73	23	24	152	111	59	0	11	143
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	672	1845	983	860	2025	326	395	422	329	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.21	0.04	0.25	0.51	0.10	0.03	0.02	0.63

Intersection Summary

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (vph)	51	187	166	29	384	9	142	33	11	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3311		3159	1748	1404	1710	1500	
Flt Permitted	0.44	1.00	1.00	0.60	1.00		0.95	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	638	2974	1457	1088	3311		3159	1748	1404	1317	1500	
Peak-hour factor, PHF	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Adj. Flow (vph)	65	237	210	37	492	12	167	39	13	5	50	166
RTOR Reduction (vph)	0	0	81	0	1	0	0	0	10	0	88	0
Lane Group Flow (vph)	65	237	129	37	503	0	167	39	3	5	128	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	95.8	89.0	89.0	93.2	87.7		12.6	28.2	28.2	18.2	16.9	
Effective Green, g (s)	95.8	89.0	89.0	93.2	87.7		12.6	28.2	28.2	18.2	16.9	
Actuated g/C Ratio	0.66	0.61	0.61	0.64	0.60		0.09	0.19	0.19	0.13	0.12	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	456	1825	894	722	2002		274	339	273	168	174	
v/s Ratio Prot	c0.01	0.08		0.00	c0.15		c0.05	0.02		0.00	c0.09	
v/s Ratio Perm	0.09		0.09	0.03					0.00	0.00		
v/c Ratio	0.14	0.13	0.14	0.05	0.25		0.61	0.12	0.01	0.03	0.73	
Uniform Delay, d1	8.9	11.8	11.9	9.5	13.4		63.8	48.1	47.1	55.6	61.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.3	0.0	0.3		3.8	0.2	0.0	0.1	14.8	
Delay (s)	9.0	11.9	12.2	9.5	13.7		67.6	48.3	47.1	55.7	76.6	
Level of Service	A	B	B	A	B		E	D	D	E	E	
Approach Delay (s)		11.7			13.4			63.0			76.2	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			29.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			47.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑	↘	↗	↑↑		↗↘	↑	↘	↗	↘	↘
Traffic Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Future Volume (veh/h)	51	187	166	29	384	9	142	33	11	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Peak Hour Factor	0.79	0.79	0.79	0.78	0.78	0.78	0.85	0.85	0.85	0.76	0.76	0.76
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	592	2176		905	2389		213	179		118	74	
Arrive On Green	0.03	0.72	0.00	0.03	0.72	0.00	0.07	0.10	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	65	237	0	37	492	0	167	39	0	5	50	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Cycle Q Clear(g_c), s	1.8	3.5	0.0	0.8	7.1	0.0	7.5	3.0	0.0	0.4	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	592	2176		905	2389		213	179		118	74	
V/C Ratio(X)	0.11	0.11		0.04	0.21		0.78	0.22		0.04	0.67	
Avail Cap(c_a), veh/h	980	2176		1154	2389		331	303		284	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.1	6.1	0.0	5.0	6.9	0.0	66.6	59.8	0.0	66.0	68.5	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	6.4	0.6	0.0	0.1	10.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.0	0.3	2.5	0.0	3.2	1.3	0.0	0.2	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	6.2	0.0	5.0	7.1	0.0	73.1	60.4	0.0	66.1	78.6	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		302			529			206			55	
Approach Delay, s/veh		6.0			6.9			70.7			77.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	109.7	14.7	11.0	8.9	110.5	5.9	19.7				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	3.8	9.1	9.5	6.0	2.8	5.5	2.4	5.0				
Green Ext Time (p_c), s	0.2	3.4	0.2	0.1	0.1	1.6	0.0	0.1				

Intersection Summary

























HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40				40
Link Distance (ft)		980			1988			2188				3433
Travel Time (s)		19.1			38.7			37.3				58.5
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effct Green (s)	10.3	37.6	37.6	8.0	32.5	32.5	6.9	17.2	17.2	26.4	21.0	33.7
Actuated g/C Ratio	0.11	0.42	0.42	0.09	0.36	0.36	0.08	0.19	0.19	0.29	0.23	0.37
v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.21	0.11	0.02	0.31	0.38	0.47
Control Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
LOS	E	B	A	D	C	A	D	C	A	C	C	A
Approach Delay		25.0			23.3			30.5			17.5	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	84	46	15	37	118	0	14	14	0	41	72	8

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

10/27/2022

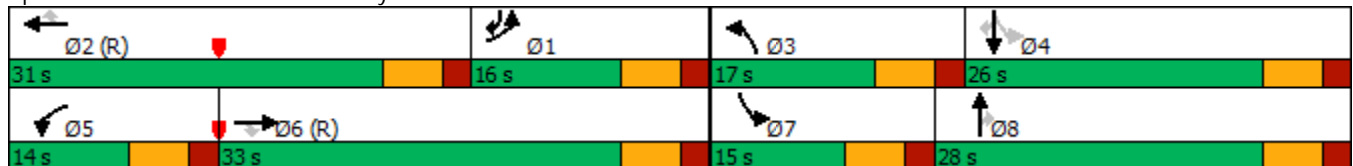


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#159	80	63	78	162	14	29	27	0	77	111	43
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	327	1242	890	148	1164	651	378	720	566	374	856	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.13	0.08	0.02	0.31	0.35	0.47

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 22.7 Intersection LOS: C
 Intersection Capacity Utilization 61.5% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

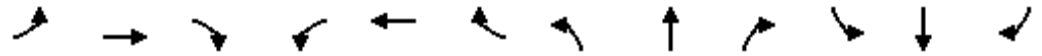
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.21	0.11	0.02	0.31	0.38	0.47
Control Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	19.5	5.7	49.6	25.3	2.1	40.6	28.0	0.1	21.6	29.9	4.6
Queue Length 50th (ft)	84	46	15	37	118	0	14	14	0	41	72	8
Queue Length 95th (ft)	#159	80	63	78	162	14	29	27	0	77	111	43
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	327	1242	890	148	1164	651	378	720	566	374	856	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.24	0.58	0.46	0.40	0.20	0.13	0.08	0.02	0.31	0.35	0.47































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

10/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (vph)	270	284	483	60	413	113	43	51	10	110	284	306
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1085	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Adj. Flow (vph)	287	302	514	68	469	128	51	61	12	116	299	322
RTOR Reduction (vph)	0	0	282	0	0	87	0	0	10	0	0	182
Lane Group Flow (vph)	287	302	232	68	469	41	51	61	2	116	299	140
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	11.5	34.0	34.0	6.4	28.9	28.9	4.6	18.4	18.4	28.2	21.0	32.5
Effective Green, g (s)	11.5	34.0	34.0	6.4	28.9	28.9	4.6	18.4	18.4	28.2	21.0	32.5
Actuated g/C Ratio	0.13	0.38	0.38	0.07	0.32	0.32	0.05	0.20	0.20	0.31	0.23	0.36
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	365	1123	566	119	1035	476	158	602	312	384	782	484
v/s Ratio Prot	c0.10	0.10		0.04	c0.15		0.02	0.02		c0.02	c0.09	0.04
v/s Ratio Perm			0.15			0.03			0.00	0.07		0.07
v/c Ratio	0.79	0.27	0.41	0.57	0.45	0.09	0.32	0.10	0.01	0.30	0.38	0.29
Uniform Delay, d1	38.1	19.4	20.6	40.5	24.3	21.3	41.2	29.1	28.5	22.9	29.0	20.5
Progression Factor	0.95	0.90	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	0.6	2.1	6.5	1.4	0.4	1.2	0.1	0.0	0.4	0.3	0.3
Delay (s)	46.3	17.9	16.0	47.0	25.7	21.7	42.4	29.2	28.5	23.3	29.4	20.8
Level of Service	D	B	B	D	C	C	D	C	C	C	C	C
Approach Delay (s)		24.4			27.1			34.5			24.7	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			25.7		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						24.0	
Intersection Capacity Utilization			61.5%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Future Volume (veh/h)	270	284	483	60	413	113	43	51	10	110	284	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.84	0.84	0.84	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	1047	1422		123	599		126	333	169	332	505	692
Arrive On Green	0.12	0.16	0.00	0.07	0.18	0.00	0.04	0.11	0.11	0.08	0.15	0.15
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	287	302	0	68	469	0	51	61	12	116	299	322
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.1	7.9	0.0	3.5	12.3	0.0	1.4	1.7	0.6	5.5	7.5	3.0
Cycle Q Clear(g_c), s	8.1	7.9	0.0	3.5	12.3	0.0	1.4	1.7	0.6	5.5	7.5	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1047	1422		123	599		126	333	169	332	505	692
V/C Ratio(X)	0.27	0.21		0.55	0.78		0.41	0.18	0.07	0.35	0.59	0.47
Avail Cap(c_a), veh/h	1047	1422		150	906		384	732	373	367	748	791
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.95	0.95	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	23.4	0.0	40.3	35.0	0.0	42.2	36.3	35.8	31.8	35.7	4.4
Incr Delay (d2), s/veh	0.1	0.3	0.0	3.7	9.4	0.0	2.1	0.3	0.2	0.6	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.0	0.0	1.5	5.5	0.0	0.6	0.6	0.2	2.2	3.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	23.8	0.0	44.0	44.4	0.0	44.2	36.6	36.0	32.4	36.8	4.9
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		589			537			124			737	
Approach Delay, s/veh		26.4			44.4			39.7			22.1	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.4	22.5	9.6	19.5	12.5	48.4	13.1	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.1	14.3	3.4	9.5	5.5	9.9	7.5	3.7				
Green Ext Time (p_c), s	0.0	2.2	0.0	2.2	0.0	1.7	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C























Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 	 						
Traffic Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	1182	0	0	215	603	34	0	33	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	75.9	77.9			62.9	62.9	10.1		10.1			
Actuated g/C Ratio	0.84	0.87			0.70	0.70	0.11		0.11			
v/c Ratio	0.23	0.30			0.10	0.31	0.21		0.16			
Control Delay	2.8	2.3			4.0	0.9	39.9		1.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.8	2.3			4.0	0.9	39.9		1.6			
LOS	A	A			A	A	D		A			
Approach Delay		2.4			1.7			21.0				
Approach LOS		A			A			C				
Queue Length 50th (ft)	22	57			13	1	18		0			
Queue Length 95th (ft)	36	67			22	0	39		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

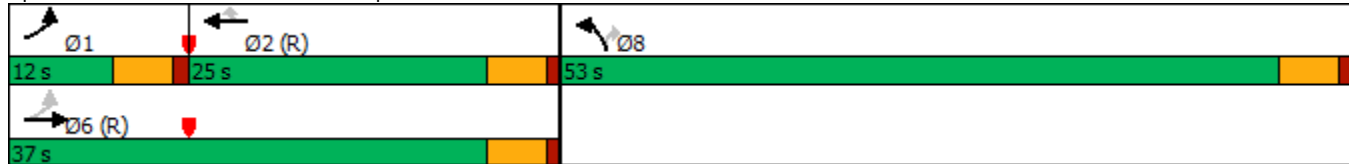


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	829	3903			2061	1941	766		677			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.10	0.31	0.04		0.05			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	2.7
Intersection LOS:	A
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

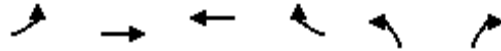
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	194	1182	215	603	34	33
v/c Ratio	0.23	0.30	0.10	0.31	0.21	0.16
Control Delay	2.8	2.3	4.0	0.9	39.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	2.3	4.0	0.9	39.9	1.6
Queue Length 50th (ft)	22	57	13	1	18	0
Queue Length 95th (ft)	36	67	22	0	39	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	829	3903	2061	1941	766	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.10	0.31	0.04	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0	
Future Volume (vph)	165	1005	0	0	198	555	26	0	25	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00				
Frt	1.00	1.00			1.00	0.85	1.00		0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195				
Flt Permitted	0.57	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (perm)	917	4508			2948	2517	1437		1195				
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76	1.00	1.00	1.00	
Adj. Flow (vph)	194	1182	0	0	215	603	34	0	33	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	195	0	0	31	0	0	0	
Lane Group Flow (vph)	194	1182	0	0	215	408	34	0	2	0	0	0	
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%	
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm				
Protected Phases	1	6			2		8						
Permitted Phases	6					2			8				
Actuated Green, G (s)	73.9	73.9			60.9	60.9	6.1		6.1				
Effective Green, g (s)	73.9	73.9			60.9	60.9	6.1		6.1				
Actuated g/C Ratio	0.82	0.82			0.68	0.68	0.07		0.07				
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	807	3701			1994	1703	97		80				
v/s Ratio Prot	0.02	c0.26			0.07		c0.02						
v/s Ratio Perm	0.18					0.16			0.00				
v/c Ratio	0.24	0.32			0.11	0.24	0.35		0.03				
Uniform Delay, d1	1.8	2.0			5.1	5.6	40.1		39.2				
Progression Factor	1.00	1.00			0.65	0.68	1.00		1.00				
Incremental Delay, d2	0.2	0.2			0.1	0.3	2.2		0.1				
Delay (s)	2.0	2.2			3.4	4.1	42.2		39.3				
Level of Service	A	A			A	A	D		D				
Approach Delay (s)		2.2			3.9			40.8			0.0		
Approach LOS		A			A			D			A		
Intersection Summary													
HCM 2000 Control Delay			3.9									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	15.0
Intersection Capacity Utilization			51.0%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Future Volume (veh/h)	165	1005	0	0	198	555	26	0	25	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	194	1182	0	0	215	0	34	0	33			
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.76	0.76	0.76			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	844	3649	0	0	2055		132	0	108			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	194	1182	0	0	215	0	34	0	33			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	3.0	6.3	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Cycle Q Clear(g_c), s	3.0	6.3	0.0	0.0	5.1	0.0	2.0	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	844	3649	0	0	2055		132	0	108			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.10		0.26	0.00	0.31			
Avail Cap(c_a), veh/h	877	3649	0	0	2055		779	0	636			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.79	0.79	0.00	0.00	0.91	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.2	2.5	0.0	0.0	12.9	0.0	38.1	0.0	38.3			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.1	0.0	0.0	1.6	0.0	0.7	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.6	0.0	0.0	13.0	0.0	39.1	0.0	39.9			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1376			215			67				
Approach Delay, s/veh		2.7			13.0			39.5				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.1	66.8				76.9		13.1				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	5.0	7.1				8.3		4.3				
Green Ext Time (p_c), s	0.1	1.0				9.1		0.2				

Intersection Summary













HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑					↘↘		↗
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	498	0	37	211	0	0	0	0	832	0	321
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		127.1		137.6	137.6					72.4		72.4
Actuated g/C Ratio		0.58		0.63	0.63					0.33		0.33
v/c Ratio		0.21		0.08	0.12					0.81		0.48
Control Delay		23.9		18.6	18.0					73.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		23.9		18.6	18.0					73.7		6.2
LOS		C		B	B					E		A
Approach Delay		23.9			18.1							54.9
Approach LOS		C			B							D
Queue Length 50th (ft)		126		20	63					574		0
Queue Length 95th (ft)		157		45	100					598		75
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022

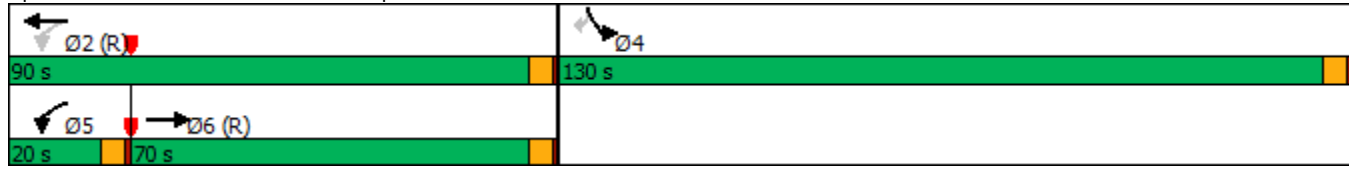


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2422		473	1828					1778		914
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.08	0.12					0.47		0.35

Intersection Summary

Area Type:	Other
Cycle Length:	220
Actuated Cycle Length:	220
Offset:	0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	42.0
Intersection LOS:	D
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

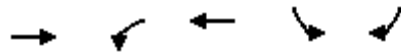
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	498	37	211	832	321
v/c Ratio	0.21	0.08	0.12	0.81	0.48
Control Delay	23.9	18.6	18.0	73.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	18.6	18.0	73.7	6.2
Queue Length 50th (ft)	126	20	63	574	0
Queue Length 95th (ft)	157	45	100	598	75
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2422	473	1828	1778	914
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.12	0.47	0.35

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (vph)	0	375	28	35	200	0	0	0	0	765	0	295
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4192		1500	2923					3130		1366
Flt Permitted		1.00		0.42	1.00					0.95		1.00
Satd. Flow (perm)		4192		667	2923					3130		1366
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	463	35	37	211	0	0	0	0	832	0	321
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	0	215
Lane Group Flow (vph)	0	495	0	37	211	0	0	0	0	832	0	106
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		126.0		137.6	137.6					72.4		72.4
Effective Green, g (s)		126.0		137.6	137.6					72.4		72.4
Actuated g/C Ratio		0.57		0.63	0.63					0.33		0.33
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2400		442	1828					1030		449
v/s Ratio Prot		c0.12		0.00	c0.07					c0.27		
v/s Ratio Perm				0.05								0.08
v/c Ratio		0.21		0.08	0.12					0.81		0.24
Uniform Delay, d1		22.8		16.1	16.6					67.4		53.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.2		0.1	0.1					4.7		0.3
Delay (s)		23.0		16.2	16.8					72.2		53.9
Level of Service		C		B	B					E		D
Approach Delay (s)		23.0			16.7			0.0			67.1	
Approach LOS		C			B			A			E	

Intersection Summary

HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Future Volume (veh/h)	0	375	28	35	200	0	0	0	0	765	0	295
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	463	35	37	211	0				832	0	321
Peak Hour Factor	0.81	0.81	0.81	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2582	193	535	1987	0				902	0	393
Arrive On Green	0.00	0.63	0.63	0.02	0.67	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	4262	308	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	324	174	37	211	0				832	0	321
Grp Sat Flow(s),veh/h/ln	0	1446	1534	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Cycle Q Clear(g_c), s	0.0	10.3	10.5	1.9	5.6	0.0				56.0	0.0	47.6
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1813	962	535	1987	0				902	0	393
V/C Ratio(X)	0.00	0.18	0.18	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1813	962	608	1987	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.2	17.3	13.7	12.9	0.0				76.3	0.0	73.3
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.5	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	4.0	0.7	2.0	0.0				22.9	0.0	34.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.5	17.7	13.7	13.0	0.0				80.9	0.0	77.5
LnGrp LOS	A	B	B	B	B	A				F	A	E
Approach Vol, veh/h		498			248						1153	
Approach Delay, s/veh		17.5			13.1						79.9	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		152.4		67.6	9.5	142.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		7.6		58.0	3.9	12.5						
Green Ext Time (p_c), s		1.5		4.6	0.0	3.5						
Intersection Summary												
HCM 6th Ctrl Delay				54.8								
HCM 6th LOS				D								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/27/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	12	169	93	141
Future Volume (vph)	21	3	12	169	93	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.86	0.86
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	4	15	217	108	164
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.4% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
 11: Technology Way & Circuit Ln

10/27/2022

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	21	3	12	169	93	141
Future Vol, veh/h	21	3	12	169	93	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	78	78	86	86
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	28	4	15	217	108	164























Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	355	-	108	0	-
Stage 1	108	-	-	-	-
Stage 2	247	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	601	0	1495	-	-
Stage 1	864	0	-	-	-
Stage 2	745	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	595	-	1495	-	-
Mov Cap-2 Maneuver	595	-	-	-	-
Stage 1	855	-	-	-	-
Stage 2	745	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1495	-	595	-	-
HCM Lane V/C Ratio	0.01	-	0.047	-	-
HCM Control Delay (s)	7.4	-	11.3	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Future Volume (vph)	0	0	0	2	0	3	0	35	3	103	445	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.63	0.63	0.63	0.68	0.68	0.68	0.69	0.69	0.69
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	3	5	0	0	55	0	149	645	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Future Vol, veh/h	0	0	0	2	0	3	0	35	3	103	445	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	63	63	63	68	68	68	69	69	69
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	3	0	5	0	51	4	149	645	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	969	998	323	674	996	28	645	0	0	55	0	0
Stage 1	943	943	-	53	53	-	-	-	-	-	-	-
Stage 2	26	55	-	621	943	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	211	246	679	344	246	1047	950	-	-	1563	-	-
Stage 1	286	344	-	959	855	-	-	-	-	-	-	-
Stage 2	994	853	-	446	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	195	223	679	319	223	1047	950	-	-	1563	-	-
Mov Cap-2 Maneuver	195	223	-	319	223	-	-	-	-	-	-	-
Stage 1	286	311	-	959	855	-	-	-	-	-	-	-
Stage 2	989	853	-	403	311	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	0		11.7			0			1.4		
HCM LOS	A		B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	950	-	-	-	-	319	1047	1563	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.01	0.005	0.096	-	-
HCM Control Delay (s)	0	-	-	0	0	16.4	8.5	7.5	-	-
HCM Lane LOS	A	-	-	A	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	95	2	0	153	22	0	1	0	10	0	111
Future Volume (vph)	74	95	2	0	153	22	0	1	0	10	0	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.79	0.79	0.90	0.90	0.77	0.77	0.90	0.90	0.90	0.89	0.90	0.89
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	122	0	0	228	0	0	1	0	11	125	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷		↶	↷	
Traffic Vol, veh/h	74	95	2	0	153	22	0	1	0	10	0	111
Future Vol, veh/h	74	95	2	0	153	22	0	1	0	10	0	111
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	90	90	77	77	90	90	90	89	90	89
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	94	120	2	0	199	29	0	1	0	11	0	125




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	122	0	0	585	537	121	524	524	214
Stage 1	-	-	-	-	-	-	309	309	-	214	214	-
Stage 2	-	-	-	-	-	-	276	228	-	310	310	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1352	-	-	1465	-	-	422	450	930	467	458	831
Stage 1	-	-	-	-	-	-	701	660	-	793	725	-
Stage 2	-	-	-	-	-	-	730	715	-	705	659	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1352	-	-	1465	-	-	340	419	930	441	426	831
Mov Cap-2 Maneuver	-	-	-	-	-	-	340	419	-	441	426	-
Stage 1	-	-	-	-	-	-	652	614	-	737	725	-
Stage 2	-	-	-	-	-	-	620	715	-	655	613	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.4			0			13.6			10.4		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	419	1352	-	-	1465	-	-	441	831
HCM Lane V/C Ratio	0.003	0.069	-	-	-	-	-	0.025	0.15
HCM Control Delay (s)	13.6	7.9	-	-	0	-	-	13.4	10.1
HCM Lane LOS		B	A	-	-	A	-	B	B
HCM 95th %tile Q(veh)		0	0.2	-	-	0	-	0.1	0.5

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	475	0	544	0	245	439	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					13.9	13.9		43.2		63.0	62.0	
Actuated g/C Ratio					0.13	0.13		0.39		0.57	0.56	
v/c Ratio					0.70	0.64		0.44		0.58	0.24	
Control Delay					63.8	8.2		29.1		19.6	17.3	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					63.8	8.2		29.1		19.6	17.3	
LOS					E	A		C		B	B	
Approach Delay					21.1			29.1			18.2	
Approach LOS					C			C			B	
Queue Length 50th (ft)					96	0		165		124	114	
Queue Length 95th (ft)					143	24		196		m140	m117	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					236	786		1224		441	1818	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.61	0.60		0.44		0.56	0.24	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	22.4
Intersection LOS:	C
Intersection Capacity Utilization	47.2%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd

21 s	40 s		21 s			21 s	28 s	
21 s	40 s							

Queues

15: Federal Way & Amity Rd

10/27/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	143	475	544	245	439
v/c Ratio	0.70	0.64	0.44	0.58	0.24
Control Delay	63.8	8.2	29.1	19.6	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	8.2	29.1	19.6	17.3
Queue Length 50th (ft)	96	0	165	124	114
Queue Length 95th (ft)	143	24	196	m140	m117
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	236	786	1224	441	1818
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.60	0.44	0.56	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		1.00	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		1487	3226	
Flt Permitted					0.95	1.00		1.00		0.34	1.00	
Satd. Flow (perm)					1629	2614		3106		527	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	142	0	475	0	495	49	245	439	0
RTOR Reduction (vph)	0	0	0	0	0	415	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	60	0	538	0	245	439	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)					13.9	13.9		42.2		61.0	61.0	
Effective Green, g (s)					13.9	13.9		42.2		61.0	61.0	
Actuated g/C Ratio					0.13	0.13		0.38		0.55	0.55	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					205	330		1191		412	1788	
v/s Ratio Prot					c0.09			0.17		c0.07	0.14	
v/s Ratio Perm						0.02				c0.25		
v/c Ratio					0.70	0.18		0.45		0.59	0.25	
Uniform Delay, d1					46.0	43.0		25.3		14.0	12.6	
Progression Factor					1.00	1.00		1.00		1.28	1.20	
Incremental Delay, d2					9.9	0.3		1.2		0.2	0.0	
Delay (s)					55.9	43.2		26.5		18.2	15.3	
Level of Service					E	D		C		B	B	
Approach Delay (s)		0.0			46.2			26.5			16.3	
Approach LOS		A			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			29.3		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					21.0		
Intersection Capacity Utilization			47.2%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	142	0	475	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	249	0	381	679	1870	185	612	2460	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.63	0.63	0.07	0.75	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2948	291	1514	3346	0
Grp Volume(v), veh/h	0	0	0	142	0	475	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	8.5	0.0	16.0	0.0	8.1	8.1	5.8	4.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.5	0.0	16.0	0.0	8.1	8.1	5.8	4.2	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	249	0	381	679	1017	1037	612	2460	0
V/C Ratio(X)	0.00	0.00	0.00	0.57	0.00	1.25	0.00	0.26	0.27	0.40	0.18	0.00
Avail Cap(c_a), veh/h	0	376	0	249	0	381	927	1017	1037	719	2460	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.49	0.49	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	43.8	0.0	47.0	0.0	8.8	8.8	5.6	3.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.1	0.0	130.7	0.0	0.6	0.6	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.7	0.0	12.2	0.0	2.6	2.7	1.4	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	46.8	0.0	177.7	0.0	9.5	9.5	5.8	3.9	0.0
LnGrp LOS	A	A	A	D	A	F	A	A	A	A	A	A
Approach Vol, veh/h		0			617			544			684	
Approach Delay, s/veh		0.0			147.6			9.5			4.6	
Approach LOS					F			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	75.8		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	7.8	10.1		18.0	0.0	6.2		0.0				
Green Ext Time (p_c), s	0.4	3.0		0.0	0.0	2.7		0.0				

Intersection Summary






















HCM 6th Ctrl Delay	53.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	81	0	142	146	389	31	676	259	239	612	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		7.5		30.0	30.0	30.0	40.6	40.6	40.6	14.0	51.8	
Actuated g/C Ratio		0.07		0.27	0.27	0.27	0.37	0.37	0.37	0.13	0.47	
v/c Ratio		0.50		2.37	2.70	0.57	0.15	0.56	0.38	0.62	0.44	
Control Delay		48.2		684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		48.2		684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5	
LOS		D		F	F	A	B	B	A	D	C	
Approach Delay		48.2			327.8			13.9			31.2	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		22		~172	~184	0	7	90	0	83	163	
Queue Length 95th (ft)		45		#265	#283	72	m16	128	7	121	216	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

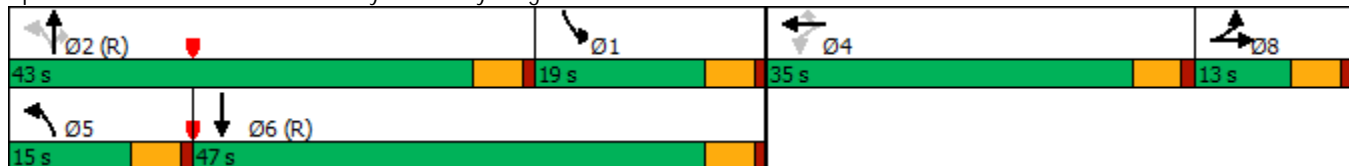


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		173		60	54	687	235	1213	686	383	1379	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.47		2.37	2.70	0.57	0.13	0.56	0.38	0.62	0.44	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.70
Intersection Signal Delay:	103.2
Intersection LOS:	F
Intersection Capacity Utilization	56.2%
ICU Level of Service	B
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	142	146	389	31	676	259	239	612
v/c Ratio	0.50	2.37	2.70	0.57	0.15	0.56	0.38	0.62	0.44
Control Delay	48.2	684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	684.9	835.8	6.8	16.1	18.3	2.2	53.4	22.5
Queue Length 50th (ft)	22	~172	~184	0	7	90	0	83	163
Queue Length 95th (ft)	45	#265	#283	72	m16	128	7	121	216
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	173	60	54	687	235	1213	686	383	1379
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	2.37	2.70	0.57	0.13	0.56	0.38	0.62	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2127		1593	1596	1485	1437	3288	1417	3016	2920	
Flt Permitted		0.97		0.13	0.12	1.00	0.25	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2127		224	199	1485	377	3288	1417	3016	2920	
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Adj. Flow (vph)	48	13	20	258	30	389	31	676	259	239	559	53
RTOR Reduction (vph)	0	19	0	0	0	283	0	0	170	0	6	0
Lane Group Flow (vph)	0	62	0	142	146	106	31	676	89	239	606	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Effective Green, g (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Actuated g/C Ratio		0.06		0.27	0.27	0.27	0.34	0.34	0.34	0.15	0.44	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		123		61	54	405	175	1123	484	438	1295	
v/s Ratio Prot		c0.03					0.01	c0.21		c0.08	0.21	
v/s Ratio Perm				0.64	c0.74	0.07	0.05		0.06			
v/c Ratio		0.51		2.33	2.70	0.26	0.18	0.60	0.18	0.55	0.47	
Uniform Delay, d1		50.3		40.0	40.0	31.3	25.2	30.0	25.4	43.6	21.5	
Progression Factor		1.00		1.00	1.00	1.00	0.60	0.58	0.25	1.00	1.00	
Incremental Delay, d2		3.2		645.4	816.3	0.3	0.4	2.1	0.7	1.4	1.2	
Delay (s)		53.5		685.4	856.3	31.7	15.6	19.5	7.0	45.0	22.7	
Level of Service		D		F	F	C	B	B	A	D	C	
Approach Delay (s)		53.5			346.6			16.0			29.0	
Approach LOS		D			F			B			C	

Intersection Summary		
HCM 2000 Control Delay	108.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.28	F
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	56.2%	ICU Level of Service
Analysis Period (min)	15	B
c Critical Lane Group		C

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	279	0	389	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	71	26	41	920	0	406	206	1145	494	477	1343	127
Arrive On Green	0.04	0.04	0.04	0.27	0.00	0.27	0.03	0.35	0.35	0.16	0.47	0.47
Sat Flow, veh/h	1594	594	915	3375	0	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	279	0	389	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	1594	0	1509	1688	0	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	3.3	0.0	2.4	7.2	0.0	28.3	1.6	18.5	15.9	7.9	14.2	14.3
Cycle Q Clear(g_c), s	3.3	0.0	2.4	7.2	0.0	28.3	1.6	18.5	15.9	7.9	14.2	14.3
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	71	0	67	920	0	406	206	1145	494	477	727	743
V/C Ratio(X)	0.68	0.00	0.49	0.30	0.00	0.96	0.15	0.59	0.52	0.50	0.42	0.42
Avail Cap(c_a), veh/h	116	0	110	920	0	406	298	1145	494	477	727	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	0.0	51.3	31.7	0.0	39.4	27.4	29.6	28.8	42.5	19.0	19.0
Incr Delay (d2), s/veh	10.8	0.0	5.5	0.2	0.0	33.7	0.3	1.9	3.3	0.8	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.0	3.0	0.0	14.1	0.6	7.4	5.7	2.9	4.9	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	0.0	56.8	31.9	0.0	73.1	27.7	31.5	32.1	43.4	20.7	20.7
LnGrp LOS	E	A	E	C	A	E	C	C	C	D	C	C
Approach Vol, veh/h		81			668			966			851	
Approach Delay, s/veh		60.2			55.9			31.5			27.1	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.1	43.0		35.0	8.1	57.1		9.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	9.9	20.5		30.3	3.6	16.3		5.3				
Green Ext Time (p_c), s	0.3	5.0		0.0	0.0	3.2		0.1				

Intersection Summary



















HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 										
Traffic Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Future Volume (vph)	0	32	43	50	35	0	0	0	0	5	0	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.89	0.89	0.89	0.76	0.76	0.76	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	66	46	0	0	0	0	7	100	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

01/18/2023

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Future Vol, veh/h	0	32	43	50	35	0	0	0	0	5	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	76	76	76	71	71	71	71	71	71
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	36	48	66	46	0	0	0	0	7	0	100

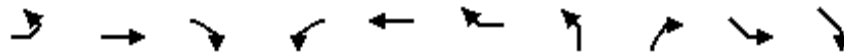
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	84	0	0		196	262	46
Stage 1	-	-	-	-	-	-		178	178	-
Stage 2	-	-	-	-	-	-		18	84	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1273	-	0		778	556	923
Stage 1	0	-	-	-	-	0		847	658	-
Stage 2	0	-	-	-	-	0		997	732	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1273	-	-		738	0	923
Mov Cap-2 Maneuver	-	-	-	-	-	-		738	0	-
Stage 1	-	-	-	-	-	-		847	0	-
Stage 2	-	-	-	-	-	-		945	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1273	-	738	923
HCM Lane V/C Ratio	-	-	0.052	-	0.01	0.108
HCM Control Delay (s)	-	-	8	-	9.9	9.4
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	30	13	0	0	83	72	0	0	0	0
Future Volume (vph)	30	13	0	0	83	72	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.83	0.83	0.83	0.70	0.70	0.70	1.00	1.00	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	36	16	0	0	119	103	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/18/2023

Intersection											
Int Delay, s/veh	1.1										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗			↗	↘	↘				
Traffic Vol, veh/h	30	13	0	0	83	72	0	0	0	0	
Future Vol, veh/h	30	13	0	0	83	72	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	83	83	83	70	70	70	100	100	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	36	16	0	0	119	103	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	222	0	-	-	-	0	259
Stage 1	-	-	-	-	-	-	88
Stage 2	-	-	-	-	-	-	171
Critical Hdwy	5.045	-	-	-	-	-	6.63
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519
Pot Cap-1 Maneuver	1026	-	0	0	-	-	719
Stage 1	-	-	0	0	-	-	926
Stage 2	-	-	0	0	-	-	858
Platoon blocked, %		-			-		
Mov Cap-1 Maneuver	1026	-	-	-	-	-	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	694
Stage 1	-	-	-	-	-	-	894
Stage 2	-	-	-	-	-	-	858

Approach	EB	WB	NB
HCM Control Delay, s	6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1026	-	-	-
HCM Lane V/C Ratio	-	0.035	-	-	-
HCM Control Delay (s)	0	8.6	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Future Volume (vph)	12	0	0	0	1	0	25	15	0	0	0	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.67	0.67	0.67	0.73	0.73	0.73
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	0	0	0	2	0	37	22	0	0	0	175
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.4%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Future Vol, veh/h	12	0	0	0	1	0	25	15	0	0	0	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	67	67	67	73	73	73
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	18	0	0	0	2	0	37	22	0	0	0	175













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	2
Stage 1	-	-	0
Stage 2	-	-	2
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	939
Stage 1	-	-	-
Stage 2	-	-	939
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	939
Mov Cap-2 Maneuver	-	-	939
Stage 1	-	-	-
Stage 2	-	-	939

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	939	898	-	-	-	-	-
HCM Lane V/C Ratio	0.04	0.025	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	26	4	6	36
Future Volume (vph)	67	101	26	4	6	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.78	0.78	0.75	0.75	0.58	0.58
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	129	35	5	10	62
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	6.8	6.8	12.6	12.6	12.6	12.6
Actuated g/C Ratio	0.25	0.25	0.46	0.46	0.46	0.46
v/c Ratio	0.20	0.27	0.05	0.01	0.02	0.10
Control Delay	8.6	3.5	7.0	4.8	6.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	3.5	7.0	4.8	6.8	7.3
LOS	A	A	A	A	A	A
Approach Delay	5.6		6.7			7.2
Approach LOS	A		A			A
Queue Length 50th (ft)	8	0	3	0	1	5
Queue Length 95th (ft)	18	11	9	2	3	11
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1334	1222	1503	1495	1195	1363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.11	0.02	0.00	0.01	0.05

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.1
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.27
Intersection Signal Delay:	6.1
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	86	129	35	5	10	62
v/c Ratio	0.20	0.27	0.05	0.01	0.02	0.10
Control Delay	8.6	3.5	7.0	4.8	6.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	3.5	7.0	4.8	6.8	7.3
Queue Length 50th (ft)	8	0	3	0	1	5
Queue Length 95th (ft)	18	11	9	2	3	11
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1334	1222	1503	1495	1195	1363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.11	0.02	0.00	0.01	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	26	4	6	36
Future Volume (vph)	67	101	26	4	6	36
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.73	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1224	1395
Peak-hour factor, PHF	0.78	0.78	0.75	0.75	0.58	0.58
Adj. Flow (vph)	86	129	35	5	10	62
RTOR Reduction (vph)	0	103	0	3	0	0
Lane Group Flow (vph)	86	26	35	2	10	62
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	5.7	5.7	11.4	11.4	11.4	11.4
Effective Green, g (s)	5.7	5.7	11.4	11.4	11.4	11.4
Actuated g/C Ratio	0.20	0.20	0.41	0.41	0.41	0.41
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	346	310	623	620	496	565
v/s Ratio Prot	c0.05		0.02			c0.04
v/s Ratio Perm		0.02		0.00	0.01	
v/c Ratio	0.25	0.08	0.06	0.00	0.02	0.11
Uniform Delay, d1	9.4	9.1	5.1	5.0	5.0	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0	0.0	0.0	0.1
Delay (s)	9.8	9.2	5.1	5.0	5.0	5.3
Level of Service	A	A	A	A	A	A
Approach Delay (s)	9.4		5.1			5.2
Approach LOS	A		A			A

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	28.1	Sum of lost time (s)	11.0
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

01/18/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	26	4	6	36
Future Volume (veh/h)	67	101	26	4	6	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	86	129	35	0	10	62
Peak Hour Factor	0.78	0.78	0.75	0.75	0.58	0.58
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	303	270	402		685	358
Arrive On Green	0.18	0.18	0.26	0.00	0.26	0.26
Sat Flow, veh/h	1714	1525	1561	1525	1308	1393
Grp Volume(v), veh/h	86	129	35	0	10	62
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1308	1393
Q Serve(g_s), s	0.8	1.5	0.3	0.0	0.1	0.7
Cycle Q Clear(g_c), s	0.8	1.5	0.3	0.0	0.4	0.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	303	270	402		685	358
V/C Ratio(X)	0.28	0.48	0.09		0.01	0.17
Avail Cap(c_a), veh/h	1852	1648	2250		2233	2007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	7.2	5.5	0.0	5.7	5.6
Incr Delay (d2), s/veh	0.5	1.3	0.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.4	8.5	5.6	0.0	5.7	5.8
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	215		35			72
Approach Delay, s/veh	8.1		5.6			5.8
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		8.4		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		3.5		2.7
Green Ext Time (p_c), s		0.1		0.6		0.3

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Future Volume (vph)	2	0	0	6	0	538	0	144	3	93	34	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.82	0.82	0.82	0.77	0.77	0.77	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	7	656	0	0	191	0	108	40	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.9% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

01/18/2023

Intersection												
Int Delay, s/veh	12.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Future Vol, veh/h	2	0	0	6	0	538	0	144	3	93	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	82	82	82	77	77	77	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	7	0	656	0	187	4	108	40	0





















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	350	447	20	425	445	96	40	0	0	191	0	0
Stage 1	256	256	-	189	189	-	-	-	-	-	-	-
Stage 2	94	191	-	236	256	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	585	509	1060	518	511	948	1583	-	-	1395	-	-
Stage 1	732	699	-	800	748	-	-	-	-	-	-	-
Stage 2	908	746	-	752	699	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	170	470	1060	487	472	948	1583	-	-	1395	-	-
Mov Cap-2 Maneuver	170	470	-	487	472	-	-	-	-	-	-	-
Stage 1	732	645	-	800	748	-	-	-	-	-	-	-
Stage 2	280	746	-	694	645	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	26.4		16.9		0		5.7	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1583	-	-	170	487	948	1395	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.015	0.692	0.078	-	-
HCM Control Delay (s)	0	-	-	26.4	12.5	16.9	7.8	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.8	0.3	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	1	0	0	1	0	145	0	742	0	0	153	1
Future Volume (vph)	1	0	0	1	0	145	0	742	0	0	153	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	1.00	1.00	1.00	0.66	0.66	0.66	0.85	0.85	0.85	0.88	0.88	0.88
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	2	0	220	0	873	0	0	175	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

01/18/2023

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	↗
Traffic Vol, veh/h	1	0	0	1	0	145	0	742	0	0	153	1
Future Vol, veh/h	1	0	0	1	0	145	0	742	0	0	153	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	66	66	66	85	85	85	88	88	88
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	2	0	220	0	873	0	0	174	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	612	-	88	960	-	437	175	0	-	-	-	0
Stage 1	175	-	-	873	-	-	-	-	-	-	-	-
Stage 2	437	-	-	87	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	292	0	710	214	0	546	1414	-	0	0	-	-
Stage 1	688	0	-	316	0	-	-	-	0	0	-	-
Stage 2	457	0	-	917	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	175	-	710	214	-	546	1414	-	-	-	-	-
Mov Cap-2 Maneuver	235	-	-	277	-	-	-	-	-	-	-	-
Stage 1	688	-	-	316	-	-	-	-	-	-	-	-
Stage 2	273	-	-	917	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.4		16		0		0	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1414	-	235	-	277	546	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.005	0.402	-	-
HCM Control Delay (s)	0	-	20.4	0	18.1	16	-	-
HCM Lane LOS	A	-	C	A	C	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.9	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.95	0.95	0.95	0.75	0.75	0.75	0.86	0.86	0.86	0.85	0.85	0.85
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	509	183	17	392	0	194	35	35	7	153	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	97.4	91.8	91.8	85.1	78.1		13.1	23.2	23.2	15.6	9.6	
Actuated g/C Ratio	0.72	0.68	0.68	0.63	0.58		0.10	0.17	0.17	0.12	0.07	
v/c Ratio	0.39	0.25	0.17	0.03	0.20		0.64	0.12	0.11	0.04	0.66	
Control Delay	9.2	10.3	2.2	7.8	15.4		68.2	45.7	0.7	40.0	26.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.2	10.3	2.2	7.8	15.4		68.2	45.7	0.7	40.0	26.2	
LOS	A	B	A	A	B		E	D	A	D	C	
Approach Delay		8.4			15.1			56.2			26.8	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	55	68	0	4	77		85	26	0	5	13	
Queue Length 95th (ft)	116	156	34	11	116		119	55	0	16	68	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023

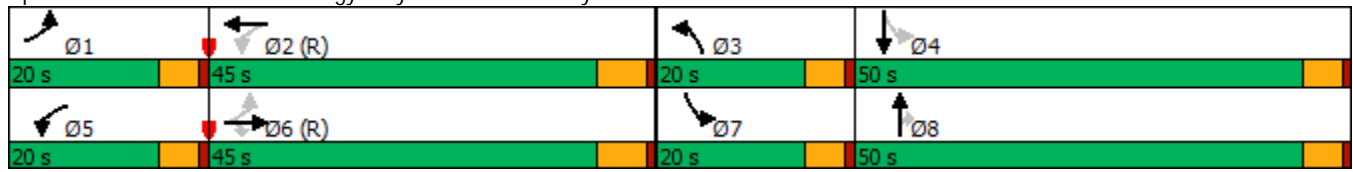


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	583	2022	1049	678	1916		351	582	538	282	576	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.38	0.25	0.17	0.03	0.20		0.55	0.06	0.07	0.02	0.27	

Intersection Summary

Area Type:	Other
Cycle Length:	135
Actuated Cycle Length:	135
Offset:	70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	18.9
Intersection LOS:	B
Intersection Capacity Utilization	51.9%
ICU Level of Service	A
Analysis Period (min)	15

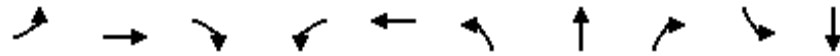
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	223	509	183	17	392	194	35	35	7	153
v/c Ratio	0.39	0.25	0.17	0.03	0.20	0.64	0.12	0.11	0.04	0.66
Control Delay	9.2	10.3	2.2	7.8	15.4	68.2	45.7	0.7	40.0	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	10.3	2.2	7.8	15.4	68.2	45.7	0.7	40.0	26.2
Queue Length 50th (ft)	55	68	0	4	77	85	26	0	5	13
Queue Length 95th (ft)	116	156	34	11	116	119	55	0	16	68
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	583	2022	1049	678	1916	351	582	538	282	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.25	0.17	0.03	0.20	0.55	0.06	0.07	0.02	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (vph)	212	484	174	13	286	8	167	30	30	6	13	117
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3309		3159	1748	1404	1710	1452	
Flt Permitted	0.48	1.00	1.00	0.46	1.00		0.95	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	698	2974	1457	836	3309		3159	1748	1404	1322	1452	
Peak-hour factor, PHF	0.95	0.95	0.95	0.75	0.75	0.75	0.86	0.86	0.86	0.85	0.85	0.85
Adj. Flow (vph)	223	509	183	17	381	11	194	35	35	7	15	138
RTOR Reduction (vph)	0	0	63	0	1	0	0	0	29	0	128	0
Lane Group Flow (vph)	223	509	120	17	391	0	194	35	6	7	25	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	96.3	88.7	88.7	80.7	78.1		13.1	21.3	21.3	11.0	9.6	
Effective Green, g (s)	96.3	88.7	88.7	80.7	78.1		13.1	21.3	21.3	11.0	9.6	
Actuated g/C Ratio	0.71	0.66	0.66	0.60	0.58		0.10	0.16	0.16	0.08	0.07	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	564	1954	957	516	1914		306	275	221	111	103	
v/s Ratio Prot	c0.04	0.17		0.00	0.12		c0.06	0.02		0.00	c0.02	
v/s Ratio Perm	c0.24		0.08	0.02					0.00	0.00		
v/c Ratio	0.40	0.26	0.13	0.03	0.20		0.63	0.13	0.02	0.06	0.24	
Uniform Delay, d1	6.8	9.6	8.7	11.0	13.6		58.6	48.9	48.1	57.2	59.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	0.3	0.0	0.2		4.3	0.2	0.0	0.2	1.2	
Delay (s)	7.3	9.9	8.9	11.1	13.8		62.9	49.1	48.1	57.4	60.5	
Level of Service	A	A	A	B	B		E	D	D	E	E	
Approach Delay (s)		9.1			13.7			59.1			60.3	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Future Volume (veh/h)	212	484	174	13	286	8	167	30	30	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	223	509	0	17	381	0	194	35	0	7	15	0
Peak Hour Factor	0.95	0.95	0.95	0.75	0.75	0.75	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	664	2168		681	2240		244	177		114	59	
Arrive On Green	0.06	0.72	0.00	0.02	0.67	0.00	0.08	0.10	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	223	509	0	17	381	0	194	35	0	7	15	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	6.4	7.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.5	1.1	0.0
Cycle Q Clear(g_c), s	6.4	7.7	0.0	0.4	5.7	0.0	8.1	2.5	0.0	0.5	1.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	664	2168		681	2240		244	177		114	59	
V/C Ratio(X)	0.34	0.23		0.02	0.17		0.80	0.20		0.06	0.26	
Avail Cap(c_a), veh/h	728	2168		842	2240		355	586		289	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.3	6.5	0.0	6.6	8.3	0.0	61.3	55.7	0.0	62.3	63.7	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.2	0.0	7.7	0.5	0.0	0.2	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.3	0.0	0.1	2.0	0.0	3.5	1.1	0.0	0.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	6.7	0.0	6.7	8.4	0.0	69.0	56.3	0.0	62.5	65.9	0.0
LnGrp LOS	A	A		A	A		E	E		E	E	
Approach Vol, veh/h		732			398			229			22	
Approach Delay, s/veh		6.3			8.4			67.0			64.9	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	96.5	15.3	9.4	7.4	102.9	6.2	18.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	8.4	7.7	10.1	3.1	2.4	9.7	2.5	4.5				
Green Ext Time (p_c), s	0.3	2.6	0.2	0.0	0.0	3.6	0.0	0.1				

