

## Introduction

The Forensic Gait Analysis Process Map (Current Practice) captures details about the various procedures, methods, and decision points most frequently encountered in the discipline of forensic gait analysis (FGA) from a national perspective and is intended to reflect current practices. The discipline requires examiners to make many decisions that can impact the quality and accuracy of results. The Forensic Gait Analysis Process Map benefits the discipline by providing a behind-the-scenes perspective into the various components and decision points in the examination process.

Process mapping is the visual representation of the critical steps and decision points of a process. Components of the process are deconstructed, placed into specific shapes within a flowchart and connected by one-way arrows to indicate directionality regarding decisions as well as progression throughout the overall process. The shape of each box assists the reader by representing a specific type of activity.

This process map captures the diverse practices of multiple examiners with the goal of allowing the examiner to find their process represented in the map. To ensure this, the mapping team avoided creating a map of what should be done (i.e., best practices) and instead attempted to represent all reasonable variations of casework currently performed by examiners. For this reason, it is important to state that the OSAC Video/Imaging Technology and Analysis Subcommittee does not necessarily support or endorse (as best practices) all of the different steps and paths depicted in this process map.

This map is not intended to be a step-by-step instruction manual outlining minutiae, nor is it intended to be so broad that it lacks utility. Rather, judgments were made by the process mapping group as to which steps should be combined and which steps should be divided further. Certain processes represented in the map have a required sequence while other components may vary by examiner or agency. Processes and decisions may also be dictated by agency policy or law.

### Process Map Applications

The Forensic Gait Analysis Process Map is intended to be used to help improve efficiencies while reducing errors, highlight gaps where further research or standardization would be beneficial, and assist with training new examiners. It may also be used to develop specific policies and identify best practices.

### Scope of the Forensic Gait Analysis Process Map

The scope of Forensic Gait Analysis Process Map is limited to processes within the discipline of forensic gait analysis such as the examination and analysis of a figure in questioned footage and a subject in reference footage and their comparison by features and/or combinations of features of their gait.