Intersection Summary































HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 		 	 	
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40				40
Link Distance (ft)		980			1988			2188				3433
Travel Time (s)		19.1			38.7			37.3				58.5
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	45.0	75.0	75.0	14.0	44.0	44.0	46.0	48.0	48.0	43.0	45.0	45.0
Total Split (%)	25.0%	41.7%	41.7%	7.8%	24.4%	24.4%	25.6%	26.7%	26.7%	23.9%	25.0%	25.0%
Maximum Green (s)	40.0	70.0	70.0	9.0	39.0	39.0	41.0	43.0	43.0	38.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	40.4	87.2	87.2	8.1	47.1	47.1	38.6	45.1	45.1	61.1	33.8	79.3
Actuated g/C Ratio	0.22	0.48	0.48	0.04	0.26	0.26	0.21	0.25	0.25	0.34	0.19	0.44
v/c Ratio	0.93	0.47	0.16	0.15	0.60	0.22	0.91	0.52	0.15	0.69	0.11	0.72
Control Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
LOS	F	D	A	F	E	A	F	E	A	D	E	D
Approach Delay		55.9			55.8			72.0			45.4	
Approach LOS		E			E			E			D	
Queue Length 50th (ft)	359	286	0	13	294	0	359	193	0	217	35	366

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

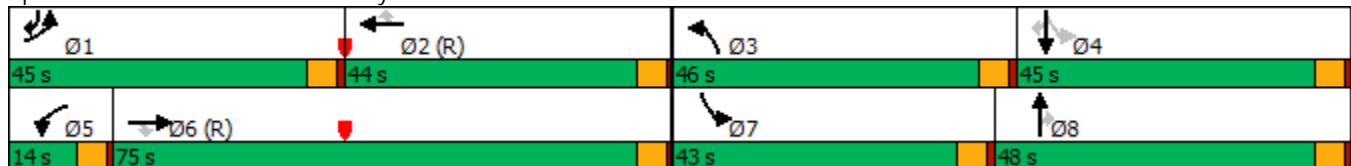
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#443	383	42	34	335	43	406	248	9	285	59	479
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	654	1441	793	83	844	464	706	807	493	513	745	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.47	0.16	0.13	0.60	0.22	0.86	0.48	0.14	0.56	0.10	0.72

Intersection Summary

Area Type: Other
 Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 58.1 Intersection LOS: E
 Intersection Capacity Utilization 68.9% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
v/c Ratio	0.93	0.47	0.16	0.15	0.60	0.22	0.91	0.52	0.15	0.69	0.11	0.72
Control Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.1	35.4	5.3	87.0	64.3	9.9	87.5	60.2	3.0	44.8	58.5	43.7
Queue Length 50th (ft)	359	286	0	13	294	0	359	193	0	217	35	366
Queue Length 95th (ft)	#443	383	42	34	335	43	406	248	9	285	59	479
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	654	1441	793	83	844	464	706	807	493	513	745	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.47	0.16	0.13	0.60	0.22	0.86	0.48	0.14	0.56	0.10	0.72































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (vph)	521	593	111	9	423	85	515	326	60	251	62	385
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	887	3353	1342
Peak-hour factor, PHF	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	599	682	128	11	504	101	606	384	71	289	71	443
RTOR Reduction (vph)	0	0	68	0	0	75	0	0	53	0	0	25
Lane Group Flow (vph)	599	682	60	11	504	26	606	384	18	289	71	418
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	40.4	84.3	84.3	3.3	47.2	47.2	38.6	45.1	45.1	61.1	33.8	74.2
Effective Green, g (s)	40.4	84.3	84.3	3.3	47.2	47.2	38.6	45.1	45.1	61.1	33.8	74.2
Actuated g/C Ratio	0.22	0.47	0.47	0.02	0.26	0.26	0.21	0.25	0.25	0.34	0.19	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	641	1392	702	30	845	389	664	738	383	415	629	590
v/s Ratio Prot	c0.21	0.23		0.01	c0.16		c0.20	0.13		0.11	0.02	c0.16
v/s Ratio Perm			0.04			0.02			0.01	0.13		0.15
v/c Ratio	0.93	0.49	0.09	0.37	0.60	0.07	0.91	0.52	0.05	0.70	0.11	0.71
Uniform Delay, d1	68.5	33.0	26.5	87.3	58.1	49.9	69.1	58.1	51.1	47.6	60.7	43.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.8	1.2	0.2	7.4	3.1	0.3	16.9	0.7	0.1	5.0	0.1	3.9
Delay (s)	89.3	34.3	26.7	94.8	61.2	50.2	86.0	58.8	51.2	52.7	60.7	47.8
Level of Service	F	C	C	F	E	D	F	E	D	D	E	D
Approach Delay (s)		57.0			60.0			73.8			50.7	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			60.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)		20.0			
Intersection Capacity Utilization			68.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔	↑↑	↔	↔↔	↑↑	↔	↔	↑↑	↔
Traffic Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Future Volume (veh/h)	521	593	111	9	423	85	515	326	60	251	62	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	599	682	0	11	504	0	606	384	71	289	71	443
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	630	1332		32	794		650	842	429	447	748	596
Arrive On Green	0.22	0.44	0.00	0.02	0.24	0.00	0.21	0.28	0.28	0.15	0.22	0.22
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	599	682	0	11	504	0	606	384	71	289	71	443
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	36.5	29.3	0.0	1.2	24.9	0.0	34.1	19.0	6.3	23.9	3.0	40.0
Cycle Q Clear(g_c), s	36.5	29.3	0.0	1.2	24.9	0.0	34.1	19.0	6.3	23.9	3.0	40.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	630	1332		32	794		650	842	429	447	748	596
V/C Ratio(X)	0.95	0.51		0.35	0.63		0.93	0.46	0.17	0.65	0.09	0.74
Avail Cap(c_a), veh/h	647	1332		84	794		716	842	429	552	748	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.95	0.95	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.6	36.3	0.0	87.2	60.9	0.0	70.2	53.3	48.8	43.6	55.6	42.1
Incr Delay (d2), s/veh	22.7	1.3	0.0	6.1	3.7	0.0	18.2	0.4	0.2	1.8	0.1	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	11.2	0.0	0.6	10.7	0.0	15.3	7.2	2.4	10.1	1.3	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.3	37.6	0.0	93.3	64.6	0.0	88.4	53.7	48.9	45.4	55.7	47.1
LnGrp LOS	F	D		F	E		F	D	D	D	E	D
Approach Vol, veh/h		1281			515			1061			803	
Approach Delay, s/veh		63.2			65.2			73.2			47.2	
Approach LOS		E			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.0	48.8	42.2	45.0	8.4	84.4	31.6	55.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	40.0	39.0	41.0	40.0	9.0	70.0	38.0	43.0				
Max Q Clear Time (g_c+I1), s	38.5	26.9	36.1	42.0	3.2	31.3	25.9	21.0				
Green Ext Time (p_c), s	0.4	2.5	1.1	0.0	0.0	5.3	0.7	2.6				

Intersection Summary























HCM 6th Ctrl Delay	62.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 	 						
Traffic Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.67	0.67	0.67	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	392	1299	0	0	385	1160	54	0	91	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	108.6	108.6			90.4	90.4	11.4		11.4			
Actuated g/C Ratio	0.84	0.84			0.70	0.70	0.09		0.09			
v/c Ratio	0.53	0.34			0.19	0.55	0.43		0.49			
Control Delay	5.3	2.8			7.8	1.6	66.6		19.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.3	2.8			7.8	1.6	66.6		19.6			
LOS	A	A			A	A	E		B			
Approach Delay		3.4			3.1			37.1				
Approach LOS		A			A			D				
Queue Length 50th (ft)	52	65			51	0	44		0			
Queue Length 95th (ft)	97	100			88	18	64		20			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	806	3766			2050	2103	221		260			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.49	0.34			0.19	0.55	0.24		0.35			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	4.7
Intersection LOS:	A
Intersection Capacity Utilization	78.5%
ICU Level of Service	D
Analysis Period (min)	15

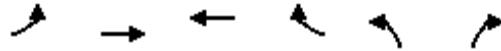
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	392	1299	385	1160	54	91
v/c Ratio	0.53	0.34	0.19	0.55	0.43	0.49
Control Delay	5.3	2.8	7.8	1.6	66.6	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	2.8	7.8	1.6	66.6	19.6
Queue Length 50th (ft)	52	65	51	0	44	0
Queue Length 95th (ft)	97	100	88	18	64	20
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	806	3766	2050	2103	221	260
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.34	0.19	0.55	0.24	0.35

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (vph)	349	1156	0	0	335	1009	36	0	61	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.50	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	798	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.89	0.89	0.89	0.87	0.87	0.87	0.67	0.67	0.67	1.00	1.00	1.00
Adj. Flow (vph)	392	1299	0	0	385	1160	54	0	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	353	0	0	83	0	0	0
Lane Group Flow (vph)	392	1299	0	0	385	807	54	0	8	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	108.6	108.6			90.4	90.4	11.4		11.4			
Effective Green, g (s)	108.6	108.6			90.4	90.4	11.4		11.4			
Actuated g/C Ratio	0.84	0.84			0.70	0.70	0.09		0.09			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	740	3765			2049	1750	126		104			
v/s Ratio Prot	c0.05	0.29			0.13		c0.04					
v/s Ratio Perm	c0.39					0.32			0.01			
v/c Ratio	0.53	0.35			0.19	0.46	0.43		0.08			
Uniform Delay, d1	2.6	2.5			6.9	8.9	56.2		54.5			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.7	0.3			0.2	0.9	2.3		0.3			
Delay (s)	3.2	2.7			7.1	9.8	58.5		54.8			
Level of Service	A	A			A	A	E		D			
Approach Delay (s)		2.8			9.1			56.2			0.0	
Approach LOS		A			A			E			A	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Future Volume (veh/h)	349	1156	0	0	335	1009	36	0	61	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	392	1299	0	0	385	0	54	0	91			
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.67	0.67	0.67			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	800	3799	0	0	2109		134	0	109			
Arrive On Green	0.09	0.83	0.00	0.00	0.70	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	392	1299	0	0	385	0	54	0	91			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.4	8.7	0.0	0.0	5.7	0.0	4.5	0.0	9.8			
Cycle Q Clear(g_c), s	8.4	8.7	0.0	0.0	5.7	0.0	4.5	0.0	9.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	800	3799	0	0	2109		134	0	109			
V/C Ratio(X)	0.49	0.34	0.00	0.00	0.18		0.40	0.00	0.83			
Avail Cap(c_a), veh/h	962	3799	0	0	2109		225	0	183			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.66	0.66	0.00	0.00	0.57	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.6	2.6	0.0	0.0	6.5	0.0	55.7	0.0	58.1			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.0	0.0	14.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	1.9	0.0	0.0	1.7	0.0	1.7	0.0	3.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	2.7	0.0	0.0	6.6	0.0	57.6	0.0	72.9			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1691			385			145				
Approach Delay, s/veh		3.0			6.6			67.2				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.5	96.6				113.1		16.9				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.4	7.7				10.7		11.8				
Green Ext Time (p_c), s	1.1	2.8				13.6		0.2				

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
10: I-84 EB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.76	0.76	0.76	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	859	0	74	330	0	0	0	0	1003	0	229
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		101.9		116.3	116.3					63.7		63.7
Actuated g/C Ratio		0.54		0.61	0.61					0.34		0.34
v/c Ratio		0.38		0.24	0.18					0.96		0.38
Control Delay		26.4		17.4	16.6					80.1		6.3
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.4		17.4	16.6					80.1		6.3
LOS		C		B	B					F		A
Approach Delay		26.4			16.8							66.4
Approach LOS		C			B							E
Queue Length 50th (ft)		226		37	93					628		0
Queue Length 95th (ft)		217		64	121					#761		66
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2250		339	1788					1070		617
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.38		0.22	0.18					0.94		0.37

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 44.6
 Intersection LOS: D
 Intersection Capacity Utilization 78.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

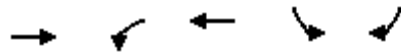
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

01/18/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	859	74	330	1003	229
v/c Ratio	0.38	0.24	0.18	0.96	0.38
Control Delay	26.4	17.4	16.6	80.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	17.4	16.6	80.1	6.3
Queue Length 50th (ft)	226	37	93	628	0
Queue Length 95th (ft)	217	64	121	#761	66
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2250	339	1788	1070	617
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.18	0.94	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (vph)	0	604	49	67	300	0	0	0	0	923	0	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4187		1500	2923					3130		1366
Flt Permitted		1.00		0.26	1.00					0.95		1.00
Satd. Flow (perm)		4187		414	2923					3130		1366
Peak-hour factor, PHF	0.76	0.76	0.76	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	795	64	74	330	0	0	0	0	1003	0	229
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	152
Lane Group Flow (vph)	0	854	0	74	330	0	0	0	0	1003	0	77
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		101.9		116.3	116.3					63.7		63.7
Effective Green, g (s)		101.9		116.3	116.3					63.7		63.7
Actuated g/C Ratio		0.54		0.61	0.61					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2245		307	1789					1049		457
v/s Ratio Prot		c0.20		c0.01	0.11					c0.32		
v/s Ratio Perm				0.14								0.06
v/c Ratio		0.38		0.24	0.18					0.96		0.17
Uniform Delay, d1		25.7		16.1	16.1					61.8		44.5
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.5		0.4	0.2					18.0		0.2
Delay (s)		26.2		16.5	16.3					79.8		44.7
Level of Service		C		B	B					E		D
Approach Delay (s)		26.2			16.4			0.0			73.3	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Future Volume (veh/h)	0	604	49	67	300	0	0	0	0	923	0	211
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	795	64	74	330	0				1003	0	229
Peak Hour Factor	0.76	0.76	0.76	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2292	184	348	1829	0				1048	0	457
Arrive On Green	0.00	0.56	0.56	0.03	0.62	0.00				0.33	0.00	0.33
Sat Flow, veh/h	0	4238	328	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	561	298	74	330	0				1003	0	229
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	20.1	20.3	3.9	9.1	0.0				58.9	0.0	25.2
Cycle Q Clear(g_c), s	0.0	20.1	20.3	3.9	9.1	0.0				58.9	0.0	25.2
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1619	857	348	1829	0				1048	0	457
V/C Ratio(X)	0.00	0.35	0.35	0.21	0.18	0.00				0.96	0.00	0.50
Avail Cap(c_a), veh/h	0	1619	857	422	1829	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.8	22.9	17.4	15.7	0.0				62.3	0.0	51.0
Incr Delay (d2), s/veh	0.0	0.6	1.1	0.3	0.2	0.0				17.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.1	7.7	1.4	3.2	0.0				25.6	0.0	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.4	24.0	17.7	15.9	0.0				79.9	0.0	51.9
LnGrp LOS	A	C	C	B	B	A				E	A	D
Approach Vol, veh/h		859			404						1232	
Approach Delay, s/veh		23.6			16.2						74.7	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		122.2		67.8	10.8	111.3						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		11.1		60.9	5.9	22.3						
Green Ext Time (p_c), s		2.4		2.0	0.1	6.8						

Intersection Summary

HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

01/18/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	1	147	174	29
Future Volume (vph)	73	11	1	147	174	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.77	0.77
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	13	1	175	226	38
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	73	11	1	147	174	29
Future Vol, veh/h	73	11	1	147	174	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	77	77
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	87	13	1	175	226	38























Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	403	-	226	0	-
Stage 1	226	-	-	-	-
Stage 2	177	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	563	0	1354	-	-
Stage 1	762	0	-	-	-
Stage 2	803	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	562	-	1354	-	-
Mov Cap-2 Maneuver	562	-	-	-	-
Stage 1	761	-	-	-	-
Stage 2	803	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1354	-	562	-	-
HCM Lane V/C Ratio	0.001	-	0.155	-	-
HCM Control Delay (s)	7.7	-	12.6	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Future Volume (vph)	0	0	0	9	0	38	0	649	0	11	69	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.53	0.53	0.53	0.72	0.72	0.72	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	17	72	0	0	901	0	14	88	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

01/18/2023

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Future Vol, veh/h	0	0	0	9	0	38	0	649	0	11	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	53	53	53	72	72	72	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	17	0	72	0	901	0	14	88	0

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	567	1017	44	973	1017	451	88	0	0	901	0	0
Stage 1	116	116	-	901	901	-	-	-	-	-	-	-
Stage 2	451	901	-	72	116	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	411	239	1023	210	239	561	1520	-	-	763	-	-
Stage 1	882	803	-	303	360	-	-	-	-	-	-	-
Stage 2	563	360	-	935	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	353	235	1023	207	235	561	1520	-	-	763	-	-
Mov Cap-2 Maneuver	353	235	-	207	235	-	-	-	-	-	-	-
Stage 1	882	789	-	303	360	-	-	-	-	-	-	-
Stage 2	491	360	-	918	789	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	0		14.6			0		1.3		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1520	-	-	-	-	207	561	763	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.082	0.128	0.018	-	-
HCM Control Delay (s)	0	-	-	0	0	23.9	12.4	9.8	-	-
HCM Lane LOS	A	-	-	A	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.3	0.4	0.1	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	246	4	1	142	18	0	1	1	44	1	112
Future Volume (vph)	131	246	4	1	142	18	0	1	1	44	1	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.90	0.90	0.90	0.74	0.74	0.74
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	298	0	1	181	0	0	2	0	59	152	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

01/18/2023

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Vol, veh/h	131	246	4	1	142	18	0	1	1	44	1	112
Future Vol, veh/h	131	246	4	1	142	18	0	1	1	44	1	112
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	88	88	88	90	90	90	74	74	74
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	156	293	5	1	161	20	0	1	1	59	1	151




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	181	0	0	298	0	0	857	791	296	782	783	171
Stage 1	-	-	-	-	-	-	608	608	-	173	173	-
Stage 2	-	-	-	-	-	-	249	183	-	609	610	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1407	-	-	1263	-	-	277	322	743	314	325	878
Stage 1	-	-	-	-	-	-	483	486	-	834	756	-
Stage 2	-	-	-	-	-	-	755	748	-	486	485	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1407	-	-	1263	-	-	209	286	743	286	289	878
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	286	-	286	289	-
Stage 1	-	-	-	-	-	-	429	432	-	741	755	-
Stage 2	-	-	-	-	-	-	623	747	-	430	431	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0			13.8			13.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	413	1407	-	-	1263	-	-	286	862
HCM Lane V/C Ratio	0.005	0.111	-	-	0.001	-	-	0.208	0.177
HCM Control Delay (s)	13.8	7.9	-	-	7.9	-	-	20.9	10.1
HCM Lane LOS		B	A	-	-	A	-	C	B
HCM 95th %tile Q(veh)		0	0.4	-	-	0	-	0.8	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	100	409	1	876	0	480	654	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		25.1			12.9	12.9	40.6	34.0		79.1	76.0	
Actuated g/C Ratio		0.19			0.10	0.10	0.31	0.26		0.61	0.58	
v/c Ratio		0.00			0.62	0.65	0.00	1.08		0.96	0.35	
Control Delay		0.0			72.4	10.2	17.0	100.4		60.5	18.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			72.4	10.2	17.0	100.4		60.5	18.7	
LOS		A			E	B	B	F		E	B	
Approach Delay					22.4			100.3			36.4	
Approach LOS					C			F			D	
Queue Length 50th (ft)		0			82	0	0	-426		-451	134	
Queue Length 95th (ft)		0			141	52	3	#486		m#537	m188	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

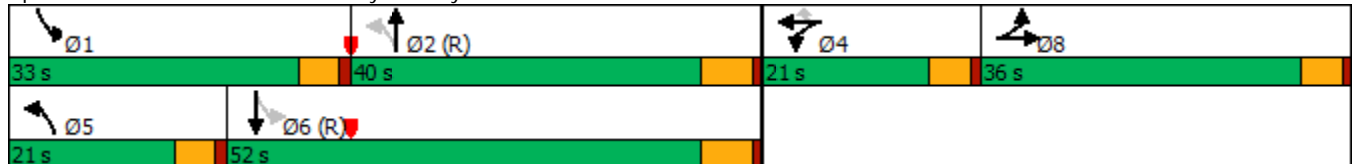


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		505			200	680	405	809		498	1885	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.50	0.60	0.00	1.08		0.96	0.35	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 55.7
 Intersection LOS: E
 Intersection Capacity Utilization 71.5%
 ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	100	409	1	876	480	654
v/c Ratio	0.00	0.62	0.65	0.00	1.08	0.96	0.35
Control Delay	0.0	72.4	10.2	17.0	100.4	60.5	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	72.4	10.2	17.0	100.4	60.5	18.7
Queue Length 50th (ft)	0	82	0	0	-426	-451	134
Queue Length 95th (ft)	0	141	52	3	#486	m#537	m188
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	505	200	680	405	809	498	1885
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.50	0.60	0.00	1.08	0.96	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		1487	3226	
Flt Permitted		0.98			0.95	1.00	0.40	1.00		0.11	1.00	
Satd. Flow (perm)		1638			1629	2614	726	3028		165	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	100	0	409	1	695	181	480	654	0
RTOR Reduction (vph)	0	2	0	0	0	368	0	18	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	100	41	1	858	0	480	654	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)		24.0			12.9	12.9	34.1	33.0		77.1	71.0	
Effective Green, g (s)		24.0			12.9	12.9	34.1	33.0		77.1	71.0	
Actuated g/C Ratio		0.18			0.10	0.10	0.26	0.25		0.59	0.55	
Clearance Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		302			161	259	198	768		495	1761	
v/s Ratio Prot		c0.00			c0.06		0.00	c0.28		c0.29	0.20	
v/s Ratio Perm						0.02	0.00			0.28		
v/c Ratio		0.00			0.62	0.16	0.01	1.12		0.97	0.37	
Uniform Delay, d1		43.2			56.2	53.6	35.4	48.5		37.3	16.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.63	1.07	
Incremental Delay, d2		0.0			7.2	0.3	0.0	69.7		6.6	0.1	
Delay (s)		43.2			63.4	53.9	35.4	118.2		67.3	18.0	
Level of Service		D			E	D	D	F		E	B	
Approach Delay (s)		43.2			55.7			118.1			38.8	
Approach LOS		D			E			F			D	

Intersection Summary		
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.76	E
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	71.5%	ICU Level of Service
Analysis Period (min)	15	C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	100	0	409	1	695	181	480	654	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	2	0	2	211	0	323	566	1416	369	507	2198	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.12	0.04	0.56	0.56	0.15	0.67	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2518	655	1514	3346	0
Grp Volume(v), veh/h	2	0	0	100	0	409	1	442	434	480	654	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	7.1	0.0	16.0	0.0	21.7	21.7	16.4	10.6	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	7.1	0.0	16.0	0.0	21.7	21.7	16.4	10.6	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	4	0	0	211	0	323	566	902	883	507	2198	0
V/C Ratio(X)	0.46	0.00	0.00	0.47	0.00	1.27	0.00	0.49	0.49	0.95	0.30	0.00
Avail Cap(c_a), veh/h	385	0	0	211	0	323	711	902	883	606	2198	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.10	0.10	0.00
Uniform Delay (d), s/veh	64.7	0.0	0.0	53.1	0.0	57.0	10.4	17.2	17.2	16.7	8.6	0.0
Incr Delay (d2), s/veh	61.6	0.0	0.0	1.6	0.0	142.6	0.0	1.9	2.0	3.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.1	0.0	11.7	0.0	8.0	7.8	8.8	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.3	0.0	0.0	54.7	0.0	199.6	10.4	19.1	19.2	20.4	8.7	0.0
LnGrp LOS	F	A	A	D	A	F	B	B	B	C	A	A
Approach Vol, veh/h		2			509			877			1134	
Approach Delay, s/veh		126.3			171.2			19.1			13.6	
Approach LOS		F			F			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.5	79.1		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	18.4	23.7		18.0	2.0	12.6		2.2				
Green Ext Time (p_c), s	1.1	3.7		0.0	0.0	4.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	47.4
HCM 6th LOS	D

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	128	0	144	148	367	47	768	280	503	931	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		14.1		34.0	34.0	34.0	46.9	39.2	39.2	22.7	56.4	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.36	0.30	0.30	0.17	0.43	
v/c Ratio		0.42		2.82	3.44	0.56	0.23	0.77	0.49	0.96	0.71	
Control Delay		42.3		891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		42.3		891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5	
LOS		D		F	F	A	B	B	A	F	D	
Approach Delay		42.3			462.0			14.6			52.2	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		37		~217	~232	0	8	103	0	220	352	
Queue Length 95th (ft)		71		#325	#348	82	m12	m133	m5	#335	451	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

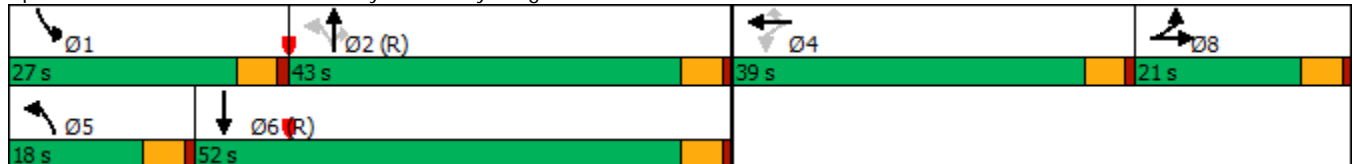


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		339		51	43	659	259	992	568	526	1308	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.38		2.82	3.44	0.56	0.18	0.77	0.49	0.96	0.71	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.44
 Intersection Signal Delay: 120.8 Intersection LOS: F
 Intersection Capacity Utilization 61.7% ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

























Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	144	148	367	47	768	280	503	931
v/c Ratio	0.42	2.82	3.44	0.56	0.23	0.77	0.49	0.96	0.71
Control Delay	42.3	891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	891.7	1171.4	7.3	10.2	19.5	1.9	83.0	35.5
Queue Length 50th (ft)	37	~217	~232	0	8	103	0	220	352
Queue Length 95th (ft)	71	#325	#348	82	m12	m133	m5	#335	451
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	339	51	43	659	259	992	568	526	1308
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	2.82	3.44	0.56	0.18	0.77	0.49	0.96	0.71

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2498		1593	1596	1485	1437	3288	1417	3016	3014	
Flt Permitted		0.99		0.12	0.10	1.00	0.25	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2498		197	166	1485	383	3288	1417	3016	3014	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	249	43	367	47	768	280	503	922	9
RTOR Reduction (vph)	0	32	0	0	0	271	0	0	140	0	1	0
Lane Group Flow (vph)	0	96	0	144	148	96	47	768	140	503	930	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		14.1		34.0	34.0	34.0	45.8	39.2	39.2	22.7	55.3	
Effective Green, g (s)		14.1		34.0	34.0	34.0	45.8	39.2	39.2	22.7	55.3	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.35	0.30	0.30	0.17	0.43	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		270		51	43	388	188	991	427	526	1282	
v/s Ratio Prot		c0.04					0.01	c0.23		c0.17	0.31	
v/s Ratio Perm				0.73	c0.89	0.06	0.08		0.10			
v/c Ratio		0.36		2.82	3.44	0.25	0.25	0.77	0.33	0.96	0.73	
Uniform Delay, d1		53.7		48.0	48.0	37.9	28.4	41.4	35.2	53.2	31.0	
Progression Factor		1.00		1.00	1.00	1.00	0.49	0.40	0.06	1.00	1.00	
Incremental Delay, d2		0.8		872.0	1155.0	0.3	0.3	2.5	0.8	28.3	3.6	
Delay (s)		54.5		920.0	1203.0	38.2	14.1	19.2	3.0	81.4	34.7	
Level of Service		D		F	F	D	B	B	A	F	C	
Approach Delay (s)		54.5			492.5			14.8			51.1	
Approach LOS		D			F			B			D	
Intersection Summary												
HCM 2000 Control Delay			127.0									F
HCM 2000 Volume to Capacity ratio			1.57									
Actuated Cycle Length (s)			130.0						20.0			
Intersection Capacity Utilization			61.7%									B
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	280	0	367	47	768	280	503	922	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	41	90	53	874	0	386	250	1192	515	519	1551	15
Arrive On Green	0.06	0.06	0.06	0.26	0.00	0.26	0.03	0.36	0.36	0.17	0.50	0.50
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3118	30
Grp Volume(v), veh/h	68	0	60	280	0	367	47	768	280	503	454	477
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	5.3	0.0	5.1	8.7	0.0	31.5	2.6	25.1	20.3	21.2	27.4	27.4
Cycle Q Clear(g_c), s	5.3	0.0	5.1	8.7	0.0	31.5	2.6	25.1	20.3	21.2	27.4	27.4
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	96	0	88	874	0	386	250	1192	515	519	765	802
V/C Ratio(X)	0.71	0.00	0.68	0.32	0.00	0.95	0.19	0.64	0.54	0.97	0.59	0.59
Avail Cap(c_a), veh/h	202	0	186	883	0	390	350	1192	515	519	765	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.22	0.22	0.22	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.1	0.0	60.0	38.9	0.0	47.4	25.3	34.7	33.1	53.7	23.3	23.3
Incr Delay (d2), s/veh	9.2	0.0	9.0	0.2	0.0	33.1	0.1	0.6	0.9	31.7	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.2	3.7	0.0	15.3	0.9	10.0	7.0	10.1	9.9	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	0.0	69.0	39.1	0.0	80.5	25.4	35.3	34.0	85.3	26.7	26.5
LnGrp LOS	E	A	E	D	A	F	C	D	C	F	C	C
Approach Vol, veh/h		128			647			1095			1434	
Approach Delay, s/veh		69.2			62.6			34.5			47.2	
Approach LOS		E			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.8		38.7	9.1	69.7		12.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	23.2	27.1		33.5	4.6	29.4		7.3				
Green Ext Time (p_c), s	0.0	4.5		0.2	0.0	4.8		0.4				

Intersection Summary

HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D


















Notes

User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.

Synchro Output – Background Conditions Analysis

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Future Volume (vph)	0	47	41	8	20	0	0	0	0	32	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	9	22	0	0	0	0	36	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Future Vol, veh/h	0	47	41	8	20	0	0	0	0	32	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	52	46	9	22	0	0	0	0	36	0	67

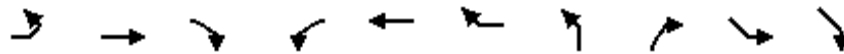
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	98	0	0		66	138	22
Stage 1	-	-	-	-	-	-		40	40	-
Stage 2	-	-	-	-	-	-		26	98	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1256	-	0		930	663	954
Stage 1	0	-	-	-	-	0		977	769	-
Stage 2	0	-	-	-	-	0		988	721	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1256	-	-		923	0	954
Mov Cap-2 Maneuver	-	-	-	-	-	-		923	0	-
Stage 1	-	-	-	-	-	-		977	0	-
Stage 2	-	-	-	-	-	-		981	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1256	-	923	954
HCM Lane V/C Ratio	-	-	0.007	-	0.039	0.07
HCM Control Delay (s)	-	-	7.9	-	9.1	9.1
HCM Lane LOS	-	-	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↶↶			↶	↶↶	↶↶			
Traffic Volume (vph)	38	49	0	0	27	5	0	0	0	0
Future Volume (vph)	38	49	0	0	27	5	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	42	54	0	0	30	6	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022

Intersection											
Int Delay, s/veh	2.6										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗↗			↕	↗↗	↘				
Traffic Vol, veh/h	38	49	0	0	27	5	0	0	0	0	
Future Vol, veh/h	38	49	0	0	27	5	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	42	54	0	0	30	6	0	0	0	0	

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	36	0	-	-	0 171 27
Stage 1	-	-	-	-	- 138 -
Stage 2	-	-	-	-	- 33 -
Critical Hdwy	5.045	-	-	-	- 6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	- 5.83 -
Critical Hdwy Stg 2	-	-	-	-	- 5.43 -
Follow-up Hdwy	2.7985	-	-	-	- 3.519 3.319
Pot Cap-1 Maneuver	1240	-	0	0	- 811 1043
Stage 1	-	-	0	0	- 875 -
Stage 2	-	-	0	0	- 989 -
Platoon blocked, %		-			- - -
Mov Cap-1 Maneuver	1240	-	-	-	- 783 1043
Mov Cap-2 Maneuver	-	-	-	-	- 783 -
Stage 1	-	-	-	-	- 845 -
Stage 2	-	-	-	-	- 989 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1240	-	-	-
HCM Lane V/C Ratio	-	0.034	-	-	-
HCM Control Delay (s)	0	8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Future Volume (vph)	47	0	0	0	1	0	13	19	0	0	0	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	0	0	0	1	0	14	21	0	0	0	21
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 20.0% ICU Level of Service A

Analysis Period (min) 15

Intersection												
Int Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Future Vol, veh/h	47	0	0	0	1	0	13	19	0	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	52	0	0	0	1	0	14	21	0	0	0	21













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.023	-	-	-	-	-
HCM Control Delay (s)	8.9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	-	-	-

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	19	32	50	22
Future Volume (vph)	4	7	19	32	50	22
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	8	21	36	56	24
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	5.8	5.8	27.0	27.0	27.0	27.0
Actuated g/C Ratio	0.20	0.20	0.92	0.92	0.92	0.92
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
LOS	B	A	A	A	A	A
Approach Delay	9.9		1.6			2.1
Approach LOS	A		A			A
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.5
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.05
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	22.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	8	21	36	56	24
v/c Ratio	0.01	0.03	0.01	0.03	0.05	0.02
Control Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	8.7	2.2	1.3	2.0	2.1
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	6	8	7	7	14	7
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1250	1121	1446	1440	1166	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.01	0.01	0.03	0.05	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	19	32	50	22
Future Volume (vph)	4	7	19	32	50	22
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.74	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1239	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	8	21	36	56	24
RTOR Reduction (vph)	0	8	0	13	0	0
Lane Group Flow (vph)	4	0	21	23	56	24
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	0.9	0.9	21.7	21.7	21.7	21.7
Effective Green, g (s)	0.9	0.9	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.03	0.03	0.65	0.65	0.65	0.65
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	45	40	993	988	800	900
v/s Ratio Prot	c0.00		0.01			0.02
v/s Ratio Perm		0.00		0.02	c0.05	
v/c Ratio	0.09	0.01	0.02	0.02	0.07	0.03
Uniform Delay, d1	16.0	15.9	2.1	2.1	2.2	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	0.0	0.0	0.0	0.0
Delay (s)	16.8	16.0	2.1	2.1	2.2	2.2
Level of Service	B	B	A	A	A	A
Approach Delay (s)	16.2		2.1			2.2
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	11.0
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	19	32	50	22
Future Volume (veh/h)	4	7	19	32	50	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	4	8	21	0	56	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	28	25	480		837	428
Arrive On Green	0.02	0.02	0.31	0.00	0.31	0.31
Sat Flow, veh/h	1714	1525	1561	1525	1325	1393
Grp Volume(v), veh/h	4	8	21	0	56	24
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1325	1393
Q Serve(g_s), s	0.0	0.1	0.2	0.0	0.5	0.2
Cycle Q Clear(g_c), s	0.0	0.1	0.2	0.0	0.7	0.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	28	25	480		837	428
V/C Ratio(X)	0.14	0.32	0.04		0.07	0.06
Avail Cap(c_a), veh/h	2213	1970	2688		2711	2398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.9	7.9	4.0	0.0	4.2	4.0
Incr Delay (d2), s/veh	2.3	7.3	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.2	15.2	4.0	0.0	4.2	4.0
LnGrp LOS	B	B	A		A	A
Approach Vol, veh/h	12		21			80
Approach Delay, s/veh	13.6		4.0			4.2
Approach LOS	B		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		5.3		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.2		2.1		2.7
Green Ext Time (p_c), s		0.0		0.0		0.2

Intersection Summary

HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Future Volume (vph)	0	0	0	1	0	31	0	21	2	596	111	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	1	34	0	0	25	0	655	126	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Future Vol, veh/h	0	0	0	1	0	31	0	21	2	596	111	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	1	0	34	0	23	2	655	122	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1446	1459	63	1395	1460	13	126	0	0	25	0	0
Stage 1	1434	1434	-	24	24	-	-	-	-	-	-	-
Stage 2	12	25	-	1371	1436	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	94	131	995	103	130	1070	1473	-	-	1603	-	-
Stage 1	143	201	-	996	879	-	-	-	-	-	-	-
Stage 2	1012	878	-	157	201	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	62	77	995	70	77	1070	1473	-	-	1603	-	-
Mov Cap-2 Maneuver	62	77	-	70	77	-	-	-	-	-	-	-
Stage 1	143	119	-	996	879	-	-	-	-	-	-	-
Stage 2	979	878	-	93	119	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		10		0		7.4	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	-	-	70	1070	1603	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.032	0.409	-	-
HCM Control Delay (s)	0	-	-	0	57.3	8.5	8.8	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1	2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Future Volume (vph)	2	0	1	3	0	20	0	62	0	0	802	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	69	0	0	894	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Future Vol, veh/h	2	0	1	3	0	20	0	62	0	0	802	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	69	0	0	891	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	928	-	447	515	-	35	894	0	-	-	-	0
Stage 1	893	-	-	69	-	-	-	-	-	-	-	-
Stage 2	35	-	-	446	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	161	0	358	447	0	1005	767	-	0	0	-	-
Stage 1	221	0	-	939	0	-	-	-	0	0	-	-
Stage 2	853	0	-	567	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	158	-	358	446	-	1005	767	-	-	-	-	-
Mov Cap-2 Maneuver	197	-	-	495	-	-	-	-	-	-	-	-
Stage 1	221	-	-	939	-	-	-	-	-	-	-	-
Stage 2	835	-	-	565	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	20.7		9.2		0		0			
HCM LOS	C		A							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	767	-	197	358	495	1005	-	-
HCM Lane V/C Ratio	-	-	0.011	0.003	0.006	0.021	-	-
HCM Control Delay (s)	0	-	23.5	15.1	12.3	8.7	-	-
HCM Lane LOS	A	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	216	41	550	0	241	56	19	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	99.0	91.3	91.3	96.6	90.1		14.3	28.4	28.4	19.7	13.9	
Actuated g/C Ratio	0.68	0.63	0.63	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.13	0.22	0.05	0.27		0.77	0.16	0.05	0.02	0.78	
Control Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.9	12.8	2.4	8.6	14.6		80.7	46.7	0.2	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.0			14.1			69.8			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	48	0	11	123		115	42	0	3	76	
Queue Length 95th (ft)	43	83	39	29	192		#166	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	665	1871	997	867	2058		326	378	409	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27		0.74	0.15	0.05	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.1
 Intersection LOS: C
 Intersection Capacity Utilization 53.0%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

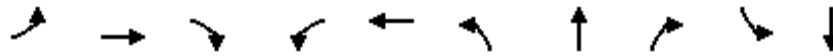
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	216	41	550	241	56	19	4	182
v/c Ratio	0.15	0.13	0.22	0.05	0.27	0.77	0.16	0.05	0.02	0.78
Control Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	12.8	2.4	8.6	14.6	80.7	46.7	0.2	39.2	49.9
Queue Length 50th (ft)	19	48	0	11	123	115	42	0	3	76
Queue Length 95th (ft)	43	83	39	29	192	#166	84	0	12	156
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	665	1871	997	867	2058	326	378	409	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.22	0.05	0.27	0.74	0.15	0.05	0.01	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (vph)	60	219	194	37	484	11	217	50	17	4	38	126
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3312		3159	1748	1404	1710	1500	
Flt Permitted	0.42	1.00	1.00	0.60	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	606	2974	1457	1081	3312		3159	1748	1404	1297	1500	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	243	216	41	538	12	241	56	19	4	42	140
RTOR Reduction (vph)	0	0	81	0	0	0	0	0	15	0	90	0
Lane Group Flow (vph)	67	243	135	41	550	0	241	56	4	4	92	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	97.0	90.3	90.3	94.6	89.1		14.3	26.9	26.9	15.2	13.9	
Effective Green, g (s)	97.0	90.3	90.3	94.6	89.1		14.3	26.9	26.9	15.2	13.9	
Actuated g/C Ratio	0.67	0.62	0.62	0.65	0.61		0.10	0.19	0.19	0.10	0.10	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	441	1852	907	729	2035		311	324	260	139	143	
v/s Ratio Prot	c0.01	0.08		0.00	c0.17		c0.08	0.03		0.00	c0.06	
v/s Ratio Perm	0.09		0.09	0.03					0.00	0.00		
v/c Ratio	0.15	0.13	0.15	0.06	0.27		0.77	0.17	0.01	0.03	0.64	
Uniform Delay, d1	8.5	11.2	11.4	9.0	12.9		63.8	49.7	48.2	58.2	63.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.1	0.3	0.0	0.3		11.4	0.3	0.0	0.1	9.4	
Delay (s)	8.6	11.4	11.7	9.0	13.2		75.2	49.9	48.2	58.3	72.6	
Level of Service	A	B	B	A	B		E	D	D	E	E	
Approach Delay (s)		11.2			13.0			69.1			72.2	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			30.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)			21.0		
Intersection Capacity Utilization			53.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Future Volume (veh/h)	60	219	194	37	484	11	217	50	17	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	552	2117		877	2327		285	213		109	67	
Arrive On Green	0.03	0.70	0.00	0.03	0.70	0.00	0.09	0.12	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	41	538	0	241	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.8	0.0	1.0	8.4	0.0	10.8	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	552	2117		877	2327		285	213		109	67	
V/C Ratio(X)	0.12	0.11		0.05	0.23		0.84	0.26		0.04	0.63	
Avail Cap(c_a), veh/h	939	2117		1125	2327		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	7.0	0.0	5.7	7.9	0.0	65.0	57.8	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.2	0.0	16.1	0.7	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.2	0.0	0.3	3.0	0.0	5.0	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	7.2	0.0	5.7	8.2	0.0	81.1	58.5	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			579			297			46	
Approach Delay, s/veh		6.9			8.0			76.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	107.0	17.9	10.4	9.0	107.7	5.7	22.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.4	12.8	5.3	3.0	5.8	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.2	0.1	0.1	1.7	0.0	0.2				

Intersection Summary





























HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 		 		
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40				40
Link Distance (ft)		980			1988			2188				3433
Travel Time (s)		19.1			38.7			37.3				58.5
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	10.5	37.2	37.2	8.1	32.0	32.0	6.9	17.2	17.2	26.8	21.4	34.3
Actuated g/C Ratio	0.12	0.41	0.41	0.09	0.36	0.36	0.08	0.19	0.19	0.30	0.24	0.38
v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.21	0.10	0.02	0.43	0.50	0.63
Control Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
LOS	E	B	A	D	C	A	D	C	A	C	C	B
Approach Delay		27.7			25.3			30.6			21.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	89	51	40	47	151	0	13	13	0	55	97	41

Lanes, Volumes, Timings
 8: S Federal Way & Gowen Rd

10/27/2022

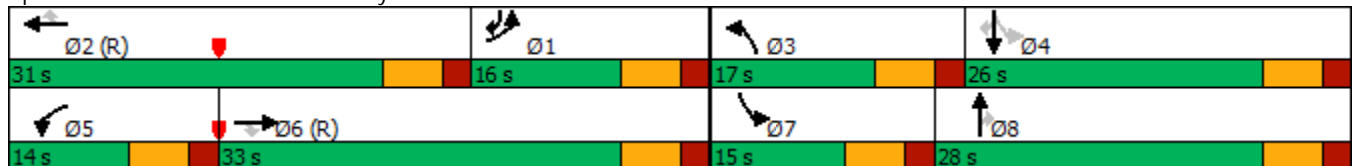


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#171	90	203	#103	208	34	30	29	0	98	144	101
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1230	849	150	1145	644	378	720	566	355	859	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.13	0.08	0.02	0.43	0.46	0.63

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 25.1 Intersection LOS: C
 Intersection Capacity Utilization 65.7% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

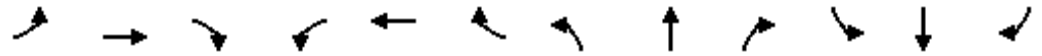
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.21	0.10	0.02	0.43	0.50	0.63
Control Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	19.8	9.6	54.8	26.9	3.9	40.6	28.0	0.1	24.2	31.5	10.6
Queue Length 50th (ft)	89	51	40	47	151	0	13	13	0	55	97	41
Queue Length 95th (ft)	#171	90	203	#103	208	34	30	29	0	98	144	101
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1230	849	150	1145	644	378	720	566	355	859	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.26	0.63	0.56	0.50	0.25	0.13	0.08	0.02	0.43	0.46	0.63































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

10/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (vph)	283	298	507	76	520	142	44	53	10	145	374	403
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	950	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	301	317	539	84	578	158	49	59	11	153	394	424
RTOR Reduction (vph)	0	0	244	0	0	108	0	0	9	0	0	162
Lane Group Flow (vph)	301	317	295	84	578	50	49	59	2	153	394	262
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	11.7	33.6	33.6	6.5	28.4	28.4	4.5	16.4	16.4	30.9	21.4	33.1
Effective Green, g (s)	11.7	33.6	33.6	6.5	28.4	28.4	4.5	16.4	16.4	30.9	21.4	33.1
Actuated g/C Ratio	0.13	0.37	0.37	0.07	0.32	0.32	0.05	0.18	0.18	0.34	0.24	0.37
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	1110	560	121	1017	468	155	537	278	399	797	493
v/s Ratio Prot	c0.11	0.11		0.05	c0.18		0.02	0.02		c0.04	0.12	c0.07
v/s Ratio Perm			0.20			0.03			0.00	0.09		0.13
v/c Ratio	0.81	0.29	0.53	0.69	0.57	0.11	0.32	0.11	0.01	0.38	0.49	0.53
Uniform Delay, d1	38.1	19.8	22.0	40.8	25.7	21.8	41.3	30.7	30.1	21.6	29.6	22.4
Progression Factor	0.95	0.90	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.3	0.6	3.4	15.9	2.3	0.5	1.2	0.1	0.0	0.6	0.5	1.1
Delay (s)	48.4	18.4	19.9	56.6	28.0	22.3	42.4	30.8	30.1	22.2	30.1	23.5
Level of Service	D	B	B	E	C	C	D	C	C	C	C	C
Approach Delay (s)		26.9			29.8			35.5			26.0	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			27.7		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						24.0	
Intersection Capacity Utilization			65.7%		ICU Level of Service						C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: S Federal Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Future Volume (veh/h)	283	298	507	76	520	142	44	53	10	145	374	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	894	1345		132	705		123	333	169	366	574	649
Arrive On Green	0.10	0.15	0.00	0.08	0.22	0.00	0.04	0.11	0.11	0.10	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	317	0	84	578	0	49	59	11	153	394	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.7	8.3	0.0	4.3	15.2	0.0	1.4	1.6	0.6	7.1	9.9	4.3
Cycle Q Clear(g_c), s	8.7	8.3	0.0	4.3	15.2	0.0	1.4	1.6	0.6	7.1	9.9	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	894	1345		132	705		123	333	169	366	574	649
V/C Ratio(X)	0.34	0.24		0.64	0.82		0.40	0.18	0.06	0.42	0.69	0.65
Avail Cap(c_a), veh/h	894	1345		150	906		384	732	373	368	748	719
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	24.8	0.0	40.3	33.6	0.0	42.2	36.3	35.8	29.8	35.1	6.0
Incr Delay (d2), s/veh	0.2	0.4	0.0	6.5	9.4	0.0	2.1	0.3	0.2	0.8	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.2	0.0	2.0	6.7	0.0	0.5	0.6	0.2	2.8	4.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	25.2	0.0	46.8	43.0	0.0	44.3	36.5	36.0	30.6	36.8	7.8
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		618			662			119			971	
Approach Delay, s/veh		28.6			43.5			39.7			23.2	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.6	25.5	9.5	21.4	13.0	46.1	14.9	16.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.7	17.2	3.4	11.9	6.3	10.3	9.1	3.6				
Green Ext Time (p_c), s	0.0	2.3	0.0	2.6	0.0	1.8	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	31.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1171	0	0	226	633	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.0	78.0			63.1	63.1	10.0		10.0			
Actuated g/C Ratio	0.84	0.87			0.70	0.70	0.11		0.11			
v/c Ratio	0.23	0.30			0.11	0.32	0.19		0.14			
Control Delay	2.7	2.3			3.5	0.7	39.6		1.4			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.7	2.3			3.5	0.7	39.6		1.4			
LOS	A	A			A	A	D		A			
Approach Delay		2.3			1.4			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	56			13	0	16		0			
Queue Length 95th (ft)	37	70			25	3	42		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

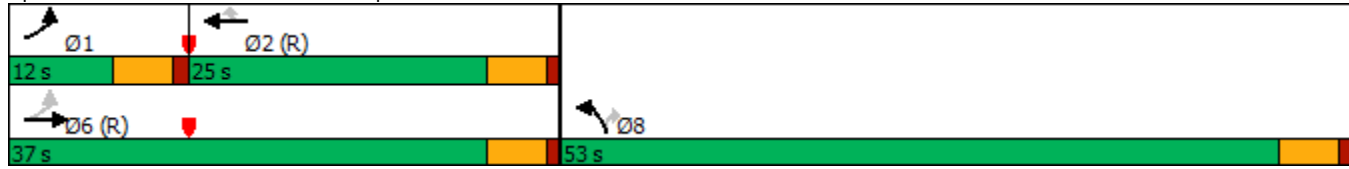


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	824	3907			2066	1953	766		677			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.23	0.30			0.11	0.32	0.04		0.04			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	52.4%
ICU Level of Service	A
Analysis Period (min)	15

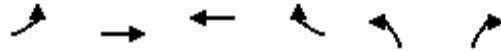
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1171	226	633	30	29
v/c Ratio	0.23	0.30	0.11	0.32	0.19	0.14
Control Delay	2.7	2.3	3.5	0.7	39.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	2.3	3.5	0.7	39.6	1.4
Queue Length 50th (ft)	21	56	13	0	16	0
Queue Length 95th (ft)	37	70	25	3	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	824	3907	2066	1953	766	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.30	0.11	0.32	0.04	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗				
Traffic Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0	
Future Volume (vph)	173	1054	0	0	208	582	27	0	26	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00				
Frt	1.00	1.00			1.00	0.85	1.00		0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195				
Flt Permitted	0.56	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (perm)	907	4508			2948	2517	1437		1195				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00	
Adj. Flow (vph)	192	1171	0	0	226	633	30	0	29	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	203	0	0	27	0	0	0	
Lane Group Flow (vph)	192	1171	0	0	226	430	30	0	2	0	0	0	
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%	
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm				
Protected Phases	1	6			2		8						
Permitted Phases	6					2			8				
Actuated Green, G (s)	74.0	74.0			61.1	61.1	6.0		6.0				
Effective Green, g (s)	74.0	74.0			61.1	61.1	6.0		6.0				
Actuated g/C Ratio	0.82	0.82			0.68	0.68	0.07		0.07				
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	800	3706			2001	1708	95		79				
v/s Ratio Prot	0.02	c0.26			0.08		c0.02						
v/s Ratio Perm	0.18					0.17			0.00				
v/c Ratio	0.24	0.32			0.11	0.25	0.32		0.02				
Uniform Delay, d1	1.8	1.9			5.0	5.6	40.0		39.3				
Progression Factor	1.00	1.00			0.58	0.49	1.00		1.00				
Incremental Delay, d2	0.2	0.2			0.1	0.3	1.9		0.1				
Delay (s)	2.0	2.1			3.0	3.0	42.0		39.4				
Level of Service	A	A			A	A	D		D				
Approach Delay (s)		2.1			3.0			40.7			0.0		
Approach LOS		A			A			D			A		
Intersection Summary													
HCM 2000 Control Delay			3.5		HCM 2000 Level of Service					A			
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					15.0			
Intersection Capacity Utilization			52.4%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Future Volume (veh/h)	173	1054	0	0	208	582	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1171	0	0	226	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	839	3670	0	0	2072		125	0	102			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1171	0	0	226	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.9	6.1	0.0	0.0	5.4	0.0	1.7	0.0	2.1			
Cycle Q Clear(g_c), s	2.9	6.1	0.0	0.0	5.4	0.0	1.7	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	839	3670	0	0	2072		125	0	102			
V/C Ratio(X)	0.23	0.32	0.00	0.00	0.11		0.24	0.00	0.28			
Avail Cap(c_a), veh/h	873	3670	0	0	2072		779	0	636			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.82	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.1	2.3	0.0	0.0	12.8	0.0	38.4	0.0	38.6			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.0	0.0	0.0	1.6	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	2.5	0.0	0.0	12.8	0.0	39.4	0.0	40.1			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1363			226			59				
Approach Delay, s/veh		2.6			12.8			39.7				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.9	7.4				8.1		4.1				
Green Ext Time (p_c), s	0.1	1.0				9.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	469	0	39	221	0	0	0	0	872	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		115.9		127.0	127.0					83.0		83.0
Actuated g/C Ratio		0.53		0.58	0.58					0.38		0.38
v/c Ratio		0.21		0.09	0.13					0.74		0.46
Control Delay		32.1		27.4	25.3					62.5		4.5
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		32.1		27.4	25.3					62.5		4.5
LOS		C		C	C					E		A
Approach Delay		32.1			25.6							46.4
Approach LOS		C			C							D
Queue Length 50th (ft)		123		22	70					597		0
Queue Length 95th (ft)		234		69	150					442		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022

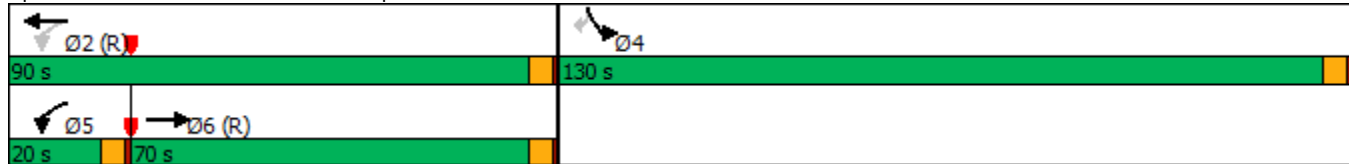


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2211		447	1686					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.21		0.09	0.13					0.49		0.36

Intersection Summary

Area Type: Other
 Cycle Length: 220
 Actuated Cycle Length: 220
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 40.1
 Intersection LOS: D
 Intersection Capacity Utilization 52.4%
 ICU Level of Service A
 Analysis Period (min) 15

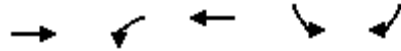
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	469	39	221	872	336
v/c Ratio	0.21	0.09	0.13	0.74	0.46
Control Delay	32.1	27.4	25.3	62.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	27.4	25.3	62.5	4.5
Queue Length 50th (ft)	123	22	70	597	0
Queue Length 95th (ft)	234	69	150	442	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2211	447	1686	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.09	0.13	0.49	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (vph)	0	393	29	37	210	0	0	0	0	802	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4194		1500	2923					3130		1366
Flt Permitted		1.00		0.43	1.00					0.95		1.00
Satd. Flow (perm)		4194		678	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	437	32	39	221	0	0	0	0	872	0	336
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	209
Lane Group Flow (vph)	0	467	0	39	221	0	0	0	0	872	0	127
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		114.9		127.0	127.0					83.0		83.0
Effective Green, g (s)		114.9		127.0	127.0					83.0		83.0
Actuated g/C Ratio		0.52		0.58	0.58					0.38		0.38
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2190		417	1687					1180		515
v/s Ratio Prot		c0.11		0.00	c0.08					c0.28		
v/s Ratio Perm				0.05								0.09
v/c Ratio		0.21		0.09	0.13					0.74		0.25
Uniform Delay, d1		28.2		20.5	21.3					59.1		47.0
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.2		0.1	0.2					2.5		0.3
Delay (s)		28.5		20.6	21.4					61.6		47.3
Level of Service		C		C	C					E		D
Approach Delay (s)		28.5			21.3			0.0			57.6	
Approach LOS		C			C			A			E	

Intersection Summary

HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Future Volume (veh/h)	0	393	29	37	210	0	0	0	0	802	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	437	32	39	221	0				872	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2533	183	538	1948	0				944	0	412
Arrive On Green	0.00	0.61	0.61	0.02	0.66	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	4272	299	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	305	164	39	221	0				872	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1536	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Cycle Q Clear(g_c), s	0.0	10.0	10.2	2.1	6.1	0.0				58.6	0.0	49.6
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1774	942	538	1948	0				944	0	412
V/C Ratio(X)	0.00	0.17	0.17	0.07	0.11	0.00				0.92	0.00	0.82
Avail Cap(c_a), veh/h	0	1774	942	611	1948	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.4	18.4	14.7	14.0	0.0				74.8	0.0	71.6
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.1	0.1	0.0				4.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	3.9	0.8	2.2	0.0				24.0	0.0	35.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	18.8	14.8	14.1	0.0				79.2	0.0	75.6
LnGrp LOS	A	B	B	B	B	A				E	A	E
Approach Vol, veh/h		469			260						1208	
Approach Delay, s/veh		18.7			14.2						78.2	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		149.5		70.5	9.5	139.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		8.1		60.6	4.1	12.2						
Green Ext Time (p_c), s		1.5		4.9	0.0	3.2						
Intersection Summary												
HCM 6th Ctrl Delay				55.2								
HCM 6th LOS				E								

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/27/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	3	21	290	142	215
Future Volume (vph)	21	3	21	290	142	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	3	23	322	158	239
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.1%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	21	3	21	290	142	215
Future Vol, veh/h	21	3	21	290	142	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	23	3	23	322	158	239























Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	526	-	158	0	-
Stage 1	158	-	-	-	-
Stage 2	368	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	476	0	1434	-	-
Stage 1	820	0	-	-	-
Stage 2	654	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	468	-	1434	-	-
Mov Cap-2 Maneuver	468	-	-	-	-
Stage 1	807	-	-	-	-
Stage 2	654	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1434	-	468	-	-
HCM Lane V/C Ratio	0.016	-	0.05	-	-
HCM Control Delay (s)	7.6	-	13.1	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Future Volume (vph)	0	0	0	2	0	3	0	36	3	103	458	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	3	0	0	43	0	114	509	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Traffic Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Future Vol, veh/h	0	0	0	2	0	3	0	36	3	103	458	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	2	0	3	0	40	3	114	509	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	757	780	255	525	779	22	509	0	0	43	0	0
Stage 1	737	737	-	42	42	-	-	-	-	-	-	-
Stage 2	20	43	-	483	737	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	300	329	750	440	330	1056	1066	-	-	1579	-	-
Stage 1	381	428	-	973	864	-	-	-	-	-	-	-
Stage 2	1002	863	-	539	428	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	283	305	750	416	306	1056	1066	-	-	1579	-	-
Mov Cap-2 Maneuver	283	305	-	416	306	-	-	-	-	-	-	-
Stage 1	381	397	-	973	864	-	-	-	-	-	-	-
Stage 2	999	863	-	500	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.5	0	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1066	-	-	-	-	416	1056	1579	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.005	0.003	0.072	-	-
HCM Control Delay (s)	0	-	-	0	0	13.7	8.4	7.5	-	-
HCM Lane LOS	A	-	-	A	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0.2	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	104	2	0	167	24	0	1	0	11	0	121
Future Volume (vph)	81	104	2	0	167	24	0	1	0	11	0	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	118	0	0	213	0	0	1	0	12	134	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Vol, veh/h	81	104	2	0	167	24	0	1	0	11	0	121
Future Vol, veh/h	81	104	2	0	167	24	0	1	0	11	0	121
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	90	116	2	0	186	27	0	1	0	12	0	134




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	213	0	0	118	0	0	564	510	117	498	498	200
Stage 1	-	-	-	-	-	-	297	297	-	200	200	-
Stage 2	-	-	-	-	-	-	267	213	-	298	298	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1369	-	-	1470	-	-	436	467	935	486	474	846
Stage 1	-	-	-	-	-	-	712	668	-	806	736	-
Stage 2	-	-	-	-	-	-	738	726	-	715	667	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1369	-	-	1470	-	-	348	436	935	461	443	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	348	436	-	461	443	-
Stage 1	-	-	-	-	-	-	665	624	-	753	736	-
Stage 2	-	-	-	-	-	-	621	726	-	667	623	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0	13.3	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	436	1369	-	-	1470	-	-	461	846
HCM Lane V/C Ratio	0.003	0.066	-	-	-	-	-	0.027	0.159
HCM Control Delay (s)	13.3	7.8	-	-	0	-	-	13	10.1
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.1	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					14.8	14.8		39.4		62.7	61.7	
Actuated g/C Ratio					0.13	0.13		0.36		0.57	0.56	
v/c Ratio					0.77	0.67		0.58		0.88	0.35	
Control Delay					68.7	8.0		32.8		28.0	17.7	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					68.7	8.0		32.8		28.0	17.7	
LOS					E	A		C		C	B	
Approach Delay					22.0			32.8			21.4	
Approach LOS					C			C			C	
Queue Length 50th (ft)					114	0		207		179	168	
Queue Length 95th (ft)					#209	52		273		m183	m159	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					236	855		1117		398	1809	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.71	0.65		0.58		0.88	0.35	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	24.8
Intersection LOS:	C
Intersection Capacity Utilization	58.0%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/27/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.77	0.67	0.58	0.88	0.35
Control Delay	68.7	8.0	32.8	28.0	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	8.0	32.8	28.0	17.7
Queue Length 50th (ft)	114	0	207	179	168
Queue Length 95th (ft)	#209	52	273	m183	m159
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	236	855	1117	398	1809
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.65	0.58	0.88	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕		
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0	
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0	
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0		
Lane Util. Factor					1.00	0.88		0.95		1.00	0.95		
Frt					1.00	0.85		0.99		1.00	1.00		
Flt Protected					0.95	1.00		1.00		0.95	1.00		
Satd. Flow (prot)					1629	2614		3106		1487	3226		
Flt Permitted					0.95	1.00		1.00		0.26	1.00		
Satd. Flow (perm)					1629	2614		3106		399	3226		
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	0	0	167	0	556	0	594	59	351	629	0	
RTOR Reduction (vph)	0	0	0	0	0	481	0	7	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	167	75	0	646	0	351	629	0	
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%	
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA		
Protected Phases	8	8		4	4		5	2		1	6		
Permitted Phases						4	2			6			
Actuated Green, G (s)					14.8	14.8		38.3		60.6	60.6		
Effective Green, g (s)					14.8	14.8		38.3		60.6	60.6		
Actuated g/C Ratio					0.13	0.13		0.35		0.55	0.55		
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0		
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)					219	351		1081		390	1777		
v/s Ratio Prot					c0.10			0.21		c0.14	0.19		
v/s Ratio Perm						0.03				c0.35			
v/c Ratio					0.76	0.21		0.60		0.90	0.35		
Uniform Delay, d1					45.9	42.4		29.5		17.1	13.8		
Progression Factor					1.00	1.00		1.00		1.36	1.15		
Incremental Delay, d2					14.5	0.3		2.4		2.9	0.0		
Delay (s)					60.4	42.7		32.0		26.3	15.9		
Level of Service					E	D		C		C	B		
Approach Delay (s)		0.0			46.8			32.0			19.6		
Approach LOS		A			D			C			B		
Intersection Summary													
HCM 2000 Control Delay			31.4		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.72										
Actuated Cycle Length (s)			110.0		Sum of lost time (s)						21.0		
Intersection Capacity Utilization			58.0%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	556	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	249	0	381	556	1780	176	577	2460	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.60	0.60	0.11	0.75	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2946	292	1514	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	556	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1635	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	10.1	0.0	16.0	0.0	11.0	11.0	9.1	6.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.1	0.0	16.0	0.0	11.0	11.0	9.1	6.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	249	0	381	556	968	988	577	2460	0
V/C Ratio(X)	0.00	0.00	0.00	0.67	0.00	1.46	0.00	0.33	0.33	0.61	0.26	0.00
Avail Cap(c_a), veh/h	0	376	0	249	0	381	804	968	988	638	2460	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	44.5	0.0	47.0	0.0	10.8	10.8	6.9	4.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.8	0.0	220.1	0.0	0.9	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.6	0.0	16.9	0.0	3.7	3.8	2.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	51.3	0.0	267.1	0.0	11.7	11.7	7.0	4.1	0.0
LnGrp LOS	A	A	A	D	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			723			653			980	
Approach Delay, s/veh		0.0			217.3			11.7			5.2	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.6	72.4		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	11.1	13.0		18.0	0.0	8.5		0.0				
Green Ext Time (p_c), s	0.5	3.6		0.0	0.0	4.1		0.0				

Intersection Summary























HCM 6th Ctrl Delay	72.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	850	327	304	762	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		7.5		30.0	30.0	30.0	40.6	40.6	40.6	14.0	51.8	
Actuated g/C Ratio		0.07		0.27	0.27	0.27	0.37	0.37	0.37	0.13	0.47	
v/c Ratio		0.48		3.03	3.36	0.75	0.18	0.70	0.47	0.79	0.55	
Control Delay		47.6		975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		47.6		975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		47.6			451.4			15.6			35.4	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		21		~234	~243	82	7	135	0	108	218	
Queue Length 95th (ft)		46		#347	#361	223	m13	246	14	#173	296	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

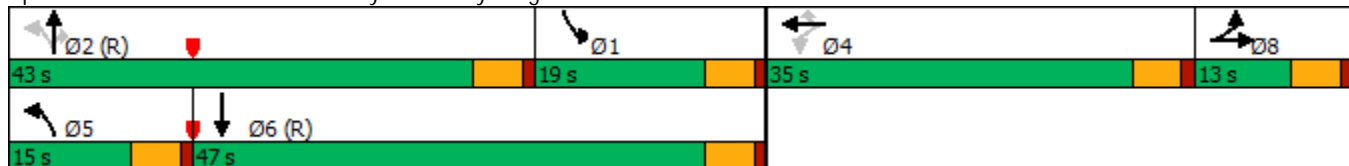


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		172		60	55	675	201	1213	693	383	1391	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.45		3.03	3.36	0.75	0.15	0.70	0.47	0.79	0.55	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.36
 Intersection Signal Delay: 141.1
 Intersection LOS: F
 Intersection Capacity Utilization 68.8%
 ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	850	327	304	762
v/c Ratio	0.48	3.03	3.36	0.75	0.18	0.70	0.47	0.79	0.55
Control Delay	47.6	975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	975.3	1124.4	17.7	16.7	20.5	3.0	62.7	24.5
Queue Length 50th (ft)	21	~234	~243	82	7	135	0	108	218
Queue Length 95th (ft)	46	#347	#361	223	m13	246	14	#173	296
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	172	60	55	675	201	1213	693	383	1391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	3.03	3.36	0.75	0.15	0.70	0.47	0.79	0.55

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2123		1593	1596	1485	1437	3288	1417	3016	2944	
Flt Permitted		0.97		0.13	0.12	1.00	0.17	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2123		224	204	1485	255	3288	1417	3016	2944	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	850	327	304	711	51
RTOR Reduction (vph)	0	18	0	0	0	271	0	0	178	0	4	0
Lane Group Flow (vph)	0	59	0	182	185	236	30	850	149	304	758	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Effective Green, g (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Actuated g/C Ratio		0.06		0.27	0.27	0.27	0.34	0.34	0.34	0.15	0.44	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		123		61	55	405	138	1123	484	438	1306	
v/s Ratio Prot		c0.03					0.01	c0.26		c0.10	0.26	
v/s Ratio Perm				0.81	c0.91	0.16	0.06		0.10			
v/c Ratio		0.48		2.98	3.36	0.58	0.22	0.76	0.31	0.69	0.58	
Uniform Delay, d1		50.2		40.0	40.0	34.6	25.8	32.1	26.6	44.7	22.9	
Progression Factor		1.00		1.00	1.00	1.00	0.61	0.58	0.19	1.00	1.00	
Incremental Delay, d2		2.9		935.0	1108.3	2.1	0.6	3.9	1.3	4.7	1.9	
Delay (s)		53.1		975.0	1148.3	36.7	16.4	22.4	6.4	49.4	24.8	
Level of Service		D		F	F	D	B	C	A	D	C	
Approach Delay (s)		53.1			467.4			17.9			31.8	
Approach LOS		D			F			B			C	

Intersection Summary		
HCM 2000 Control Delay	145.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.58	F
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	68.8%	ICU Level of Service
Analysis Period (min)	15	C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	68	25	40	920	0	406	168	1145	494	482	1383	99
Arrive On Green	0.04	0.04	0.04	0.27	0.00	0.27	0.03	0.35	0.35	0.16	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	358	0	507	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	24.8	21.3	10.2	18.7	18.7
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	24.8	21.3	10.2	18.7	18.7
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	68	0	64	920	0	406	168	1145	494	482	731	751
V/C Ratio(X)	0.67	0.00	0.48	0.39	0.00	1.25	0.18	0.74	0.66	0.63	0.51	0.51
Avail Cap(c_a), veh/h	116	0	110	920	0	406	261	1145	494	482	731	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.74	0.74	0.74	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	51.5	32.5	0.0	40.0	28.2	31.7	30.5	43.4	20.0	20.0
Incr Delay (d2), s/veh	11.0	0.0	5.5	0.3	0.0	130.6	0.4	3.3	5.1	2.6	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.9	3.9	0.0	25.7	0.6	10.0	7.8	3.9	6.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	0.0	56.9	32.8	0.0	170.6	28.5	35.0	35.7	46.0	22.6	22.5
LnGrp LOS	E	A	E	C	A	F	C	C	D	D	C	C
Approach Vol, veh/h		77			865			1207			1066	
Approach Delay, s/veh		60.5			113.6			35.0			29.3	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.2	26.8		32.0	3.6	20.7		5.1				
Green Ext Time (p_c), s	0.2	5.1		0.0	0.0	4.0		0.1				

Intersection Summary






















HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Future Volume (vph)	0	38	51	60	42	0	0	0	0	6	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	67	47	0	0	0	0	7	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Future Vol, veh/h	0	38	51	60	42	0	0	0	0	6	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	42	57	67	47	0	0	0	0	7	0	94

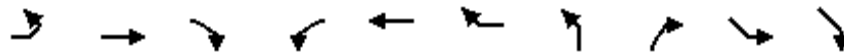
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	99	0	0		202	280	47
Stage 1	-	-	-	-	-	-		181	181	-
Stage 2	-	-	-	-	-	-		21	99	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1255	-	0		772	542	922
Stage 1	0	-	-	-	-	0		844	656	-
Stage 2	0	-	-	-	-	0		994	720	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1255	-	-		731	0	922
Mov Cap-2 Maneuver	-	-	-	-	-	-		731	0	-
Stage 1	-	-	-	-	-	-		844	0	-
Stage 2	-	-	-	-	-	-		941	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1255	-	731	922
HCM Lane V/C Ratio	-	-	0.053	-	0.009	0.102
HCM Control Delay (s)	-	-	8	-	10	9.4
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0	0.3

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	36	16	0	0	99	86	0	0	0	0
Future Volume (vph)	36	16	0	0	99	86	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	40	18	0	0	110	96	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

Intersection											
Int Delay, s/veh	1.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗			↗	↘	↘				
Traffic Vol, veh/h	36	16	0	0	99	86	0	0	0	0	
Future Vol, veh/h	36	16	0	0	99	86	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	40	18	0	0	110	96	0	0	0	0	

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	206	0	-	-	-	0	256 9
Stage 1	-	-	-	-	-	-	98 -
Stage 2	-	-	-	-	-	-	158 -
Critical Hdwy	5.045	-	-	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43 -
Follow-up Hdwy	2.7985	-	-	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1043	-	0	0	-	-	722 1070
Stage 1	-	-	0	0	-	-	915 -
Stage 2	-	-	0	0	-	-	870 -
Platoon blocked, %		-			-	-	
Mov Cap-1 Maneuver	1043	-	-	-	-	-	695 1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	695 -
Stage 1	-	-	-	-	-	-	880 -
Stage 2	-	-	-	-	-	-	870 -

Approach	EB	WB	NB
HCM Control Delay, s	5.9	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1043	-	-	-
HCM Lane V/C Ratio	-	0.038	-	-	-
HCM Control Delay (s)	0	8.6	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Future Volume (vph)	14	0	0	0	1	0	30	18	0	0	0	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	0	0	0	1	0	33	20	0	0	0	170
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Future Vol, veh/h	14	0	0	0	1	0	30	18	0	0	0	153
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	16	0	0	0	1	0	33	20	0	0	0	170













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.035	0.022	-	-	-	-	-
HCM Control Delay (s)	9	9.1	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	27	4	6	37
Future Volume (vph)	67	101	27	4	6	37
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	112	30	4	7	41
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	6.7	6.7	13.3	13.3	13.3	13.3
Actuated g/C Ratio	0.24	0.24	0.48	0.48	0.48	0.48
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
LOS	A	A	A	A	A	A
Approach Delay	5.5		6.7			7.0
Approach LOS	A		A			A
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	27.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.25
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization	19.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	112	30	4	7	41
v/c Ratio	0.18	0.25	0.04	0.01	0.01	0.06
Control Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	3.5	6.9	5.0	6.8	7.0
Queue Length 50th (ft)	8	0	2	0	1	3
Queue Length 95th (ft)	18	13	10	3	4	12
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1382	1258	1474	1466	1178	1337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.09	0.02	0.00	0.01	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	101	27	4	6	37
Future Volume (vph)	67	101	27	4	6	37
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.74	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1229	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	112	30	4	7	41
RTOR Reduction (vph)	0	90	0	2	0	0
Lane Group Flow (vph)	74	22	30	2	7	41
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	5.5	5.5	12.1	12.1	12.1	12.1
Effective Green, g (s)	5.5	5.5	12.1	12.1	12.1	12.1
Actuated g/C Ratio	0.19	0.19	0.42	0.42	0.42	0.42
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	328	294	650	647	519	590
v/s Ratio Prot	c0.04		0.02			c0.03
v/s Ratio Perm		0.01		0.00	0.01	
v/c Ratio	0.23	0.07	0.05	0.00	0.01	0.07
Uniform Delay, d1	9.8	9.5	4.9	4.8	4.8	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0	0.0	0.0	0.1
Delay (s)	10.1	9.6	4.9	4.8	4.8	5.0
Level of Service	B	A	A	A	A	A
Approach Delay (s)	9.8		4.9			4.9
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	28.6	Sum of lost time (s)	11.0
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	101	27	4	6	37
Future Volume (veh/h)	67	101	27	4	6	37
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	74	112	30	0	7	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	281	250	408		700	364
Arrive On Green	0.16	0.16	0.26	0.00	0.26	0.26
Sat Flow, veh/h	1714	1525	1561	1525	1314	1393
Grp Volume(v), veh/h	74	112	30	0	7	41
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1314	1393
Q Serve(g_s), s	0.7	1.3	0.3	0.0	0.1	0.4
Cycle Q Clear(g_c), s	0.7	1.3	0.3	0.0	0.4	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	281	250	408		700	364
V/C Ratio(X)	0.26	0.45	0.07		0.01	0.11
Avail Cap(c_a), veh/h	1881	1674	2284		2279	2038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	7.2	5.3	0.0	5.5	5.4
Incr Delay (d2), s/veh	0.5	1.3	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.5	8.5	5.4	0.0	5.5	5.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	186		30			48
Approach Delay, s/veh	8.1		5.4			5.5
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		8.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.3		3.3		2.4
Green Ext Time (p_c), s		0.1		0.5		0.2

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
5: S Federal Way & Pvt Dwy/Gate B

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Future Volume (vph)	2	0	0	6	0	538	0	148	3	93	35	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.80	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	7	673	0	0	164	0	102	38	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

01/19/2023

Intersection												
Int Delay, s/veh	12.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Future Vol, veh/h	2	0	0	6	0	538	0	148	3	93	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	80	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	7	0	673	0	161	3	102	38	0





















Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	323	406	19	386	405	82	38	0	0	164	0	0
Stage 1	242	242	-	163	163	-	-	-	-	-	-	-
Stage 2	81	164	-	223	242	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	612	537	1061	552	538	968	1585	-	-	1427	-	-
Stage 1	746	709	-	829	767	-	-	-	-	-	-	-
Stage 2	924	766	-	765	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	177	499	1061	522	500	968	1585	-	-	1427	-	-
Mov Cap-2 Maneuver	177	499	-	522	500	-	-	-	-	-	-	-
Stage 1	746	659	-	829	767	-	-	-	-	-	-	-
Stage 2	282	766	-	710	659	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	25.6		16.7		0		5.6	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	177	522	968	1427	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.013	0.695	0.072	-	-
HCM Control Delay (s)	0	-	-	25.6	12	16.7	7.7	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	5.9	0.2	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	764	0	0	158	1
Future Volume (vph)	1	0	0	1	0	145	0	764	0	0	158	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	849	0	0	177	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.1% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	1	0	145	0	764	0	0	158	1
Future Vol, veh/h	1	0	0	1	0	145	0	764	0	0	158	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	849	0	0	176	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	602	-	89	937	-	425	177	0	-	-	-	0
Stage 1	177	-	-	849	-	-	-	-	-	-	-	-
Stage 2	425	-	-	88	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	298	0	708	223	0	556	1411	-	0	0	-	-
Stage 1	686	0	-	326	0	-	-	-	0	0	-	-
Stage 2	466	0	-	916	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	217	-	708	223	-	556	1411	-	-	-	-	-
Mov Cap-2 Maneuver	286	-	-	285	-	-	-	-	-	-	-	-
Stage 1	686	-	-	326	-	-	-	-	-	-	-	-
Stage 2	339	-	-	916	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	17.6		13.9		0			0		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1411	-	286	-	285	556	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.004	0.272	-	-
HCM Control Delay (s)	0	-	17.6	0	17.7	13.9	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	597	215	18	411	0	283	51	51	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	20.0	45.0	45.0	20.0	45.0		20.0	50.0	50.0	20.0	50.0	
Total Split (%)	14.8%	33.3%	33.3%	14.8%	33.3%		14.8%	37.0%	37.0%	14.8%	37.0%	
Maximum Green (s)	15.0	39.0	39.0	15.0	39.0		15.0	45.0	45.0	15.0	45.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.4	90.8	90.8	81.5	74.5		14.6	23.5	23.5	15.0	9.0	
Actuated g/C Ratio	0.71	0.67	0.67	0.60	0.55		0.11	0.17	0.17	0.11	0.07	
v/c Ratio	0.46	0.30	0.20	0.04	0.22		0.83	0.17	0.15	0.04	0.66	
Control Delay	10.4	10.9	2.1	8.3	17.3		79.1	46.5	1.0	39.8	27.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.4	10.9	2.1	8.3	17.3		79.1	46.5	1.0	39.8	27.1	
LOS	B	B	A	A	B		E	D	A	D	C	
Approach Delay		9.0			16.9			64.4			27.7	
Approach LOS		A			B			E			C	
Queue Length 50th (ft)	69	87	0	4	88		126	37	0	5	12	
Queue Length 95th (ft)	137	187	36	14	157		#194	77	0	17	77	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

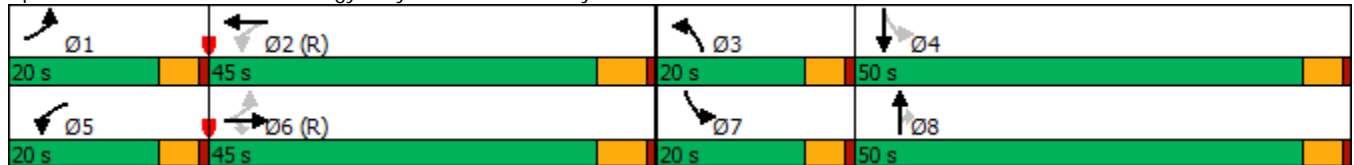


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	570	2000	1050	619	1827		351	582	538	277	570	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.46	0.30	0.20	0.03	0.22		0.81	0.09	0.09	0.03	0.25	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 135
 Offset: 70 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 22.5
 Intersection LOS: C
 Intersection Capacity Utilization 58.9%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

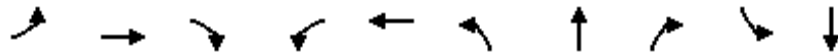
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	261	597	215	18	411	283	51	51	7	144
v/c Ratio	0.46	0.30	0.20	0.04	0.22	0.83	0.17	0.15	0.04	0.66
Control Delay	10.4	10.9	2.1	8.3	17.3	79.1	46.5	1.0	39.8	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	10.9	2.1	8.3	17.3	79.1	46.5	1.0	39.8	27.1
Queue Length 50th (ft)	69	87	0	4	88	126	37	0	5	12
Queue Length 95th (ft)	137	187	36	14	157	#194	77	0	17	77
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	570	2000	1050	619	1827	351	582	538	277	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.30	0.20	0.03	0.22	0.81	0.09	0.09	0.03	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (vph)	248	567	204	16	360	10	255	46	46	6	13	117
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3310		3159	1748	1404	1710	1451	
Flt Permitted	0.46	1.00	1.00	0.43	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	674	2974	1457	767	3310		3159	1748	1404	1303	1451	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	597	215	18	400	11	283	51	51	7	14	130
RTOR Reduction (vph)	0	0	75	0	1	0	0	0	43	0	121	0
Lane Group Flow (vph)	261	597	140	18	410	0	283	51	8	7	23	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	95.4	87.8	87.8	77.1	74.5		14.6	22.2	22.2	10.4	9.0	
Effective Green, g (s)	95.4	87.8	87.8	77.1	74.5		14.6	22.2	22.2	10.4	9.0	
Actuated g/C Ratio	0.71	0.65	0.65	0.57	0.55		0.11	0.16	0.16	0.08	0.07	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	559	1934	947	456	1826		341	287	230	104	96	
v/s Ratio Prot	c0.05	0.20		0.00	0.12		c0.09	0.03		0.00	c0.02	
v/s Ratio Perm	c0.27		0.10	0.02					0.01	0.00		
v/c Ratio	0.47	0.31	0.15	0.04	0.22		0.83	0.18	0.04	0.07	0.24	
Uniform Delay, d1	7.5	10.3	9.1	12.5	15.5		59.0	48.5	47.4	57.7	59.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.4	0.3	0.0	0.3		15.3	0.3	0.1	0.3	1.3	
Delay (s)	8.1	10.7	9.5	12.6	15.8		74.3	48.8	47.5	58.0	61.0	
Level of Service	A	B	A	B	B		E	D	D	E	E	
Approach Delay (s)		9.8			15.6			67.4			60.9	
Approach LOS		A			B			E			E	

Intersection Summary		
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	C
Actuated Cycle Length (s)	135.0	Sum of lost time (s)
Intersection Capacity Utilization	58.9%	ICU Level of Service
Analysis Period (min)	15	B
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Future Volume (veh/h)	248	567	204	16	360	10	255	46	46	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	261	597	0	18	400	0	283	51	0	7	14	0
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	634	2080		595	2090		329	227		115	62	
Arrive On Green	0.08	0.69	0.00	0.02	0.63	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	261	597	0	18	400	0	283	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	8.7	10.4	0.0	0.5	6.9	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Cycle Q Clear(g_c), s	8.7	10.4	0.0	0.5	6.9	0.0	11.8	3.5	0.0	0.5	1.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	634	2080		595	2090		329	227		115	62	
V/C Ratio(X)	0.41	0.29		0.03	0.19		0.86	0.23		0.06	0.23	
Avail Cap(c_a), veh/h	675	2080		754	2090		355	586		291	600	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.9	8.1	0.0	8.7	10.7	0.0	59.6	52.8	0.0	62.1	63.4	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	17.9	0.5	0.0	0.2	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	0.0	0.2	2.5	0.0	5.5	1.6	0.0	0.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	8.4	0.0	8.7	10.9	0.0	77.5	53.2	0.0	62.3	65.2	0.0
LnGrp LOS	A	A		A	B		E	D		E	E	
Approach Vol, veh/h		858			418			334			21	
Approach Delay, s/veh		8.0			10.8			73.8			64.2	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	90.5	18.9	9.7	7.5	99.0	6.2	22.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	39.0	15.0	45.0	15.0	39.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	10.7	8.9	13.8	3.0	2.5	12.4	2.5	5.5				
Green Ext Time (p_c), s	0.3	2.7	0.1	0.0	0.0	4.2	0.0	0.2				

Intersection Summary

























HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	691	129	12	592	119	590	373	69	367	91	563
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	45.0	75.0	75.0	14.0	44.0	44.0	46.0	48.0	48.0	43.0	45.0	45.0
Total Split (%)	25.0%	41.7%	41.7%	7.8%	24.4%	24.4%	25.6%	26.7%	26.7%	23.9%	25.0%	25.0%
Maximum Green (s)	40.0	70.0	70.0	9.0	39.0	39.0	41.0	43.0	43.0	38.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	40.7	86.3	86.3	8.2	46.0	46.0	38.0	39.5	39.5	69.2	35.4	81.0
Actuated g/C Ratio	0.23	0.48	0.48	0.05	0.26	0.26	0.21	0.22	0.22	0.38	0.20	0.45
v/c Ratio	0.94	0.48	0.16	0.16	0.72	0.26	0.90	0.58	0.17	0.82	0.14	0.90
Control Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
LOS	F	D	A	F	E	B	F	E	A	D	E	E
Approach Delay		56.5			60.2			73.8			57.0	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	362	288	0	14	357	15	350	200	0	297	46	543

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

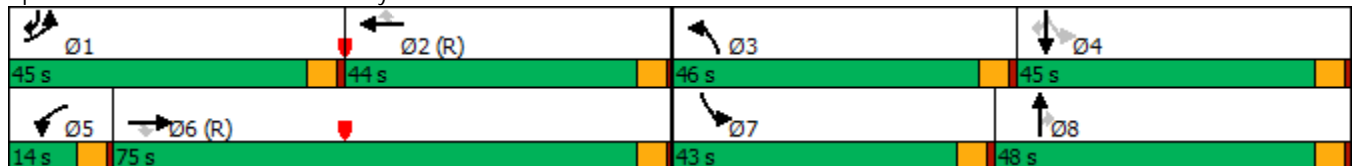


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#482	408	47	39	436	76	424	265	13	391	74	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	663	1426	786	83	824	456	706	721	451	485	745	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.48	0.16	0.14	0.72	0.26	0.84	0.52	0.15	0.76	0.12	0.89

Intersection Summary

Area Type: Other
 Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 61.5
 Intersection LOS: E
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	607	691	129	12	592	119	590	373	69	367	91	563
v/c Ratio	0.94	0.48	0.16	0.16	0.72	0.26	0.90	0.58	0.17	0.82	0.14	0.90
Control Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.9	35.8	5.3	87.5	68.8	14.7	87.0	66.0	3.0	52.2	58.7	59.9
Queue Length 50th (ft)	362	288	0	14	357	15	350	200	0	297	46	543
Queue Length 95th (ft)	#482	408	47	39	436	76	424	265	13	391	74	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	663	1426	786	83	824	456	706	721	451	485	745	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.48	0.16	0.14	0.72	0.26	0.84	0.52	0.15	0.76	0.12	0.89





























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 		 		
Traffic Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (vph)	546	622	116	11	533	107	531	336	62	330	82	507
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	708	3353	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	691	129	12	592	119	590	373	69	367	91	563
RTOR Reduction (vph)	0	0	69	0	0	77	0	0	54	0	0	24
Lane Group Flow (vph)	607	691	60	12	592	42	590	373	15	367	91	539
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	40.7	83.2	83.2	3.4	45.9	45.9	38.0	39.5	39.5	69.3	35.4	76.1
Effective Green, g (s)	40.7	83.2	83.2	3.4	45.9	45.9	38.0	39.5	39.5	69.3	35.4	76.1
Actuated g/C Ratio	0.23	0.46	0.46	0.02	0.25	0.25	0.21	0.22	0.22	0.38	0.20	0.42
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	646	1374	693	31	822	378	654	646	335	448	659	604
v/s Ratio Prot	c0.21	0.23		0.01	c0.18		c0.19	c0.13		0.15	0.03	c0.20
v/s Ratio Perm			0.04			0.03			0.01	0.16		0.20
v/c Ratio	0.94	0.50	0.09	0.39	0.72	0.11	0.90	0.58	0.05	0.82	0.14	0.89
Uniform Delay, d1	68.4	33.9	27.1	87.3	61.2	51.4	69.2	62.8	55.4	44.1	59.7	48.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.5	1.3	0.2	7.8	5.4	0.6	15.7	1.3	0.1	11.1	0.1	15.4
Delay (s)	89.9	35.2	27.4	95.1	66.6	52.0	84.9	64.0	55.4	55.3	59.8	63.5
Level of Service	F	D	C	F	E	D	F	E	E	E	E	E
Approach Delay (s)		57.8			64.7			75.4			60.2	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			63.9	HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			180.0	Sum of lost time (s)				20.0				
Intersection Capacity Utilization			77.8%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↗	↑↑	↖	↖↗	↑↑	↖	↗	↑↑	↖
Traffic Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Future Volume (veh/h)	546	622	116	11	533	107	531	336	62	330	82	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	607	691	0	12	592	0	590	373	69	367	91	563
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	636	1342		34	802		635	722	368	468	748	599
Arrive On Green	0.22	0.44	0.00	0.02	0.25	0.00	0.20	0.24	0.24	0.18	0.22	0.22
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	607	691	0	12	592	0	590	373	69	367	91	563
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	37.1	29.7	0.0	1.3	30.1	0.0	33.2	19.4	6.5	30.4	3.9	40.0
Cycle Q Clear(g_c), s	37.1	29.7	0.0	1.3	30.1	0.0	33.2	19.4	6.5	30.4	3.9	40.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	636	1342		34	802		635	722	368	468	748	599
V/C Ratio(X)	0.95	0.51		0.35	0.74		0.93	0.52	0.19	0.78	0.12	0.94
Avail Cap(c_a), veh/h	647	1342		84	802		716	722	368	515	748	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	0.88	0.88	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.4	36.0	0.0	87.0	62.5	0.0	70.5	59.2	54.3	42.0	56.0	48.1
Incr Delay (d2), s/veh	23.6	1.3	0.0	5.5	5.3	0.0	17.3	0.6	0.2	7.1	0.1	23.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	11.3	0.0	0.6	13.1	0.0	14.8	7.4	2.5	13.3	1.7	27.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.0	37.4	0.0	92.5	67.8	0.0	87.8	59.8	54.5	49.2	56.0	71.1
LnGrp LOS	F	D		F	E		F	E	D	D	E	E
Approach Vol, veh/h		1298			604			1032			1021	
Approach Delay, s/veh		63.4			68.3			75.5			61.9	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.3	49.3	41.4	45.0	8.6	85.0	37.9	48.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	40.0	39.0	41.0	40.0	9.0	70.0	38.0	43.0				
Max Q Clear Time (g_c+I1), s	39.1	32.1	35.2	42.0	3.3	31.7	32.4	21.4				
Green Ext Time (p_c), s	0.3	2.1	1.2	0.0	0.0	5.4	0.6	2.5				

Intersection Summary

HCM 6th Ctrl Delay	66.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/19/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1347	0	0	382	1150	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.2	113.2			94.6	94.6	10.8		10.8			
Actuated g/C Ratio	0.86	0.87			0.73	0.73	0.08		0.08			
v/c Ratio	0.53	0.34			0.18	0.54	0.35		0.43			
Control Delay	4.8	2.3			6.9	1.5	64.6		20.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	4.8	2.3			6.9	1.5	64.6		20.6			
LOS	A	A			A	A	E		C			
Approach Delay		2.9			2.8			37.0				
Approach LOS		A			A			D				
Queue Length 50th (ft)	54	68			51	0	34		0			
Queue Length 95th (ft)	95	97			87	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	831	3926			2144	2144	221		243			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.49	0.34			0.18	0.54	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	4.0
Intersection LOS:	A
Intersection Capacity Utilization	81.3%
ICU Level of Service	D
Analysis Period (min)	15

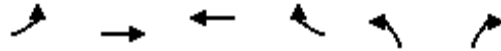
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

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Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1347	382	1150	42	71
v/c Ratio	0.53	0.34	0.18	0.54	0.35	0.43
Control Delay	4.8	2.3	6.9	1.5	64.6	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	2.3	6.9	1.5	64.6	20.6
Queue Length 50th (ft)	54	68	51	0	34	0
Queue Length 95th (ft)	95	97	87	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	831	3926	2144	2144	221	243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.34	0.18	0.54	0.19	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

01/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (vph)	366	1212	0	0	351	1058	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195			
Flt Permitted	0.50	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	802	4508			2948	2517	1437		1195			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Adj. Flow (vph)	407	1347	0	0	382	1150	42	0	71	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	323	0	0	66	0	0	0
Lane Group Flow (vph)	407	1347	0	0	382	827	42	0	5	0	0	0
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Actuated Green, G (s)	111.2	111.2			93.5	93.5	8.8		8.8			
Effective Green, g (s)	111.2	111.2			93.5	93.5	8.8		8.8			
Actuated g/C Ratio	0.86	0.86			0.72	0.72	0.07		0.07			
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	756	3856			2120	1810	97		80			
v/s Ratio Prot	c0.05	0.30			0.13		c0.03					
v/s Ratio Perm	c0.41					0.33			0.00			
v/c Ratio	0.54	0.35			0.18	0.46	0.43		0.06			
Uniform Delay, d1	2.0	1.9			5.9	7.6	58.2		56.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	0.7	0.3			0.2	0.8	3.1		0.3			
Delay (s)	2.8	2.2			6.1	8.5	61.3		57.0			
Level of Service	A	A			A	A	E		E			
Approach Delay (s)		2.3			7.9			58.6			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			6.7									A
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			130.0									15.0
Intersection Capacity Utilization			81.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Future Volume (veh/h)	366	1212	0	0	351	1058	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1347	0	0	382	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	818	3872	0	0	2163		110	0	90			
Arrive On Green	0.09	0.85	0.00	0.00	0.72	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1347	0	0	382	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.1	8.3	0.0	0.0	5.3	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	8.1	8.3	0.0	0.0	5.3	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	818	3872	0	0	2163		110	0	90			
V/C Ratio(X)	0.50	0.35	0.00	0.00	0.18		0.38	0.00	0.79			
Avail Cap(c_a), veh/h	983	3872	0	0	2163		225	0	183			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.63	0.63	0.00	0.00	0.43	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.1	2.1	0.0	0.0	5.7	0.0	57.2	0.0	59.1			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	13.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.6	0.0	0.0	1.5	0.0	1.3	0.0	2.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.4	2.3	0.0	0.0	5.8	0.0	59.3	0.0	73.0			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1754			382			113				
Approach Delay, s/veh		2.6			5.8			67.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.2	98.9				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.1	7.3				10.3		9.6				
Green Ext Time (p_c), s	1.1	2.8				14.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	760	0	77	346	0	0	0	0	1052	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		100.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.34		0.23	0.20					0.98		0.38
Control Delay		26.1		17.3	17.1					84.7		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		26.1		17.3	17.1					84.7		6.2
LOS		C		B	B					F		A
Approach Delay		26.1			17.2							70.1
Approach LOS		C			B							E
Queue Length 50th (ft)		194		39	98					675		0
Queue Length 95th (ft)		235		66	127					#826		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2219		365	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.34		0.21	0.20					0.98		0.38

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 47.5
 Intersection LOS: D
 Intersection Capacity Utilization 81.3%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