#### Underlined Word

Word that will be defined in the glossary



## Introduction

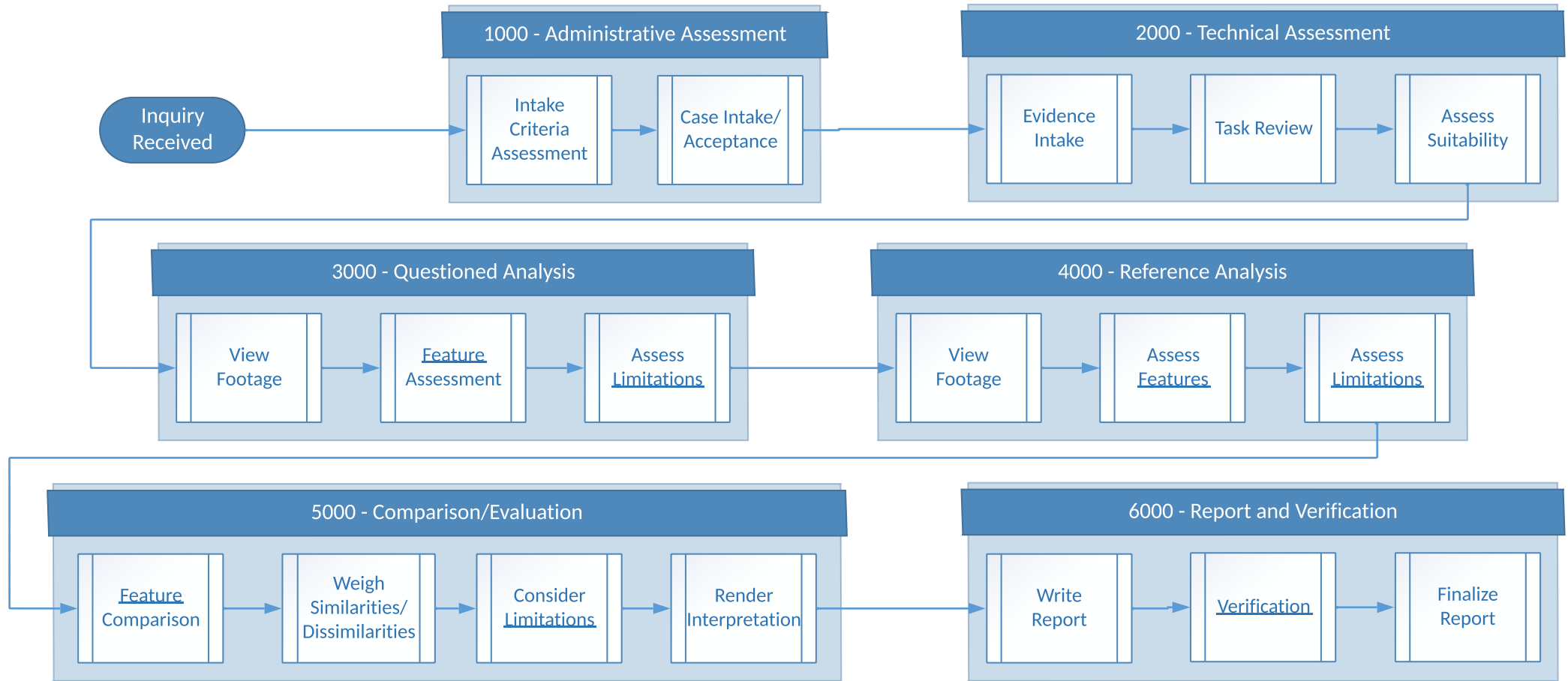
### Overview of Forensic Gait Analysis

*Forensic gait analysis has been defined as the analysis, comparison, and evaluation of features of gait to assist the investigation of crime. The process is also applicable to non-criminal legal matters. The systematic methodology of forensic gait analysis grew from observational gait analysis in the medical/clinical setting. The current approach, put forth herein, uses a validated, reliable, reproducible, peer-reviewed, and published methodology, the [Sheffield Gait Tool](#), to assist with the analysis.*

*The methodology follows the ACE-V principle. The first stage of the process is a quality assessment of the available footage to determine if the footage is suitable for use in forensic gait analysis. Should the footage be suitable for use, the [questioned footage](#) of the unknown figure is analyzed, and the features of gait noted. Features of gait are habitual and result from the complexity of the human body's anatomy and biomechanics, and may be influenced by personal characteristics, such as somatotype, gender, age, habits, and/or pathology. These features of gait may vary between persons and while they are class level characteristics, the particular combination of features seen to be exhibited by a person can add to their discriminatory potential. Following analysis of the [questioned footage](#), the [reference footage](#) of the known [subject](#) is then analyzed and the features of gait noted. A comparison is then made of the features seen to be exhibited by the unknown figure with those seen to be exhibited by the known [subject](#), and the features that are similar or dissimilar are noted. This assessment may be assisted by relevant data, research, and/or testing. An opinion is made by considering OSAC Opinion Categories or another, appropriate opinion scale.*

*As the OSAC Exploratory Task Group on Gait Analysis continues to develop standards and best practice recommendations to the [forensic gait analysis](#) process, this map will be updated. This map is intended to be flexible and provide the broad outline of [forensic gait analysis](#) to facilitate further research, investigation, communication, and development of quality controls.*