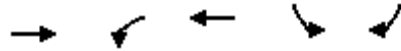
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	760	77	346	1052	240
v/c Ratio	0.34	0.23	0.20	0.98	0.38
Control Delay	26.1	17.3	17.1	84.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	17.3	17.1	84.7	6.2
Queue Length 50th (ft)	194	39	98	675	0
Queue Length 95th (ft)	235	66	127	#826	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2219	365	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.21	0.20	0.98	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (vph)	0	633	51	70	315	0	0	0	0	968	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4187		1500	2923					3130		1366
Flt Permitted		1.00		0.30	1.00					0.95		1.00
Satd. Flow (perm)		4187		469	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	703	57	77	346	0	0	0	0	1052	0	240
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	158
Lane Group Flow (vph)	0	755	0	77	346	0	0	0	0	1052	0	82
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		100.5		115.0	115.0					65.0		65.0
Effective Green, g (s)		100.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2214		335	1769					1070		467
v/s Ratio Prot		c0.18		c0.01	0.12					c0.34		
v/s Ratio Perm				0.13								0.06
v/c Ratio		0.34		0.23	0.20					0.98		0.18
Uniform Delay, d1		25.7		16.4	16.8					62.0		43.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.4		0.4	0.2					23.3		0.2
Delay (s)		26.1		16.8	17.0					85.3		43.9
Level of Service		C		B	B					F		D
Approach Delay (s)		26.1			17.0			0.0			77.6	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	51.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Future Volume (veh/h)	0	633	51	70	315	0	0	0	0	968	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	703	57	77	346	0				1052	0	240
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2245	181	377	1800	0				1079	0	471
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4236	330	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	496	264	77	346	0				1052	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1530	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	17.7	17.9	4.1	9.9	0.0				62.2	0.0	26.3
Cycle Q Clear(g_c), s	0.0	17.7	17.9	4.1	9.9	0.0				62.2	0.0	26.3
Prop In Lane	0.00		0.22	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1586	839	377	1800	0				1079	0	471
V/C Ratio(X)	0.00	0.31	0.32	0.20	0.19	0.00				0.97	0.00	0.51
Avail Cap(c_a), veh/h	0	1586	839	448	1800	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.4	23.4	17.9	16.6	0.0				61.8	0.0	50.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.3	0.2	0.0				21.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.3	6.9	1.5	3.5	0.0				27.4	0.0	21.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.9	24.4	18.2	16.9	0.0				83.2	0.0	50.9
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		760			423						1292	
Approach Delay, s/veh		24.1			17.1						77.2	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.3		69.7	11.1	109.2						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		11.9		64.2	6.1	19.9						
Green Ext Time (p_c), s		2.5		0.5	0.1	5.8						
Intersection Summary												
HCM 6th Ctrl Delay			50.6									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

01/19/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	11	2	252	265	44
Future Volume (vph)	73	11	2	252	265	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	12	2	280	294	49
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.7% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
11: Technology Way & Circuit Ln

01/19/2023

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	73	11	2	252	265	44
Future Vol, veh/h	73	11	2	252	265	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	81	12	2	280	294	49























Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	578	-	294	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-	0
Stage 1	709	0	-	-	-	0
Stage 2	716	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	442	-	1279	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.184	-	-
HCM Control Delay (s)	7.8	-	15	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Future Volume (vph)	0	0	0	9	0	38	0	669	0	11	71	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	10	42	0	0	743	0	12	79	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Traffic Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Future Vol, veh/h	0	0	0	9	0	38	0	669	0	11	71	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	10	0	42	0	743	0	12	79	0

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	475	846	40	807	846	372	79	0	0	743	0	0
Stage 1	103	103	-	743	743	-	-	-	-	-	-	-
Stage 2	372	743	-	64	103	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	477	301	1029	276	301	631	1532	-	-	873	-	-
Stage 1	897	814	-	378	425	-	-	-	-	-	-	-
Stage 2	626	425	-	945	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	440	297	1029	273	297	631	1532	-	-	873	-	-
Mov Cap-2 Maneuver	440	297	-	273	297	-	-	-	-	-	-	-
Stage 1	897	803	-	378	425	-	-	-	-	-	-	-
Stage 2	584	425	-	932	803	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	0		12.6			0		1.2		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	-	-	273	631	873	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.037	0.067	0.014	-	-
HCM Control Delay (s)	0	-	-	0	0	18.7	11.1	9.2	-	-
HCM Lane LOS	A	-	-	A	A	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1	0.2	0	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	268	4	1	155	20	0	1	1	48	1	122
Future Volume (vph)	143	268	4	1	155	20	0	1	1	48	1	122
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	302	0	1	194	0	0	2	0	53	137	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷		↶	↷	
Traffic Vol, veh/h	143	268	4	1	155	20	0	1	1	48	1	122
Future Vol, veh/h	143	268	4	1	155	20	0	1	1	48	1	122
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	159	298	4	1	172	22	0	1	1	53	1	136




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	194	0	0	302	0	0	872	814	300	804	805	183
Stage 1	-	-	-	-	-	-	618	618	-	185	185	-
Stage 2	-	-	-	-	-	-	254	196	-	619	620	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1391	-	-	1259	-	-	271	312	740	304	316	865
Stage 1	-	-	-	-	-	-	477	481	-	821	747	-
Stage 2	-	-	-	-	-	-	750	739	-	480	480	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1391	-	-	1259	-	-	208	276	740	276	280	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	208	276	-	276	280	-
Stage 1	-	-	-	-	-	-	423	426	-	727	746	-
Stage 2	-	-	-	-	-	-	631	738	-	423	425	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0	14	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	402	1391	-	-	1259	-	-	276	851
HCM Lane V/C Ratio	0.006	0.114	-	-	0.001	-	-	0.193	0.161
HCM Control Delay (s)	14	7.9	-	-	7.9	-	-	21.1	10
HCM Lane LOS		B	A	-	A	-	-	C	B
HCM 95th %tile Q(veh)		0	0.4	-	0	-	-	0.7	0.6

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	632	861	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		21.0	21.0	21.0	21.0	40.0		33.0	52.0	
Total Split (%)	27.7%	27.7%		16.2%	16.2%	16.2%	16.2%	30.8%		25.4%	40.0%	
Maximum Green (s)	31.0	31.0		16.0	16.0	16.0	16.0	34.0		28.0	46.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		25.1			14.4	14.4	40.6	34.0		77.6	74.4	
Actuated g/C Ratio		0.19			0.11	0.11	0.31	0.26		0.60	0.57	
v/c Ratio		0.00			0.73	0.70	0.00	1.31		1.32	0.47	
Control Delay		0.0			78.3	9.6	17.0	187.9		184.9	24.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			78.3	9.6	17.0	187.9		184.9	24.5	
LOS		A			E	A	B	F		F	C	
Approach Delay					23.1			187.8			92.4	
Approach LOS					C			F			F	
Queue Length 50th (ft)		0			107	0	0	~601		~755	237	
Queue Length 95th (ft)		0			#187	56	3	#740		m#647	m222	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

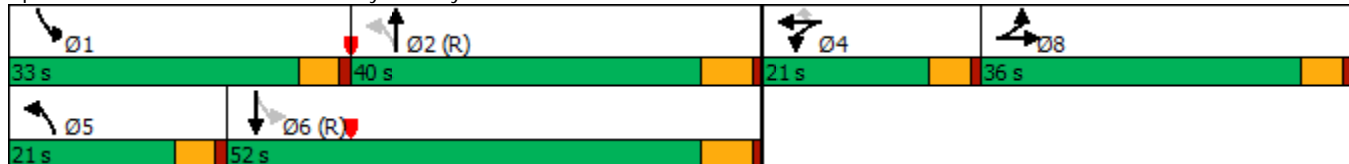


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		505			200	793	369	809		480	1847	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.66	0.68	0.00	1.31		1.32	0.47	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 126 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.32
 Intersection Signal Delay: 109.4
 Intersection LOS: F
 Intersection Capacity Utilization 89.8%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/19/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	632	861
v/c Ratio	0.00	0.73	0.70	0.00	1.31	1.32	0.47
Control Delay	0.0	78.3	9.6	17.0	187.9	184.9	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	78.3	9.6	17.0	187.9	184.9	24.5
Queue Length 50th (ft)	0	107	0	0	-601	-755	237
Queue Length 95th (ft)	0	#187	56	3	#740	m#647	m222
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	505	200	793	369	809	480	1847
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.66	0.68	0.00	1.31	1.32	0.47

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		1487	3226	
Flt Permitted		0.98			0.95	1.00	0.33	1.00		0.11	1.00	
Satd. Flow (perm)		1638			1629	2614	592	3028		165	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	131	0	538	1	844	219	632	861	0
RTOR Reduction (vph)	0	2	0	0	0	478	0	18	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	131	60	1	1045	0	632	861	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)		24.0			14.4	14.4	34.1	33.0		75.6	69.5	
Effective Green, g (s)		24.0			14.4	14.4	34.1	33.0		75.6	69.5	
Actuated g/C Ratio		0.18			0.11	0.11	0.26	0.25		0.58	0.53	
Clearance Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		302			180	289	164	768		478	1724	
v/s Ratio Prot		c0.00			c0.08		0.00	0.35		c0.38	0.27	
v/s Ratio Perm						0.02	0.00			c0.39		
v/c Ratio		0.00			0.73	0.21	0.01	1.36		1.32	0.50	
Uniform Delay, d1		43.2			55.9	52.6	35.4	48.5		38.6	19.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.57	1.24	
Incremental Delay, d2		0.0			13.7	0.4	0.0	170.8		146.4	0.1	
Delay (s)		43.2			69.6	53.0	35.4	219.3		207.2	23.9	
Level of Service		D			E	D	D	F		F	C	
Approach Delay (s)		43.2			56.2			219.1			101.5	
Approach LOS		D			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			130.8									F
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			130.0						21.0			
Intersection Capacity Utilization			89.8%									E
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	538	1	844	219	632	861	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	2	0	2	211	0	323	446	1253	325	498	2198	0
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.12	0.04	0.50	0.50	0.22	0.67	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2520	654	1514	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	538	1	537	526	632	861	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1570	1514	1630	0
Q Serve(g_s), s	0.2	0.0	0.0	9.4	0.0	16.0	0.0	32.9	32.9	28.0	15.2	0.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	9.4	0.0	16.0	0.0	32.9	32.9	28.0	15.2	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	4	0	0	211	0	323	446	797	781	498	2198	0
V/C Ratio(X)	0.46	0.00	0.00	0.62	0.00	1.67	0.00	0.67	0.67	1.27	0.39	0.00
Avail Cap(c_a), veh/h	385	0	0	211	0	323	591	797	781	498	2198	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	64.7	0.0	0.0	54.1	0.0	57.0	14.0	24.7	24.7	30.3	9.4	0.0
Incr Delay (d2), s/veh	61.6	0.0	0.0	5.5	0.0	313.6	0.0	4.5	4.6	123.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.3	0.0	19.4	0.0	12.8	12.5	32.3	4.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.3	0.0	0.0	59.6	0.0	370.6	14.0	29.2	29.3	153.3	9.4	0.0
LnGrp LOS	F	A	A	E	A	F	B	C	C	F	A	A
Approach Vol, veh/h		2			669			1064			1493	
Approach Delay, s/veh		126.3			309.7			29.2			70.3	
Approach LOS		F			F			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	70.7		21.0	10.0	93.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	34.0		16.0	16.0	46.0		31.0				
Max Q Clear Time (g_c+I1), s	30.0	34.9		18.0	2.0	17.2		2.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	6.1		0.0				

Intersection Summary























HCM 6th Ctrl Delay	106.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	183	187	484	47	1012	370	662	1222	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		14.1		34.0	34.0	34.0	45.7	38.0	38.0	23.9	56.4	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.35	0.29	0.29	0.18	0.43	
v/c Ratio		0.42		3.59	4.25	0.67	0.35	1.05	0.67	1.19	0.93	
Control Delay		42.3		1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		42.3		1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0	
LOS		D		F	F	B	B	D	A	F	D	
Approach Delay		42.3			603.4			36.1			84.7	
Approach LOS		D			F			D			F	
Queue Length 50th (ft)		37		~289	~269	23	9	~477	0	~367	~541	
Queue Length 95th (ft)		71		#412	#434	137	m11	m258	m10	#489	#731	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		339		51	44	719	193	961	556	555	1309	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.38		3.59	4.25	0.67	0.24	1.05	0.67	1.19	0.93	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	74 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	4.25
Intersection Signal Delay:	170.4
Intersection LOS:	F
Intersection Capacity Utilization	74.8%
ICU Level of Service	D
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St

27 s	43 s	39 s	21 s
18 s	52 s		

Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	183	187	484	47	1012	370	662	1222
v/c Ratio	0.42	3.59	4.25	0.67	0.35	1.05	0.67	1.19	0.93
Control Delay	42.3	1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	1227.5	1527.6	10.4	16.7	49.4	2.2	148.8	50.0
Queue Length 50th (ft)	37	~289	~269	23	9	~477	0	~367	~541
Queue Length 95th (ft)	71	#412	#434	137	m11	m258	m10	#489	#731
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	339	51	44	719	193	961	556	555	1309
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	3.59	4.25	0.67	0.24	1.05	0.67	1.19	0.93

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2498		1593	1596	1485	1437	3288	1417	3016	3017	
Flt Permitted		0.99		0.12	0.10	1.00	0.11	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2498		197	173	1485	172	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1012	370	662	1213	9
RTOR Reduction (vph)	0	32	0	0	0	331	0	0	142	0	1	0
Lane Group Flow (vph)	0	96	0	183	187	153	47	1012	228	662	1221	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		14.1		34.0	34.0	34.0	44.6	38.0	38.0	23.9	55.3	
Effective Green, g (s)		14.1		34.0	34.0	34.0	44.6	38.0	38.0	23.9	55.3	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.34	0.29	0.29	0.18	0.43	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		270		51	45	388	123	961	414	554	1283	
v/s Ratio Prot		c0.04					0.02	c0.31		c0.22	0.40	
v/s Ratio Perm				0.93	c1.08	0.10	0.11		0.16			
v/c Ratio		0.36		3.59	4.16	0.39	0.38	1.05	0.55	1.19	0.95	
Uniform Delay, d1		53.7		48.0	48.0	39.5	30.6	46.0	38.8	53.0	36.1	
Progression Factor		1.00		1.00	1.00	1.00	0.84	0.44	0.09	1.00	1.00	
Incremental Delay, d2		0.8		1211.7	1470.9	0.7	0.2	26.9	0.5	104.5	16.0	
Delay (s)		54.5		1259.7	1518.9	40.2	25.8	47.3	4.0	157.5	52.1	
Level of Service		D		F	F	D	C	D	A	F	D	
Approach Delay (s)		54.5			625.3			35.4			89.1	
Approach LOS		D			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	176.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.95	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	74.8%	ICU Level of Service
Analysis Period (min)	15	D
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	358	0	484	47	1012	370	662	1213	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	41	90	53	883	0	390	170	1183	511	519	1547	11
Arrive On Green	0.06	0.06	0.06	0.26	0.00	0.26	0.03	0.36	0.36	0.17	0.49	0.49
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	68	0	60	358	0	484	47	1012	370	662	596	626
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	36.8	29.2	22.0	41.6	41.6
Cycle Q Clear(g_c), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	36.8	29.2	22.0	41.6	41.6
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	96	0	88	883	0	390	170	1183	511	519	760	798
V/C Ratio(X)	0.71	0.00	0.68	0.41	0.00	1.24	0.28	0.86	0.72	1.28	0.78	0.78
Avail Cap(c_a), veh/h	202	0	186	883	0	390	270	1183	511	519	760	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.1	0.0	60.0	39.7	0.0	48.0	27.6	38.7	36.2	54.0	27.1	27.1
Incr Delay (d2), s/veh	9.2	0.0	9.0	0.3	0.0	129.0	0.1	0.8	0.8	138.5	7.9	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.2	4.8	0.0	26.6	0.9	14.6	10.0	18.1	15.6	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	0.0	69.0	40.0	0.0	177.0	27.6	39.5	37.1	192.5	35.0	34.7
LnGrp LOS	E	A	E	D	A	F	C	D	D	F	D	C
Approach Vol, veh/h		128			842			1429			1884	
Approach Delay, s/veh		69.2			118.7			38.5			90.2	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.4		39.0	9.1	69.3		12.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	24.0	38.8		36.0	4.6	43.6		7.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.1		0.4				

Intersection Summary

HCM 6th Ctrl Delay	77.9
HCM 6th LOS	E






















Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Build Conditions Analysis

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 						 	 	
Traffic Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Future Volume (vph)	0	71	41	56	29	0	0	178	0	81	0	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	62	32	0	0	198	0	90	67	0
Sign Control		Free			Free			Free				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

10/27/2022

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Future Vol, veh/h	0	71	41	56	29	0	0	178	0	81	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	79	46	62	32	0	0	198	0	90	0	67

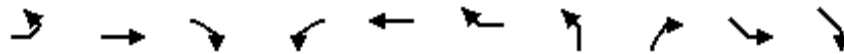
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	0	125	0	0		196	281	32
Stage 1	-	-	-	-	-	-		156	156	-
Stage 2	-	-	-	-	-	-		40	125	-
Critical Hdwy	-	-	-	4.745	-	-		6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-		5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-		3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1224	-	0		778	541	941
Stage 1	0	-	-	-	-	0		866	675	-
Stage 2	0	-	-	-	-	0		972	699	-
Platoon blocked, %	-	-	-	-	-	-		-	-	-
Mov Cap-1 Maneuver	-	-	-	1224	-	-		738	0	941
Mov Cap-2 Maneuver	-	-	-	-	-	-		738	0	-
Stage 1	-	-	-	-	-	-		866	0	-
Stage 2	-	-	-	-	-	-		922	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.3	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1224	-	738	941
HCM Lane V/C Ratio	-	-	0.051	-	0.122	0.071
HCM Control Delay (s)	-	-	8.1	-	10.6	9.1
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	-	0.4	0.2

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	38	227	0	0	84	64	0	0	0	0
Future Volume (vph)	38	227	0	0	84	64	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	42	252	0	0	93	71	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

10/27/2022

Intersection											
Int Delay, s/veh	0.8										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	
Lane Configurations	↘	↗			↗	↘	↘				
Traffic Vol, veh/h	38	227	0	0	84	64	0	0	0	0	
Future Vol, veh/h	38	227	0	0	84	64	0	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	340	-	-	-	-	0	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2	
Mvmt Flow	42	252	0	0	93	71	0	0	0	0	

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	164	0	-	-	0 465 126
Stage 1	-	-	-	-	- 336 -
Stage 2	-	-	-	-	- 129 -
Critical Hdwy	5.045	-	-	-	- 6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	- 5.83 -
Critical Hdwy Stg 2	-	-	-	-	- 5.43 -
Follow-up Hdwy	2.7985	-	-	-	- 3.519 3.319
Pot Cap-1 Maneuver	1089	-	0	0	- 541 901
Stage 1	-	-	0	0	- 697 -
Stage 2	-	-	0	0	- 896 -
Platoon blocked, %		-			- -
Mov Cap-1 Maneuver	1089	-	-	-	- 520 901
Mov Cap-2 Maneuver	-	-	-	-	- 520 -
Stage 1	-	-	-	-	- 670 -
Stage 2	-	-	-	-	- 896 -

Approach	EB	WB	NB
HCM Control Delay, s	1.2	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	1089	-	-	-
HCM Lane V/C Ratio	-	0.039	-	-	-
HCM Control Delay (s)	0	8.4	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Future Volume (vph)	225	1	0	0	1	0	13	147	0	0	0	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	1	0	0	1	0	14	163	0	0	0	150
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		TT					TT
Traffic Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Future Vol, veh/h	225	1	0	0	1	0	13	147	0	0	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	250	1	0	0	1	0	14	163	0	0	0	150













Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	0
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	940
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.8	0
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	-	-
HCM Lane V/C Ratio	0.015	0.182	-	-	-	-	-
HCM Control Delay (s)	8.9	9.9	0	-	-	0	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.7	-	-	-	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	16	68	290	74	39
Future Volume (vph)	103	16	68	290	74	39
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.5	7.5	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.25	0.25	0.63	0.63	0.63	0.63
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
LOS	B	A	A	A	A	A
Approach Delay	9.8		3.0			6.7
Approach LOS	A		A			A
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	29.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.30
Intersection Signal Delay:	5.1
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	18	76	322	82	43
v/c Ratio	0.26	0.05	0.08	0.30	0.11	0.05
Control Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	4.8	6.4	2.2	6.8	6.5
Queue Length 50th (ft)	17	0	7	0	8	4
Queue Length 95th (ft)	33	7	22	26	24	14
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1220	1097	1492	1494	1145	1354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.05	0.22	0.07	0.03
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	16	68	290	74	39
Future Volume (vph)	103	16	68	290	74	39
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.71	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1179	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	18	76	322	82	43
RTOR Reduction (vph)	0	15	0	159	0	0
Lane Group Flow (vph)	114	3	76	163	82	43
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	4.7	4.7	16.1	16.1	16.1	16.1
Effective Green, g (s)	4.7	4.7	16.1	16.1	16.1	16.1
Actuated g/C Ratio	0.15	0.15	0.51	0.51	0.51	0.51
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	252	226	778	774	596	706
v/s Ratio Prot	c0.07		0.05			0.03
v/s Ratio Perm		0.00		c0.11	0.07	
v/c Ratio	0.45	0.01	0.10	0.21	0.14	0.06
Uniform Delay, d1	12.4	11.6	4.1	4.3	4.2	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.0	0.1	0.1	0.1	0.0
Delay (s)	13.7	11.6	4.1	4.5	4.3	4.0
Level of Service	B	B	A	A	A	A
Approach Delay (s)	13.4		4.4			4.2
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	31.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	103	16	68	290	74	39
Future Volume (veh/h)	103	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	114	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	228	203	423		684	377
Arrive On Green	0.13	0.13	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	114	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.1	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.1	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	228	203	423		684	377
V/C Ratio(X)	0.50	0.09	0.18		0.12	0.11
Avail Cap(c_a), veh/h	1950	1735	2368		2255	2113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	7.0	5.2	0.0	5.8	5.1
Incr Delay (d2), s/veh	1.7	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	7.2	5.4	0.0	5.9	5.2
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	132		76			125
Approach Delay, s/veh	8.9		5.4			5.6
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.5		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.1		3.7
Green Ext Time (p_c), s		0.3		0.3		0.4

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	18	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	20	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/27/2022

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	18	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	20	0	53	0	33	55	709	148	4





















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	39.6	0	7.7
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	49	1023	1520	-	-
HCM Lane V/C Ratio	-	-	-	-	0.408	0.052	0.466	-	-
HCM Control Delay (s)	0	-	-	0	122	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.2	2.6	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Future Volume (vph)	2	0	1	3	0	20	0	97	0	0	899	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	0	1	3	0	21	0	108	0	0	1002	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.0% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

10/27/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	
Traffic Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Future Vol, veh/h	2	0	1	3	0	20	0	97	0	0	899	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	2	0	1	3	0	21	0	108	0	0	999	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1055	-	501	608	-	54	1002	0	-	-	-	0
Stage 1	1001	-	-	108	-	-	-	-	-	-	-	-
Stage 2	54	-	-	500	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	127	0	322	384	0	976	699	-	0	0	-	-
Stage 1	185	0	-	892	0	-	-	-	0	0	-	-
Stage 2	829	0	-	527	0	-	-	-	0	0	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	124	-	322	383	-	976	699	-	-	-	-	-
Mov Cap-2 Maneuver	164	-	-	451	-	-	-	-	-	-	-	-
Stage 1	185	-	-	892	-	-	-	-	-	-	-	-
Stage 2	811	-	-	525	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.6		9.3		0		0	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	699	-	164	322	451	976	-	-
HCM Lane V/C Ratio	-	-	0.014	0.003	0.007	0.021	-	-
HCM Control Delay (s)	0	-	27.3	16.2	13	8.8	-	-
HCM Lane LOS	A	-	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	0	0.1	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	243	272	96	550	0	261	56	38	4	182	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	96.1	87.3	87.3	97.8	89.8		14.6	28.5	28.5	19.7	13.9	
Actuated g/C Ratio	0.66	0.60	0.60	0.67	0.62		0.10	0.20	0.20	0.14	0.10	
v/c Ratio	0.15	0.14	0.28	0.13	0.27		0.82	0.16	0.10	0.02	0.78	
Control Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.0	14.1	2.5	8.5	14.6		84.6	46.6	0.5	39.2	49.9	
LOS	A	B	A	A	B		F	D	A	D	D	
Approach Delay		8.1			13.7			69.6			49.7	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)	19	50	0	27	123		126	42	0	3	76	
Queue Length 95th (ft)	43	86	44	56	192		#192	84	0	12	156	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	671	1789	985	855	2052		326	379	410	301	341	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27		0.80	0.15	0.09	0.01	0.53	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 26.9
 Intersection LOS: C
 Intersection Capacity Utilization 53.5%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

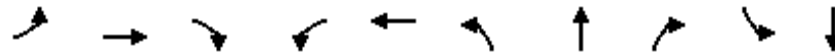
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	243	272	96	550	261	56	38	4	182
v/c Ratio	0.15	0.14	0.28	0.13	0.27	0.82	0.16	0.10	0.02	0.78
Control Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	14.1	2.5	8.5	14.6	84.6	46.6	0.5	39.2	49.9
Queue Length 50th (ft)	19	50	0	27	123	126	42	0	3	76
Queue Length 95th (ft)	43	86	44	56	192	#192	84	0	12	156
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	671	1789	985	855	2052	326	379	410	301	341
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.28	0.11	0.27	0.80	0.15	0.09	0.01	0.53

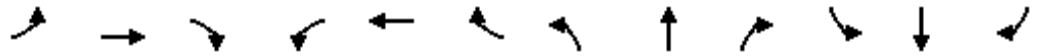
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (vph)	60	219	245	86	484	11	235	50	34	4	38	126
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3312		3159	1748	1404	1710	1500	
Flt Permitted	0.43	1.00	1.00	0.59	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	624	2974	1457	1062	3312		3159	1748	1404	1297	1500	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	243	272	96	538	12	261	56	38	4	42	140
RTOR Reduction (vph)	0	0	108	0	0	0	0	0	31	0	90	0
Lane Group Flow (vph)	67	243	164	96	550	0	261	56	7	4	92	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	93.9	87.2	87.2	97.1	88.8		14.6	27.2	27.2	15.2	13.9	
Effective Green, g (s)	93.9	87.2	87.2	97.1	88.8		14.6	27.2	27.2	15.2	13.9	
Actuated g/C Ratio	0.65	0.60	0.60	0.67	0.61		0.10	0.19	0.19	0.10	0.10	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	438	1788	876	748	2028		318	327	263	139	143	
v/s Ratio Prot	0.01	0.08		c0.01	c0.17		c0.08	0.03		0.00	c0.06	
v/s Ratio Perm	0.09		0.11	0.08					0.01	0.00		
v/c Ratio	0.15	0.14	0.19	0.13	0.27		0.82	0.17	0.03	0.03	0.64	
Uniform Delay, d1	9.5	12.5	13.0	8.4	13.1		63.9	49.4	48.1	58.2	63.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.2	0.5	0.1	0.3		15.5	0.3	0.0	0.1	9.4	
Delay (s)	9.7	12.7	13.4	8.5	13.4		79.4	49.7	48.1	58.3	72.6	
Level of Service	A	B	B	A	B		E	D	D	E	E	
Approach Delay (s)		12.7			12.7			71.4			72.2	
Approach LOS		B			B			E			E	

Intersection Summary

HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 7: Technology Way/Grand Forest Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑		↘↗	↑	↗	↘	↗	
Traffic Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Future Volume (veh/h)	60	219	245	86	484	11	235	50	34	4	38	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	547	2082		872	2308		304	223		109	67	
Arrive On Green	0.03	0.69	0.00	0.03	0.69	0.00	0.10	0.13	0.00	0.01	0.04	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	67	243	0	96	538	0	261	56	0	4	42	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	2.0	3.9	0.0	2.4	8.6	0.0	11.7	4.2	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	547	2082		872	2308		304	223		109	67	
V/C Ratio(X)	0.12	0.12		0.11	0.23		0.86	0.25		0.04	0.63	
Avail Cap(c_a), veh/h	934	2082		1110	2308		331	303		278	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.2	7.6	0.0	5.9	8.3	0.0	64.6	57.1	0.0	66.7	68.8	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.2	0.0	18.6	0.6	0.0	0.1	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	0.0	0.8	3.1	0.0	5.5	1.9	0.0	0.1	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	7.7	0.0	6.0	8.5	0.0	83.3	57.7	0.0	66.8	78.3	0.0
LnGrp LOS	A	A		A	A		F	E		E	E	
Approach Vol, veh/h		310			634			317			46	
Approach Delay, s/veh		7.4			8.1			78.8			77.3	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	106.2	18.8	10.4	9.9	106.0	5.7	23.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	4.0	10.6	13.7	5.3	4.4	5.9	2.3	6.2				
Green Ext Time (p_c), s	0.2	3.7	0.1	0.1	0.2	1.7	0.0	0.2				

Intersection Summary

























HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	16.0	33.0	33.0	14.0	31.0	31.0	17.0	28.0	28.0	15.0	26.0	16.0
Total Split (%)	17.8%	36.7%	36.7%	15.6%	34.4%	34.4%	18.9%	31.1%	31.1%	16.7%	28.9%	17.8%
Maximum Green (s)	10.0	27.0	27.0	8.0	25.0	25.0	11.0	22.0	22.0	9.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	10.5	34.8	34.8	8.0	29.4	29.4	7.6	19.6	19.6	27.9	20.7	32.4
Actuated g/C Ratio	0.12	0.39	0.39	0.09	0.33	0.33	0.08	0.22	0.22	0.31	0.23	0.36
v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.30	0.11	0.02	0.46	0.54	0.70
Control Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
LOS	E	C	B	E	C	A	D	C	A	C	C	B
Approach Delay		30.0			26.9			32.1			24.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	89	57	131	47	155	0	21	15	0	65	106	60

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

10/27/2022

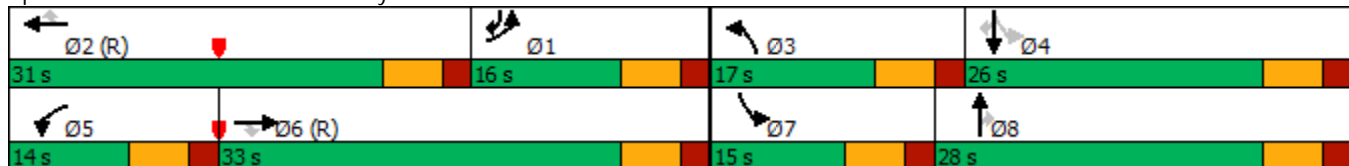


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#171	98	#348	#103	213	40	42	33	0	113	157	134
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1149	814	148	1055	607	378	720	566	387	830	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.21	0.10	0.02	0.46	0.50	0.70

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 88 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 27.5 Intersection LOS: C
 Intersection Capacity Utilization 71.2% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

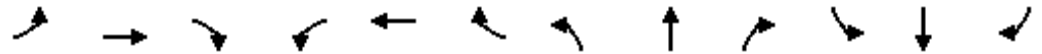
Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.30	0.11	0.02	0.46	0.54	0.70
Control Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	21.4	16.2	55.3	29.2	4.7	41.1	27.0	0.1	23.9	33.0	15.5
Queue Length 50th (ft)	89	57	131	47	155	0	21	15	0	65	106	60
Queue Length 95th (ft)	#171	98	#348	#103	213	40	42	33	0	113	157	134
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	334	1149	814	148	1055	607	378	720	566	387	830	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.30	0.76	0.57	0.56	0.28	0.21	0.10	0.02	0.46	0.50	0.70































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

10/27/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (vph)	283	324	580	76	530	151	70	62	10	169	398	403
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1044	3353	1342
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	301	345	617	84	589	168	78	69	11	178	419	424
RTOR Reduction (vph)	0	0	244	0	0	118	0	0	9	0	0	126
Lane Group Flow (vph)	301	345	373	84	589	50	78	69	2	178	419	298
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	11.8	32.4	32.4	6.4	27.0	27.0	6.5	17.6	17.6	30.3	20.7	32.5
Effective Green, g (s)	11.8	32.4	32.4	6.4	27.0	27.0	6.5	17.6	17.6	30.3	20.7	32.5
Actuated g/C Ratio	0.13	0.36	0.36	0.07	0.30	0.30	0.07	0.20	0.20	0.34	0.23	0.36
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	374	1070	540	119	967	445	223	576	299	415	771	484
v/s Ratio Prot	0.11	0.12		0.05	c0.18		0.03	0.02		c0.05	0.12	c0.08
v/s Ratio Perm			c0.25			0.03			0.00	0.10		0.14
v/c Ratio	0.80	0.32	0.69	0.71	0.61	0.11	0.35	0.12	0.01	0.43	0.54	0.62
Uniform Delay, d1	38.0	20.9	24.5	40.9	27.0	22.8	39.7	29.8	29.2	22.3	30.5	23.6
Progression Factor	0.94	0.90	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.8	6.8	17.3	2.9	0.5	1.0	0.1	0.0	0.7	0.8	2.3
Delay (s)	47.4	19.6	26.3	58.2	29.8	23.3	40.7	29.9	29.2	23.0	31.3	26.0
Level of Service	D	B	C	E	C	C	D	C	C	C	C	C
Approach Delay (s)		29.5			31.4			35.2			27.6	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			29.7	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				24.0				
Intersection Capacity Utilization			71.2%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↖↗	↑↑	↖	↖	↑↑	↖
Traffic Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Future Volume (veh/h)	283	324	580	76	530	151	70	62	10	169	398	403
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	866	1326		132	715		150	348	177	370	568	633
Arrive On Green	0.10	0.14	0.00	0.08	0.22	0.00	0.05	0.12	0.12	0.10	0.17	0.17
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	301	345	0	84	589	0	78	69	11	178	419	424
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	8.7	9.1	0.0	4.3	15.5	0.0	2.2	1.9	0.6	8.4	10.6	4.7
Cycle Q Clear(g_c), s	8.7	9.1	0.0	4.3	15.5	0.0	2.2	1.9	0.6	8.4	10.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	866	1326		132	715		150	348	177	370	568	633
V/C Ratio(X)	0.35	0.26		0.64	0.82		0.52	0.20	0.06	0.48	0.74	0.67
Avail Cap(c_a), veh/h	866	1326		150	906		384	732	373	370	748	706
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	25.5	0.0	40.3	33.5	0.0	41.9	36.0	35.4	30.4	35.5	6.2
Incr Delay (d2), s/veh	0.2	0.5	0.0	6.4	9.3	0.0	2.8	0.3	0.1	1.0	2.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.6	0.0	2.0	6.8	0.0	0.9	0.7	0.2	3.3	4.4	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	26.0	0.0	46.7	42.8	0.0	44.6	36.2	35.5	31.3	38.2	8.3
LnGrp LOS	C	C		D	D		D	D	D	C	D	A
Approach Vol, veh/h		646			673			158			1021	
Approach Delay, s/veh		29.1			43.3			40.3			24.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.8	25.8	10.3	21.2	13.0	45.5	15.0	16.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	25.0	11.0	20.0	8.0	27.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	10.7	17.5	4.2	12.6	6.3	11.1	10.4	3.9				
Green Ext Time (p_c), s	0.0	2.3	0.1	2.5	0.0	1.9	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	1281	0	0	245	652	30	0	29	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	12.0	37.0			25.0	25.0	53.0		53.0			
Total Split (%)	13.3%	41.1%			27.8%	27.8%	58.9%		58.9%			
Maximum Green (s)	7.0	32.0			20.0	20.0	48.0		48.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	76.0	78.0			63.1	63.1	10.0		10.0			
Actuated g/C Ratio	0.84	0.87			0.70	0.70	0.11		0.11			
v/c Ratio	0.24	0.33			0.12	0.33	0.19		0.14			
Control Delay	2.8	2.4			3.8	0.8	39.6		1.4			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	2.8	2.4			3.8	0.8	39.6		1.4			
LOS	A	A			A	A	D		A			
Approach Delay		2.4			1.6			20.8				
Approach LOS		A			A			C				
Queue Length 50th (ft)	21	64			16	0	16		0			
Queue Length 95th (ft)	37	79			m26	3	42		0			
Internal Link Dist (ft)		1015			900			416				988
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

10/27/2022

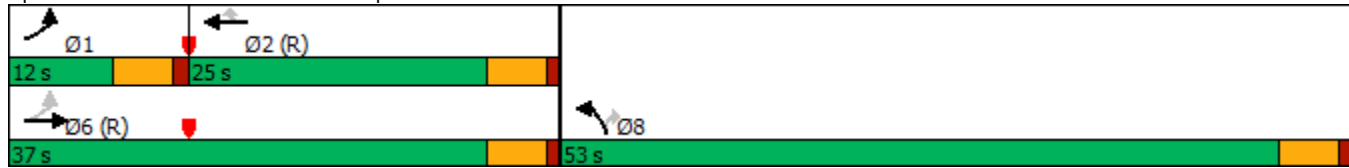


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	810	3907			2066	1959	766		677			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.24	0.33			0.12	0.33	0.04		0.04			

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 27 (30%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 2.6
 Intersection LOS: A
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

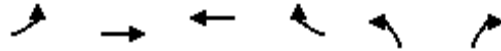
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	192	1281	245	652	30	29
v/c Ratio	0.24	0.33	0.12	0.33	0.19	0.14
Control Delay	2.8	2.4	3.8	0.8	39.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	2.4	3.8	0.8	39.6	1.4
Queue Length 50th (ft)	21	64	16	0	16	0
Queue Length 95th (ft)	37	79	m26	3	42	0
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	810	3907	2066	1959	766	677
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.33	0.12	0.33	0.04	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0	
Future Volume (vph)	173	1153	0	0	225	600	27	0	26	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00				
Frt	1.00	1.00			1.00	0.85	1.00		0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195				
Flt Permitted	0.55	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (perm)	891	4508			2948	2517	1437		1195				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00	
Adj. Flow (vph)	192	1281	0	0	245	652	30	0	29	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	209	0	0	27	0	0	0	
Lane Group Flow (vph)	192	1281	0	0	245	443	30	0	2	0	0	0	
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%	
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm				
Protected Phases	1	6			2		8						
Permitted Phases	6					2			8				
Actuated Green, G (s)	74.0	74.0			61.1	61.1	6.0		6.0				
Effective Green, g (s)	74.0	74.0			61.1	61.1	6.0		6.0				
Actuated g/C Ratio	0.82	0.82			0.68	0.68	0.07		0.07				
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	788	3706			2001	1708	95		79				
v/s Ratio Prot	0.02	c0.28			0.08		c0.02						
v/s Ratio Perm	0.18					0.18			0.00				
v/c Ratio	0.24	0.35			0.12	0.26	0.32		0.02				
Uniform Delay, d1	1.8	2.0			5.1	5.6	40.0		39.3				
Progression Factor	1.00	1.00			0.63	0.58	1.00		1.00				
Incremental Delay, d2	0.2	0.3			0.1	0.3	1.9		0.1				
Delay (s)	2.0	2.2			3.3	3.6	42.0		39.4				
Level of Service	A	A			A	A	D		D				
Approach Delay (s)		2.2			3.5			40.7			0.0		
Approach LOS		A			A			D			A		
Intersection Summary													
HCM 2000 Control Delay			3.6									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.37										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	15.0
Intersection Capacity Utilization			53.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary

9: I-84 WB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Future Volume (veh/h)	173	1153	0	0	225	600	27	0	26	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	192	1281	0	0	245	0	30	0	29			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	822	3670	0	0	2072		125	0	102			
Arrive On Green	0.06	0.80	0.00	0.00	0.23	0.00	0.09	0.00	0.09			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	192	1281	0	0	245	0	30	0	29			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	2.9	6.9	0.0	0.0	5.8	0.0	1.7	0.0	2.1			
Cycle Q Clear(g_c), s	2.9	6.9	0.0	0.0	5.8	0.0	1.7	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	822	3670	0	0	2072		125	0	102			
V/C Ratio(X)	0.23	0.35	0.00	0.00	0.12		0.24	0.00	0.28			
Avail Cap(c_a), veh/h	856	3670	0	0	2072		779	0	636			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	0.78	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.1	2.4	0.0	0.0	12.9	0.0	38.4	0.0	38.6			
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	1.0	0.0	1.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	1.2	0.0	0.0	1.8	0.0	0.6	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.6	0.0	0.0	13.0	0.0	39.4	0.0	40.1			
LnGrp LOS	A	A	A	A	B		D	A	D			
Approach Vol, veh/h		1473			245			59				
Approach Delay, s/veh		2.7			13.0			39.7				
Approach LOS		A			B			D				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	10.0	67.3				77.3		12.7				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0				32.0		48.0				
Max Q Clear Time (g_c+I1), s	4.9	7.8				8.9		4.1				
Green Ext Time (p_c), s	0.1	1.1				9.9		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	0	39	239	0	0	0	0	927	0	336
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		70.0		20.0	90.0					130.0		130.0
Total Split (%)		31.8%		9.1%	40.9%					59.1%		59.1%
Maximum Green (s)		65.0		15.0	85.0					125.0		125.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		112.0		123.2	123.2					86.8		86.8
Actuated g/C Ratio		0.51		0.56	0.56					0.39		0.39
v/c Ratio		0.24		0.10	0.15					0.75		0.45
Control Delay		34.4		28.8	26.9					60.8		4.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		34.4		28.8	26.9					60.8		4.2
LOS		C		C	C					E		A
Approach Delay		34.4			27.2							45.7
Approach LOS		C			C							D
Queue Length 50th (ft)		146		24	80					628		0
Queue Length 95th (ft)		262		69	162					479		50
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

10/27/2022

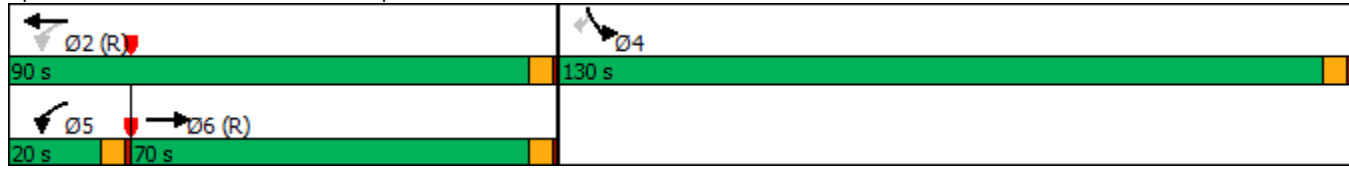


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2141		411	1636					1778		921
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.24		0.09	0.15					0.52		0.36

Intersection Summary

Area Type: Other
 Cycle Length: 220
 Actuated Cycle Length: 220
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 40.4
 Intersection LOS: D
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15

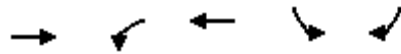
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	523	39	239	927	336
v/c Ratio	0.24	0.10	0.15	0.75	0.45
Control Delay	34.4	28.8	26.9	60.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	28.8	26.9	60.8	4.2
Queue Length 50th (ft)	146	24	80	628	0
Queue Length 95th (ft)	262	69	162	479	50
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2141	411	1636	1778	921
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.09	0.15	0.52	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (vph)	0	442	29	37	227	0	0	0	0	853	0	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4203		1500	2923					3130		1366
Flt Permitted		1.00		0.40	1.00					0.95		1.00
Satd. Flow (perm)		4203		628	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	491	32	39	239	0	0	0	0	927	0	336
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	203
Lane Group Flow (vph)	0	521	0	39	239	0	0	0	0	927	0	133
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		111.0		123.2	123.2					86.8		86.8
Effective Green, g (s)		111.0		123.2	123.2					86.8		86.8
Actuated g/C Ratio		0.50		0.56	0.56					0.39		0.39
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		2120		380	1636					1234		538
v/s Ratio Prot		c0.12		0.00	c0.08					c0.30		
v/s Ratio Perm				0.05								0.10
v/c Ratio		0.25		0.10	0.15					0.75		0.25
Uniform Delay, d1		30.8		22.3	23.2					57.3		44.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.3		0.1	0.2					2.6		0.2
Delay (s)		31.1		22.4	23.4					59.9		44.9
Level of Service		C		C	C					E		D
Approach Delay (s)		31.1			23.2			0.0			55.9	
Approach LOS		C			C			A			E	

Intersection Summary

HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
 10: I-84 EB Ramp & Gowen Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Future Volume (veh/h)	0	442	29	37	227	0	0	0	0	853	0	309
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	491	32	39	239	0				927	0	336
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2480	160	495	1895	0				1001	0	436
Arrive On Green	0.00	0.60	0.60	0.02	0.64	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	4308	269	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	340	183	39	239	0				927	0	336
Grp Sat Flow(s),veh/h/ln	0	1446	1541	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Cycle Q Clear(g_c), s	0.0	11.8	12.0	2.2	7.0	0.0				62.2	0.0	48.3
Prop In Lane	0.00		0.17	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1723	918	495	1895	0				1001	0	436
V/C Ratio(X)	0.00	0.20	0.20	0.08	0.13	0.00				0.93	0.00	0.77
Avail Cap(c_a), veh/h	0	1723	918	567	1895	0				1801	0	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.4	20.4	16.3	15.6	0.0				72.8	0.0	68.1
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.1	0.1	0.0				4.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	4.6	0.8	2.5	0.0				25.4	0.0	34.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.6	20.9	16.4	15.7	0.0				77.5	0.0	70.9
LnGrp LOS	A	C	C	B	B	A				E	A	E
Approach Vol, veh/h		523			278						1263	
Approach Delay, s/veh		20.7			15.8						75.8	
Approach LOS		C			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		145.6		74.4	9.5	136.0						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		85.0		125.0	15.0	65.0						
Max Q Clear Time (g_c+I1), s		9.0		64.2	4.2	14.0						
Green Ext Time (p_c), s		1.7		5.2	0.0	3.7						
Intersection Summary												
HCM 6th Ctrl Delay			53.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

10/27/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	3	21	290	142	314
Future Volume (vph)	57	3	21	290	142	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	3	23	322	158	349
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.5%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	57	3	21	290	142	314
Future Vol, veh/h	57	3	21	290	142	314
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	63	3	23	322	158	349

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	526	-	158	0	-
Stage 1	158	-	-	-	-
Stage 2	368	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-
Pot Cap-1 Maneuver	476	0	1434	-	-
Stage 1	820	0	-	-	-
Stage 2	654	0	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	468	-	1434	-	-
Mov Cap-2 Maneuver	468	-	-	-	-
Stage 1	807	-	-	-	-
Stage 2	654	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1434	-	468	-	-
HCM Lane V/C Ratio	0.016	-	0.135	-	-
HCM Control Delay (s)	7.6	-	13.9	0	-
HCM Lane LOS	A	-	B	A	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Future Volume (vph)	5	50	44	2	0	12	11	62	3	121	531	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45			45	
Link Distance (ft)		273			287			1256			2303	
Travel Time (s)		9.3			9.8			19.0			34.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	105	0	2	13	0	12	72	0	134	597	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

10/27/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Traffic Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Future Vol, veh/h	5	50	44	2	0	12	11	62	3	121	531	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	6	56	49	2	0	13	12	69	3	134	590	7

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	921	958	299	686	960	36	597	0	0	72	0	0
Stage 1	862	862	-	95	95	-	-	-	-	-	-	-
Stage 2	59	96	-	591	865	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	229	259	703	338	259	1035	989	-	-	1541	-	-
Stage 1	320	375	-	907	820	-	-	-	-	-	-	-
Stage 2	951	819	-	465	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	209	234	703	238	234	1035	989	-	-	1541	-	-
Mov Cap-2 Maneuver	209	234	-	238	234	-	-	-	-	-	-	-
Stage 1	316	342	-	896	810	-	-	-	-	-	-	-
Stage 2	927	809	-	331	341	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.3		10.2		1.3		1.4	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	989	-	-	209	340	238	1035	1541	-	-
HCM Lane V/C Ratio	0.012	-	-	0.027	0.307	0.009	0.013	0.087	-	-
HCM Control Delay (s)	8.7	-	-	22.7	20.2	20.3	8.5	7.6	-	-
HCM Lane LOS	A	-	-	C	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.3	0	0	0.3	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	113	2	0	191	24	0	1	0	11	0	145
Future Volume (vph)	90	113	2	0	191	24	0	1	0	11	0	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	128	0	0	239	0	0	1	0	12	161	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

10/27/2022

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷		↶	↷	
Traffic Vol, veh/h	90	113	2	0	191	24	0	1	0	11	0	145
Future Vol, veh/h	90	113	2	0	191	24	0	1	0	11	0	145
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	100	126	2	0	212	27	0	1	0	12	0	161




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	128	0	0	633	566	127	554	554	226
Stage 1	-	-	-	-	-	-	327	327	-	226	226	-
Stage 2	-	-	-	-	-	-	306	239	-	328	328	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1340	-	-	1458	-	-	392	434	923	446	440	818
Stage 1	-	-	-	-	-	-	686	648	-	781	717	-
Stage 2	-	-	-	-	-	-	704	708	-	689	647	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1340	-	-	1458	-	-	297	401	923	420	407	818
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	401	-	420	407	-
Stage 1	-	-	-	-	-	-	635	599	-	722	717	-
Stage 2	-	-	-	-	-	-	565	708	-	636	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	0	14	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	401	1340	-	-	1458	-	-	420	818
HCM Lane V/C Ratio	0.003	0.075	-	-	-	-	-	0.029	0.197
HCM Control Delay (s)	14	7.9	-	-	0	-	-	13.8	10.5
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.1	0.7

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	193	556	0	673	0	351	656	0
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0		11.0	16.0	
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0		21.0	40.0	
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%		19.1%	36.4%	
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0		16.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)					15.3	15.3		38.5		62.3	61.3	
Actuated g/C Ratio					0.14	0.14		0.35		0.57	0.56	
v/c Ratio					0.85	0.66		0.62		0.90	0.37	
Control Delay					78.1	7.8		33.7		28.9	18.1	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					78.1	7.8		33.7		28.9	18.1	
LOS					E	A		C		C	B	
Approach Delay					25.9			33.7			21.9	
Approach LOS					C			C			C	
Queue Length 50th (ft)					134	0		216		181	178	
Queue Length 95th (ft)					#256	52		283		m#202	m168	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/27/2022

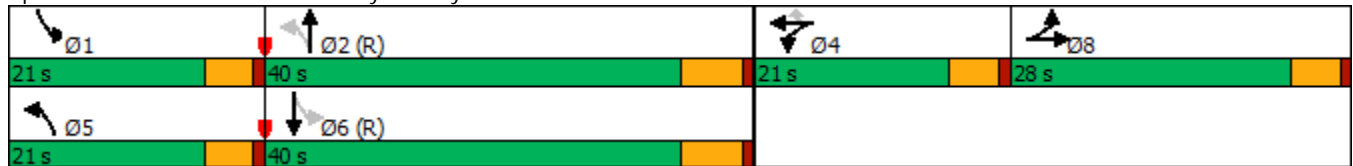


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					236	855		1091		392	1796	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.82	0.65		0.62		0.90	0.37	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	115
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	26.4
Intersection LOS:	C
Intersection Capacity Utilization	59.9%
ICU Level of Service	B
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/27/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	193	556	673	351	656
v/c Ratio	0.85	0.66	0.62	0.90	0.37
Control Delay	78.1	7.8	33.7	28.9	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	7.8	33.7	28.9	18.1
Queue Length 50th (ft)	134	0	216	181	178
Queue Length 95th (ft)	#256	52	283	m#202	m168
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	236	855	1091	392	1796
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.65	0.62	0.90	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/27/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0	
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0	
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0		
Lane Util. Factor					1.00	0.88		0.95		1.00	0.95		
Frt					1.00	0.85		0.98		1.00	1.00		
Flt Protected					0.95	1.00		1.00		0.95	1.00		
Satd. Flow (prot)					1629	2614		3097		1487	3226		
Flt Permitted					0.95	1.00		1.00		0.24	1.00		
Satd. Flow (perm)					1629	2614		3097		375	3226		
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	0	0	193	0	556	0	604	69	351	656	0	
RTOR Reduction (vph)	0	0	0	0	0	479	0	7	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	193	77	0	666	0	351	656	0	
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%	
Turn Type				Split	NA	Perm	pm+pt	NA		pm+pt	NA		
Protected Phases	8	8		4	4		5	2		1	6		
Permitted Phases						4	2			6			
Actuated Green, G (s)					15.3	15.3		37.5		60.3	60.3		
Effective Green, g (s)					15.3	15.3		37.5		60.3	60.3		
Actuated g/C Ratio					0.14	0.14		0.34		0.55	0.55		
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0		
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)					226	363		1055		385	1768		
v/s Ratio Prot					c0.12			0.21		c0.15	0.20		
v/s Ratio Perm						0.03				c0.35			
v/c Ratio					0.85	0.21		0.63		0.91	0.37		
Uniform Delay, d1					46.3	42.0		30.4		17.6	14.1		
Progression Factor					1.00	1.00		1.00		1.39	1.16		
Incremental Delay, d2					25.5	0.3		2.9		3.4	0.1		
Delay (s)					71.8	42.3		33.3		27.9	16.4		
Level of Service					E	D		C		C	B		
Approach Delay (s)		0.0			49.9			33.3			20.4		
Approach LOS		A			D			C			C		
Intersection Summary													
HCM 2000 Control Delay			33.1		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.74										
Actuated Cycle Length (s)			110.0		Sum of lost time (s)						21.0		
Intersection Capacity Utilization			59.9%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	193	0	556	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	2	0	249	0	381	544	1752	200	567	2460	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.60	0.60	0.11	0.75	0.00
Sat Flow, veh/h	0	1800	0	1714	0	2622	1714	2901	331	1514	3346	0
Grp Volume(v), veh/h	0	0	0	193	0	556	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1714	0	1311	1714	1603	1628	1514	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.9	0.0	16.0	0.0	11.4	11.5	9.1	6.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.9	0.0	16.0	0.0	11.4	11.5	9.1	6.8	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	249	0	381	544	968	983	567	2460	0
V/C Ratio(X)	0.00	0.00	0.00	0.77	0.00	1.46	0.00	0.34	0.35	0.62	0.27	0.00
Avail Cap(c_a), veh/h	0	376	0	249	0	381	792	968	983	629	2460	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	45.3	0.0	47.0	0.0	10.9	10.9	7.0	4.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	14.0	0.0	220.1	0.0	1.0	1.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	5.9	0.0	16.9	0.0	3.8	3.9	2.2	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	59.3	0.0	267.1	0.0	11.9	11.9	7.2	4.2	0.0
LnGrp LOS	A	A	A	E	A	F	A	B	B	A	A	A
Approach Vol, veh/h		0			749			673			1007	
Approach Delay, s/veh		0.0			213.6			11.9			5.2	
Approach LOS					F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.6	72.4		21.0	0.0	89.0		0.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	11.1	13.5		18.0	0.0	8.8		0.0				
Green Ext Time (p_c), s	0.5	3.7		0.0	0.0	4.2		0.0				

Intersection Summary






















HCM 6th Ctrl Delay	71.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	77	0	182	185	507	30	860	327	304	789	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	13.0	13.0		35.0	35.0	35.0	15.0	43.0	43.0	19.0	47.0	
Total Split (%)	11.8%	11.8%		31.8%	31.8%	31.8%	13.6%	39.1%	39.1%	17.3%	42.7%	
Maximum Green (s)	8.0	8.0		30.0	30.0	30.0	10.0	38.0	38.0	14.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		7.5		30.0	30.0	30.0	40.6	40.6	40.6	14.0	51.8	
Actuated g/C Ratio		0.07		0.27	0.27	0.27	0.37	0.37	0.37	0.13	0.47	
v/c Ratio		0.48		3.03	3.36	0.75	0.18	0.71	0.47	0.79	0.57	
Control Delay		47.6		975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		47.6		975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0	
LOS		D		F	F	B	B	C	A	E	C	
Approach Delay		47.6			451.4			15.5			35.5	
Approach LOS		D			F			B			D	
Queue Length 50th (ft)		21		~234	~243	83	7	136	0	108	230	
Queue Length 95th (ft)		46		#347	#361	224	m13	246	14	#173	310	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022

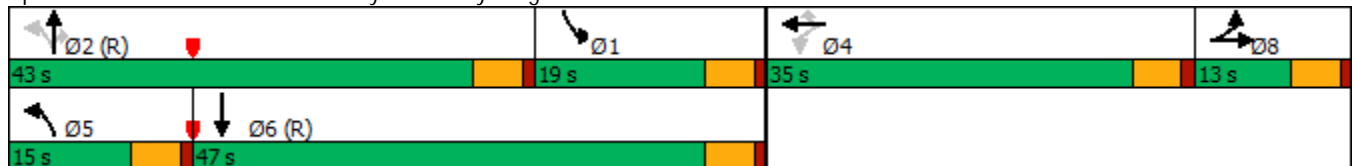


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		172		60	55	674	196	1213	691	383	1391	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.45		3.03	3.36	0.75	0.15	0.71	0.47	0.79	0.57	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 3.36
 Intersection Signal Delay: 139.8 Intersection LOS: F
 Intersection Capacity Utilization 69.1% ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	182	185	507	30	860	327	304	789
v/c Ratio	0.48	3.03	3.36	0.75	0.18	0.71	0.47	0.79	0.57
Control Delay	47.6	975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	975.3	1124.4	17.8	16.7	20.2	2.9	62.7	25.0
Queue Length 50th (ft)	21	~234	~243	83	7	136	0	108	230
Queue Length 95th (ft)	46	#347	#361	224	m13	246	14	#173	310
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	172	60	55	674	196	1213	691	383	1391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	3.03	3.36	0.75	0.15	0.71	0.47	0.79	0.57

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↑↑	↖	↖↖	↖↖	
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2123		1593	1596	1485	1437	3288	1417	3016	2947	
Flt Permitted		0.97		0.13	0.12	1.00	0.16	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2123		224	204	1485	235	3288	1417	3016	2947	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	860	327	304	738	51
RTOR Reduction (vph)	0	18	0	0	0	270	0	0	176	0	4	0
Lane Group Flow (vph)	0	59	0	182	185	237	30	860	151	304	785	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Effective Green, g (s)		6.4		30.0	30.0	30.0	37.6	37.6	37.6	16.0	48.8	
Actuated g/C Ratio		0.06		0.27	0.27	0.27	0.34	0.34	0.34	0.15	0.44	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		123		61	55	405	132	1123	484	438	1307	
v/s Ratio Prot		c0.03					0.01	c0.26		0.10	c0.27	
v/s Ratio Perm				0.81	c0.91	0.16	0.07		0.11			
v/c Ratio		0.48		2.98	3.36	0.59	0.23	0.77	0.31	0.69	0.60	
Uniform Delay, d1		50.2		40.0	40.0	34.6	26.0	32.3	26.7	44.7	23.2	
Progression Factor		1.00		1.00	1.00	1.00	0.60	0.56	0.17	1.00	1.00	
Incremental Delay, d2		2.9		935.0	1108.3	2.2	0.7	4.0	1.3	4.7	2.0	
Delay (s)		53.1		975.0	1148.3	36.8	16.4	22.2	5.9	49.4	25.3	
Level of Service		D		F	F	D	B	C	A	D	C	
Approach Delay (s)		53.1			467.4			17.7			32.0	
Approach LOS		D			F			B			C	

Intersection Summary		
HCM 2000 Control Delay	143.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.59	F
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	69.1%	ICU Level of Service
Analysis Period (min)	15	C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	358	0	507	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	68	25	40	920	0	406	162	1145	494	482	1386	96
Arrive On Green	0.04	0.04	0.04	0.27	0.00	0.27	0.03	0.35	0.35	0.16	0.48	0.48
Sat Flow, veh/h	1594	583	924	3375	0	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	358	0	507	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	1594	0	1507	1688	0	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	25.2	21.3	10.2	19.5	19.6
Cycle Q Clear(g_c), s	3.1	0.0	2.2	9.5	0.0	30.0	1.6	25.2	21.3	10.2	19.5	19.6
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	68	0	64	920	0	406	162	1145	494	482	731	752
V/C Ratio(X)	0.67	0.00	0.48	0.39	0.00	1.25	0.19	0.75	0.66	0.63	0.53	0.53
Avail Cap(c_a), veh/h	116	0	110	920	0	406	255	1145	494	482	731	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	51.5	32.5	0.0	40.0	28.3	31.8	30.5	43.4	20.3	20.3
Incr Delay (d2), s/veh	11.0	0.0	5.5	0.3	0.0	130.6	0.4	3.4	5.0	2.6	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.9	3.9	0.0	25.7	0.6	10.2	7.7	3.9	6.8	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	0.0	56.9	32.8	0.0	170.6	28.7	35.2	35.6	46.0	23.0	23.0
LnGrp LOS	E	A	E	C	A	F	C	D	D	D	C	C
Approach Vol, veh/h		77			865			1217			1093	
Approach Delay, s/veh		60.5			113.6			35.1			29.4	
Approach LOS		E			F			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.3	43.0		35.0	8.0	57.3		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	38.0		30.0	10.0	42.0		8.0				
Max Q Clear Time (g_c+I1), s	12.2	27.2		32.0	3.6	21.6		5.1				
Green Ext Time (p_c), s	0.2	5.0		0.0	0.0	4.2		0.1				

Intersection Summary

HCM 6th Ctrl Delay	54.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
 1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓		↑	↑					↑	↑	
Traffic Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Future Volume (vph)	0	49	51	159	61	0	0	81	0	28	0	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	325		0	0		0	310		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			150			25			150		
Link Speed (mph)		45			45			30				55
Link Distance (ft)		469			1151			390				662
Travel Time (s)		7.1			17.4			8.9				8.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	54%	50%	43%	29%	0%	0%	0%	0%	4%	50%	38%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	0	177	68	0	0	90	0	31	94	0
Sign Control		Free			Free			Free			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM 6th TWSC
 1: Eisenman Rd & I-84 SB Off Ramp

01/19/2023

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑					↑	↑	
Traffic Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Future Vol, veh/h	0	49	51	159	61	0	0	81	0	28	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	325	-	-	-	-	-	310	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	54	50	43	29	0	0	0	0	4	50	38
Mvmt Flow	0	54	57	177	68	0	0	90	0	31	0	94

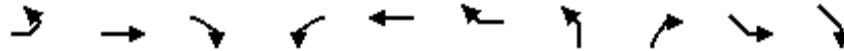
Major/Minor	Major1			Major2			Minor2				
Conflicting Flow All	-	0	0	111	0	0			449	533	68
Stage 1	-	-	-	-	-	-			422	422	-
Stage 2	-	-	-	-	-	-			27	111	-
Critical Hdwy	-	-	-	4.745	-	-			6.66	7.25	6.77
Critical Hdwy Stg 1	-	-	-	-	-	-			5.46	6.25	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.86	6.25	-
Follow-up Hdwy	-	-	-	-2.6085	-	-			3.538	4.475	3.661
Pot Cap-1 Maneuver	0	-	-	1241	-	0			548	376	896
Stage 1	0	-	-	-	-	0			655	497	-
Stage 2	0	-	-	-	-	0			987	710	-
Platoon blocked, %	-	-	-	-	-	-			-	-	-
Mov Cap-1 Maneuver	-	-	-	1241	-	-			470	0	896
Mov Cap-2 Maneuver	-	-	-	-	-	-			470	0	-
Stage 1	-	-	-	-	-	-			655	0	-
Stage 2	-	-	-	-	-	-			846	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.1	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1241	-	470	896
HCM Lane V/C Ratio	-	-	0.142	-	0.066	0.105
HCM Control Delay (s)	-	-	8.4	-	13.2	9.5
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	-	0.2	0.4

Lanes, Volumes, Timings
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↶	↷↷			↷	↷↷	↷			
Traffic Volume (vph)	36	97	0	0	216	205	0	0	0	0
Future Volume (vph)	36	97	0	0	216	205	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	340		0	0		0	0	0	0	0
Storage Lanes	1		0	0		2	1	0	0	0
Taper Length (ft)	100			25			25		25	
Link Speed (mph)		45			45		30		55	
Link Distance (ft)		1151			948		175		801	
Travel Time (s)		17.4			14.4		4.0		9.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	63%	7%	2%	2%	35%	25%	2%	2%	0%	2%
Shared Lane Traffic (%)										
Lane Group Flow (vph)	40	108	0	0	240	228	0	0	0	0
Sign Control		Free			Free		Stop		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 2: Eisenman Rd/Memory Rd & I-85 NB On-Ramp

01/19/2023

Intersection										
Int Delay, s/veh	0.6									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations	↘	↗			↗	↘	↘			
Traffic Vol, veh/h	36	97	0	0	216	205	0	0	0	0
Future Vol, veh/h	36	97	0	0	216	205	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	340	-	-	-	-	0	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	63	7	2	2	35	25	2	2	0	2
Mvmt Flow	40	108	0	0	240	228	0	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	468	0	542
Stage 1	-	-	188
Stage 2	-	-	354
Critical Hdwy	5.045	-	6.63
Critical Hdwy Stg 1	-	-	5.83
Critical Hdwy Stg 2	-	-	5.43
Follow-up Hdwy	2.7985	-	3.519
Pot Cap-1 Maneuver	796	0	486
Stage 1	-	0	826
Stage 2	-	0	710
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	796	-	462
Mov Cap-2 Maneuver	-	-	462
Stage 1	-	-	785
Stage 2	-	-	710

Approach	EB	WB	NB
HCM Control Delay, s	2.6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	-	796	-	-	-
HCM Lane V/C Ratio	-	0.05	-	-	-
HCM Control Delay (s)	0	9.8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-	-

Lanes, Volumes, Timings

3: I-84 NB Off Ramp/S Federal Way & Memory Rd/Dummy Segment

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Future Volume (vph)	95	0	0	0	1	0	30	76	0	1	0	389
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	235		0	0		0
Storage Lanes	2		0	0		0	1		0	0		2
Taper Length (ft)	25			25			150			25		
Link Speed (mph)		45			30			55				45
Link Distance (ft)		948			173			1286				1925
Travel Time (s)		14.4			3.9			15.9				29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	2%	2%	2%	36%	0%	2%	2%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	0	0	0	1	0	33	84	0	0	1	432
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization Err% ICU Level of Service H

Analysis Period (min) 15

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT				TT		T	T				TT
Traffic Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Future Vol, veh/h	95	0	0	0	1	0	30	76	0	1	0	389
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	-	-	-	-	235	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	2	0	2	2	2	36	0	2	2	0	25
Mvmt Flow	106	0	0	0	1	0	33	84	0	1	0	432

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1
Stage 1	-	-	0
Stage 2	-	-	1
Critical Hdwy	4.12	-	7.46
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	6.46
Follow-up Hdwy	2.218	-	3.824
Pot Cap-1 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	940
Mov Cap-2 Maneuver	-	-	940
Stage 1	-	-	-
Stage 2	-	-	940

Approach	WB	NB	SB
HCM Control Delay, s	0	9.3	9
HCM LOS		A	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	940	899	-	-	-	891	-
HCM Lane V/C Ratio	0.035	0.094	-	-	-	0.001	-
HCM Control Delay (s)	9	9.4	0	-	-	9	0
HCM Lane LOS	A	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.3	-	-	-	0	-

Lanes, Volumes, Timings

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	266	120	49	122	17	74
Future Volume (vph)	266	120	49	122	17	74
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	10.4	10.4	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.34	0.34	0.29	0.29	0.29	0.29
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
LOS	B	A	A	A	A	B
Approach Delay	8.4		5.7			10.5
Approach LOS	A		A			B
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

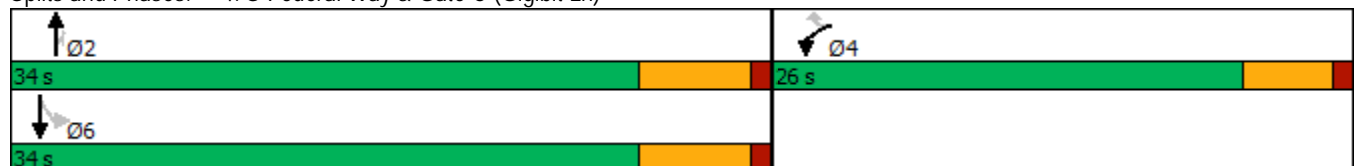
01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.4
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	8.0
Intersection LOS:	A
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	296	133	54	136	19	82
v/c Ratio	0.50	0.22	0.12	0.25	0.05	0.20
Control Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	2.8	9.9	4.0	9.5	10.8
Queue Length 50th (ft)	31	0	6	0	2	9
Queue Length 95th (ft)	77	18	24	24	12	33
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1195	1110	1408	1412	1101	1277
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.04	0.10	0.02	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	266	120	49	122	17	74
Future Volume (vph)	266	120	49	122	17	74
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1710	1530	1538	1530	1583	1395
Flt Permitted	0.95	1.00	1.00	1.00	0.72	1.00
Satd. Flow (perm)	1710	1530	1538	1530	1203	1395
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	296	133	54	136	19	82
RTOR Reduction (vph)	0	87	0	97	0	0
Lane Group Flow (vph)	296	46	54	39	19	82
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Actuated Green, G (s)	10.5	10.5	8.8	8.8	8.8	8.8
Effective Green, g (s)	10.5	10.5	8.8	8.8	8.8	8.8
Actuated g/C Ratio	0.35	0.35	0.29	0.29	0.29	0.29
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	592	530	446	444	349	405
v/s Ratio Prot	c0.17		0.04			c0.06
v/s Ratio Perm		0.03		0.03	0.02	
v/c Ratio	0.50	0.09	0.12	0.09	0.05	0.20
Uniform Delay, d1	7.8	6.7	7.9	7.8	7.8	8.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.1	0.1	0.1	0.2
Delay (s)	8.5	6.7	8.0	7.9	7.8	8.4
Level of Service	A	A	A	A	A	A
Approach Delay (s)	7.9		7.9			8.3
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	30.3	Sum of lost time (s)	11.0
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

01/19/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	266	120	49	122	17	74
Future Volume (veh/h)	266	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	296	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	474	422	353		581	315
Arrive On Green	0.28	0.28	0.23	0.00	0.23	0.23
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	296	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	3.3	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	3.3	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	474	422	353		581	315
V/C Ratio(X)	0.62	0.32	0.15		0.03	0.26
Avail Cap(c_a), veh/h	1628	1449	1977		1918	1764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	6.3	6.9	0.0	7.2	7.0
Incr Delay (d2), s/veh	1.4	0.4	0.2	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.3	0.1	0.0	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.8	7.1	0.0	7.2	7.5
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	429		54			101
Approach Delay, s/veh	7.9		7.1			7.4
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		11.1		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		5.3		3.1
Green Ext Time (p_c), s		0.2		1.2		0.4

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	43	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	48	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

01/19/2023

Intersection												
Int Delay, s/veh	11.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	43	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	48	0	639	0	182	27	126	51	0





















Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	27.6		16.5			0			5.6		
HCM LOS	D		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	445	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.107	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	14.1	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	5.6	0.3	-	-

Lanes, Volumes, Timings
 6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Future Volume (vph)	1	0	0	1	0	145	0	838	0	0	201	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		255			1077			2303			2188	
Travel Time (s)		7.0			21.0			34.9			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	50%	0%	100%	0%	0%	10%	0%	10%	0%	0%	2%	67%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	0	1	0	151	0	931	0	0	224	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
6: S Federal Way & Pvt Dwy/Silicon Way

01/19/2023

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙		↗	↙		↗		↕			↕	
Traffic Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Future Vol, veh/h	1	0	0	1	0	145	0	838	0	0	201	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	96	96	96	90	90	90	90	90	90
Heavy Vehicles, %	50	0	100	0	0	10	0	10	0	0	2	67
Mvmt Flow	1	0	0	1	0	151	0	931	0	0	223	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	690	-	112	1043	-	466	224	0	-	-	-	0
Stage 1	224	-	-	931	-	-	-	-	-	-	-	-
Stage 2	466	-	-	112	-	-	-	-	-	-	-	-
Critical Hdwy	8.5	-	8.9	7.5	-	7.1	4.1	-	-	-	-	-
Critical Hdwy Stg 1	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.5	-	-	6.5	-	-	-	-	-	-	-	-
Follow-up Hdwy	4	-	4.3	3.5	-	3.4	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	253	0	678	186	0	522	1357	-	0	0	-	-
Stage 1	638	0	-	291	0	-	-	-	0	0	-	-
Stage 2	437	0	-	887	0	-	-	-	0	0	-	-
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	180	-	678	186	-	522	1357	-	-	-	-	-
Mov Cap-2 Maneuver	257	-	-	253	-	-	-	-	-	-	-	-
Stage 1	638	-	-	291	-	-	-	-	-	-	-	-
Stage 2	311	-	-	887	-	-	-	-	-	-	-	-























Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.1		14.7		0		0	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1357	-	257	-	253	522	-	-
HCM Lane V/C Ratio	-	-	0.004	-	0.004	0.289	-	-
HCM Control Delay (s)	0	-	19.1	0	19.3	14.7	-	-
HCM Lane LOS	A	-	C	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	0	1.2	-	-

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	155		415	90		0	520		240	125		0
Storage Lanes	1		1	1		0	2		1	1		0
Taper Length (ft)	200			150			150			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45				35
Link Distance (ft)		1988			426			3214				936
Travel Time (s)		38.7			8.3			48.7				18.2
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	597	239	42	411	0	327	51	92	7	144	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Detector Phase	1	6	6	5	2		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	5.0	5.0	
Minimum Split (s)	10.0	28.0	28.0	10.0	26.0		10.0	30.0	30.0	10.0	10.0	
Total Split (s)	50.0	65.0	65.0	30.0	45.0		20.0	30.0	30.0	20.0	30.0	
Total Split (%)	34.5%	44.8%	44.8%	20.7%	31.0%		13.8%	20.7%	20.7%	13.8%	20.7%	
Maximum Green (s)	45.0	59.0	59.0	25.0	39.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0			
Flash Dont Walk (s)		17.0	17.0		15.0			20.0	20.0			
Pedestrian Calls (#/hr)		50	50		50			50	50			
Act Effct Green (s)	105.9	95.5	95.5	92.4	84.9		15.0	26.7	26.7	15.1	9.1	
Actuated g/C Ratio	0.73	0.66	0.66	0.64	0.59		0.10	0.18	0.18	0.10	0.06	
v/c Ratio	0.46	0.30	0.23	0.08	0.21		1.00	0.16	0.25	0.05	0.68	
Control Delay	9.9	12.1	2.0	7.6	15.8		114.4	51.2	3.6	44.7	29.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.9	12.1	2.0	7.6	15.8		114.4	51.2	3.6	44.7	29.2	
LOS	A	B	A	A	B		F	D	A	D	C	
Approach Delay		9.4			15.0			85.8			29.9	
Approach LOS		A			B			F			C	
Queue Length 50th (ft)	69	118	0	9	87		-161	41	0	5	13	
Queue Length 95th (ft)	136	189	37	26	155		#267	83	15	19	82	
Internal Link Dist (ft)		1908			346			3134			856	
Turn Bay Length (ft)	155		415	90			520		240	125		

Lanes, Volumes, Timings

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023

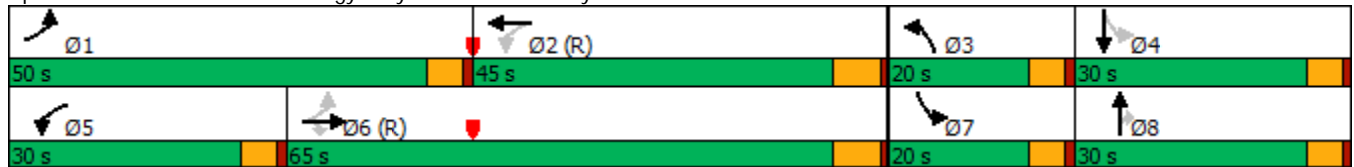


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	711	1958	1041	720	1938		326	321	368	258	357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.37	0.30	0.23	0.06	0.21		1.00	0.16	0.25	0.03	0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 70 (48%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 28.5
 Intersection LOS: C
 Intersection Capacity Utilization 60.0%
 ICU Level of Service B
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

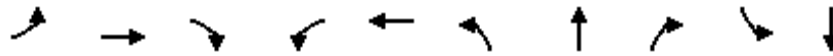
Splits and Phases: 7: Technology Way/Grand Forest Way & Gowen Rd



Queues

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	261	597	239	42	411	327	51	92	7	144
v/c Ratio	0.46	0.30	0.23	0.08	0.21	1.00	0.16	0.25	0.05	0.68
Control Delay	9.9	12.1	2.0	7.6	15.8	114.4	51.2	3.6	44.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	12.1	2.0	7.6	15.8	114.4	51.2	3.6	44.7	29.2
Queue Length 50th (ft)	69	118	0	9	87	~161	41	0	5	13
Queue Length 95th (ft)	136	189	37	26	155	#267	83	15	19	82
Internal Link Dist (ft)		1908			346		3134			856
Turn Bay Length (ft)	155		415	90		520		240	125	
Base Capacity (vph)	711	1958	1041	720	1938	326	321	368	258	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.30	0.23	0.06	0.21	1.00	0.16	0.25	0.03	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (vph)	248	567	227	38	360	10	294	46	83	6	13	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1379	2974	1457	1710	3310		3159	1748	1404	1710	1451	
Flt Permitted	0.46	1.00	1.00	0.43	1.00		0.95	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	675	2974	1457	767	3310		3159	1748	1404	1303	1451	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	597	239	42	400	11	327	51	92	7	14	130
RTOR Reduction (vph)	0	0	90	0	1	0	0	0	75	0	118	0
Lane Group Flow (vph)	261	597	149	42	410	0	327	51	17	7	26	0
Heavy Vehicles (%)	24%	15%	5%	0%	3%	0%	5%	3%	9%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2					8	4		
Actuated Green, G (s)	100.9	90.5	90.5	86.2	80.8		15.0	26.7	26.7	14.5	13.1	
Effective Green, g (s)	100.9	90.5	90.5	86.2	80.8		15.0	26.7	26.7	14.5	13.1	
Actuated g/C Ratio	0.70	0.62	0.62	0.59	0.56		0.10	0.18	0.18	0.10	0.09	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	543	1856	909	491	1844		326	321	258	134	131	
v/s Ratio Prot	c0.05	0.20		0.00	0.12		c0.10	0.03		0.00	c0.02	
v/s Ratio Perm	c0.28		0.10	0.05					0.01	0.00		
v/c Ratio	0.48	0.32	0.16	0.09	0.22		1.00	0.16	0.07	0.05	0.20	
Uniform Delay, d1	8.6	12.8	11.4	12.2	16.2		65.0	49.7	48.8	59.0	61.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.5	0.4	0.1	0.3		50.6	0.2	0.1	0.2	0.7	
Delay (s)	9.3	13.3	11.8	12.3	16.5		115.6	49.9	49.0	59.1	61.8	
Level of Service	A	B	B	B	B		F	D	D	E	E	
Approach Delay (s)		12.0			16.1			95.4			61.7	
Approach LOS		B			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

7: Technology Way/Grand Forest Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Future Volume (veh/h)	248	567	227	38	360	10	294	46	83	6	13	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1463	1589	1730	1800	1758	1800	1730	1758	1674	1800	1800	1688
Adj Flow Rate, veh/h	261	597	0	42	400	0	327	51	0	7	14	0
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	24	15	5	0	3	0	5	3	9	0	0	8
Cap, veh/h	641	2087		611	2132		331	224		109	59	
Arrive On Green	0.08	0.69	0.00	0.03	0.64	0.00	0.10	0.13	0.00	0.01	0.03	0.00
Sat Flow, veh/h	1393	3020	1466	1714	3428	0	3196	1758	1418	1714	1800	0
Grp Volume(v), veh/h	261	597	0	42	400	0	327	51	0	7	14	0
Grp Sat Flow(s),veh/h/ln	1393	1510	1466	1714	1670	0	1598	1758	1418	1714	1800	0
Q Serve(g_s), s	8.9	11.0	0.0	1.2	7.1	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Cycle Q Clear(g_c), s	8.9	11.0	0.0	1.2	7.1	0.0	14.8	3.8	0.0	0.6	1.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	641	2087		611	2132		331	224		109	59	
V/C Ratio(X)	0.41	0.29		0.07	0.19		0.99	0.23		0.06	0.24	
Avail Cap(c_a), veh/h	961	2087		858	2132		331	303		272	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.8	8.6	0.0	8.3	10.8	0.0	64.9	56.8	0.0	66.9	68.4	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.0	0.2	0.0	46.4	0.5	0.0	0.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.6	0.0	0.5	2.7	0.0	8.1	1.7	0.0	0.3	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	8.9	0.0	8.4	11.0	0.0	111.3	57.3	0.0	67.2	70.5	0.0
LnGrp LOS	A	A		A	B		F	E		E	E	
Approach Vol, veh/h		858			442			378			21	
Approach Delay, s/veh		8.4			10.7			104.0			69.4	
Approach LOS		A			B			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	98.5	20.0	9.7	9.1	106.2	6.2	23.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	45.0	39.0	15.0	25.0	25.0	59.0	15.0	25.0				
Max Q Clear Time (g_c+I1), s	10.9	9.1	16.8	3.1	3.2	13.0	2.6	5.8				
Green Ext Time (p_c), s	0.8	2.7	0.0	0.0	0.1	4.6	0.0	0.1				

Intersection Summary

























HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	420		390	175		225	495		150	275		255
Storage Lanes	2		1	1		1	2		1	1		1
Taper Length (ft)	300			200			90			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		980			1988			2188			3433	
Travel Time (s)		19.1			38.7			37.3			58.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Detector Phase	1	6	6	5	2	2	3	8	8	7	4	1
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0	5.0	10.0	10.0	5.0	5.0	6.0
Minimum Split (s)	12.0	40.0	40.0	14.0	42.0	42.0	11.0	38.0	38.0	11.0	45.0	12.0
Total Split (s)	45.0	75.0	75.0	14.0	44.0	44.0	46.0	48.0	48.0	43.0	45.0	45.0
Total Split (%)	25.0%	41.7%	41.7%	7.8%	24.4%	24.4%	25.6%	26.7%	26.7%	23.9%	25.0%	25.0%
Maximum Green (s)	40.0	70.0	70.0	9.0	39.0	39.0	41.0	43.0	43.0	38.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		29.0	29.0		31.0	31.0		27.0	27.0		34.0	
Pedestrian Calls (#/hr)		50	50		50	50		50	50		50	
Act Effect Green (s)	39.6	85.2	85.2	8.0	45.8	45.8	39.8	40.8	40.8	68.7	34.8	79.4
Actuated g/C Ratio	0.22	0.47	0.47	0.04	0.25	0.25	0.22	0.23	0.23	0.38	0.19	0.44
v/c Ratio	0.97	0.50	0.21	0.16	0.75	0.31	0.95	0.59	0.16	0.85	0.16	0.92
Control Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
LOS	F	D	A	F	E	B	F	E	A	D	E	E
Approach Delay		58.0			60.8			77.6			59.9	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	367	300	0	14	375	29	393	211	0	304	52	552

Lanes, Volumes, Timings
8: S Federal Way & Gowen Rd

01/19/2023

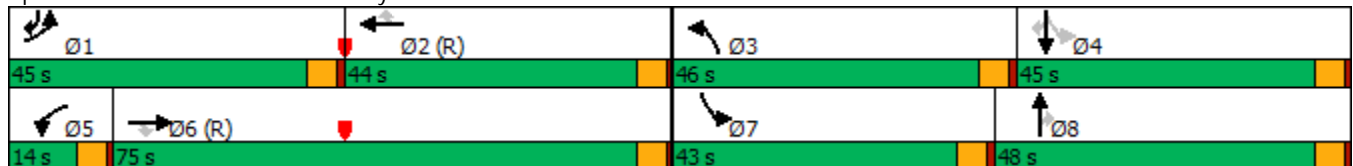


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#482	414	50	39	#475	97	#507	280	13	407	83	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	650	1407	796	83	820	459	706	743	462	484	745	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.50	0.21	0.14	0.75	0.31	0.92	0.53	0.15	0.78	0.14	0.90

Intersection Summary

Area Type: Other
 Cycle Length: 180
 Actuated Cycle Length: 180
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 63.9
 Intersection LOS: E
 Intersection Capacity Utilization 79.6%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 8: S Federal Way & Gowen Rd



Queues

8: S Federal Way & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
v/c Ratio	0.97	0.50	0.21	0.16	0.75	0.31	0.95	0.59	0.16	0.85	0.16	0.92
Control Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.1	36.7	4.9	88.0	70.1	17.4	92.7	65.7	3.0	54.8	59.3	63.5
Queue Length 50th (ft)	367	300	0	14	375	29	393	211	0	304	52	552
Queue Length 95th (ft)	#482	414	50	39	#475	97	#507	280	13	407	83	#794
Internal Link Dist (ft)		900			1908			2108			3353	
Turn Bay Length (ft)	420		390	175		225	495		150	275		255
Base Capacity (vph)	650	1407	796	83	820	459	706	743	462	484	745	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.50	0.21	0.14	0.75	0.31	0.92	0.53	0.15	0.78	0.14	0.90































Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

8: S Federal Way & Gowen Rd

01/19/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 	 			 	
Traffic Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (vph)	546	634	148	11	554	126	587	355	62	341	93	507
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2860	2974	1500	1676	3226	1485	3100	2948	1530	1644	3353	1342
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	2860	2974	1500	1676	3226	1485	3100	2948	1530	713	3353	1342
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	704	164	12	616	140	652	394	69	379	103	563
RTOR Reduction (vph)	0	0	89	0	0	82	0	0	53	0	0	25
Lane Group Flow (vph)	607	704	75	12	616	58	652	394	16	379	103	538
Heavy Vehicles (%)	16%	15%	2%	2%	6%	3%	7%	16%	0%	4%	2%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2			8	4		4
Actuated Green, G (s)	39.6	82.1	82.1	3.2	45.7	45.7	39.8	40.8	40.8	68.8	34.9	74.5
Effective Green, g (s)	39.6	82.1	82.1	3.2	45.7	45.7	39.8	40.8	40.8	68.8	34.9	74.5
Actuated g/C Ratio	0.22	0.46	0.46	0.02	0.25	0.25	0.22	0.23	0.23	0.38	0.19	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	629	1356	684	29	819	377	685	668	346	447	650	592
v/s Ratio Prot	c0.21	0.24		0.01	c0.19		c0.21	0.13		0.16	0.03	c0.20
v/s Ratio Perm			0.05			0.04			0.01	0.16		0.20
v/c Ratio	0.97	0.52	0.11	0.41	0.75	0.15	0.95	0.59	0.05	0.85	0.16	0.91
Uniform Delay, d1	69.5	34.9	28.0	87.5	61.9	52.1	69.2	62.1	54.4	44.9	60.3	49.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.0	1.4	0.3	3.5	6.3	0.9	22.9	0.9	0.0	13.4	0.0	17.5
Delay (s)	96.5	36.3	28.3	90.9	68.2	53.0	92.1	63.0	54.4	58.3	60.4	67.1
Level of Service	F	D	C	F	E	D	F	E	D	E	E	E
Approach Delay (s)		60.2			65.8			79.5			63.2	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			66.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)		20.0			
Intersection Capacity Utilization			79.6%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 8: S Federal Way & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↗	↑↑	↖	↖↗	↑↑	↖	↗	↑↑	↖
Traffic Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Future Volume (veh/h)	546	634	148	11	554	126	587	355	62	341	93	507
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1575	1589	1772	1772	1716	1758	1702	1575	1800	1744	1772	1603
Adj Flow Rate, veh/h	607	704	0	12	616	0	652	394	69	379	103	563
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	16	15	2	2	6	3	7	16	0	4	2	14
Cap, veh/h	635	1294		34	752		685	757	386	479	748	598
Arrive On Green	0.22	0.43	0.00	0.02	0.23	0.00	0.22	0.25	0.25	0.19	0.22	0.22
Sat Flow, veh/h	2911	3020	1502	1688	3260	1490	3144	2993	1525	1661	3367	1359
Grp Volume(v), veh/h	607	704	0	12	616	0	652	394	69	379	103	563
Grp Sat Flow(s),veh/h/ln	1455	1510	1502	1688	1630	1490	1572	1497	1525	1661	1683	1359
Q Serve(g_s), s	37.1	31.3	0.0	1.3	32.3	0.0	36.8	20.4	6.4	31.4	4.4	40.0
Cycle Q Clear(g_c), s	37.1	31.3	0.0	1.3	32.3	0.0	36.8	20.4	6.4	31.4	4.4	40.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	635	1294		34	752		685	757	386	479	748	598
V/C Ratio(X)	0.96	0.54		0.35	0.82		0.95	0.52	0.18	0.79	0.14	0.94
Avail Cap(c_a), veh/h	647	1294		84	752		716	757	386	518	748	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	0.81	0.81	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.5	38.3	0.0	87.0	65.7	0.0	69.4	57.8	52.6	41.7	56.2	48.1
Incr Delay (d2), s/veh	23.5	1.5	0.0	1.9	8.0	0.0	21.6	0.3	0.1	6.7	0.0	22.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	12.0	0.0	0.6	14.3	0.0	16.8	7.7	2.5	13.7	1.9	27.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.0	39.9	0.0	88.9	73.7	0.0	91.1	58.2	52.7	48.4	56.2	71.1
LnGrp LOS	F	D		F	E		F	E	D	D	E	E
Approach Vol, veh/h		1311			628			1115			1045	
Approach Delay, s/veh		64.5			74.0			77.1			61.4	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	44.3	46.5	44.2	45.0	8.6	82.2	38.7	50.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	40.0	39.0	41.0	40.0	9.0	70.0	38.0	43.0				
Max Q Clear Time (g_c+I1), s	39.1	34.3	38.8	42.0	3.3	33.3	33.4	22.4				
Green Ext Time (p_c), s	0.2	1.3	0.4	0.0	0.0	3.4	0.3	1.6				

Intersection Summary

HCM 6th Ctrl Delay	68.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
 Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
9: I-84 WB Ramp & Gowen Rd

01/19/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	335		0	0		230	0		310	0		0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	300			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1095			980			496				1068
Travel Time (s)		21.3			19.1			6.1				13.2
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	1396	0	0	422	1192	42	0	71	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm			
Protected Phases	1	6			2		8					
Permitted Phases	6					2			8			
Detector Phase	1	6			2	2	8		8			
Switch Phase												
Minimum Initial (s)	5.0	5.0			10.0	10.0	10.0		10.0			
Minimum Split (s)	10.5	24.5			15.5	15.5	15.5		15.5			
Total Split (s)	30.0	105.0			75.0	75.0	25.0		25.0			
Total Split (%)	23.1%	80.8%			57.7%	57.7%	19.2%		19.2%			
Maximum Green (s)	25.0	100.0			70.0	70.0	20.0		20.0			
Yellow Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0		5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Recall Mode	None	C-Max			C-Max	C-Max	None		None			
Walk Time (s)		5.0										
Flash Dont Walk (s)		14.0										
Pedestrian Calls (#/hr)		50										
Act Effct Green (s)	112.2	113.2			94.6	94.6	10.8		10.8			
Actuated g/C Ratio	0.86	0.87			0.73	0.73	0.08		0.08			
v/c Ratio	0.55	0.36			0.20	0.55	0.35		0.43			
Control Delay	5.1	2.4			7.0	1.5	64.6		20.6			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	5.1	2.4			7.0	1.5	64.6		20.6			
LOS	A	A			A	A	E		C			
Approach Delay		3.0			3.0			37.0				
Approach LOS		A			A			D				
Queue Length 50th (ft)	54	72			56	0	34		0			
Queue Length 95th (ft)	95	102			97	25	72		48			
Internal Link Dist (ft)		1015			900			416			988	
Turn Bay Length (ft)	335					230			310			

Lanes, Volumes, Timings
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	810	3926			2144	2155	221		243			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.50	0.36			0.20	0.55	0.19		0.29			

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	27 (21%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	4.1
Intersection LOS:	A
Intersection Capacity Utilization	82.7%
ICU Level of Service	E
Analysis Period (min)	15

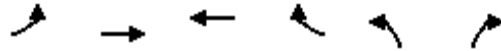
Splits and Phases: 9: I-84 WB Ramp & Gowen Rd



Queues

9: I-84 WB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	407	1396	422	1192	42	71
v/c Ratio	0.55	0.36	0.20	0.55	0.35	0.43
Control Delay	5.1	2.4	7.0	1.5	64.6	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	2.4	7.0	1.5	64.6	20.6
Queue Length 50th (ft)	54	72	56	0	34	0
Queue Length 95th (ft)	95	102	97	25	72	48
Internal Link Dist (ft)		1015	900			
Turn Bay Length (ft)	335			230		310
Base Capacity (vph)	810	3926	2144	2155	221	243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.36	0.20	0.55	0.19	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: I-84 WB Ramp & Gowen Rd

01/19/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0	
Future Volume (vph)	366	1256	0	0	388	1097	38	0	64	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	0.88	1.00		1.00				
Frt	1.00	1.00			1.00	0.85	1.00		0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (prot)	1527	4508			2948	2517	1437		1195				
Flt Permitted	0.48	1.00			1.00	1.00	0.95		1.00				
Satd. Flow (perm)	770	4508			2948	2517	1437		1195				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	1.00	1.00	1.00	
Adj. Flow (vph)	407	1396	0	0	422	1192	42	0	71	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	335	0	0	66	0	0	0	
Lane Group Flow (vph)	407	1396	0	0	422	857	42	0	5	0	0	0	
Heavy Vehicles (%)	12%	9%	0%	0%	16%	7%	19%	100%	28%	0%	0%	0%	
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm				
Protected Phases	1	6			2		8						
Permitted Phases	6					2			8				
Actuated Green, G (s)	111.2	111.2			93.5	93.5	8.8		8.8				
Effective Green, g (s)	111.2	111.2			93.5	93.5	8.8		8.8				
Actuated g/C Ratio	0.86	0.86			0.72	0.72	0.07		0.07				
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0		5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	732	3856			2120	1810	97		80				
v/s Ratio Prot	c0.05	0.31			0.14		c0.03						
v/s Ratio Perm	c0.42					0.34			0.00				
v/c Ratio	0.56	0.36			0.20	0.47	0.43		0.06				
Uniform Delay, d1	2.1	2.0			6.0	7.8	58.2		56.7				
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00				
Incremental Delay, d2	0.9	0.3			0.2	0.9	3.1		0.3				
Delay (s)	3.0	2.2			6.2	8.7	61.3		57.0				
Level of Service	A	A			A	A	E		E				
Approach Delay (s)		2.4			8.0			58.6			0.0		
Approach LOS		A			A			E			A		
Intersection Summary													
HCM 2000 Control Delay			6.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	15.0
Intersection Capacity Utilization			82.7%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 9: I-84 WB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑			↑↑	↗↗	↘		↗			
Traffic Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Future Volume (veh/h)	366	1256	0	0	388	1097	38	0	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1632	1674	0	0	1575	1702	1533	0	1407			
Adj Flow Rate, veh/h	407	1396	0	0	422	0	42	0	71			
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90			
Percent Heavy Veh, %	12	9	0	0	16	7	19	0	28			
Cap, veh/h	791	3872	0	0	2163		110	0	90			
Arrive On Green	0.09	0.85	0.00	0.00	0.72	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	1554	4720	0	0	3072	2538	1460	0	1192			
Grp Volume(v), veh/h	407	1396	0	0	422	0	42	0	71			
Grp Sat Flow(s),veh/h/ln	1554	1523	0	0	1497	1269	1460	0	1192			
Q Serve(g_s), s	8.1	8.7	0.0	0.0	5.9	0.0	3.6	0.0	7.6			
Cycle Q Clear(g_c), s	8.1	8.7	0.0	0.0	5.9	0.0	3.6	0.0	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	791	3872	0	0	2163		110	0	90			
V/C Ratio(X)	0.51	0.36	0.00	0.00	0.20		0.38	0.00	0.79			
Avail Cap(c_a), veh/h	956	3872	0	0	2163		225	0	183			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	0.37	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	3.2	2.2	0.0	0.0	5.8	0.0	57.2	0.0	59.1			
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.1	0.0	2.1	0.0	13.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.7	0.0	0.0	1.7	0.0	1.3	0.0	2.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	2.3	0.0	0.0	5.9	0.0	59.3	0.0	73.0			
LnGrp LOS	A	A	A	A	A		E	A	E			
Approach Vol, veh/h		1803			422			113				
Approach Delay, s/veh		2.6			5.9			67.9				
Approach LOS		A			A			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.2	98.9				115.2		14.8				
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0				
Max Green Setting (Gmax), s	25.0	70.0				100.0		20.0				
Max Q Clear Time (g_c+I1), s	10.1	7.9				10.7		9.6				
Green Ext Time (p_c), s	1.1	3.1				15.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay			6.3									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	110		0	0		0	0		600
Storage Lanes	0		0	1		0	0		0	2		1
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			55				55
Link Distance (ft)		1719			1095			492				813
Travel Time (s)		33.5			21.3			6.1				10.1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	785	0	77	387	0	0	0	0	1077	0	240
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Detector Phase		6		5	2					4		4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0		5.0
Minimum Split (s)		23.0		10.0	23.0					23.0		23.0
Total Split (s)		100.0		20.0	120.0					70.0		70.0
Total Split (%)		52.6%		10.5%	63.2%					36.8%		36.8%
Maximum Green (s)		95.0		15.0	115.0					65.0		65.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		1.0		1.0	1.0					1.0		1.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0					5.0		5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		2.0		2.0	2.0					2.0		2.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		5.0			5.0					5.0		5.0
Flash Dont Walk (s)		11.0			11.0					11.0		11.0
Pedestrian Calls (#/hr)		0			0					0		0
Act Effct Green (s)		101.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
v/c Ratio		0.35		0.24	0.22					1.01		0.38
Control Delay		25.8		17.5	17.5					89.9		6.2
Queue Delay		0.0		0.0	0.0					0.0		0.0
Total Delay		25.8		17.5	17.5					89.9		6.2
LOS		C		B	B					F		A
Approach Delay		25.8			17.5							74.6
Approach LOS		C			B							E
Queue Length 50th (ft)		200		39	112					-705		0
Queue Length 95th (ft)		241		66	143					#859		69
Internal Link Dist (ft)		1639			1015			412			733	
Turn Bay Length (ft)				110								600