Start / Finish box

Decision box

Task/ Activity box

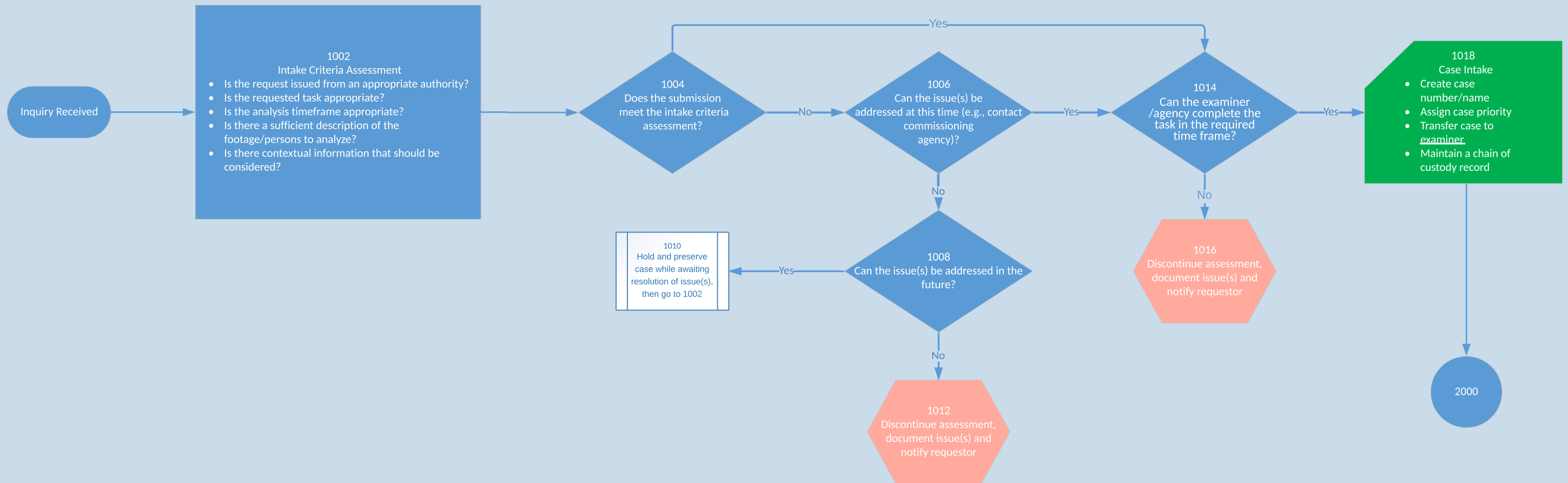
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Input Box  
Outlines the inputs at the beginning of each section

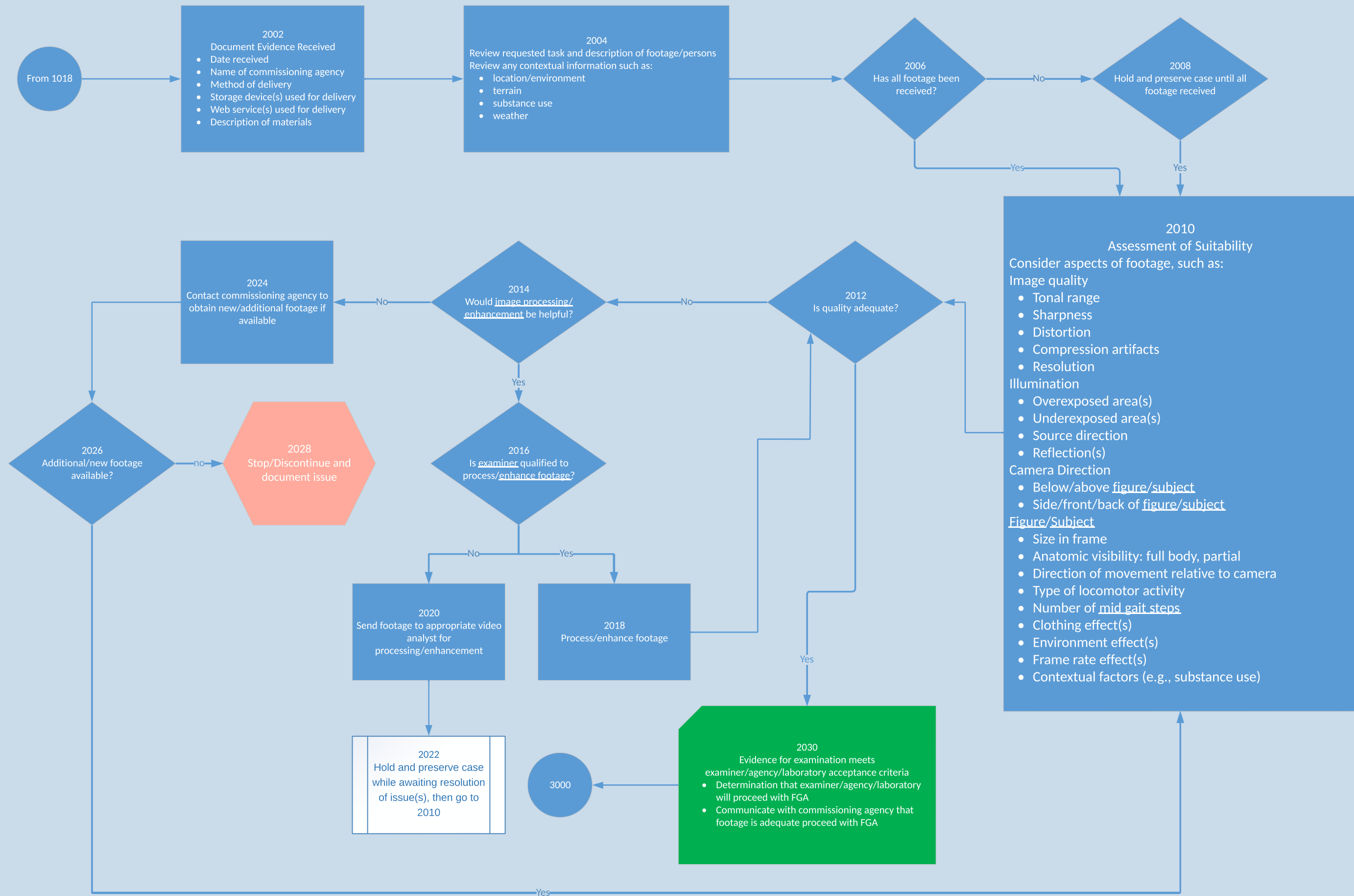
Output Box  
Describes an output of the steps on the page