Lanes, Volumes, Timings
 10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2241		358	1769					1070		625
Starvation Cap Reductn		0		0	0					0		0
Spillback Cap Reductn		0		0	0					0		0
Storage Cap Reductn		0		0	0					0		0
Reduced v/c Ratio		0.35		0.22	0.22					1.01		0.38

Intersection Summary

Area Type: Other

Cycle Length: 190

Actuated Cycle Length: 190

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.3 Intersection LOS: D

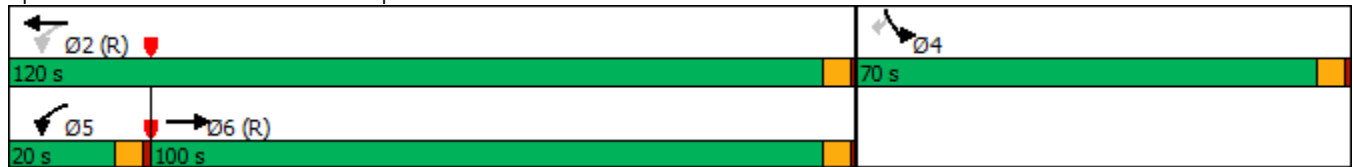
Intersection Capacity Utilization 82.7% ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

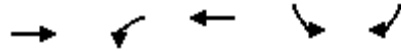
Splits and Phases: 10: I-84 EB Ramp & Gowen Rd



Queues

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	785	77	387	1077	240
v/c Ratio	0.35	0.24	0.22	1.01	0.38
Control Delay	25.8	17.5	17.5	89.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	17.5	17.5	89.9	6.2
Queue Length 50th (ft)	200	39	112	~705	0
Queue Length 95th (ft)	241	66	143	#859	69
Internal Link Dist (ft)	1639		1015		
Turn Bay Length (ft)		110			600
Base Capacity (vph)	2241	358	1769	1070	625
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.22	0.22	1.01	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (vph)	0	655	51	70	352	0	0	0	0	991	0	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0					5.0		5.0
Lane Util. Factor		0.91		1.00	0.95					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4189		1500	2923					3130		1366
Flt Permitted		1.00		0.29	1.00					0.95		1.00
Satd. Flow (perm)		4189		456	2923					3130		1366
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92	0.92
Adj. Flow (vph)	0	728	57	77	387	0	0	0	0	1077	0	240
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	158
Lane Group Flow (vph)	0	781	0	77	387	0	0	0	0	1077	0	82
Heavy Vehicles (%)	0%	15%	29%	14%	17%	0%	0%	0%	0%	6%	0%	12%
Turn Type		NA		pm+pt	NA					Prot		Perm
Protected Phases		6		5	2					4		
Permitted Phases				2								4
Actuated Green, G (s)		101.5		115.0	115.0					65.0		65.0
Effective Green, g (s)		101.5		115.0	115.0					65.0		65.0
Actuated g/C Ratio		0.53		0.61	0.61					0.34		0.34
Clearance Time (s)		5.0		5.0	5.0					5.0		5.0
Vehicle Extension (s)		2.0		2.0	2.0					2.0		2.0
Lane Grp Cap (vph)		2237		322	1769					1070		467
v/s Ratio Prot		c0.19		0.01	c0.13					c0.34		
v/s Ratio Perm				0.13								0.06
v/c Ratio		0.35		0.24	0.22					1.01		0.18
Uniform Delay, d1		25.3		16.5	17.1					62.5		43.7
Progression Factor		1.00		1.00	1.00					1.00		1.00
Incremental Delay, d2		0.4		0.1	0.3					29.1		0.1
Delay (s)		25.8		16.6	17.3					91.6		43.8
Level of Service		C		B	B					F		D
Approach Delay (s)		25.8			17.2			0.0			82.9	
Approach LOS		C			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

10: I-84 EB Ramp & Gowen Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖↖		↖
Traffic Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Future Volume (veh/h)	0	655	51	70	352	0	0	0	0	991	0	221
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1589	1393	1603	1561	0				1716	0	1632
Adj Flow Rate, veh/h	0	728	57	77	387	0				1077	0	240
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91				0.92	0.92	0.92
Percent Heavy Veh, %	0	15	29	14	17	0				6	0	12
Cap, veh/h	0	2245	175	367	1796	0				1084	0	473
Arrive On Green	0.00	0.55	0.55	0.03	0.61	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	4248	320	1527	3045	0				3170	0	1383
Grp Volume(v), veh/h	0	512	273	77	387	0				1077	0	240
Grp Sat Flow(s),veh/h/ln	0	1446	1532	1527	1483	0				1585	0	1383
Q Serve(g_s), s	0.0	18.5	18.7	4.1	11.3	0.0				64.3	0.0	26.3
Cycle Q Clear(g_c), s	0.0	18.5	18.7	4.1	11.3	0.0				64.3	0.0	26.3
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1582	838	367	1796	0				1084	0	473
V/C Ratio(X)	0.00	0.32	0.33	0.21	0.22	0.00				0.99	0.00	0.51
Avail Cap(c_a), veh/h	0	1582	838	438	1796	0				1084	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.7	23.7	18.1	17.0	0.0				62.3	0.0	49.8
Incr Delay (d2), s/veh	0.0	0.5	1.0	0.1	0.3	0.0				25.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	7.2	1.5	4.0	0.0				28.9	0.0	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.2	24.8	18.2	17.3	0.0				87.8	0.0	50.1
LnGrp LOS	A	C	C	B	B	A				F	A	D
Approach Vol, veh/h		785			464						1317	
Approach Delay, s/veh		24.4			17.5						81.0	
Approach LOS		C			B						F	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		120.0		70.0	11.1	108.9						
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0						
Max Green Setting (Gmax), s		115.0		65.0	15.0	95.0						
Max Q Clear Time (g_c+I1), s		13.3		66.3	6.1	20.7						
Green Ext Time (p_c), s		1.8		0.0	0.0	3.6						
Intersection Summary												
HCM 6th Ctrl Delay			52.2									
HCM 6th LOS			D									

Lanes, Volumes, Timings
 11: Technology Way & Circuit Ln

01/19/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	149	11	2	252	265	88
Future Volume (vph)	149	11	2	252	265	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		120			
Link Speed (mph)	20			45	45	
Link Distance (ft)	907			612	3214	
Travel Time (s)	30.9			9.3	48.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	24%	0%	0%	3%	3%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	12	2	280	294	98
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 11: Technology Way & Circuit Ln

01/19/2023

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↖
Traffic Vol, veh/h	149	11	2	252	265	88
Future Vol, veh/h	149	11	2	252	265	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	0	0	160	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	24	0	0	3	3	4
Mvmt Flow	166	12	2	280	294	98

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	578	-	294	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.64	-	4.1	-	-	-
Critical Hdwy Stg 1	5.64	-	-	-	-	-
Critical Hdwy Stg 2	5.64	-	-	-	-	-
Follow-up Hdwy	3.716	-	2.2	-	-	-
Pot Cap-1 Maneuver	443	0	1279	-	-	0
Stage 1	709	0	-	-	-	0
Stage 2	716	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	442	-	1279	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1279	-	442	-	-
HCM Lane V/C Ratio	0.002	-	0.375	-	-
HCM Control Delay (s)	7.8	-	17.9	0	-
HCM Lane LOS	A	-	C	A	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-

Lanes, Volumes, Timings
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Future Volume (vph)	107	0	6	3	50	13	45	725	0	22	103	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	150		0	475		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Link Speed (mph)		20			20			45				45
Link Distance (ft)		273			287			1256				2303
Travel Time (s)		9.3			9.8			19.0				34.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	7	0	3	70	0	50	806	0	24	114	0
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 13: S Federal Way & Childcare Ctr/Gate A

01/19/2023

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Future Vol, veh/h	107	0	6	3	50	13	45	725	0	22	103	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	150	-	-	475	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	119	0	7	3	56	14	50	806	0	24	114	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	693	1068	57	1011	1068	403	114	0	0	806	0	0
Stage 1	162	162	-	906	906	-	-	-	-	-	-	-
Stage 2	531	906	-	105	162	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	334	223	1004	197	223	603	1488	-	-	828	-	-
Stage 1	830	768	-	301	358	-	-	-	-	-	-	-
Stage 2	505	358	-	895	768	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	247	209	1004	187	209	603	1488	-	-	828	-	-
Mov Cap-2 Maneuver	247	209	-	187	209	-	-	-	-	-	-	-
Stage 1	802	746	-	291	346	-	-	-	-	-	-	-
Stage 2	400	346	-	863	746	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	31.1		25.7		0.4		1.7	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	247	1004	187	242	828	-	-
HCM Lane V/C Ratio	0.034	-	-	0.481	0.007	0.018	0.289	0.03	-	-
HCM Control Delay (s)	7.5	-	-	32.4	8.6	24.6	25.8	9.5	-	-
HCM Lane LOS	A	-	-	D	A	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0	0.1	1.2	0.1	-	-

Lanes, Volumes, Timings
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	287	4	1	166	20	0	1	1	48	1	133
Future Volume (vph)	162	287	4	1	166	20	0	1	1	48	1	133
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	100			100			25			100		
Link Speed (mph)		55			45			30				40
Link Distance (ft)		5282			1394			163				422
Travel Time (s)		65.5			21.1			3.7				7.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	6%	2%	2%	6%	0%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	323	0	1	206	0	0	2	0	53	149	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
 14: Service Rd/Warm Springs Ave & SH 21

01/19/2023

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷		↶	↷	
Traffic Vol, veh/h	162	287	4	1	166	20	0	1	1	48	1	133
Future Vol, veh/h	162	287	4	1	166	20	0	1	1	48	1	133
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	6	2	2	6	0	2	2	2	0	2	0
Mvmt Flow	180	319	4	1	184	22	0	1	1	53	1	148




















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	206	0	0	323	0	0	953	889	321	879	880	195
Stage 1	-	-	-	-	-	-	681	681	-	197	197	-
Stage 2	-	-	-	-	-	-	272	208	-	682	683	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1377	-	-	1237	-	-	239	282	720	270	286	851
Stage 1	-	-	-	-	-	-	440	450	-	809	738	-
Stage 2	-	-	-	-	-	-	734	730	-	443	449	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1377	-	-	1237	-	-	177	245	720	242	248	851
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	245	-	242	248	-
Stage 1	-	-	-	-	-	-	382	391	-	703	737	-
Stage 2	-	-	-	-	-	-	605	729	-	383	390	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	14.9	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	366	1377	-	-	1237	-	-	242	836
HCM Lane V/C Ratio	0.006	0.131	-	-	0.001	-	-	0.22	0.178
HCM Control Delay (s)	14.9	8	-	-	7.9	-	-	24	10.2
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	0.5	-	-	0	-	-	0.8	0.6

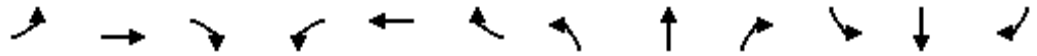
Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	1		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	143	538	1	1106	0	632	873	0
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4			5	2		1	6
Permitted Phases						4	2				6	
Detector Phase	8	8		4	4	4	5	2			1	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0			5.0	10.0
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	11.0	37.0			11.0	16.0
Total Split (s)	28.0	28.0		21.0	21.0	21.0	21.0	40.0			21.0	40.0
Total Split (%)	25.5%	25.5%		19.1%	19.1%	19.1%	19.1%	36.4%			19.1%	36.4%
Maximum Green (s)	23.0	23.0		16.0	16.0	16.0	16.0	34.0			16.0	34.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0			4.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		5.0			5.0	5.0	5.0	6.0			5.0	6.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0						5.0				
Flash Dont Walk (s)	25.0	25.0						26.0				
Pedestrian Calls (#/hr)	50	50						50				
Act Effct Green (s)		20.1			14.1	14.1	40.6	34.0			63.0	59.8
Actuated g/C Ratio		0.18			0.13	0.13	0.37	0.31			0.57	0.54
v/c Ratio		0.00			0.69	0.67	0.00	1.16			1.71	0.50
Control Delay		0.0			62.9	8.3	14.0	117.0			354.2	20.1
Queue Delay		0.0			0.0	0.0	0.0	0.0			0.0	0.0
Total Delay		0.0			62.9	8.3	14.0	117.0			354.2	20.1
LOS		A			E	A	B	F			F	C
Approach Delay					19.7			116.9				160.4
Approach LOS					B			F				F
Queue Length 50th (ft)		0			96	0	0	~480			~691	214
Queue Length 95th (ft)		0			164	52	3	#614			#916	333
Internal Link Dist (ft)		68			1420			4542				4656
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/19/2023

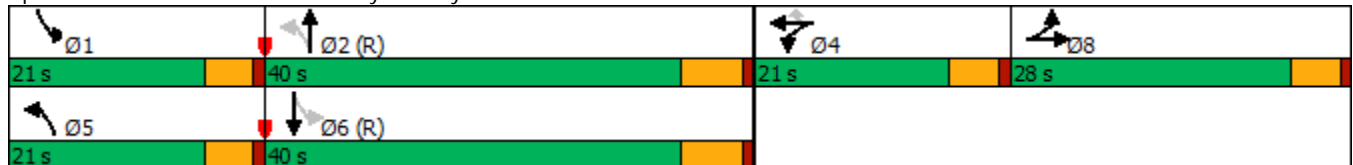


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		452			236	839	434	956		370	1755	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.61	0.64	0.00	1.16		1.71	0.50	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 50 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.71
 Intersection Signal Delay: 116.6
 Intersection LOS: F
 Intersection Capacity Utilization 92.2%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/19/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	143	538	1	1106	632	873
v/c Ratio	0.00	0.69	0.67	0.00	1.16	1.71	0.50
Control Delay	0.0	62.9	8.3	14.0	117.0	354.2	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	62.9	8.3	14.0	117.0	354.2	20.1
Queue Length 50th (ft)	0	96	0	0	-480	-691	214
Queue Length 95th (ft)	0	164	52	3	#614	#916	333
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	452	236	839	434	956	370	1755
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.61	0.64	0.00	1.16	1.71	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3021		1487	3226	
Flt Permitted		0.98			0.95	1.00	0.33	1.00		0.11	1.00	
Satd. Flow (perm)		1638			1629	2614	585	3021		165	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	143	0	538	1	866	240	632	873	0
RTOR Reduction (vph)	0	2	0	0	0	469	0	23	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	69	1	1083	0	632	873	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4	2			6		
Actuated Green, G (s)		19.0			14.1	14.1	34.0	32.9		60.9	54.8	
Effective Green, g (s)		19.0			14.1	14.1	34.0	32.9		60.9	54.8	
Actuated g/C Ratio		0.17			0.13	0.13	0.31	0.30		0.55	0.50	
Clearance Time (s)		5.0			5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		282			208	335	192	903		367	1607	
v/s Ratio Prot		c0.00			c0.09		0.00	0.36		c0.36	0.27	
v/s Ratio Perm						0.03	0.00			c0.59		
v/c Ratio		0.00			0.69	0.21	0.01	1.20		1.72	0.54	
Uniform Delay, d1		37.6			45.8	42.9	26.3	38.5		33.8	19.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			9.1	0.3	0.0	100.4		336.2	1.3	
Delay (s)		37.7			54.9	43.2	26.3	138.9		370.0	20.3	
Level of Service		D			D	D	C	F		F	C	
Approach Delay (s)		37.7			45.7			138.8			167.2	
Approach LOS		D			D			F			F	

Intersection Summary

HCM 2000 Control Delay	132.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕	↕↕	
Traffic Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	143	0	538	1	866	240	632	873	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	2	0	2	249	0	381	450	1279	354	402	2006	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.05	0.52	0.52	0.15	0.62	0.00
Sat Flow, veh/h	807	0	807	1714	0	2622	1714	2481	687	1514	3346	0
Grp Volume(v), veh/h	2	0	0	143	0	538	1	559	547	632	873	0
Grp Sat Flow(s),veh/h/ln	1614	0	0	1714	0	1311	1714	1603	1564	1514	1630	0
Q Serve(g_s), s	0.1	0.0	0.0	8.6	0.0	16.0	0.0	28.6	28.6	16.0	15.5	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	8.6	0.0	16.0	0.0	28.6	28.6	16.0	15.5	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	4	0	0	249	0	381	450	826	806	402	2006	0
V/C Ratio(X)	0.46	0.00	0.00	0.57	0.00	1.41	0.00	0.68	0.68	1.57	0.44	0.00
Avail Cap(c_a), veh/h	338	0	0	249	0	381	621	826	806	402	2006	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	54.8	0.0	0.0	43.8	0.0	47.0	10.7	19.8	19.8	23.3	11.1	0.0
Incr Delay (d2), s/veh	60.9	0.0	0.0	3.2	0.0	199.8	0.0	4.4	4.6	258.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	15.8	0.0	10.7	10.5	34.0	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.6	0.0	0.0	47.0	0.0	246.8	10.7	24.3	24.4	281.3	11.2	0.0
LnGrp LOS	F	A	A	D	A	F	B	C	C	F	B	A
Approach Vol, veh/h		2			681			1107			1505	
Approach Delay, s/veh		115.6			204.8			24.3			124.6	
Approach LOS		F			F			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	62.7		21.0	10.0	73.7		5.3				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	16.0	34.0		16.0	16.0	34.0		23.0				
Max Q Clear Time (g_c+I1), s	18.0	30.6		18.0	2.0	17.5		2.1				
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	5.1		0.0				

Intersection Summary























HCM 6th Ctrl Delay	107.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	140		140	100		160	350		0
Storage Lanes	0		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			947			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	128	0	183	187	484	47	1033	370	662	1234	0
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1	6	
Permitted Phases				4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	21.0	21.0		39.0	39.0	39.0	18.0	43.0	43.0	27.0	52.0	
Total Split (%)	16.2%	16.2%		30.0%	30.0%	30.0%	13.8%	33.1%	33.1%	20.8%	40.0%	
Maximum Green (s)	16.0	16.0		34.0	34.0	34.0	13.0	38.0	38.0	22.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)		13.9		34.0	34.0	34.0	44.8	38.0	38.0	24.1	57.4	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.34	0.29	0.29	0.19	0.44	
v/c Ratio		0.43		3.59	4.25	0.67	0.37	1.07	0.67	1.18	0.93	
Control Delay		42.5		1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		42.5		1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3	
LOS		D		F	F	B	C	F	C	F	D	
Approach Delay		42.5			603.4			74.9			82.1	
Approach LOS		D			F			E			F	
Queue Length 50th (ft)		37		~289	~269	23	20	~508	129	~367	538	
Queue Length 95th (ft)		71		#412	#434	137	42	#644	247	#489	#731	
Internal Link Dist (ft)		273			867			4656			777	
Turn Bay Length (ft)				140		140	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023

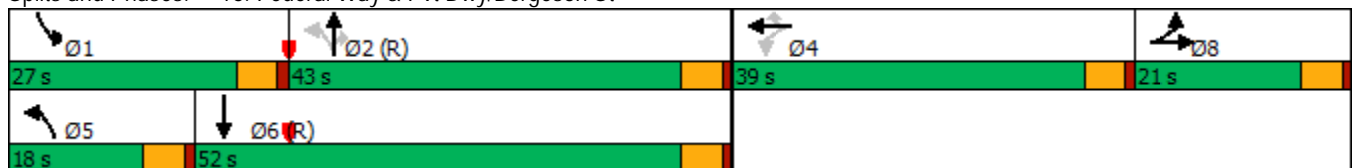


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		339		51	44	719	195	961	553	560	1332	
Starvation Cap Reductn		0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0		0	0	0	0	0	0	0	0	
Storage Cap Reductn		0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.38		3.59	4.25	0.67	0.24	1.07	0.67	1.18	0.93	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 4.25
 Intersection Signal Delay: 181.4 Intersection LOS: F
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	128	183	187	484	47	1033	370	662	1234
v/c Ratio	0.43	3.59	4.25	0.67	0.37	1.07	0.67	1.18	0.93
Control Delay	42.5	1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	1227.5	1527.6	10.4	27.6	95.0	25.0	145.1	48.3
Queue Length 50th (ft)	37	~289	~269	23	20	~508	129	~367	538
Queue Length 95th (ft)	71	#412	#434	137	42	#644	247	#489	#731
Internal Link Dist (ft)	273		867			4656			777
Turn Bay Length (ft)		140		140	100		160	350	
Base Capacity (vph)	339	51	44	719	195	961	553	560	1332
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	3.59	4.25	0.67	0.24	1.07	0.67	1.18	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt		0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2498		1593	1596	1485	1437	3288	1417	3016	3017	
Flt Permitted		0.99		0.12	0.10	1.00	0.12	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2498		197	173	1485	178	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1033	370	662	1225	9
RTOR Reduction (vph)	0	32	0	0	0	331	0	0	139	0	1	0
Lane Group Flow (vph)	0	96	0	183	187	153	47	1033	231	662	1233	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases	8	8			4		5	2		1		6
Permitted Phases				4		4	2		2			
Actuated Green, G (s)		13.9		34.0	34.0	34.0	43.8	38.0	38.0	24.1	56.3	
Effective Green, g (s)		13.9		34.0	34.0	34.0	43.8	38.0	38.0	24.1	56.3	
Actuated g/C Ratio		0.11		0.26	0.26	0.26	0.34	0.29	0.29	0.19	0.43	
Clearance Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		267		51	45	388	116	961	414	559	1306	
v/s Ratio Prot		c0.04					0.02	c0.31		c0.22	0.41	
v/s Ratio Perm				0.93	c1.08	0.10	0.12		0.16			
v/c Ratio		0.36		3.59	4.16	0.39	0.41	1.07	0.56	1.18	0.94	
Uniform Delay, d1		53.9		48.0	48.0	39.5	31.0	46.0	38.9	53.0	35.3	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3		1211.7	1470.9	0.2	0.8	51.4	5.3	100.1	14.7	
Delay (s)		54.2		1259.7	1518.9	39.8	31.9	97.4	44.2	153.0	50.1	
Level of Service		D		F	F	D	C	F	D	F	D	
Approach Delay (s)		54.2			625.1			81.7			86.0	
Approach LOS		D			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	190.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.95	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	75.3%	ICU Level of Service
Analysis Period (min)	15	D
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/19/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↖	↖	↖	↕↕	↖	↖↖	↕↕	
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	358	0	484	47	1033	370	662	1225	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	40	89	52	883	0	390	168	1186	512	519	1550	11
Arrive On Green	0.06	0.06	0.06	0.26	0.00	0.26	0.03	0.36	0.36	0.17	0.50	0.50
Sat Flow, veh/h	702	1546	902	3375	0	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	68	0	60	358	0	484	47	1033	370	662	602	632
Grp Sat Flow(s),veh/h/ln	1639	0	1511	1688	0	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	37.8	29.1	22.0	42.2	42.2
Cycle Q Clear(g_c), s	5.3	0.0	5.1	11.4	0.0	34.0	2.6	37.8	29.1	22.0	42.2	42.2
Prop In Lane	0.43		0.60	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	94	0	87	883	0	390	168	1186	512	519	762	800
V/C Ratio(X)	0.72	0.00	0.69	0.41	0.00	1.24	0.28	0.87	0.72	1.28	0.79	0.79
Avail Cap(c_a), veh/h	202	0	186	883	0	390	268	1186	512	519	762	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.2	0.0	60.1	39.7	0.0	48.0	27.6	38.9	36.1	54.0	27.2	27.2
Incr Delay (d2), s/veh	3.8	0.0	3.7	0.1	0.0	129.0	0.0	1.0	0.9	138.5	8.2	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.1	4.8	0.0	26.6	0.9	15.0	10.0	18.1	15.8	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	0.0	63.8	39.8	0.0	177.0	27.7	39.9	37.1	192.5	35.4	35.0
LnGrp LOS	E	A	E	D	A	F	C	D	D	F	D	D
Approach Vol, veh/h		128			842			1450			1896	
Approach Delay, s/veh		64.0			118.7			38.8			90.1	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	51.5		39.0	9.1	69.4		12.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	22.0	38.0		34.0	13.0	47.0		16.0				
Max Q Clear Time (g_c+I1), s	24.0	39.8		36.0	4.6	44.2		7.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.4		0.3				

Intersection Summary

HCM 6th Ctrl Delay	77.7
HCM 6th LOS	E













Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Synchro Output – Mitigation Conditions Analysis

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	121	16	68	290	74	39
Future Volume (vph)	121	16	68	290	74	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	18	76	322	82	43
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	7.9	7.9	16.5	16.5	16.5	16.5
Actuated g/C Ratio	0.25	0.25	0.52	0.52	0.52	0.52
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
LOS	B	A	A	A	A	A
Approach Delay	10.5		3.4			7.5
Approach LOS	B		A			A
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	31.6
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.34
Intersection Signal Delay:	5.7
Intersection LOS:	A
Intersection Capacity Utilization	33.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	18	76	322	82	43
v/c Ratio	0.31	0.05	0.09	0.34	0.13	0.06
Control Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.6	7.2	2.5	7.6	7.1
Queue Length 50th (ft)	18	0	7	0	8	4
Queue Length 95th (ft)	38	7	23	27	25	15
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1157	1041	1371	1398	1051	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.06	0.23	0.08	0.03
Intersection Summary						

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	121	16	68	290	74	39
Future Volume (veh/h)	121	16	68	290	74	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	134	18	76	0	82	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	250	223	417		674	372
Arrive On Green	0.15	0.15	0.27	0.00	0.27	0.27
Sat Flow, veh/h	1714	1525	1561	1525	1260	1393
Grp Volume(v), veh/h	134	18	76	0	82	43
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1260	1393
Q Serve(g_s), s	1.4	0.2	0.7	0.0	1.0	0.4
Cycle Q Clear(g_c), s	1.4	0.2	0.7	0.0	1.7	0.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	250	223	417		674	372
V/C Ratio(X)	0.54	0.08	0.18		0.12	0.12
Avail Cap(c_a), veh/h	1922	1710	2334		2221	2082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	6.9	5.3	0.0	5.9	5.2
Incr Delay (d2), s/veh	1.8	0.2	0.2	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	7.1	5.5	0.0	6.0	5.3
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	152		76			125
Approach Delay, s/veh	8.9		5.5			5.8
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		7.7		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.7		3.4		3.7
Green Ext Time (p_c), s		0.3		0.4		0.4

Intersection Summary

HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Future Volume (vph)	0	0	0	0	0	48	0	30	51	645	135	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55				45
Link Distance (ft)		182			257			239				1256
Travel Time (s)		6.2			8.8			3.0				19.0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	53	0	0	88	0	709	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/28/2022

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Future Vol, veh/h	0	0	0	0	0	48	0	30	51	645	135	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	0	0	0	0	0	53	0	33	55	709	148	4













Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1585	1656	76	1553	1631	44	152	0	0	88	0	0
Stage 1	1568	1568	-	61	61	-	-	-	-	-	-	-
Stage 2	17	88	-	1492	1570	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	976	78	103	1023	1441	-	-	1520	-	-
Stage 1	118	173	-	949	848	-	-	-	-	-	-	-
Stage 2	1006	826	-	132	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	44	53	976	49	55	1023	1441	-	-	1520	-	-
Mov Cap-2 Maneuver	44	53	-	49	55	-	-	-	-	-	-	-
Stage 1	118	92	-	949	848	-	-	-	-	-	-	-
Stage 2	954	826	-	70	92	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.7	0	7.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	-	-	-	1023	1520	-
HCM Lane V/C Ratio	-	-	-	-	-	-	0.052	0.466	-
HCM Control Delay (s)	0	-	-	0	0	8.7	9.4	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0.2	2.6	-	-

Lanes, Volumes, Timings
4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	309	120	49	122	17	74
Future Volume (vph)	309	120	49	122	17	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0	0		240	225	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				120	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	25		45			45
Link Distance (ft)	606		2434			2828
Travel Time (s)	16.5		36.9			42.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	17%	0%	8%	29%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	133	54	136	19	82
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	4		2			6
Permitted Phases		4		2	6	
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0	34.0	34.0	34.0	34.0
Total Split (%)	43.3%	43.3%	56.7%	56.7%	56.7%	56.7%
Maximum Green (s)	21.0	21.0	28.0	28.0	28.0	28.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	11.3	11.3	8.3	8.3	8.3	8.3
Actuated g/C Ratio	0.37	0.37	0.27	0.27	0.27	0.27
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
LOS	B	A	B	A	B	B
Approach Delay	8.9		6.2			11.3
Approach LOS	A		A			B
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	

Lanes, Volumes, Timings
 4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	30.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	8.5
Intersection LOS:	A
Intersection Capacity Utilization	34.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: S Federal Way & Gate C (Gigabit Ln)



Queues

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	343	133	54	136	19	82
v/c Ratio	0.55	0.21	0.13	0.27	0.06	0.22
Control Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.6	10.6	4.4	10.2	11.6
Queue Length 50th (ft)	37	0	6	0	2	9
Queue Length 95th (ft)	91	18	26	26	13	36
Internal Link Dist (ft)	526		2354			2748
Turn Bay Length (ft)				240	225	
Base Capacity (vph)	1187	1103	1404	1409	1099	1274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.04	0.10	0.02	0.06
Intersection Summary						

HCM 6th Signalized Intersection Summary

4: S Federal Way & Gate C (Gigabit Ln)

10/28/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	309	120	49	122	17	74
Future Volume (veh/h)	309	120	49	122	17	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1800	1561	1800	1688	1393
Adj Flow Rate, veh/h	343	133	54	0	19	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	17	0	8	29
Cap, veh/h	524	466	339		555	302
Arrive On Green	0.31	0.31	0.22	0.00	0.22	0.22
Sat Flow, veh/h	1714	1525	1561	1525	1286	1393
Grp Volume(v), veh/h	343	133	54	0	19	82
Grp Sat Flow(s),veh/h/ln	1714	1525	1561	1525	1286	1393
Q Serve(g_s), s	4.0	1.5	0.6	0.0	0.3	1.1
Cycle Q Clear(g_c), s	4.0	1.5	0.6	0.0	0.9	1.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	524	466	339		555	302
V/C Ratio(X)	0.65	0.29	0.16		0.03	0.27
Avail Cap(c_a), veh/h	1562	1390	1897		1839	1693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	6.1	7.3	0.0	7.7	7.5
Incr Delay (d2), s/veh	1.4	0.3	0.2	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.3	0.1	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.3	6.4	7.5	0.0	7.7	8.0
LnGrp LOS	A	A	A		A	A
Approach Vol, veh/h	476		54			101
Approach Delay, s/veh	7.8		7.5			7.9
Approach LOS	A		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		11.0		12.0		11.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		28.0		21.0		28.0
Max Q Clear Time (g_c+I1), s		2.6		6.0		3.1
Green Ext Time (p_c), s		0.2		1.4		0.4

Intersection Summary

HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 5: S Federal Way & Pvt Dwy/Gate B

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Future Volume (vph)	2	0	0	0	0	575	0	167	25	115	46	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Link Speed (mph)		20			20			55			45	
Link Distance (ft)		182			257			239			1256	
Travel Time (s)		6.2			8.8			3.0			19.0	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	9%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	639	0	0	209	0	126	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
5: S Federal Way & Pvt Dwy/Gate B

10/28/2022

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕		↕	↕	
Traffic Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Future Vol, veh/h	2	0	0	0	0	575	0	167	25	115	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	90	90	90	92	92	92	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	25	0	0	9	0
Mvmt Flow	2	0	0	0	0	639	0	182	27	126	51	0





















Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	394	512	26	474	499	105	51	0	0	209	0	0
Stage 1	303	303	-	196	196	-	-	-	-	-	-	-
Stage 2	91	209	-	278	303	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	545	468	1050	478	476	936	1568	-	-	1374	-	-
Stage 1	687	667	-	793	742	-	-	-	-	-	-	-
Stage 2	912	733	-	711	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	425	1050	445	432	936	1568	-	-	1374	-	-
Mov Cap-2 Maneuver	161	425	-	445	432	-	-	-	-	-	-	-
Stage 1	687	606	-	793	742	-	-	-	-	-	-	-
Stage 2	289	733	-	646	606	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	27.6		16.7			0			5.6		
HCM LOS	D		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	161	-	936	1374	-	-
HCM Lane V/C Ratio	-	-	-	0.012	-	0.683	0.092	-	-
HCM Control Delay (s)	0	-	-	27.6	0	16.7	7.9	-	-
HCM Lane LOS	A	-	-	D	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	5.6	0.3	-	-

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	143	475	0	544	0	245	439	0
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	37.0	37.0		37.0	37.0	30.0	43.0	43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	27.3%	39.1%	39.1%		27.3%	66.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	25.0	37.0	37.0		25.0	67.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)					26.0	46.0		53.0		15.0	73.0	
Actuated g/C Ratio					0.24	0.42		0.48		0.14	0.66	
v/c Ratio					0.47	0.38		0.36		0.62	0.21	
Control Delay					39.8	8.3		20.3		44.9	7.1	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					39.8	8.3		20.3		44.9	7.1	
LOS					D	A		C		D	A	
Approach Delay					15.6			20.3			20.6	
Approach LOS					B			C			C	
Queue Length 50th (ft)					83	46		128		89	85	
Queue Length 95th (ft)					125	57		168		127	110	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)							190			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					377	1466		1501		655	2140	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.38	0.32		0.36		0.37	0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	18.9
Intersection LOS:	B
Intersection Capacity Utilization	41.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/28/2022























Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	143	475	544	245	439
v/c Ratio	0.47	0.38	0.36	0.62	0.21
Control Delay	39.8	8.3	20.3	44.9	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	8.3	20.3	44.9	7.1
Queue Length 50th (ft)	83	46	128	89	85
Queue Length 95th (ft)	125	57	168	127	110
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	377	1466	1501	655	2140
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.32	0.36	0.37	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (vph)	0	0	0	114	0	380	0	406	40	240	430	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		0.97	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		2885	3226	
Flt Permitted					0.76	1.00		1.00		0.95	1.00	
Satd. Flow (perm)					1298	2614		3106		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	142	0	475	0	495	49	245	439	0
RTOR Reduction (vph)	0	0	0	0	0	174	0	5	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	301	0	539	0	245	439	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)					26.0	41.0		53.0		15.0	73.0	
Effective Green, g (s)					26.0	41.0		53.0		15.0	73.0	
Actuated g/C Ratio					0.24	0.37		0.48		0.14	0.66	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					306	1093		1496		393	2140	
v/s Ratio Prot						0.04		c0.17		c0.08	0.14	
v/s Ratio Perm					c0.11	0.08						
v/c Ratio					0.47	0.28		0.36		0.62	0.21	
Uniform Delay, d1					36.1	24.1		17.9		44.8	7.2	
Progression Factor					1.00	1.00		1.00		0.86	0.85	
Incremental Delay, d2					1.1	0.1		0.7		2.8	0.2	
Delay (s)					37.2	24.3		18.5		41.5	6.3	
Level of Service					D	C		B		D	A	
Approach Delay (s)		0.0			27.2			18.5			18.9	
Approach LOS		A			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			21.6		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			41.7%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Future Volume (veh/h)	0	0	0	114	0	380	0	406	40	240	430	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	142	0	475	0	495	49	245	439	0
Peak Hour Factor	1.00	1.00	1.00	0.80	0.80	0.80	0.82	0.82	0.82	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	348	0	344	0	784	65	1638	162	310	2303	0
Arrive On Green	0.00	0.00	0.00	0.19	0.00	0.19	0.00	0.56	0.56	0.11	0.71	0.00
Sat Flow, veh/h	0	1800	0	1440	0	2622	965	2948	291	2937	3346	0
Grp Volume(v), veh/h	0	0	0	142	0	475	0	268	276	245	439	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1311	965	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	9.7	0.0	17.1	0.0	9.8	9.9	9.0	5.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	9.7	0.0	17.1	0.0	9.8	9.9	9.0	5.0	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	348	0	344	0	784	65	891	908	310	2303	0
V/C Ratio(X)	0.00	0.00	0.00	0.41	0.00	0.61	0.00	0.30	0.30	0.79	0.19	0.00
Avail Cap(c_a), veh/h	0	524	0	484	0	1040	65	891	908	667	2303	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	39.7	0.0	33.0	0.0	13.1	13.1	48.0	5.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	0.8	0.0	0.9	0.9	4.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.4	0.0	5.5	0.0	3.4	3.5	3.3	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	40.5	0.0	33.8	0.0	13.9	13.9	52.0	5.6	0.0
LnGrp LOS	A	A	A	D	A	C	A	B	B	D	A	A
Approach Vol, veh/h		0			617			544			684	
Approach Delay, s/veh		0.0			35.3			13.9			22.2	
Approach LOS					D			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	16.6	67.1		26.3		83.7		26.3				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	25.0	37.0		32.0		67.0		32.0				
Max Q Clear Time (g_c+I1), s	11.0	11.9		19.1		7.0		0.0				
Green Ext Time (p_c), s	0.7	3.0		2.2		2.9		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.80	0.86	0.86	0.86	0.87	0.87	0.87
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	33	0	258	30	433	31	676	259	239	612	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	42.0	42.0		42.0	42.0	21.0	11.0	47.0	47.0	21.0	57.0	
Total Split (%)	38.2%	38.2%		38.2%	38.2%	19.1%	10.0%	42.7%	42.7%	19.1%	51.8%	
Maximum Green (s)	37.0	37.0		37.0	37.0	16.0	6.0	42.0	42.0	16.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	30.0	30.0		32.4	32.4	51.2	55.1	48.8	48.8	13.8	60.6	
Actuated g/C Ratio	0.27	0.27		0.29	0.29	0.47	0.50	0.44	0.44	0.13	0.55	
v/c Ratio	0.22	0.09		0.68	0.06	0.58	0.09	0.46	0.34	0.63	0.38	
Control Delay	29.7	14.9		42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.7	14.9		42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7	
LOS	C	B		D	C	B	A	C	A	D	B	
Approach Delay		23.6			27.3			21.2			26.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	24	6		152	14	152	12	202	44	83	142	
Queue Length 95th (ft)	52	27		237	36	186	21	234	86	117	183	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	266	454		436	565	776	365	1459	772	444	1614	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.07		0.59	0.05	0.56	0.08	0.46	0.34	0.54	0.38	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	24.8
Intersection LOS:	C
Intersection Capacity Utilization	56.2%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	33	258	30	433	31	676	259	239	612
v/c Ratio	0.22	0.09	0.68	0.06	0.58	0.09	0.46	0.34	0.63	0.38
Control Delay	29.7	14.9	42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	14.9	42.8	25.7	18.2	9.3	26.3	9.1	53.1	16.7
Queue Length 50th (ft)	24	6	152	14	152	12	202	44	83	142
Queue Length 95th (ft)	52	27	237	36	186	21	234	86	117	183
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	266	454	436	565	776	365	1459	772	444	1614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.07	0.59	0.05	0.56	0.08	0.46	0.34	0.54	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑	↗	↖↗	↗↖	
Traffic Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (vph)	41	11	17	230	27	346	27	581	223	208	486	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1312		1676	1682	1485	1437	3288	1417	3016	2920	
Flt Permitted	0.74	1.00		0.74	1.00	1.00	0.42	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	790	1312		1298	1682	1485	636	3288	1417	3016	2920	
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.80	0.86	0.86	0.86	0.87	0.87	0.87
Adj. Flow (vph)	48	13	20	258	30	432	31	676	259	239	559	53
RTOR Reduction (vph)	0	14	0	0	0	60	0	0	144	0	6	0
Lane Group Flow (vph)	48	19	0	258	30	373	31	676	115	239	606	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		1	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	32.4	32.4		32.4	32.4	46.2	52.8	48.8	48.8	13.8	58.6	
Effective Green, g (s)	32.4	32.4		32.4	32.4	46.2	52.8	48.8	48.8	13.8	58.6	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.42	0.48	0.44	0.44	0.13	0.53	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	232	386		382	495	691	334	1458	628	378	1555	
v/s Ratio Prot		0.01			0.02	c0.07	0.00	c0.21		c0.08	0.21	
v/s Ratio Perm	0.06			c0.20		0.18	0.04		0.08			
v/c Ratio	0.21	0.05		0.68	0.06	0.54	0.09	0.46	0.18	0.63	0.39	
Uniform Delay, d1	29.1	27.8		34.2	27.9	23.9	15.2	21.4	18.5	45.7	15.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.80	1.08	2.71	1.00	1.00	
Incremental Delay, d2	0.4	0.1		4.7	0.1	0.8	0.1	1.0	0.6	3.4	0.7	
Delay (s)	29.6	27.8		38.8	27.9	24.7	12.3	24.2	50.8	49.1	15.9	
Level of Service	C	C		D	C	C	B	C	D	D	B	
Approach Delay (s)		28.9			29.9			31.0			25.2	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.57	C
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	56.2%	15.0
Analysis Period (min)	15	ICU Level of Service
		B
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Future Volume (veh/h)	41	11	17	230	27	346	27	581	223	208	486	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	48	13	20	258	30	0	31	676	259	239	559	53
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.80	0.86	0.86	0.86	0.87	0.87	0.87
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	204	134	206	351	383		467	1792	774	299	1733	164
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.00	0.03	0.54	0.54	0.10	0.61	0.61
Sat Flow, veh/h	658	594	915	1376	1702	1490	1460	3313	1430	3066	2837	268
Grp Volume(v), veh/h	48	0	33	258	30	0	31	676	259	239	302	310
Grp Sat Flow(s),veh/h/ln	658	0	1509	1376	1702	1490	1460	1657	1430	1533	1537	1569
Q Serve(g_s), s	6.8	0.0	1.9	20.1	1.5	0.0	1.0	12.9	11.2	8.4	10.5	10.5
Cycle Q Clear(g_c), s	8.4	0.0	1.9	22.0	1.5	0.0	1.0	12.9	11.2	8.4	10.5	10.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	204	0	340	351	383		467	1792	774	299	938	958
V/C Ratio(X)	0.23	0.00	0.10	0.73	0.08		0.07	0.38	0.33	0.80	0.32	0.32
Avail Cap(c_a), veh/h	278	0	508	504	572		506	1792	774	446	938	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	33.8	42.5	33.6	0.0	10.5	14.6	14.2	48.6	10.4	10.4
Incr Delay (d2), s/veh	0.6	0.0	0.1	3.2	0.1	0.0	0.1	0.6	1.1	6.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.7	7.1	0.6	0.0	0.3	4.7	3.6	3.3	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	33.9	45.7	33.7	0.0	10.5	15.1	15.3	54.6	11.3	11.3
LnGrp LOS	D	A	C	D	C		B	B	B	D	B	B
Approach Vol, veh/h		81			288			966			851	
Approach Delay, s/veh		36.0			44.5			15.0			23.5	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	64.5		29.8	8.1	72.2		29.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	16.0	42.0		37.0	6.0	52.0		37.0				
Max Q Clear Time (g_c+I1), s	10.4	14.9		24.0	3.0	12.5		10.4				
Green Ext Time (p_c), s	0.4	5.7		0.8	0.0	3.4		0.6				

Intersection Summary




















HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	100	409	1	876	0	480	654	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	40.0	34.0	34.0		40.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	36.4%	30.9%	30.9%		36.4%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	35.0	28.0	28.0		35.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)		25.1			25.5	55.0	44.0	44.0		24.4	73.5	
Actuated g/C Ratio		0.23			0.23	0.50	0.40	0.40		0.22	0.67	
v/c Ratio		0.00			0.33	0.31	0.00	0.71		0.75	0.30	
Control Delay		0.0			36.2	13.7	26.0	33.6		37.8	7.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			36.2	13.7	26.0	33.6		37.8	7.7	
LOS		A			D	B	C	C		D	A	
Approach Delay					18.1			33.6			20.4	
Approach LOS					B			C			C	
Queue Length 50th (ft)		0			56	73	0	280		170	146	
Queue Length 95th (ft)		0			104	91	4	#377		215	174	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

01/18/2023

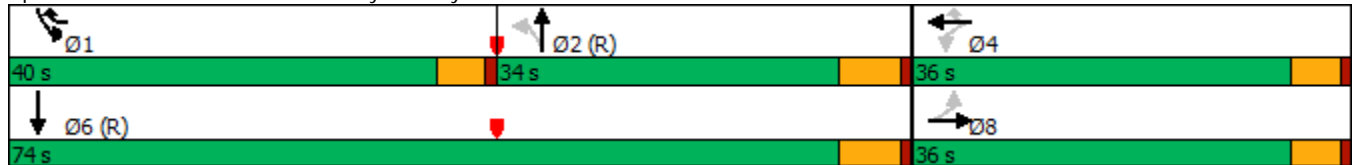


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		501			365	1576	289	1228		917	2154	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.27	0.26	0.00	0.71		0.52	0.30	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 58.4%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	100	409	1	876	480	654
v/c Ratio	0.00	0.33	0.31	0.00	0.71	0.75	0.30
Control Delay	0.0	36.2	13.7	26.0	33.6	37.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	36.2	13.7	26.0	33.6	37.8	7.7
Queue Length 50th (ft)	0	56	73	0	280	170	146
Queue Length 95th (ft)	0	104	91	4	#377	215	174
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	501	365	1576	289	1228	917	2154
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.27	0.26	0.00	0.71	0.52	0.30




















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (vph)	1	0	1	90	0	368	1	577	150	461	628	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		2885	3226	
Flt Permitted		0.94			0.76	1.00	0.40	1.00		0.95	1.00	
Satd. Flow (perm)		1577			1297	2614	726	3028		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	100	0	409	1	695	181	480	654	0
RTOR Reduction (vph)	0	2	0	0	0	26	0	17	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	100	383	1	859	0	480	654	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)		25.5			25.5	49.9	44.1	44.1		24.4	73.5	
Effective Green, g (s)		25.5			25.5	49.9	44.1	44.1		24.4	73.5	
Actuated g/C Ratio		0.23			0.23	0.45	0.40	0.40		0.22	0.67	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		365			300	1304	291	1213		639	2155	
v/s Ratio Prot						0.07		c0.28		c0.17	0.20	
v/s Ratio Perm		0.00			c0.08	0.08	0.00					
v/c Ratio		0.00			0.33	0.29	0.00	0.71		0.75	0.30	
Uniform Delay, d1		32.5			35.2	18.9	19.8	27.6		40.0	7.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.79	0.85	
Incremental Delay, d2		0.0			0.7	0.1	0.0	3.5		4.1	0.3	
Delay (s)		32.5			35.8	19.1	19.8	31.1		35.9	6.7	
Level of Service		C			D	B	B	C		D	A	
Approach Delay (s)		32.5			22.4			31.1			19.1	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			23.9									C
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			110.0							16.0		
Intersection Capacity Utilization			58.4%									B
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Future Volume (veh/h)	1	0	1	90	0	368	1	577	150	461	628	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	100	0	409	1	695	181	480	654	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	91	15	57	259	0	909	467	1279	333	559	2425	0
Arrive On Green	0.16	0.00	0.16	0.16	0.00	0.16	0.51	0.51	0.51	0.19	0.74	0.00
Sat Flow, veh/h	269	96	364	1237	0	2622	791	2518	655	2937	3346	0
Grp Volume(v), veh/h	2	0	0	100	0	409	1	442	434	480	654	0
Grp Sat Flow(s),veh/h/ln	729	0	0	1237	0	1311	791	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	13.3	0.1	20.6	20.7	17.4	7.1	0.0
Cycle Q Clear(g_c), s	9.5	0.0	0.0	9.5	0.0	13.3	0.1	20.6	20.7	17.4	7.1	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	163	0	0	259	0	909	467	814	797	559	2425	0
V/C Ratio(X)	0.01	0.00	0.00	0.39	0.00	0.45	0.00	0.54	0.54	0.86	0.27	0.00
Avail Cap(c_a), veh/h	314	0	0	439	0	1238	467	814	797	934	2425	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	43.2	0.0	27.8	13.3	18.4	18.4	43.1	4.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.3	0.0	2.6	2.7	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.5	0.0	4.2	0.0	7.6	7.5	6.3	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	0.0	44.1	0.0	28.2	13.3	21.0	21.1	46.5	4.7	0.0
LnGrp LOS	D	A	A	D	A	C	B	C	C	D	A	A
Approach Vol, veh/h		2			509			877			1134	
Approach Delay, s/veh		39.5			31.3			21.0			22.4	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	25.9	61.9		22.2		87.8		22.2				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	35.0	28.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	19.4	22.7		15.3		9.1		11.5				
Green Ext Time (p_c), s	1.5	2.4		1.9		4.6		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	99	0	249	43	367	47	768	280	503	931	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	37.0	37.0		37.0	37.0	32.0	11.0	41.0	41.0	32.0	62.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	29.1%	10.0%	37.3%	37.3%	29.1%	56.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	27.0	6.0	36.0	36.0	27.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	29.1	29.1		29.1	29.1	57.6	48.3	42.4	42.4	23.5	62.1	
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.52	0.44	0.39	0.39	0.21	0.56	
v/c Ratio	0.14	0.25		0.77	0.10	0.46	0.18	0.61	0.40	0.78	0.55	
Control Delay	31.0	23.6		53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	23.6		53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2	
LOS	C	C		D	C	B	B	C	B	D	B	
Approach Delay		25.2			30.5			24.1			29.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	15	38		156	22	124	11	285	73	172	231	
Queue Length 95th (ft)	40	83		#253	50	182	m26	356	m143	225	295	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	227	436		355	489	845	257	1266	699	740	1703	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23		0.70	0.09	0.43	0.18	0.61	0.40	0.68	0.55	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.6 Intersection LOS: C
 Intersection Capacity Utilization 67.3% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	29	99	249	43	367	47	768	280	503	931
v/c Ratio	0.14	0.25	0.77	0.10	0.46	0.18	0.61	0.40	0.78	0.55
Control Delay	31.0	23.6	53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	23.6	53.5	29.2	15.1	12.3	29.7	10.7	49.5	18.2
Queue Length 50th (ft)	15	38	156	22	124	11	285	73	172	231
Queue Length 95th (ft)	40	83	#253	50	182	m26	356	m143	225	295
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	227	436	355	489	845	257	1266	699	740	1703
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.70	0.09	0.43	0.18	0.61	0.40	0.68	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Traffic Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (vph)	26	57	32	229	40	338	43	707	258	468	857	8
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1437		1676	1682	1485	1437	3288	1417	3016	3014	
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.31	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	781	1437		1223	1682	1485	464	3288	1417	3016	3014	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	249	43	367	47	768	280	503	922	9
RTOR Reduction (vph)	0	19	0	0	0	25	0	0	154	0	0	0
Lane Group Flow (vph)	29	80	0	249	43	342	47	768	126	503	931	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	29.1	29.1		29.1	29.1	52.6	47.2	42.4	42.4	23.5	61.1	
Effective Green, g (s)	29.1	29.1		29.1	29.1	52.6	47.2	42.4	42.4	23.5	61.1	
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.48	0.43	0.39	0.39	0.21	0.56	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	206	380		323	444	777	241	1267	546	644	1674	
v/s Ratio Prot		0.06			0.03	0.09	0.01	c0.23		c0.17	0.31	
v/s Ratio Perm	0.04			c0.20		0.14	0.07		0.09			
v/c Ratio	0.14	0.21		0.77	0.10	0.44	0.20	0.61	0.23	0.78	0.56	
Uniform Delay, d1	30.9	31.5		37.4	30.5	19.0	18.5	27.1	22.8	40.8	15.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.93	0.95	1.78	1.00	1.00	
Incremental Delay, d2	0.3	0.3		10.8	0.1	0.4	0.3	1.8	0.8	6.1	1.3	
Delay (s)	31.2	31.8		48.2	30.6	19.4	17.6	27.7	41.5	46.9	17.1	
Level of Service	C	C		D	C	B	B	C	D	D	B	
Approach Delay (s)		31.7			31.0			30.8			27.5	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.70	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	67.3%	ICU Level of Service C
Analysis Period (min)	15	
c	Critical Lane Group	

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Traffic Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Future Volume (veh/h)	26	57	32	229	40	338	43	707	258	468	857	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	249	43	0	47	768	280	503	922	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	222	259	148	337	441		318	1380	596	576	1776	17
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.00	0.03	0.42	0.42	0.19	0.57	0.57
Sat Flow, veh/h	650	1000	571	1296	1702	1490	1460	3313	1430	3066	3118	30
Grp Volume(v), veh/h	29	0	99	249	43	0	47	768	280	503	454	477
Grp Sat Flow(s),veh/h/ln	650	0	1571	1296	1702	1490	1460	1657	1430	1533	1537	1612
Q Serve(g_s), s	3.9	0.0	5.5	20.7	2.1	0.0	2.0	19.4	15.6	17.5	19.9	19.9
Cycle Q Clear(g_c), s	6.0	0.0	5.5	26.2	2.1	0.0	2.0	19.4	15.6	17.5	19.9	19.9
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	222	0	407	337	441		318	1380	596	576	875	918
V/C Ratio(X)	0.13	0.00	0.24	0.74	0.10		0.15	0.56	0.47	0.87	0.52	0.52
Avail Cap(c_a), veh/h	242	0	457	378	495		347	1380	596	753	875	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	32.2	42.5	30.9	0.0	17.2	24.4	23.3	43.4	14.5	14.5
Incr Delay (d2), s/veh	0.3	0.0	0.3	6.6	0.1	0.0	0.2	1.3	2.1	9.0	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.1	7.2	0.9	0.0	0.7	7.5	5.4	7.0	6.4	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	32.5	49.2	31.0	0.0	17.3	25.6	25.4	52.4	16.7	16.6
LnGrp LOS	C	A	C	D	C		B	C	C	D	B	B
Approach Vol, veh/h		128			292			1095			1434	
Approach Delay, s/veh		32.7			46.5			25.2			29.2	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.7	50.8		33.5	8.8	67.7		33.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		32.0	6.0	57.0		32.0				
Max Q Clear Time (g_c+I1), s	19.5	21.4		28.2	4.0	21.9		8.0				
Green Ext Time (p_c), s	1.1	5.3		0.4	0.0	5.7		0.8				

Intersection Summary




















HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	167	556	0	653	0	351	629	0
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	37.0	37.0		37.0	37.0	30.0	43.0	43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	27.3%	39.1%	39.1%		27.3%	66.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	25.0	37.0	37.0		25.0	67.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)					26.3	50.7		48.3		19.4	72.7	
Actuated g/C Ratio					0.24	0.46		0.44		0.18	0.66	
v/c Ratio					0.54	0.43		0.48		0.69	0.30	
Control Delay					42.2	12.7		25.1		41.9	8.7	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					42.2	12.7		25.1		41.9	8.7	
LOS					D	B		C		D	A	
Approach Delay					19.5			25.1			20.6	
Approach LOS					B			C			C	
Queue Length 50th (ft)					99	86		176		127	127	
Queue Length 95th (ft)					167	115		254		m162	166	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					377	1428		1367		656	2132	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.44	0.39		0.48		0.54	0.30	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization	49.0%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/28/2022



Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	167	556	653	351	629
v/c Ratio	0.54	0.43	0.48	0.69	0.30
Control Delay	42.2	12.7	25.1	41.9	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	12.7	25.1	41.9	8.7
Queue Length 50th (ft)	99	86	176	127	127
Queue Length 95th (ft)	167	115	254	m162	166
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	377	1428	1367	656	2132
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.39	0.48	0.54	0.30




















Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (vph)	0	0	0	150	0	500	0	535	53	316	566	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		0.97	0.95	
Frt					1.00	0.85		0.99		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3106		2885	3226	
Flt Permitted					0.76	1.00		1.00		0.95	1.00	
Satd. Flow (perm)					1298	2614		3106		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	167	0	556	0	594	59	351	629	0
RTOR Reduction (vph)	0	0	0	0	0	108	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	167	448	0	647	0	351	629	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)					26.3	45.7		48.3		19.4	72.7	
Effective Green, g (s)					26.3	45.7		48.3		19.4	72.7	
Actuated g/C Ratio					0.24	0.42		0.44		0.18	0.66	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					310	1204		1363		508	2132	
v/s Ratio Prot						0.07		c0.21		c0.12	0.19	
v/s Ratio Perm					c0.13	0.11						
v/c Ratio					0.54	0.37		0.47		0.69	0.30	
Uniform Delay, d1					36.6	22.2		21.9		42.5	7.9	
Progression Factor					1.00	1.00		1.00		0.85	0.97	
Incremental Delay, d2					1.8	0.2		1.2		3.4	0.3	
Delay (s)					38.4	22.4		23.1		39.5	7.9	
Level of Service					D	C		C		D	A	
Approach Delay (s)		0.0			26.1			23.1			19.2	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			22.4		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)				16.0			
Intersection Capacity Utilization			49.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Future Volume (veh/h)	0	0	0	150	0	500	0	535	53	316	566	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	167	0	556	0	594	59	351	629	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	385	0	373	0	934	65	1468	146	419	2237	0
Arrive On Green	0.00	0.00	0.00	0.21	0.00	0.21	0.00	0.50	0.50	0.14	0.69	0.00
Sat Flow, veh/h	0	1800	0	1440	0	2622	810	2946	292	2937	3346	0
Grp Volume(v), veh/h	0	0	0	167	0	556	0	323	330	351	629	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1311	810	1603	1635	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	11.3	0.0	19.1	0.0	13.9	14.0	12.8	8.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.3	0.0	19.1	0.0	13.9	14.0	12.8	8.3	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	0	385	0	373	0	934	65	799	814	419	2237	0
V/C Ratio(X)	0.00	0.00	0.00	0.45	0.00	0.59	0.00	0.40	0.41	0.84	0.28	0.00
Avail Cap(c_a), veh/h	0	524	0	484	0	1137	65	799	814	667	2237	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.78	0.78	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	38.5	0.0	28.9	0.0	17.3	17.4	45.9	6.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	0.6	0.0	1.5	1.5	4.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.9	0.0	6.1	0.0	5.1	5.2	4.8	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	39.3	0.0	29.5	0.0	18.9	18.9	50.1	7.0	0.0
LnGrp LOS	A	A	A	D	A	C	A	B	B	D	A	A
Approach Vol, veh/h		0			723			653			980	
Approach Delay, s/veh		0.0			31.8			18.9			22.4	
Approach LOS					C			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.7	60.8		28.5		81.5		28.5				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	25.0	37.0		32.0		67.0		32.0				
Max Q Clear Time (g_c+I1), s	14.8	16.0		21.1		10.3		0.0				
Green Ext Time (p_c), s	0.9	3.6		2.5		4.4		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	31	0	337	30	507	30	850	327	304	762	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	42.0	42.0		42.0	42.0	21.0	11.0	47.0	47.0	21.0	57.0	
Total Split (%)	38.2%	38.2%		38.2%	38.2%	19.1%	10.0%	42.7%	42.7%	19.1%	51.8%	
Maximum Green (s)	37.0	37.0		37.0	37.0	16.0	6.0	42.0	42.0	16.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	30.3	30.3		33.9	33.9	53.9	52.1	46.1	46.1	15.0	59.5	
Actuated g/C Ratio	0.28	0.28		0.31	0.31	0.49	0.47	0.42	0.42	0.14	0.54	
v/c Ratio	0.21	0.08		0.84	0.06	0.67	0.10	0.62	0.43	0.74	0.48	
Control Delay	29.0	14.7		54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.0	14.7		54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5	
LOS	C	B		D	C	C	A	C	A	E	B	
Approach Delay		23.2			35.3			21.9			29.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	23	6		215	14	216	8	253	66	105	190	
Queue Length 95th (ft)	53	27		#354	36	331	m13	349	122	154	251	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	266	452		437	565	771	309	1378	760	444	1595	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.07		0.77	0.05	0.66	0.10	0.62	0.43	0.68	0.48	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.1
 Intersection LOS: C
 Intersection Capacity Utilization 68.8%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	31	337	30	507	30	850	327	304	762
v/c Ratio	0.21	0.08	0.84	0.06	0.67	0.10	0.62	0.43	0.74	0.48
Control Delay	29.0	14.7	54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	14.7	54.7	25.4	23.1	8.6	27.4	8.7	57.0	18.5
Queue Length 50th (ft)	23	6	215	14	216	8	253	66	105	190
Queue Length 95th (ft)	53	27	#354	36	331	m13	349	122	154	251
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	266	452	437	565	771	309	1378	760	444	1595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.07	0.77	0.05	0.66	0.10	0.62	0.43	0.68	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Traffic Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (vph)	41	11	17	303	27	456	27	765	294	274	640	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1308		1676	1682	1485	1437	3288	1417	3016	2944	
Flt Permitted	0.74	1.00		0.74	1.00	1.00	0.36	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	790	1308		1301	1682	1485	549	3288	1417	3016	2944	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	850	327	304	711	51
RTOR Reduction (vph)	0	13	0	0	0	31	0	0	167	0	4	0
Lane Group Flow (vph)	46	18	0	337	30	476	30	850	160	304	758	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1		6
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	33.9	33.9		33.9	33.9	48.9	49.8	46.1	46.1	15.0	57.4	
Effective Green, g (s)	33.9	33.9		33.9	33.9	48.9	49.8	46.1	46.1	15.0	57.4	
Actuated g/C Ratio	0.31	0.31		0.31	0.31	0.44	0.45	0.42	0.42	0.14	0.52	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	243	403		400	518	727	278	1377	593	411	1536	
v/s Ratio Prot		0.01			0.02	c0.09	0.00	c0.26		c0.10	0.26	
v/s Ratio Perm	0.06			c0.26		0.23	0.05		0.11			
v/c Ratio	0.19	0.04		0.84	0.06	0.66	0.11	0.62	0.27	0.74	0.49	
Uniform Delay, d1	28.0	26.7		35.6	26.8	23.9	16.8	25.0	20.9	45.6	16.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.70	0.96	1.58	1.00	1.00	
Incremental Delay, d2	0.4	0.0		14.8	0.0	2.1	0.2	1.9	1.0	6.8	1.1	
Delay (s)	28.3	26.7		50.4	26.8	26.1	12.0	26.0	34.1	52.5	18.1	
Level of Service	C	C		D	C	C	B	C	C	D	B	
Approach Delay (s)		27.7			35.5			27.8			27.9	
Approach LOS		C			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.73	C
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	68.8%	15.0
Analysis Period (min)	15	ICU Level of Service
		C
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Traffic Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Future Volume (veh/h)	41	11	17	303	27	456	27	765	294	274	640	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	337	30	0	30	850	327	304	711	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	240	162	257	428	474		358	1547	668	362	1623	116
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.00	0.03	0.47	0.47	0.12	0.56	0.56
Sat Flow, veh/h	658	583	924	1378	1702	1490	1460	3313	1430	3066	2908	208
Grp Volume(v), veh/h	46	0	31	337	30	0	30	850	327	304	375	387
Grp Sat Flow(s),veh/h/ln	658	0	1507	1378	1702	1490	1460	1657	1430	1533	1537	1580
Q Serve(g_s), s	6.1	0.0	1.7	26.2	1.4	0.0	1.2	20.2	17.4	10.7	15.7	15.7
Cycle Q Clear(g_c), s	7.5	0.0	1.7	27.9	1.4	0.0	1.2	20.2	17.4	10.7	15.7	15.7
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	240	0	420	428	474		358	1547	668	362	857	882
V/C Ratio(X)	0.19	0.00	0.07	0.79	0.06		0.08	0.55	0.49	0.84	0.44	0.44
Avail Cap(c_a), veh/h	278	0	507	508	572		398	1547	668	446	857	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	29.2	39.5	29.2	0.0	14.5	21.0	20.3	47.5	14.2	14.2
Incr Delay (d2), s/veh	0.4	0.0	0.1	6.8	0.1	0.0	0.1	1.3	2.3	11.2	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.6	9.6	0.6	0.0	0.4	7.7	5.9	4.4	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	0.0	29.3	46.3	29.2	0.0	14.6	22.3	22.5	58.7	15.8	15.8
LnGrp LOS	C	A	C	D	C		B	C	C	E	B	B
Approach Vol, veh/h		77			367			1207			1066	
Approach Delay, s/veh		31.1			44.9			22.2			28.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	56.4		35.6	8.0	66.4		35.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	16.0	42.0		37.0	6.0	52.0		37.0				
Max Q Clear Time (g_c+I1), s	12.7	22.2		29.9	3.2	17.7		9.5				
Green Ext Time (p_c), s	0.3	6.8		0.7	0.0	4.4		0.5				

Intersection Summary






















HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	131	538	1	1063	0	632	861	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	40.0	34.0	34.0		40.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	36.4%	30.9%	30.9%		36.4%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	35.0	28.0	28.0		35.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)		25.1			25.9	61.2	37.8	37.8		30.3	73.1	
Actuated g/C Ratio		0.23			0.24	0.56	0.34	0.34		0.28	0.66	
v/c Ratio		0.00			0.43	0.37	0.00	1.00		0.80	0.40	
Control Delay		0.0			38.7	12.7	30.0	66.3		31.6	7.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			38.7	12.7	30.0	66.3		31.6	7.4	
LOS		A			D	B	C	E		C	A	
Approach Delay					17.8			66.3			17.7	
Approach LOS					B			E			B	
Queue Length 50th (ft)		0			75	95	1	~456		212	172	
Queue Length 95th (ft)		0			132	113	5	#646		m218	m175	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

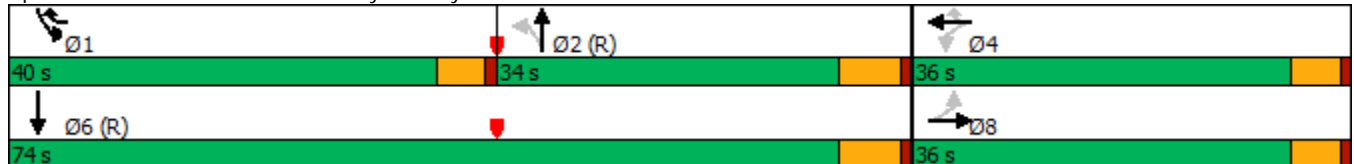
01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		499			365	1582	203	1059		922	2144	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.36	0.34	0.00	1.00		0.69	0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 33.7
 Intersection LOS: C
 Intersection Capacity Utilization 72.6%
 ICU Level of Service C
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	131	538	1	1063	632	861
v/c Ratio	0.00	0.43	0.37	0.00	1.00	0.80	0.40
Control Delay	0.0	38.7	12.7	30.0	66.3	31.6	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	38.7	12.7	30.0	66.3	31.6	7.4
Queue Length 50th (ft)	0	75	95	1	-456	212	172
Queue Length 95th (ft)	0	132	113	5	#646	m218	m175
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	499	365	1582	203	1059	922	2144
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.36	0.34	0.00	1.00	0.69	0.40

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (vph)	1	0	1	118	0	484	1	760	197	607	827	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3028		2885	3226	
Flt Permitted		0.94			0.76	1.00	0.33	1.00		0.95	1.00	
Satd. Flow (perm)		1571			1297	2614	592	3028		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	131	0	538	1	844	219	632	861	0
RTOR Reduction (vph)	0	2	0	0	0	15	0	18	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	131	523	1	1045	0	632	861	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)		25.9			25.9	56.2	37.8	37.8		30.3	73.1	
Effective Green, g (s)		25.9			25.9	56.2	37.8	37.8		30.3	73.1	
Actuated g/C Ratio		0.24			0.24	0.51	0.34	0.34		0.28	0.66	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		369			305	1454	203	1040		794	2143	
v/s Ratio Prot						0.10		c0.34		c0.22	0.27	
v/s Ratio Perm		0.00			c0.10	0.10	0.00					
v/c Ratio		0.00			0.43	0.36	0.00	1.00		0.80	0.40	
Uniform Delay, d1		32.2			35.8	16.1	23.7	36.1		37.0	8.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.72	0.75	
Incremental Delay, d2		0.0			1.0	0.2	0.0	29.0		3.5	0.3	
Delay (s)		32.2			36.7	16.3	23.8	65.1		30.3	6.7	
Level of Service		C			D	B	C	E		C	A	
Approach Delay (s)		32.2			20.3			65.0			16.6	
Approach LOS		C			C			E			B	

Intersection Summary		
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.78	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	72.6%	ICU Level of Service C
Analysis Period (min)	15	
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Future Volume (veh/h)	1	0	1	118	0	484	1	760	197	607	827	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	131	0	538	1	844	219	632	861	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	83	15	49	275	0	1126	343	1071	278	711	2323	0
Arrive On Green	0.19	0.00	0.19	0.19	0.00	0.19	0.42	0.42	0.42	0.24	0.71	0.00
Sat Flow, veh/h	179	80	259	1117	0	2622	652	2520	654	2937	3346	0
Grp Volume(v), veh/h	2	0	0	131	0	538	1	537	526	632	861	0
Grp Sat Flow(s),veh/h/ln	518	0	0	1117	0	1311	652	1603	1570	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.2	0.1	31.8	31.9	22.9	11.3	0.0
Cycle Q Clear(g_c), s	14.0	0.0	0.0	14.0	0.0	16.2	0.1	31.8	31.9	22.9	11.3	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.42	1.00		0.00
Lane Grp Cap(c), veh/h	146	0	0	275	0	1126	343	681	667	711	2323	0
V/C Ratio(X)	0.01	0.00	0.00	0.48	0.00	0.48	0.00	0.79	0.79	0.89	0.37	0.00
Avail Cap(c_a), veh/h	252	0	0	411	0	1374	343	681	667	934	2323	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.53	0.53	0.00
Uniform Delay (d), s/veh	37.0	0.0	0.0	42.0	0.0	22.5	18.2	27.3	27.3	40.2	6.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.3	0.0	0.3	0.0	9.0	9.2	4.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.3	0.0	5.0	0.0	13.0	12.8	8.4	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	0.0	0.0	43.3	0.0	22.8	18.2	36.3	36.5	45.0	6.4	0.0
LnGrp LOS	D	A	A	D	A	C	B	D	D	D	A	A
Approach Vol, veh/h		2			669			1064			1493	
Approach Delay, s/veh		37.1			26.8			36.4			22.8	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	31.6	52.7		25.6		84.4		25.6				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	35.0	28.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	24.9	33.9		18.2		13.3		16.0				
Green Ext Time (p_c), s	1.8	0.0		2.4		6.6		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	99	0	327	43	484	47	1012	370	662	1222	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	37.0	37.0		37.0	37.0	32.0	11.0	41.0	41.0	32.0	62.0	
Total Split (%)	33.6%	33.6%		33.6%	33.6%	29.1%	10.0%	37.3%	37.3%	29.1%	56.4%	
Maximum Green (s)	32.0	32.0		32.0	32.0	27.0	6.0	36.0	36.0	27.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	31.0	31.0		31.0	31.0	62.5	43.4	37.5	37.5	26.5	60.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.57	0.39	0.34	0.34	0.24	0.55	
v/c Ratio	0.13	0.23		0.95	0.09	0.57	0.25	0.90	0.57	0.91	0.74	
Control Delay	30.8	23.4		76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.8	23.4		76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5	
LOS	C	C		E	C	B	B	D	B	E	C	
Approach Delay		25.0			40.7			32.8			35.9	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	15	38		223	22	190	14	392	112	234	353	
Queue Length 95th (ft)	40	83		#396	50	286	m#25	m#424	m#160	#337	445	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	227	436		355	489	859	191	1120	647	740	1651	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23		0.92	0.09	0.56	0.25	0.90	0.57	0.89	0.74	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 35.5 Intersection LOS: D
 Intersection Capacity Utilization 82.5% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	29	99	327	43	484	47	1012	370	662	1222
v/c Ratio	0.13	0.23	0.95	0.09	0.57	0.25	0.90	0.57	0.91	0.74
Control Delay	30.8	23.4	76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	23.4	76.8	29.1	17.3	16.0	40.8	12.9	58.7	23.5
Queue Length 50th (ft)	15	38	223	22	190	14	392	112	234	353
Queue Length 95th (ft)	40	83	#396	50	286	m25	m#424	m160	#337	445
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	227	436	355	489	859	191	1120	647	740	1651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.92	0.09	0.56	0.25	0.90	0.57	0.89	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (vph)	26	57	32	301	40	445	43	931	340	616	1128	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1437		1676	1682	1485	1437	3288	1417	3016	3017	
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.22	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	781	1437		1223	1682	1485	333	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1012	370	662	1213	9
RTOR Reduction (vph)	0	19	0	0	0	10	0	0	165	0	0	0
Lane Group Flow (vph)	29	80	0	327	43	474	47	1012	205	662	1222	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	31.0	31.0		31.0	31.0	57.5	42.3	37.5	37.5	26.5	59.2	
Effective Green, g (s)	31.0	31.0		31.0	31.0	57.5	42.3	37.5	37.5	26.5	59.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.52	0.38	0.34	0.34	0.24	0.54	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	220	404		344	474	843	176	1120	483	726	1623	
v/s Ratio Prot		0.06			0.03	0.14	0.01	c0.31		c0.22	0.40	
v/s Ratio Perm	0.04			c0.27		0.18	0.09		0.14			
v/c Ratio	0.13	0.20		0.95	0.09	0.56	0.27	0.90	0.42	0.91	0.75	
Uniform Delay, d1	29.5	30.1		38.7	29.1	17.8	21.6	34.5	27.9	40.6	19.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.12	0.90	1.04	1.00	1.00	
Incremental Delay, d2	0.3	0.2		35.6	0.1	0.9	0.6	8.5	1.9	15.7	3.3	
Delay (s)	29.7	30.3		74.4	29.2	18.6	24.7	39.5	30.9	56.3	23.0	
Level of Service	C	C		E	C	B	C	D	C	E	C	
Approach Delay (s)		30.2			40.5			36.8			34.7	
Approach LOS		C			D			D			C	

Intersection Summary		
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.92	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	82.5%	15.0
Analysis Period (min)	15	ICU Level of Service
		E
c	Critical Lane Group	

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↖↖	↖	↖↖	↖↖	↖↖
Traffic Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Future Volume (veh/h)	26	57	32	301	40	445	43	931	340	616	1128	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	327	43	0	47	1012	370	662	1213	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	243	291	166	381	495		213	1123	485	717	1682	12
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.00	0.03	0.34	0.34	0.23	0.54	0.54
Sat Flow, veh/h	650	1000	571	1296	1702	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	29	0	99	327	43	0	47	1012	370	662	596	626
Grp Sat Flow(s),veh/h/ln	650	0	1571	1296	1702	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	3.7	0.0	5.2	26.8	2.0	0.0	2.3	32.0	25.4	23.2	32.2	32.2
Cycle Q Clear(g_c), s	5.8	0.0	5.2	32.0	2.0	0.0	2.3	32.0	25.4	23.2	32.2	32.2
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	243	0	457	381	495		213	1123	485	717	827	868
V/C Ratio(X)	0.12	0.00	0.22	0.86	0.09		0.22	0.90	0.76	0.92	0.72	0.72
Avail Cap(c_a), veh/h	243	0	457	381	495		242	1123	485	753	827	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.52	0.52	0.52	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	29.5	42.1	28.4	0.0	22.9	34.6	32.4	41.2	19.2	19.2
Incr Delay (d2), s/veh	0.2	0.0	0.2	17.6	0.1	0.0	0.3	6.6	5.9	16.5	5.4	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.0	10.7	0.8	0.0	0.8	13.3	9.2	9.8	11.1	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.0	29.8	59.7	28.4	0.0	23.1	41.2	38.3	57.7	24.6	24.3
LnGrp LOS	C	A	C	E	C		C	D	D	E	C	C
Approach Vol, veh/h		128			370			1429			1884	
Approach Delay, s/veh		30.0			56.0			39.9			36.1	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.7	42.3		37.0	8.8	64.2		37.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		32.0	6.0	57.0		32.0				
Max Q Clear Time (g_c+I1), s	25.2	34.0		34.0	4.3	34.2		7.8				
Green Ext Time (p_c), s	0.5	1.4		0.0	0.0	7.5		0.8				

Intersection Summary




















HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	193	556	0	673	0	351	656	0
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	28.0	46.0	46.0		28.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	25.5%	41.8%	41.8%		25.5%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	23.0	40.0	40.0		23.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)					26.6	50.8		48.2		19.2	72.4	
Actuated g/C Ratio					0.24	0.46		0.44		0.17	0.66	
v/c Ratio					0.61	0.42		0.49		0.70	0.31	
Control Delay					45.2	11.6		25.1		42.7	9.0	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					45.2	11.6		25.1		42.7	9.0	
LOS					D	B		C		D	A	
Approach Delay					20.3			25.1			20.7	
Approach LOS					C			C			C	
Queue Length 50th (ft)					117	78		183		126	140	
Queue Length 95th (ft)					194	110		258		159	164	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190				420		

Lanes, Volumes, Timings
 15: Federal Way & Amity Rd

10/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)					365	1410		1365		608	2122	
Starvation Cap Reductn					0	0		0		0	0	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.53	0.39		0.49		0.58	0.31	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	21.8
Intersection LOS:	C
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

10/28/2022
























Lane Group	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	193	556	673	351	656
v/c Ratio	0.61	0.42	0.49	0.70	0.31
Control Delay	45.2	11.6	25.1	42.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	11.6	25.1	42.7	9.0
Queue Length 50th (ft)	117	78	183	126	140
Queue Length 95th (ft)	194	110	258	159	164
Internal Link Dist (ft)	1420		4542		4656
Turn Bay Length (ft)		190		420	
Base Capacity (vph)	365	1410	1365	608	2122
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.39	0.49	0.58	0.31
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

10/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (vph)	0	0	0	174	0	500	0	544	62	316	590	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.0	5.0		6.0		5.0	6.0	
Lane Util. Factor					1.00	0.88		0.95		0.97	0.95	
Frt					1.00	0.85		0.98		1.00	1.00	
Flt Protected					0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)					1629	2614		3097		2885	3226	
Flt Permitted					0.76	1.00		1.00		0.95	1.00	
Satd. Flow (perm)					1298	2614		3097		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	193	0	556	0	604	69	351	656	0
RTOR Reduction (vph)	0	0	0	0	0	125	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	193	431	0	666	0	351	656	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type				Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)					26.6	45.8		48.2		19.2	72.4	
Effective Green, g (s)					26.6	45.8		48.2		19.2	72.4	
Actuated g/C Ratio					0.24	0.42		0.44		0.17	0.66	
Clearance Time (s)					5.0	5.0		6.0		5.0	6.0	
Vehicle Extension (s)					3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)					313	1207		1357		503	2123	
v/s Ratio Prot						0.06		c0.22		c0.12	0.20	
v/s Ratio Perm					c0.15	0.10						
v/c Ratio					0.62	0.36		0.49		0.70	0.31	
Uniform Delay, d1					37.2	22.0		22.1		42.7	8.1	
Progression Factor					1.00	1.00		1.00		0.85	0.98	
Incremental Delay, d2					3.6	0.2		1.3		3.5	0.3	
Delay (s)					40.7	22.2		23.4		40.0	8.2	
Level of Service					D	C		C		D	A	
Approach Delay (s)		0.0			27.0			23.4			19.3	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			22.8		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			51.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Future Volume (veh/h)	0	0	0	174	0	500	0	544	62	316	590	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	0	0	0	193	0	556	0	604	69	351	656	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	0	385	0	373	0	933	65	1447	165	417	2237	0
Arrive On Green	0.00	0.00	0.00	0.21	0.00	0.21	0.00	0.50	0.50	0.14	0.69	0.00
Sat Flow, veh/h	0	1800	0	1440	0	2622	790	2901	331	2937	3346	0
Grp Volume(v), veh/h	0	0	0	193	0	556	0	333	340	351	656	0
Grp Sat Flow(s),veh/h/ln	0	1800	0	1440	0	1311	790	1603	1628	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	13.4	0.0	19.1	0.0	14.5	14.5	12.8	8.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	13.4	0.0	19.1	0.0	14.5	14.5	12.8	8.7	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	0	385	0	373	0	933	65	800	812	417	2237	0
V/C Ratio(X)	0.00	0.00	0.00	0.52	0.00	0.60	0.00	0.42	0.42	0.84	0.29	0.00
Avail Cap(c_a), veh/h	0	507	0	471	0	1111	65	800	812	614	2237	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	39.3	0.0	29.0	0.0	17.4	17.5	46.0	6.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.6	0.0	1.6	1.6	5.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.7	0.0	6.1	0.0	5.3	5.4	4.8	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	40.4	0.0	29.6	0.0	19.0	19.0	51.4	7.0	0.0
LnGrp LOS	A	A	A	D	A	C	A	B	B	D	A	A
Approach Vol, veh/h		0			749			673			1007	
Approach Delay, s/veh		0.0			32.4			19.0			22.5	
Approach LOS					C			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.6	60.9		28.5		81.5		28.5				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	23.0	40.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	14.8	16.5		21.1		10.7		0.0				
Green Ext Time (p_c), s	0.8	3.8		2.5		4.6		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	31	0	337	30	507	30	860	327	304	789	0
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	1	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	11.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	44.0	44.0		44.0	44.0	21.0	17.0	45.0	45.0	21.0	49.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	19.1%	15.5%	40.9%	40.9%	19.1%	44.5%	
Maximum Green (s)	39.0	39.0		39.0	39.0	16.0	12.0	40.0	40.0	16.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0			32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50			50	50		50	
Act Effct Green (s)	30.9	30.9		34.4	34.4	54.6	51.9	45.4	45.4	15.2	58.3	
Actuated g/C Ratio	0.28	0.28		0.31	0.31	0.50	0.47	0.41	0.41	0.14	0.53	
v/c Ratio	0.21	0.08		0.83	0.06	0.67	0.10	0.63	0.44	0.73	0.50	
Control Delay	28.1	14.1		52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.1	14.1		52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0	
LOS	C	B		D	C	C	A	C	A	E	B	
Approach Delay		22.5			34.3			21.4			30.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	23	6		215	14	221	6	257	69	105	200	
Queue Length 95th (ft)	51	26		321	35	323	m12	341	127	154	283	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022

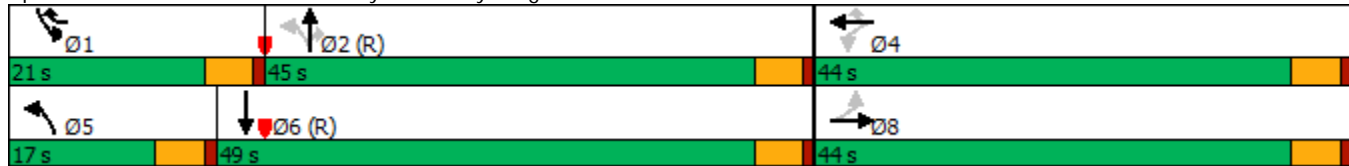


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	280	476		461	596	775	376	1356	746	449	1565	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.07		0.73	0.05	0.65	0.08	0.63	0.44	0.68	0.50	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 27.8
 Intersection LOS: C
 Intersection Capacity Utilization 69.1%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	31	337	30	507	30	860	327	304	789
v/c Ratio	0.21	0.08	0.83	0.06	0.67	0.10	0.63	0.44	0.73	0.50
Control Delay	28.1	14.1	52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	14.1	52.4	24.6	22.9	8.3	26.8	8.5	56.1	20.0
Queue Length 50th (ft)	23	6	215	14	221	6	257	69	105	200
Queue Length 95th (ft)	51	26	321	35	323	m12	341	127	154	283
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	280	476	461	596	775	376	1356	746	449	1565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.07	0.73	0.05	0.65	0.08	0.63	0.44	0.68	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↗	↖	↖↗	↗	↖↗	↖↗	
Traffic Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (vph)	41	11	17	303	27	456	27	774	294	274	664	46
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1308		1676	1682	1485	1437	3288	1417	3016	2947	
Flt Permitted	0.74	1.00		0.74	1.00	1.00	0.35	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	790	1308		1301	1682	1485	532	3288	1417	3016	2947	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	12	19	337	30	507	30	860	327	304	738	51
RTOR Reduction (vph)	0	13	0	0	0	25	0	0	162	0	4	0
Lane Group Flow (vph)	46	18	0	337	30	482	30	860	166	304	785	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	34.4	34.4		34.4	34.4	49.6	49.7	45.4	45.4	15.2	56.3	
Effective Green, g (s)	34.4	34.4		34.4	34.4	49.6	49.7	45.4	45.4	15.2	56.3	
Actuated g/C Ratio	0.31	0.31		0.31	0.31	0.45	0.45	0.41	0.41	0.14	0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	247	409		406	526	737	275	1357	584	416	1508	
v/s Ratio Prot		0.01			0.02	c0.09	0.00	c0.26		c0.10	0.27	
v/s Ratio Perm	0.06			c0.26		0.23	0.04		0.12			
v/c Ratio	0.19	0.04		0.83	0.06	0.65	0.11	0.63	0.28	0.73	0.52	
Uniform Delay, d1	27.6	26.3		35.1	26.5	23.5	16.9	25.7	21.5	45.4	17.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.65	0.90	1.27	1.00	1.00	
Incremental Delay, d2	0.4	0.0		13.4	0.0	2.1	0.2	2.1	1.1	6.5	1.3	
Delay (s)	28.0	26.4		48.5	26.5	25.6	11.1	25.2	28.4	51.9	19.2	
Level of Service	C	C		D	C	C	B	C	C	D	B	
Approach Delay (s)		27.3			34.5			25.7			28.3	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			29.0		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)				15.0				
Intersection Capacity Utilization			69.1%	ICU Level of Service				C				
Analysis Period (min)			15									
c	Critical Lane Group											

HCM 6th Signalized Intersection Summary

16: Federal Way & Pvt Dwy/Bergeson St

10/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↖↖	↖	↖↖	↖↖	↖↖
Traffic Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Future Volume (veh/h)	41	11	17	303	27	456	27	774	294	274	664	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	46	12	19	337	30	0	30	860	327	304	738	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	241	163	258	429	475		347	1545	667	362	1625	112
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.00	0.03	0.47	0.47	0.12	0.56	0.56
Sat Flow, veh/h	658	583	924	1378	1702	1490	1460	3313	1430	3066	2916	201
Grp Volume(v), veh/h	46	0	31	337	30	0	30	860	327	304	389	400
Grp Sat Flow(s),veh/h/ln	658	0	1507	1378	1702	1490	1460	1657	1430	1533	1537	1581
Q Serve(g_s), s	6.1	0.0	1.7	26.2	1.4	0.0	1.2	20.6	17.4	10.7	16.5	16.5
Cycle Q Clear(g_c), s	7.5	0.0	1.7	27.9	1.4	0.0	1.2	20.6	17.4	10.7	16.5	16.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	241	0	421	429	475		347	1545	667	362	856	881
V/C Ratio(X)	0.19	0.00	0.07	0.78	0.06		0.09	0.56	0.49	0.84	0.45	0.45
Avail Cap(c_a), veh/h	290	0	534	533	603		467	1545	667	446	856	881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	29.2	39.4	29.1	0.0	14.6	21.2	20.3	47.5	14.4	14.4
Incr Delay (d2), s/veh	0.4	0.0	0.1	6.1	0.1	0.0	0.1	1.3	2.3	11.2	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.6	9.5	0.6	0.0	0.4	7.8	5.9	4.4	5.4	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	0.0	29.3	45.5	29.1	0.0	14.7	22.5	22.6	58.7	16.2	16.1
LnGrp LOS	C	A	C	D	C		B	C	C	E	B	B
Approach Vol, veh/h		77			367			1217			1093	
Approach Delay, s/veh		31.0			44.2			22.3			28.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	56.3		35.7	8.0	66.3		35.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	16.0	40.0		39.0	12.0	44.0		39.0				
Max Q Clear Time (g_c+I1), s	12.7	22.6		29.9	3.2	18.5		9.5				
Green Ext Time (p_c), s	0.3	6.5		0.8	0.0	4.4		0.5				

Intersection Summary




















HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	0		190	130		0	420		0
Storage Lanes	0		0	0		2	1		0	2		0
Taper Length (ft)	25			25			100			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		148			1500			4622			4736	
Travel Time (s)		4.0			22.7			70.0			71.8	
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	0	143	538	1	1106	0	632	873	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Detector Phase	8	8		4	4	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	36.0	36.0		11.0	11.0	11.0	37.0	37.0		11.0	16.0	
Total Split (s)	36.0	36.0		36.0	36.0	39.0	35.0	35.0		39.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	35.5%	31.8%	31.8%		35.5%	67.3%	
Maximum Green (s)	31.0	31.0		31.0	31.0	34.0	29.0	29.0		34.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		4.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0					5.0	5.0				
Flash Dont Walk (s)	25.0	25.0					26.0	26.0				
Pedestrian Calls (#/hr)	50	50					50	50				
Act Effct Green (s)		25.1			26.0	61.1	37.9	37.9		30.1	73.0	
Actuated g/C Ratio		0.23			0.24	0.56	0.34	0.34		0.27	0.66	
v/c Ratio		0.00			0.47	0.37	0.00	1.04		0.80	0.41	
Control Delay		0.0			39.8	12.8	30.0	75.7		31.6	7.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		0.0			39.8	12.8	30.0	75.7		31.6	7.3	
LOS		A			D	B	C	E		C	A	
Approach Delay					18.5			75.7			17.5	
Approach LOS					B			E			B	
Queue Length 50th (ft)		0			83	96	1	~488		215	184	
Queue Length 95th (ft)		0			144	117	5	#670		m211	m161	
Internal Link Dist (ft)		68			1420			4542			4656	
Turn Bay Length (ft)						190	130			420		

Lanes, Volumes, Timings
15: Federal Way & Amity Rd

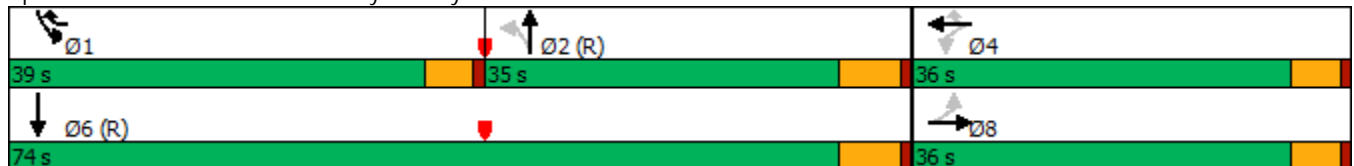
01/18/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		498			365	1561	201	1062		896	2140	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.00			0.39	0.34	0.00	1.04		0.71	0.41	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay:	37.3
Intersection LOS:	D
Intersection Capacity Utilization	74.9%
ICU Level of Service	D
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Federal Way & Amity Rd



Queues

15: Federal Way & Amity Rd

01/18/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	143	538	1	1106	632	873
v/c Ratio	0.00	0.47	0.37	0.00	1.04	0.80	0.41
Control Delay	0.0	39.8	12.8	30.0	75.7	31.6	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	39.8	12.8	30.0	75.7	31.6	7.3
Queue Length 50th (ft)	0	83	96	1	-488	215	184
Queue Length 95th (ft)	0	144	117	5	#670	m211	m161
Internal Link Dist (ft)	68	1420			4542		4656
Turn Bay Length (ft)			190	130		420	
Base Capacity (vph)	498	365	1561	201	1062	896	2140
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.39	0.34	0.00	1.04	0.71	0.41




















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

15: Federal Way & Amity Rd

01/18/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (vph)	1	0	1	129	0	484	1	779	216	607	838	0
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95		0.97	0.95	
Frt		0.93			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1629	2614	1710	3021		2885	3226	
Flt Permitted		0.93			0.76	1.00	0.33	1.00		0.95	1.00	
Satd. Flow (perm)		1569			1297	2614	585	3021		2885	3226	
Peak-hour factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Adj. Flow (vph)	1	0	1	143	0	538	1	866	240	632	873	0
RTOR Reduction (vph)	0	2	0	0	0	15	0	20	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	143	523	1	1086	0	632	873	0
Heavy Vehicles (%)	0%	0%	0%	5%	0%	3%	0%	8%	15%	15%	6%	0%
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		8			4	1		2		1	6	
Permitted Phases	8			4		4	2					
Actuated Green, G (s)		26.0			26.0	56.1	37.9	37.9		30.1	73.0	
Effective Green, g (s)		26.0			26.0	56.1	37.9	37.9		30.1	73.0	
Actuated g/C Ratio		0.24			0.24	0.51	0.34	0.34		0.27	0.66	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		5.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		370			306	1451	201	1040		789	2140	
v/s Ratio Prot						0.10		c0.36		c0.22	0.27	
v/s Ratio Perm		0.00			c0.11	0.10	0.00					
v/c Ratio		0.00			0.47	0.36	0.00	1.04		0.80	0.41	
Uniform Delay, d1		32.1			36.1	16.2	23.7	36.0		37.2	8.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.72	0.73	
Incremental Delay, d2		0.0			1.1	0.2	0.0	40.1		3.6	0.3	
Delay (s)		32.1			37.2	16.3	23.7	76.1		30.3	6.6	
Level of Service		C			D	B	C	E		C	A	
Approach Delay (s)		32.1			20.7			76.1			16.5	
Approach LOS		C			C			E			B	
Intersection Summary												
HCM 2000 Control Delay			37.4									D
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			110.0							16.0		
Intersection Capacity Utilization			74.9%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

15: Federal Way & Amity Rd

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕↕	↕	↕↕		↕↕	↕↕	
Traffic Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Future Volume (veh/h)	1	0	1	129	0	484	1	779	216	607	838	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1730	1800	1758	1800	1688	1589	1589	1716	1800
Adj Flow Rate, veh/h	1	0	1	143	0	538	1	866	240	632	873	0
Peak Hour Factor	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	5	0	3	0	8	15	15	6	0
Cap, veh/h	73	15	39	264	0	1126	340	1055	292	709	2322	0
Arrive On Green	0.19	0.00	0.19	0.19	0.00	0.19	0.43	0.43	0.43	0.24	0.71	0.00
Sat Flow, veh/h	128	80	208	1058	0	2622	645	2481	687	2937	3346	0
Grp Volume(v), veh/h	2	0	0	143	0	538	1	559	547	632	873	0
Grp Sat Flow(s),veh/h/ln	417	0	0	1058	0	1311	645	1603	1564	1468	1630	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.2	0.1	33.9	34.0	22.9	11.6	0.0
Cycle Q Clear(g_c), s	15.9	0.0	0.0	15.9	0.0	16.2	0.1	33.9	34.0	22.9	11.6	0.0
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	127	0	0	264	0	1126	340	682	665	709	2322	0
V/C Ratio(X)	0.02	0.00	0.00	0.54	0.00	0.48	0.00	0.82	0.82	0.89	0.38	0.00
Avail Cap(c_a), veh/h	232	0	0	399	0	1372	340	682	665	908	2322	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.50	0.50	0.00
Uniform Delay (d), s/veh	37.2	0.0	0.0	42.8	0.0	22.5	18.2	27.9	27.9	40.3	6.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.3	0.0	10.7	11.0	4.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.7	0.0	5.0	0.0	14.1	13.8	8.4	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	0.0	44.5	0.0	22.8	18.2	38.6	38.9	45.2	6.5	0.0
LnGrp LOS	D	A	A	D	A	C	B	D	D	D	A	A
Approach Vol, veh/h		2			681			1107			1505	
Approach Delay, s/veh		37.3			27.4			38.7			22.7	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	31.6	52.8		25.7		84.3		25.7				
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s	34.0	29.0		31.0		68.0		31.0				
Max Q Clear Time (g_c+I1), s	24.9	36.0		18.2		13.6		17.9				
Green Ext Time (p_c), s	1.7	0.0		2.5		6.7		0.0				

Intersection Summary
























HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		0	100		500	100		160	350		0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (ft)	25			100			85			150		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			30			40				55
Link Distance (ft)		353			948			4736				857
Travel Time (s)		9.6			21.5			80.7				10.6
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	99	0	327	43	484	47	1033	370	662	1234	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2		2			
Detector Phase	8	8		4	4	4	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		10.0	10.0	10.0	5.0	5.0	5.0	5.0	10.0	
Minimum Split (s)	42.0	42.0		39.0	39.0	39.0	11.0	42.5	42.5	11.0	33.5	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	16.0	41.0	41.0	33.0	58.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%	32.7%	14.5%	37.3%	37.3%	30.0%	52.7%	
Maximum Green (s)	31.0	31.0		31.0	31.0	31.0	11.0	36.0	36.0	28.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	31.0	31.0		28.0	28.0	28.0		32.0	32.0		23.0	
Pedestrian Calls (#/hr)	50	50		50	50	50		50	50		50	
Act Effct Green (s)	30.7	30.7		30.7	30.7	30.7	44.4	37.5	37.5	26.8	59.5	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.40	0.34	0.34	0.24	0.54	
v/c Ratio	0.13	0.24		0.96	0.09	0.67	0.24	0.92	0.57	0.90	0.76	
Control Delay	31.6	24.0		80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.6	24.0		80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3	
LOS	C	C		E	C	B	B	D	B	E	C	
Approach Delay		25.7			37.8			33.4			35.7	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	15	39		226	22	26	14	402	114	230	356	
Queue Length 95th (ft)	40	84		#405	51	133	m22	m#421	m153	#326	467	
Internal Link Dist (ft)		273			868			4656			777	
Turn Bay Length (ft)				100		500	100		160	350		

Lanes, Volumes, Timings
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	220	423		344	474	730	250	1120	644	767	1633	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23		0.95	0.09	0.66	0.19	0.92	0.57	0.86	0.76	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 35.0 Intersection LOS: D
 Intersection Capacity Utilization 83.0% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Federal Way & Pvt Dwy/Bergeson St



Queues

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	29	99	327	43	484	47	1033	370	662	1234
v/c Ratio	0.13	0.24	0.96	0.09	0.67	0.24	0.92	0.57	0.90	0.76
Control Delay	31.6	24.0	80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	24.0	80.0	29.9	10.0	15.1	41.6	12.6	56.8	24.3
Queue Length 50th (ft)	15	39	226	22	26	14	402	114	230	356
Queue Length 95th (ft)	40	84	#405	51	133	m22	m#421	m153	#326	467
Internal Link Dist (ft)		273		868			4656			777
Turn Bay Length (ft)			100		500	100		160	350	
Base Capacity (vph)	220	423	344	474	730	250	1120	644	767	1633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.95	0.09	0.66	0.19	0.92	0.57	0.86	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (vph)	26	57	32	301	40	445	43	950	340	616	1139	8
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1018	1437		1676	1682	1485	1437	3288	1417	3016	3017	
Flt Permitted	0.73	1.00		0.69	1.00	1.00	0.21	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	781	1437		1223	1682	1485	315	3288	1417	3016	3017	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	29	63	36	327	43	484	47	1033	370	662	1225	9
RTOR Reduction (vph)	0	19	0	0	0	313	0	0	161	0	0	0
Lane Group Flow (vph)	29	80	0	327	43	171	47	1033	209	662	1234	0
Heavy Vehicles (%)	68%	9%	35%	2%	7%	3%	19%	4%	8%	10%	13%	43%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases		8			4		5	2		1		6
Permitted Phases	8			4		4	2		2			
Actuated Green, G (s)	30.7	30.7		30.7	30.7	30.7	43.3	37.5	37.5	26.8	58.5	
Effective Green, g (s)	30.7	30.7		30.7	30.7	30.7	43.3	37.5	37.5	26.8	58.5	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.39	0.34	0.34	0.24	0.53	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	401		341	469	414	183	1120	483	734	1604	
v/s Ratio Prot		0.06			0.03		0.01	c0.31		c0.22	0.41	
v/s Ratio Perm	0.04			c0.27		0.12	0.09		0.15			
v/c Ratio	0.13	0.20		0.96	0.09	0.41	0.26	0.92	0.43	0.90	0.77	
Uniform Delay, d1	29.7	30.3		39.0	29.3	32.3	21.0	34.8	28.0	40.3	20.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.13	0.88	0.98	1.00	1.00	
Incremental Delay, d2	0.3	0.2		37.5	0.1	0.7	0.5	9.6	1.8	14.3	3.6	
Delay (s)	30.0	30.5		76.5	29.4	33.0	24.1	40.4	29.4	54.6	24.0	
Level of Service	C	C		E	C	C	C	D	C	D	C	
Approach Delay (s)		30.4			49.5			37.0			34.7	
Approach LOS		C			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			38.3	HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)				15.0				
Intersection Capacity Utilization			83.0%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 16: Federal Way & Pvt Dwy/Bergeson St

01/18/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↑↑	↖	↖↗	↖↗	
Traffic Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Future Volume (veh/h)	26	57	32	301	40	445	43	950	340	616	1139	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	845	1674	1309	1772	1702	1758	1533	1744	1688	1660	1617	1196
Adj Flow Rate, veh/h	29	63	36	327	43	0	47	1033	370	662	1225	9
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	68	9	35	2	7	3	19	4	8	10	13	43
Cap, veh/h	237	282	161	368	480		216	1147	495	723	1711	13
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.00	0.03	0.35	0.35	0.24	0.55	0.55
Sat Flow, veh/h	650	1000	571	1296	1702	1490	1460	3313	1430	3066	3127	23
Grp Volume(v), veh/h	29	0	99	327	43	0	47	1033	370	662	602	632
Grp Sat Flow(s),veh/h/ln	650	0	1571	1296	1702	1490	1460	1657	1430	1533	1537	1613
Q Serve(g_s), s	3.8	0.0	5.3	25.7	2.0	0.0	2.3	32.6	25.1	23.1	32.1	32.1
Cycle Q Clear(g_c), s	5.8	0.0	5.3	31.0	2.0	0.0	2.3	32.6	25.1	23.1	32.1	32.1
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	237	0	443	368	480		216	1147	495	723	841	883
V/C Ratio(X)	0.12	0.00	0.22	0.89	0.09		0.22	0.90	0.75	0.92	0.72	0.72
Avail Cap(c_a), veh/h	237	0	443	368	480		311	1147	495	781	841	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.46	0.46	0.46	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	30.3	43.1	29.1	0.0	22.3	34.2	31.7	41.0	18.5	18.5
Incr Delay (d2), s/veh	0.2	0.0	0.3	22.2	0.1	0.0	0.2	5.8	4.8	14.9	5.2	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.1	11.3	0.9	0.0	0.8	13.4	9.0	9.6	11.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	30.5	65.4	29.2	0.0	22.5	40.0	36.5	55.8	23.7	23.5
LnGrp LOS	C	A	C	E	C		C	D	D	E	C	C
Approach Vol, veh/h		128			370			1450			1896	
Approach Delay, s/veh		30.7			61.2			38.5			34.9	
Approach LOS		C			E			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.9	43.1		36.0	8.8	65.2		36.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	28.0	36.0		31.0	11.0	53.0		31.0				
Max Q Clear Time (g_c+I1), s	25.1	34.6		33.0	4.3	34.1		7.8				
Green Ext Time (p_c), s	0.8	1.0		0.0	0.0	7.1		0.8				

Intersection Summary

HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX E: Crash Data

Node 4 Federal Way at Gate C

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Concrete Traffic Barrier	None

Node 5 Federal Way at Gate B

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2018	Turning Right	Angle Turning	Improper Turn
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention

Node 6 Federal Way at Silcon Lane

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Changing Lanes	Side Swipe Same	None
local	B Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Turning Right	Rear-End	None

Node 7 Gowan Road at Technology Way

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	Property Dmg Report	2018	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2019	Merging	Rear-End	Failed to Yield
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2019	Going Straight	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Head-On Turning	Failed to Obey Signal
state	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2021	Turning Right	Rear-End	Following Too Close
state	C Injury Accident	2021	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2021	Going Straight	Rear-End	Speed Too Fast For Conditions
state	B Injury Accident	2021	Starting in Traffic	Rear-End	Inattention
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close

Node 8 Gowan Road at Federal Way

highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2017	Going Straight	Angle	None
local	A Injury Accident	2017	Going Straight	Angle	Failed to Obey Signal
local	A Injury Accident	2017	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Changing Lanes	Side Swipe Same	Improper Lane Change
local	Property Dmg Report	2017	Going Straight	Rear-End	Speed Too Fast For Conditions
local	Property Dmg Report	2018	Turning Left	Side Swipe Same	Improper Turn
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2018	Merging	Side Swipe Same	Improper Lane Change
state	C Injury Accident	2018	Merging	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2018	Going Straight	Rear-End	None
state	C Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Rear-End	Inattention
state	Property Dmg Report	2018	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions
state	Property Dmg Report	2019	Slowing in Traffic	Angle	Speed Too Fast For Conditions
local	Property Dmg Report	2019	Turning Right	Rear-End	Failed to Yield
local	B Injury Accident	2019	Left Turn on Red	Angle Turning	Alcohol Impaired
local	Property Dmg Report	2019	Going Straight	Angle	Distracted IN or ON Vehicle
local	B Injury Accident	2019	Turning Right	Rear-End Turning	Following Too Close
state	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	C Injury Accident	2020	Going Straight	Rear-End	Asleep, Drowsy, Fatigued
local	Property Dmg Report	2020	Going Straight	Rear-End	Inattention
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2021	Turning Left	Same Direction Turning	Improper Turn
local	Property Dmg Report	2021	Changing Lanes	Side Swipe Same	Inattention
local	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal
state	B Injury Accident	2021	Left Turn on Red	Angle Turning	Inattention
local	Property Dmg Report	2021	Starting in Traffic	Rear-End	Inattention
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Node 9 Gowan Road at I-84 NB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
state	C Injury Accident	2017	Turning Left	Angle Turning	Failed to Yield
state	Fatal Accident	2017	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2017	Negotiating Curve	Side Swipe Same	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Negotiating Curve	Angle	Speed Too Fast For Conditions
state	B Injury Accident	2018	Going Straight	Angle	Speed Too Fast For Conditions
state	Property Dmg Report	2018	Going Straight	Angle	Failed to Obey Signal
state	B Injury Accident	2018	Going Straight	Rear-End	Alcohol Impaired
state	B Injury Accident	2019	Left Turn on Red	Angle Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Brakes
state	C Injury Accident	2019	Turning Left	Head-On Turning	Failed to Obey Signal
state	C Injury Accident	2019	Going Straight	Angle	Failed to Obey Signal
state	Property Dmg Report	2020	Slowing in Traffic	Traffic Sign Support	Speed Too Fast For Conditions
state	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
state	C Injury Accident	2020	Turning Right	Head-On Turning	Inattention
state	B Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Turning Left	Head-On Turning	Failed to Yield

Node 10 Gowan Road at I-84 SB Ramp					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	A Injury Accident	2017	Going Straight	Angle Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
state	Property Dmg Report	2017	Turning Left	Curb	Alcohol Impaired
state	Property Dmg Report	2017	Going Straight	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2018	Going Straight	Rear-End	Alcohol Impaired
state	C Injury Accident	2018	Negotiating Curve	Rear-End	Inattention
state	Property Dmg Report	2019	Turning Left	Separation of Units	Other
state	Property Dmg Report	2019	Slowing in Traffic	Rear-End	Following Too Close
state	B Injury Accident	2020	Turning Left	Curb	Other
state	Property Dmg Report	2021	Turning Left	Side Swipe Same	Failed to Maintain Lane
state	Property Dmg Report	2021	Starting in Traffic	Rear-End	Following Too Close
state	Property Dmg Report	2021	Turning Left	Angle Turning	Failed to Obey Signal
state	Property Dmg Report	2021	Going Straight	Angle Turning	Failed to Obey Signal

Node 14 Gowan Road ar Warm Spring					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	None
state	B Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
state	Property Dmg Report	2019	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
state	Property Dmg Report	2020	Going Straight	Angle	Inattention
state	C Injury Accident	2021	Turning Right	Angle Turning	Inattention

Node 15 Federal Way at Amity Road					
highway_system	severity	accident_year	driver_action	first_harmful_event	contrib_circ_1
local	B Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2017	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2017	Turning Left	Angle Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2018	Turning Right	Side Swipe Same	Improper Use of Turn Lane
local	Property Dmg Report	2018	Turning Left	Angle Turning	None
local	C Injury Accident	2018	Turning Left	Side Swipe Same	Failed to Yield
local	Property Dmg Report	2019	Turning Right	Same Direction Turning	Improper Turn
local	B Injury Accident	2019	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2019	Going Straight	Rear-End	Following Too Close
local	C Injury Accident	2019	Turning Left	Head-On Turning	None
local	Property Dmg Report	2020	Turning Right	Angle Turning	Failed to Yield
local	B Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2020	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Turning Left	Head-On Turning	Failed to Yield
local	C Injury Accident	2020	Going Straight	Rear-End	Alcohol Impaired
local	Property Dmg Report	2021	Backing	Backed Into	Improper Backing
local	Property Dmg Report	2021	Turning Right	Side Swipe Same	Improper Turn
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Turning Left	Head-On Turning	Failed to Yield
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Yield
local	B Injury Accident	2021	Going Straight	Rear-End	Following Too Close
local	Property Dmg Report	2021	Going Straight	Head-On Turning	Other Vehicle Defect
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Stop Sign
local	Property Dmg Report	2021	Turning Left	Head-On Turning	Failed to Obey Signal
local	Property Dmg Report	2017	Slowing in Traffic	Rear-End	Speed Too Fast For Conditions

Intersection Crash Rates															
Int No.	Intersection	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Pk Hr Int. Vol.	DHV*	AADT*	K**	Daily Int. Vol. (V)***	Crash Rate (R)	Crashes by Type				
											Angle	Rear-End	Side Swipe	Head On	Obstacle
1	Eisenman Rd at I-84 SB Ramp	0	0/0/0	5	236	120	1000	12%	1967	0.00	0	0	0	0	0
2	Eisenman Rd at I-84 NB On-Ramp	0	0/0/0	5	198	120	1000	12%	1650	0.00	0	0	0	0	0
3	Memory Ln at Federal Way/I-84 NB Off-Ramp	1	0/1/0	5	182	120	1000	12%	1517	0.36	1	0	0	0	0
4	Federal Way at Gate C	1	0/1/0	5	240	204	1700	12%	2000	0.27	0	1	0	0	0
5	Federal Way at Gate B	2	2/0/0	5	820	1104	9200	12%	6833	0.16	1	1	0	0	0
6	Federal Way at Silcon Ln	3	1/2/0	5	1043	1620	13500	12%	8692	0.19	1	1	1	0	0
7	Gowen Rd at Technology Way/Grand Forest Dr	14	10/4/0	5	1540	680	6800	10%	15400	0.50	1	10	3	0	0
8	Gowen Rd at Federal Way	33	22/11/0	5	3341	1450	14500	10%	33410	0.54	9	16	5	3	0
9	Gowen Rd at I-84 NB Ramp	16	5/10/1	5	2946	2200	22000	10%	29460	0.30	8	1	1	5	1
10	Gowen Rd at I-84 SB Ramp	15	12/3/0	5	2154	1800	18000	10%	21540	0.38	6	5	1	0	3
11	Technology Way at Circuit Ln	0	0/0/0	5	439	406	2900	14%	3136	0.00	0	0	0	0	0
13	Federal Way at Gate A	0	0/0/0	5	776	1104	9200	12%	6467	0.00	0	0	0	0	0
14	Gowen Rd at Warm Springs Ave	6	4/2/0	5	701	1075	5700	19%	3717	0.88	3	2	0	1	0
15	Federal Way at Amity Rd	29	18/11/0	5	2277	1050	10500	10%	22770	0.70	3	8	4	14	0
16	Federal Way at Bergeson Ave	13	9/4/0	5	3063	1200	12000	10%	30630	0.23	1	5	3	1	3

*Source: Idaho AADT ArcGIS map, 2021 volumes

**K = DHV / AADT

***V = Intersection Peak Volume / K

Crashes for spots (such as intersections) are normally expressed in terms of crashes per million entering vehicles (MEV). Use the following formula:

$$R = (A \times 10^6) / (365 \times T \times V)$$

where,
R = crash rate
A = number of reported crashes
T = time period of the analysis in years
V = daily entering volume at the intersection

Segment Crash Rates

Seg.	Segment Location	Total crashes (A)	PDO/Inj/Fatal	Yrs (T)	Seg. Lnth (mi)	AADT (V)*	Crash Rate (R)
A	S Federal Way, btwn Gowen Rd and Memory Ln	11	9/2/0	5	2.51	8133	29.52
B	S Federal Way, btwn Amity Rd and Bergeson Ave	14	12/2/0	5	0.89	20000	43.10
C	Gowen Rd, btwn I-84 WB Ramp and Technology Way	5	4/1/0	5	0.56	18250	26.81
D	SH 21 between Technology Way and Warm Springs Ave	15	8/6/1	5	2.69	6800	44.93
E	Memory Ln, btwn I-84 WB Ramp and S Federal Way	0	0/0/0	5	0.18	1000	0.00
F	Technology Way, btwn Gowen Rd and Circuit Ln	0	0/0/0	5	0.59	2900	0.00
G	Columbia Rd, btwn Circuit Ln and Amber Ridge Ave	1	0/1/0	5	1.42	2900	13.31

*Source: Idaho AADT ArcGIS map, 2021 volumes

Crashes for roadway segments are normally expressed in terms of crashes per 100 million vehicle-miles (100MVM). Use the following formula:

$$R = (A \times 10^8) / (365 \times T \times V \times L)$$

where,
R = crash rate
A = number of reported crashes
T = time period of the analysis in years
V = AADT
L = Length of the segment in miles

APPENDIX F: Signal Timing Parameters

Timing Plans Used in Analysis - Source: ACHD Congestion Management Dept

4 Federal & Gigibit Ln (Gate C)

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	33		34		26		34			60 Free	1
PM Peak	15:30	18:30	33		34		26		34			60 Free	1

7 Gowen & Technology

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	11	50	45	20	50	20	45	20	30	165	70 1
PM Peak	15:30	18:30	13	20	45	20	30	20	65	20	50	155	70 1

8 Federal Way & Gowen

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	1	16	31	17	26	14	33	15	28	90	24 3 Lag: 1
PM Peak	15:30	18:30	3	45	44	46	45	14	75	43	48	180	35 1

9 Gowen & I-84 WB Ramps (NB)

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	15	30	75	0	0	0	105	0	25	130	27 1
PM Peak	16:00	18:00	15	30	75	0	0	0	105	0	25	130	27 1

10 Gowen & I-84 EB Ramps (SB)

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:25	8:30	11	0	90	0	130	20	70	0	0	220	27 1
PM Peak	16:00	18:00	13	0	120	0	70	20	100	0	0	190	84 1

15 Federal Way & Amity Road

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	21	40	0	21	21	40	0	28	110	50 2 Split: 8, 4
PM Peak	16:15	18:15	3	33	40	0	21	21	52	0	36	130	126 2 Split: 8, 4

16 Federal Way & Bergeson

	Start	End	Plan	1	2	3	4	5	6	7	8 Cycle	Offset	Sequence
AM Peak	6:45	8:45	1	19	43	0	35	15	47	0	13	110	36 6 Split: 4, 8 Lag: 1
PM Peak	16:15	18:15	3	27	43	0	39	18	52	0	21	130	74 2 Split: 4, 8

Controller Database Timing Sheet



Station: 190 - Federal Way & Amity-Scout 85.2.3 980 ATC (Standard-4/4/2022 9:28:01 AM)

Type: Scout Ethernet v85.2

Firmware: 85.2.194

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	0	6	5	10	0	6
Gap Ext	2.5	3	0	2.5	2.5	3	0	2.5
MAX 1	25	50	0	30	15	50	0	15
Max 2	35	60	0	40	25	60	0	15
Yel Clr	4	5	0	4	4	5	0	4
Red Clr	2	1	0	2	2	1	0	2
Walk	0	5	0	0	0	0	0	5
Ped Clr	0	26	0	0	0	0	0	25
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	0	0	0	0	0	0	0
Max Step	5	0	0	0	0	0	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	.	.	X	X	.	.
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	1
Startup	RED	WALK	RED	RED	RED	GREEN	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
Table - 1																																		
Cycle	110	0	130	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	50	0	126	0	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Split	1	0	3	4	5	0	0	0	0	0	0	0	0	14	15	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	31	0	
seqnc	2	0	2	2	2	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	21	40	0	21	21	40	0	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 3

Time	33	40	0	21	21	52	0	36
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON

Table - 4

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 5

Time	21	37	0	21	13	45	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 11

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 12

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 13

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 14

Time	35	10	0	20	10	35	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 15

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 19

Time	0	0	0	0	0	0	0	0
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 20								
Time	15	100	0	15	10	100	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	25	50	0	30	15	50	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	MIN	NON	NON	OMT	MIN	NON	NON

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	1	4	5	3	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																		
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	39	30	31	32	254	
Aux 1
Aux 2
Aux 3
Special 1
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 241 - Federal Way & Bergeson_Gekeler-Scout 85.3 (Standard-4/1/2022 7:31:17 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	5	0	10	5	10	0	5
Gap Ext	2.5	3	0	2	2	3	0	2
MAX 1	30	60	0	40	25	60	0	40
Max 2	35	45	0	45	35	45	0	45
Yel Clr	4	4	0	4	4	4	0	4
Red Clr	2	1.5	0	2	2	1.5	0	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	32	0	28	0	23	0	31
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	45	80	0	0	0	80	0	0
Max Step	5	10	0	0	0	10	0	0
Enable P	X	X	.	X	X	X	.	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	.	.	X	.	.
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarant'd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	0	1	2	2	0	1
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	0	0	1	1	0	0
C 2	6	6	0	0	2	2	0	0
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Table - 1																																	
Cycle	110	0	130	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	36	0	74	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
seqnc	6	1	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1								
Time	19	43	0	35	15	47	0	13
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON

Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3								
Time	27	43	0	39	18	52	0	21
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON

Table - 4								
Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 5								
Time	21	43	0	42	21	43	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MXP	NON	NON	NON	MAX	NON	NON

Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8								
Time	45	45	0	50	20	60	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9								
Time	45	45	0	5	20	60	0	20
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10								
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 12

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 13

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 14

Time	30	30	0	40	10	30	0	50
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 15

Time	30	60	0	40	25	60	0	40
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	0	0	0	0	0	0	0	0
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	25	100	0	20	15	100	0	15
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	25	40	0	25	10	40	0	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	MAX	MAX	NON	MAX	MAX	MAX	NON	MAX
Table - 25								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 26								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 27								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD
Table - 28								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	5	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	45	45	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	1	4	5	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	6	9	15	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	30	0	15	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan(4.4)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Actions(4.5)																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33			
Aux 1		
Aux 2		
Aux 3		
Special 1		
Special 2	
Special 3	
Special 4	
Special 5
Special 6
Special 7
Special 8
Pre1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pre2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 3322 - Federal Way & Gigabit IP (Standard-3/19/2020 4:23:00 PM)

Type: NTCIP 61.x TS2 Ethernet

Firmware:

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Pattern	1	2	3	4	5	6	7	8	9	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aux 1
Aux 2
Aux 3
Special 1	
Special 2
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Pattern Plus																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Patterns																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Table - 1																																					
Cycle Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Phase Entries																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																					
Table - 1																																					
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Ped Clearance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Min Green	0	5	0	5	0	0	0	5	0	0	0	0	0	0	0																						
Passage	0	2	0	2	0	0	0	2	0	0	0	0	0	0	0																						
Max1	0	30	0	45	0	0	0	45	0	0	0	0	0	0	0																						
Max2	0	45	0	60	0	0	0	60	0	0	0	0	0	0	0																						
Yellow	0	4	0	4	0	0	0	4	0	0	0	0	0	0	0																						
Red	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0																						
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	60	0	80	0	0	0	80	0	0	0	0	0	0	0	0
Dynamic Max Step	0	15	0	20	0	0	0	20	0	0	0	0	0	0	0	0
Startup	RED	RED	RED	GREEN	RED	RED	RED	GREEN	RED	RED	RED	RED	RED	RED	RED	RED
Enable	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Controller Database Timing Sheet



Station: 273 - Federal Way & Gowen-Scout 85.3 980 ATC (Standard-9/27/2022 11:08:39 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	6	8	5	5	8	8	5	10
Gap Ext	2	2	2	2	2	2	2	2
MAX 1	60	60	40	60	35	60	40	60
Max 2	80	100	80	100	80	100	80	100
Yel Clr	4	4	4	4	4	4	4	4
Red Clr	2	2	2	2	2	2	2	2
Walk	0	5	0	5	0	5	0	5
Ped Clr	0	31	0	34	0	29	0	27
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	20	0	20	0	20
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	10	0	10	0	10
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.4	0	1.2	0	1.4	0	1.2
DyMaxLim	0	0	0	0	0	0	0	0
Max Step	0	0	0	0	0	0	0	0
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	.	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Auto Flash Entry	.	X	.	.	.	X	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Dual Entry	.	X	.	X	.	X	.	X
Enable Simul Gap	X	X	X	X	X	X	X	X
Guarantd Passage	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.
Condit'l Service	.	.	.	.	.	.	.	.
Non-Actuated 1	.	.	.	.	.	.	.	.
Non-Actuated 2	.	.	.	.	.	.	.	.
Added Init Calc	S	S	S	S	S	S	S	S
Hold to Max	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2
Startup	RED	WALK	RED	RED	RED	WALK	RED	RED
C 1	5	5	7	7	1	1	3	3
C 2	6	6	8	8	2	2	4	4
C 3	0	0	0	0	0	0	0	0
C 4	0	0	0	0	0	0	0	0
C 5	0	0	0	0	0	0	0	0
C 6	0	0	0	0	0	0	0	0
C 7	0	0	0	0	0	0	0	0
C 8	0	0	0	0	0	0	0	0
C 9	0	0	0	0	0	0	0	0
C 10	0	0	0	0	0	0	0	0
C 11	0	0	0	0	0	0	0	0
C 12	0	0	0	0	0	0	0	0
C 13	0	0	0	0	0	0	0	0
C 14	0	0	0	0	0	0	0	0
C 15	0	0	0	0	0	0	0	0
C 16	0	0	0	0	0	0	0	0
C 17	0	0	0	0	0	0	0	0
C 18	0	0	0	0	0	0	0	0
C 19	0	0	0	0	0	0	0	0
C 20	0	0	0	0	0	0	0	0
C 21	0	0	0	0	0	0	0	0
C 22	0	0	0	0	0	0	0	0
C 23	0	0	0	0	0	0	0	0

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)																																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32												
Table - 1																																												
Cycle	90	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Offset	24	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32												
seqnc	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	1	1	1	1	1	1	1	1	1	1	1	1	1		

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1								
Time	16	31	17	26	14	33	15	28
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 2								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3								
Time	39	30	50	31	17	52	25	56
Coord Phase	.	.	X	.	.	.	.	.
Mode	NON	NON	MAX	NON	NON	NON	NON	MIN

Table - 4								
Time	20	25	20	20	15	25	15	20
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 5								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8								
Time	25	30	100	30	15	30	25	100
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 9								
Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10								
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	80	40	25	35	15	110	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 12

Time	65	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 13

Time	50	50	65	45	15	60	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 14

Time	40	30	30	50	15	50	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 15

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	10	10	10	100	20	10	20	100
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Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase
Mode	OMT	NON	OMT	MIN	NON	OMT	NON	MIN
Table - 20								
Time	25	70	35	40	45	25	20	25
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 24								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 25								
Time	30	40	40	30	20	40	20	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	55	30	35	30	20	95	25	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON
Table - 28								
Time	41	44	18	47	15	70	18	47
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	MIN	NON	NON	NON	NON	MIN	NON	NON

Table - 29

Time	0	70	40	30	15	70	0	10
Coord Phase	.	.	.	.	.	.	.	.
Mode	OMT	NON	NON	NON	NON	MIN	OMT	NON

Table - 30

Time	40	30	30	30	15	70	15	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 31

Time	55	45	35	40	25	110	25	35
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Table - 32

Time	65	55	65	70	15	70	15	55
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	MIN	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Table - 1

Sun	.	.	X	.	.	X	.	.	X
Mon	X	.	.	X	X
Tue	X	.	.	X	X
Wed	X	.	.	X	X
Thu	X	.	.	X	.	.	.	X	X
Fri	X	.	.	X	X
Sat	.	X	.	.	X	.	.	.	X
Jan	X	X	X
Feb	X	X	X
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Adv Schedule(4.3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	10	10	1	1	1	1	1	1	1	1	1	1	1

Day Plan(4.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	6	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	8	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	29	32	29	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	6	8	15	18	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	30	30	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	31	30	32	30	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 275 - GOWEN & I-84 EB OFF RAMP-Scout 85.3 980 ATC (Standard-9/27/2022 11:11:23 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	0	5	0	6	5	10	0	0
Gap Ext	0	3	0	2.5	2	3	0	0
MAX 1	0	40	0	110	25	40	0	0
Max 2	0	20	0	100	20	20	0	0
Yel Clr	0	4	0	4	4	4	0	0
Red Clr	0	1.5	0	2	2	1.5	0	0
Walk	0	0	0	0	0	5	0	0
Ped Clr	0	0	0	0	0	17	0	0
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	20	0	60	0	20	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	10	0	15	0	10	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	1.5	0	1.8	0	2	0	0
DyMaxLim	0	70	0	140	35	70	0	0
Max Step	0	10	0	10	5	10	0	0
Enable P	.	X	.	X	X	X	.	.
Min Recall	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
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Table - 1																																
Cycle	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	90	0	0	120	150	0	0	0	0	
Offset	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	89	0	0	116	35	0	0	0	0	
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	0	25	0	65	0	25	0	65
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON

Table - 2

Time	0	36	0	44	0	36	0	44
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON

Table - 3

Time	0	43	0	42	0	43	0	42
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	OMT	MIN	NON	NON

Table - 4

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 5

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 11

Time	0	70	0	130	20	70	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	MIN	NON	NON	NON	NON

Table - 12

Time	0	80	0	60	20	80	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 13

Time	0	100	0	70	20	100	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON

Table - 14

Time	0	60	0	40	20	60	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 15

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 16

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 17

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 18

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 19

Time	0	0	0	0	0	0	0	0
------	---	---	---	---	---	---	---	---

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 20								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 21								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 22								
Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON
Table - 23								
Time	0	80	0	40	11	69	0	40
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 24								
Time	0	53	0	37	11	42	0	37
Coord Phase	.	X	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 25								
Time	0	70	0	30	15	45	0	30
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 26								
Time	0	60	0	60	15	250	0	45
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON
Table - 27								
Time	0	90	0	30	15	75	0	30
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON
Table - 28								
Time	0	117	0	33	18	99	0	33
Coord Phase	.	.	.	.	.	X	.	.

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON

Table - 29

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 30

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 31

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NVD	NVD	NVD	NVD	NVD	NVD	NVD	NVD

Table - 32

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Adv Schedule(4.3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Table - 1

Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	13	14	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	12	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	20	11	11	11	13	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 444 - Gowen & I-84 WB Off Ramp (Standard-8/12/2021 9:56:14 AM)

Type: NTCIP 61.x TS2 Ethernet

Firmware: 61.04q

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Actions																																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Table - 1																																					
Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	25 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aux 1	
Aux 2	
Aux 3	
Special 1	
Special 2	
Special 3
Special 4
Special 5
Special 6
Special 7
Special 8

Coord Plus																
	Value															
Table - 1																
Mode	FRC															
Leave Before	TIMED															
Leave After	TIMED															
Recycle	NO_RECYCLE															
Stop In Walk	.															
External	.															
Auto Reset	.															
Latch Sec Foff	.															
Coord Easy Float	.															
Yield Value	0															
Coord NTCIP Yield Sign	+															
Closed Loop Active	.															
Shortway+	.															

Day Plan																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Table - 1																
Hour	0	6	8	16	18	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	15	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	15	15	15	15	0	0	0	0	0	0	0	0	0	0	0

Table - 2																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 3																
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 4																
Hour	0	7	11	16	18	21	0	0	0	0	0	0	0	0	0	0
Minute	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	13	14	15	0	0	0	0	0	0	0	0	0	0

Table - 5																
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0

Day Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 6

Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	15	11	12	15	0	0	0	0	0	0	0	0	0	0	0	0

Table - 7

Hour	0	6	7	8	16	18	21	0	0	0	0	0	0	0	0	0
Minute	0	25	0	15	0	30	0	0	0	0	0	0	0	0	0	0
Action	15	11	11	11	13	15	15	0	0	0	0	0	0	0	0	0

Table - 8

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 9

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table - 10

Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Flashing Yellow Arrow

	Value															
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Table - 1

Channel 1	13															
Channel 2	0															
Channel 3	0															
Channel 4	0															

Overlap Programming

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1

Included P1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap Programming																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Included P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Included P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modify P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	NORMA L	R-T/OTH	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L	NORMA L
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	4	3.5	3.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.5	1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Overlap+

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Table - 1

Conflict P1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict P8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict O8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Overlap+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conflict Ped 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflict Ped 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LeadGreen	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA After Preempt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Green Delay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type	.	FL YEL4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FYA Delay	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
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Table - 1																																						
Short	10	10	10	0	0	0	0	0	0	0	10	10	10	10	0	0	0	0	0	0	0	0	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	
Long	25	25	25	17	17	17	17	17	17	17	25	25	25	25	17	17	17	17	17	17	17	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17		
Dwell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Short P 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Early Yield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Offset	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN	BE GG RN			
CNA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Flt
Min Veh
Min Ped
Ret Hold
CIC Plan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ph Opt Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ph Time Table	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Det Grp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Inh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pattern Plus

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Olp Off 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Olp Off 8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dia Mode	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T	DF T		
Ofst2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ofst3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ofst4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patterns

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Table - 1																																				
Cycle Time	90	80	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	90	0	0	12 0	15 0	0	0	0	0	0	0	0	0
Offset Time	27	1	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	76	0	0	15	54	0	0	0	0	0	0	0	0
Split Number	1	2	3	0	0	0	0	0	0	0	11	12	13	14	15	0	0	0	0	0	0	0	23	24	25	26	27	28	0	0	31	32	0	0	0	0
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1	1	1

Phase Entries

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Walk	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
Min Green	5	10	0	0	0	5	0	10	0	0	0	0	0	0	0	0
Passage	4	3	0	0	0	3	0	2.5	0	0	0	0	0	0	0	0
Max1	30	75	0	0	0	75	0	25	0	0	0	0	0	0	0	0
Max2	40	20	0	0	0	20	0	40	0	0	0	0	0	0	0	0
Yellow	4	4	0	0	0	4	0	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	0	0	0	1.5	0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Phase Entries																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Startup	RED	GREEN	RED	RED	RED	WALK	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
Enable	X	X	.	.	.	X	.	X	.	.	.	.	.	.	.	.
Auto Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Auto Exit	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Non Act1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Non Act2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Min Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dual Entry	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Sim Gap Enable	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Guar Passage	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rest In Walk	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cond Service	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Add Init Calc	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ring	1	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0
Concur 1	5	5	7	7	1	1	3	3	0	0	0	0	0	0	0	0
Concur 2	6	6	8	8	2	2	4	4	0	0	0	0	0	0	0	0
Concur 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Concur 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Phase Entries+																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Table - 1																
Reservice	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Walk Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Skip Red	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Max 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ped Delay	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Conf Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Ped Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Omit Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Yel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inhibit P1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Inhibit P16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Call Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Call Phs4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
From Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
To Phs2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring Sequences				
	1	2	3	4
Ring P2	1	5	0	0
Ring P3	4	8	0	0
Ring P4	3	7	0	0
Ring P5	0	0	0	0
Ring P6	0	0	0	0
Ring P7	0	0	0	0
Ring P8	0	0	0	0

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Table - 1																																	
Jan	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Feb	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mar	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Apr	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
May	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jun	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jul	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aug	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sep	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oct	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nov	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dec	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
02	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
03	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
04	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
05	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
06	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
07	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
08	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
09	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Scheduler																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
15	X	X	X
16	X	X	X
17	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	X	X	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	X	X	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sun	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mon	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tue	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Wed	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Thu	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fri	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sat	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Plan	1	2	3	4	5	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

Splits

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Table - 1

Time	12	25	0	53	0	37	0	53	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 2

Time	12	24	0	44	0	36	0	44	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.

Table - 3

Splits																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	12	31	0	42	0	43	0	42	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Table - 4																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 5																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 6																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 7																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 8																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 9																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 10																
Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 11																
Time	30	130	0	0	0	130	0	20	0	0	0	0	0	0	0	0
Mode	NON	MIN	NON	NON	NON	MIN	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Table - 12																
Time	30	90	0	0	0	90	0	25	0	0	0	0	0	0	0	0

Controller Database Timing Sheet



Station: 284 - Hwy 21 & Technology_Grand Forest-Scout 85.3 (Standard-9/27/2022 10:53:12 AM)

Type: Scout Ethernet v85.3

Firmware: 85.3.0

Created By: NTDomain\jcollins

Modified By:

Reviewed By:

Phase Times and Options(1.1.1/1.1.2/1.1.4)								
	1	2	3	4	5	6	7	8
Table - 1								
MIN GRN	5	10	5	5	5	10	5	10
Gap Ext	2	5	2	2	2	5	2	2
MAX 1	20	45	20	30	20	45	20	30
Max 2	30	55	30	40	30	55	30	40
Yel Clr	4	5	4	4	4	5	4	4
Red Clr	1	1	1	1	1	1	1	1
Walk	0	5	0	0	0	5	0	5
Ped Clr	0	15	0	0	0	17	0	20
Red Revt	0	0	0	0	0	0	0	0
Add Init	0	0	0	0	0	0	0	0
Max Init	0	0	0	0	0	0	0	0
Gap Reduce Time B4	0	0	0	0	0	0	0	0
Gap Reduce Cars B4 Reduce	0	0	0	0	0	0	0	0
Gap Reduce Time To	0	0	0	0	0	0	0	0
Gap Reduce ReduceBy	0	0	0	0	0	0	0	0
Gap Reduce Min Gap	0	0	0	0	0	0	0	0
DyMaxLim	40	60	40	50	40	60	40	50
Max Step	5	5	5	5	5	5	5	5
Enable P	X	X	X	X	X	X	X	X
Min Recall	.	X	.	.	.	X	.	.
Max Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.
Lock Calls	.	.	.	.	.	.	.	.

Ring Sequences(1.2.4)		
	1	2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0

Patterns(2.4)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
Table - 1																																		
Cycle	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
seqnc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Splits Expanded(2.7.X.1)

	1	2	3	4	5	6	7	8
--	---	---	---	---	---	---	---	---

Table - 1

Time	15	31	13	31	17	29	13	31
Coord Phase	.	.	.	.	.	X	.	.
Mode	NON	MIN	NON	NON	NON	MAX	NON	NON

Table - 2

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 3

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 4

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 5

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 6

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 7

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 8

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 9

Time	0	0	0	0	0	0	0	0
Coord Phase	.	.	.	.	.	.	.	.
Mode	NON	NON	NON	NON	NON	NON	NON	NON

Table - 10

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Table - 1																				
Hour	0	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 2																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 3																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 4																				
Hour	0	6	11	15	18	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	25	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	13	14	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 5																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 6																				
Hour	0	7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	33	11	12	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 7																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 8																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 9																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Table - 10																				
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

June 5, 2024

Micron Technology Inc.
c/o Anna Eberlin, aeberlin@micron.com

RE: Improvements in support of Micron campus expansion

Dear Ms. Eberlin:

Idaho Transportation Department (ITD) previously reviewed and accepted the Traffic Impact Study (NV5, January 2023) associated with the Micron campus expansion. ITD has continued to meet with Micron representatives regarding the study and transportation improvements in support of the expansion project.

The following intersection would be impacted beyond the thresholds requiring mitigation, and as of the date of this letter, the project has obtained the necessary permits from ITD and completed this mitigation:

Study Intersection 3. Memory Road at Federal Way / 184 WB Ramp

- Re-configure the SB approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the WB direction and a single EB lane

Based on this information and given the low percentage of the project's trips through intersections at Gowen Road / Technology Way, Gowen Road / Federal Way, and Gowen Road / I-84 EB Ramp, no mitigation to these intersections is required for the project.

Additionally, ITD, Micron and other local agencies have identified multiple projects/improvements that Micron will help fund to improve roadway functionality, and enhance pedestrian/bicycle facilities on the highway system adjacent to the Micron campus:

Construction of a detached multi-use pathway, and related features along the northeast corner of State Highway 21 and Technology Way, for a distance of approximately 600 feet. This project includes the removal of the existing pathway, adjustments to the curb and gutter, and restoration of the surrounding landscape.

Improvements to the Eastbound I-84 ramp at Highway 21.

Improvements to the intersection and surrounding roadway segments of Highway 21 and Federal Way

Micron will help fund these projects through a contribution of \$140,000. ITD or third parties working with ITD will obtain necessary approvals, design, and construct these projects. ITD and Micron will continue to coordinate the details to facilitate funding of these projects. ITD appreciates Micron's support in improving the local highways facilities near the campus.

Sincerely,



Brian Duran
Development Services Planning Manager
Idaho Transportation Department | District 3

Sadegh, Zahra

From: Christy Little <Clittle@achdidaho.org>
Sent: Thursday, June 13, 2024 9:27 AM
To: Deborah E. Nelson
Cc: Brian.Duran@itd.idaho.gov; John Karnowski; Anna Eberlin (aeberlin) (aeberlin@micron.com)
Subject: Re: [EXT] Micron Traffic Study - IMMEDIATE RESPONSE REQUESTED [GP-DMS.016642.0002.FID1041813]

EXTERNAL

This is consistent with the information reviewed by ACHD and I confirm the information below.

Thanks,
Christy

Christy Little
Development Services Manager

From: Deborah E. Nelson <den@givenspursley.com>
Sent: Thursday, June 13, 2024 9:17 AM
To: Christy Little <Clittle@achdidaho.org>
Cc: Brian.Duran@itd.idaho.gov <Brian.Duran@itd.idaho.gov>; John Karnowski <john.karnowski@nv5.com>; Anna Eberlin (aeberlin) (aeberlin@micron.com) <aeberlin@micron.com>
Subject: Re: [EXT] Micron Traffic Study - IMMEDIATE RESPONSE REQUESTED [GP-DMS.016642.0002.FID1041813]

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Thank you Christy! Here is the summary of mitigation for ACHD confirmation. Nothing has changed on ACHD roadways. An email response that you concur is sufficient. Appreciate your time on this busy day!
Deb

ACHD

No changes have occurred regarding the roadways within ACHD's jurisdiction. Consistent with prior communications and with ACHD policy, given the low percentage of project trips (less than 10%) through intersections identified in the traffic impact study, no mitigation at those intersections is required. The following intersection would be impacted beyond the thresholds requiring mitigation:

Federal Way at Gate B

- Install a Traffic Signal (pending a warrant analysis)
- Or eliminate left turn movement out of Micron campus

This mitigation is planned to be completed by Micron upon commencement of the project in 2025 to the extent required (and allowed) by ACHD based on traffic signal warrant analysis and use of Gate B. Micron is also responsible for paying impact fees.

Sent from my iPhone

On Jun 13, 2024, at 9:08 AM, Christy Little <Clittle@achdidaho.org> wrote:

EXTERNAL

Good morning - I am in meetings all day today, including a lunch meeting! If you can prepare a statement for me to concur with I can respond to that.

Thanks,
Christy

From: Deborah E. Nelson <den@givenspursley.com>

Sent: Thursday, June 13, 2024 12:01 AM

To: Brian.Duran@itd.idaho.gov <Brian.Duran@itd.idaho.gov>; Christy Little <Clittle@achdidaho.org>

Cc: John Karnowski <John.Karnowski@nv5.com>; Anna Eberlin (aeberlin) (aeberlin@micron.com) <aeberlin@micron.com>

Subject: RE: [EXT] Micron Traffic Study - IMMEDIATE RESPONSE REQUESTED [GP-DMS.016642.0002.FID1041813]

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Hi Brian and Christy:

Following up on our prior communications in the email chain below, the NEPA team has requested confirmation from ITD and ACHD regarding current mitigation for the project, summarized below. If at all possible, **we need a response by noon on Thursday**. I'm very sorry for the short notice; we've been working with ITD on recent updates within their jurisdiction but we've learned we need ACHD's confirmation as well. An email response is sufficient. Please let me know of any concerns or questions. Thank you! Deb

ITD

Given the low percentage of the project's trips through intersections at Gowen Road / Technology Way, Gowen Road / Federal Way, and Gowen Road / I-84 EB Ramp, no mitigation to these intersections is required for the project. The following intersection would be impacted beyond the thresholds requiring mitigation, and the project has completed this mitigation:

Memory Road at Federal Way / 184 WB Ramp

- Re-configure the SB approach to the intersection to include a left turn lane
- Configure the east side of the intersection to include a shared thru-right lane in the WB direction and a single EB lane

Additionally, Micron and ITD have identified an ITD-priority project that Micron would fund prior to commencement of the project in 2025 to improve pedestrian and bicycle safety adjacent to the Micron campus: construction of a detached multi-use pathway along the north side of Gowen road near the intersection with Technology Way.

ACHD

No changes have occurred regarding the roadways within ACHD's jurisdiction. Consistent with prior communications and with ACHD policy, given the low percentage of project trips (less than 10%) through intersections identified in the traffic impact study, no mitigation at those intersections is required. The following intersection would be impacted beyond the thresholds requiring mitigation:

Federal Way at Gate B

- Install a Traffic Signal (pending a warrant analysis)
- Or eliminate left turn movement out of Micron campus

This mitigation is planned to be completed by Micron upon commencement of the project in 2025 to the extent required (and allowed) by ACHD based on traffic signal warrant analysis and use of Gate B. Micron is also responsible for paying impact fees.

DEBORAH E. NELSON

GIVENS PURSLEY LLP

601 W Bannock St, Boise, ID 83702

direct 208-388-1215 / mobile 208-571-6325 / assistant 208-388-1225 (Jennifer Taylor)

den@givenspursley.com / www.givenspursley.com

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From: Christy Little <Clittle@achdidaho.org>

Sent: Tuesday, August 1, 2023 11:34 AM

To: Deborah E. Nelson <den@givenspursley.com>; Brian.Duran@itd.idaho.gov

Cc: John Karnowski <John.Karnowski@nv5.com>; Jeffrey W. Bower <jeffbower@givenspursley.com>; Sherman, David <Dave.Sherman@wsp.com>

Subject: RE: [EXT] Micron Traffic Study [IWOV-GPDMS.FID1152209]

EXTERNAL

Hi Deb – ACHD has no objection to these updates.

Thanks,

Christy

From: Deborah E. Nelson <den@givenspursley.com>

Sent: Monday, July 31, 2023 3:14 PM

To: Christy Little <Clittle@achdidaho.org>; Brian.Duran@itd.idaho.gov

Cc: John Karnowski <John.Karnowski@nv5.com>; Jeffrey W. Bower <jeffbower@givenspursley.com>; Sherman, David <Dave.Sherman@wsp.com>

Subject: Re: [EXT] Micron Traffic Study [IWOV-GPDMS.FID1152209]

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Hi Christy and Brian, our NEPA team has requested written confirmation that ACHD and ITD have no objection to the final TIS updates. As summarized before, the recommended mitigation did not change. An email response is sufficient.

Please let us know if you have any questions or concerns we can address.

Thank you,
Deb
Sent from my iPhone

On Jul 18, 2023, at 10:24 AM, Deborah E. Nelson <den@givenspursley.com> wrote:

Hi Christy and Brian,

Please see the attached update from NV5 to the traffic analysis for the Micron expansion project. The purpose of the update is to include the wastewater treatment facility. This facility was outside the scope of the original applications to the City and associated traffic impact study because the facility is intended to be permitted, constructed and operated by others. But the NEPA process requires Micron to include this as a related project so we have included the impacts from this facility in the scope. As you probably recall, that is the same reason we recently updated the study through year 2030.

Per John's attached memorandum, adding in the trips for the wastewater facility did not change the prior conclusions or mitigations.

Brian, the memo was addressed to Wendy, but we understand from her recent communications that we should direct this to you.

Please let us know of any questions or concerns.

Thank you,
Deb

DEBORAH E. NELSON

GIVENS PURSLEY LLP

601 W Bannock St, Boise, ID 83702

direct 208-388-1215 / mobile 208-571-6325 / assistant 208-388-1225 (Jennifer Taylor)

den@givenspursley.com / www.givenspursley.com

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<ID1 plus Water Plant TIS Memo 20230628.pdf>