Discontinuation of Assessment or Examination

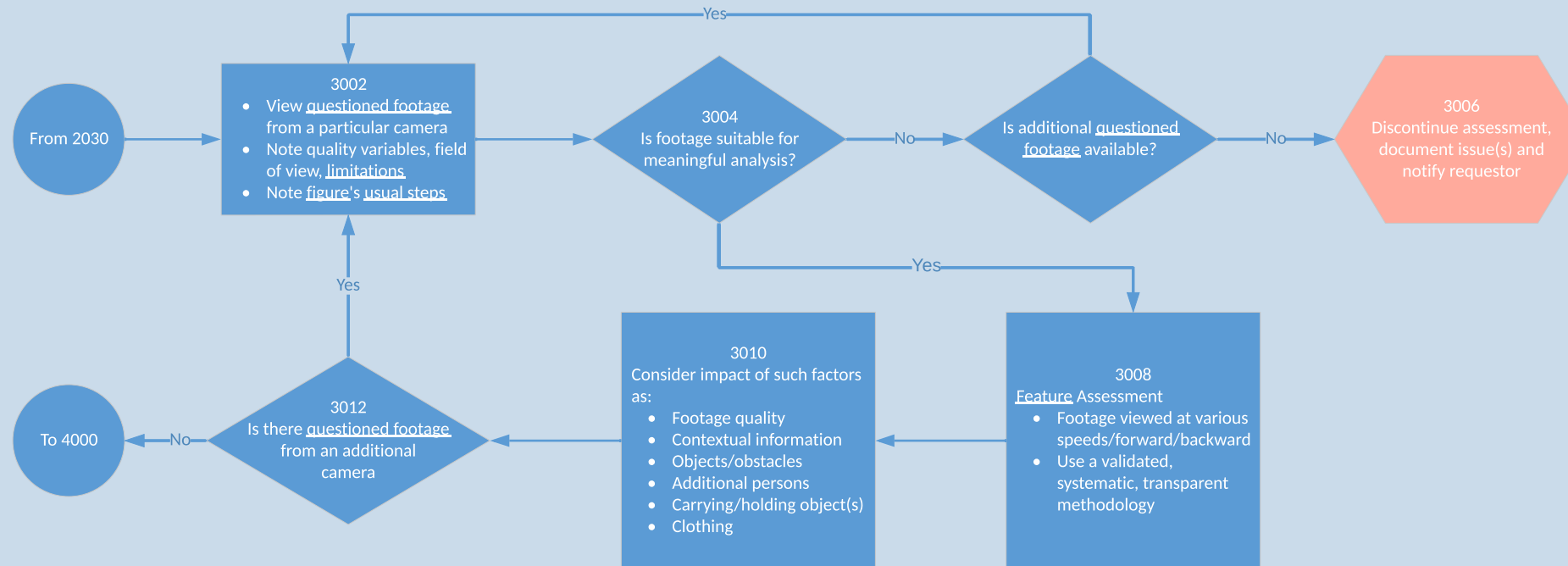
## 1000 - Administrative Assessment



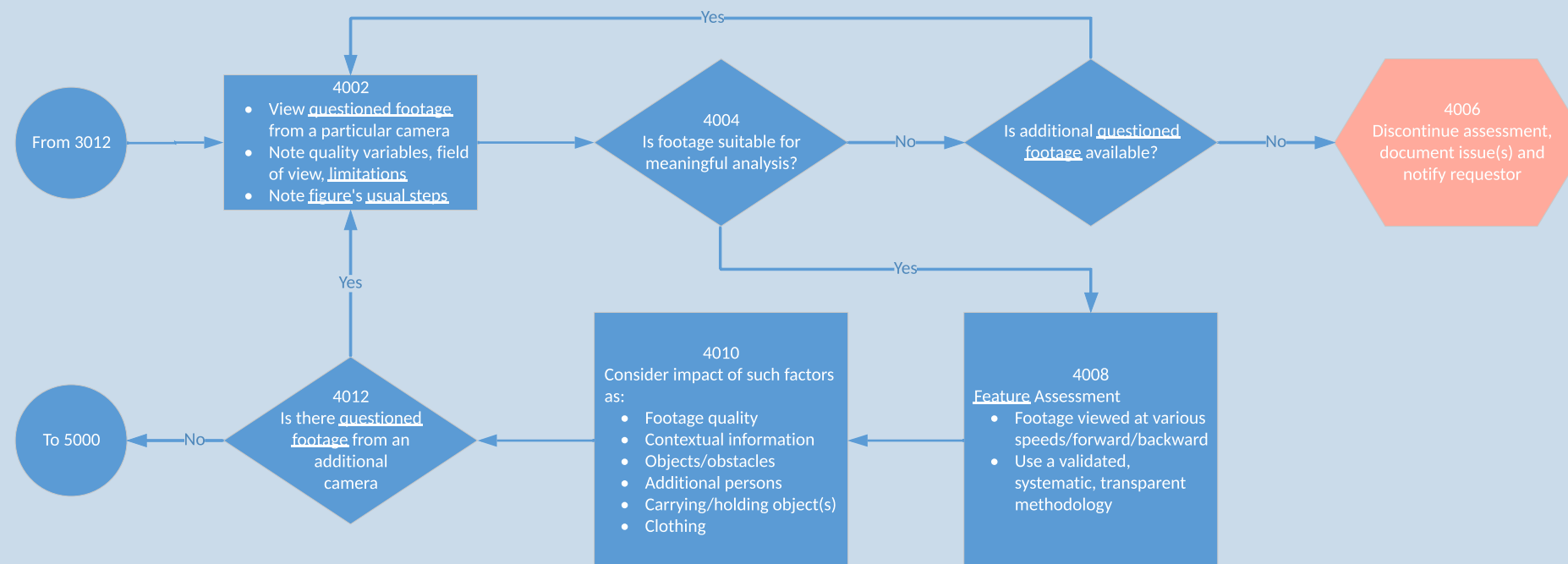
## 2000 Technical Assessment



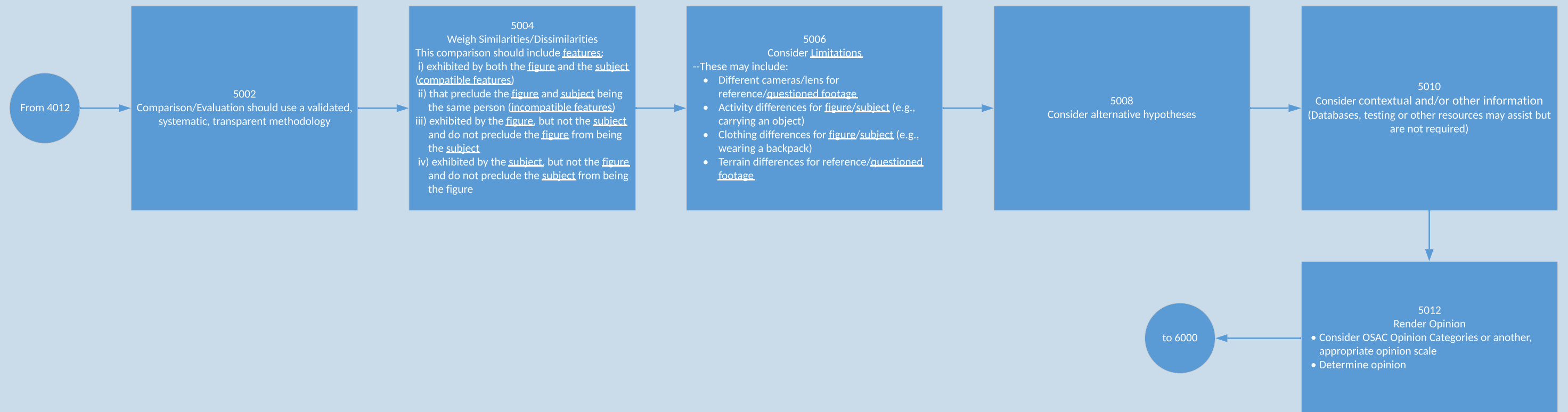
## 3000 Questioned Analysis



## 4000 Referenced Analysis

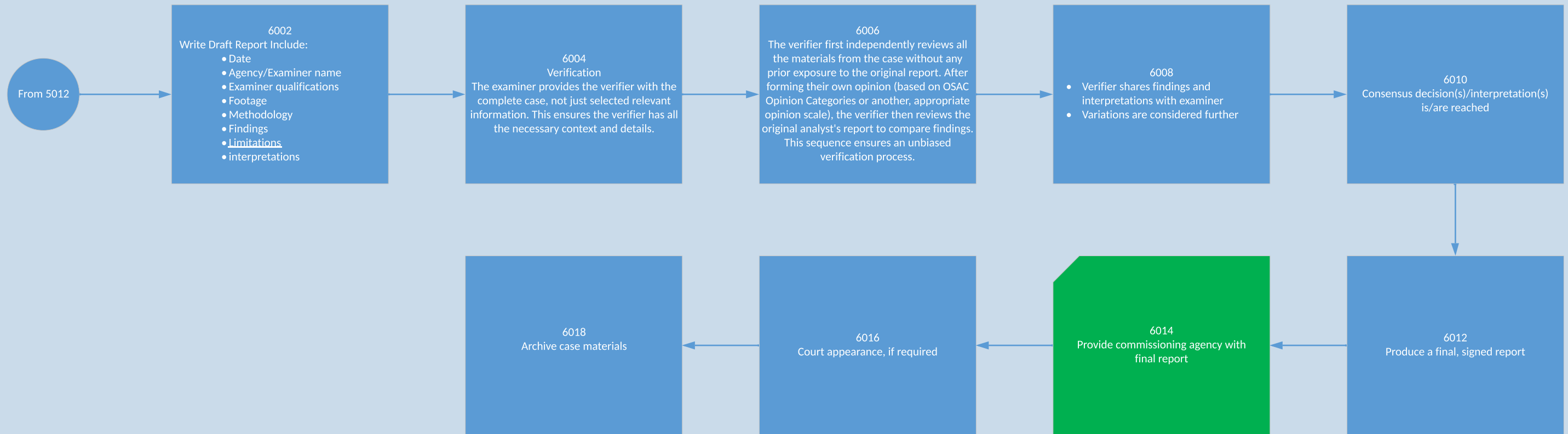


## 5000 Comparison/Evaluation





## 6000 Report and Verification



# Glossary

**Assessment Of Suitability** - Evaluation of the suitability of the footage for use as the basis for the analysis of gait.

**Class Characteristic(s)** - The attribute(s) that establish membership in a class.

**Compatible Features** - Features exhibited by both the figure in the questioned footage and the subject in the reference footage.

**Feature** - A feature of gait is a distinctive attribute of gait.

**Figure** - The person of interest observed in the questioned footage.

**Forensic Gait Analysis** - The analysis, comparison and evaluation of features of gait to assist the investigation of crime.

**Gait** - The manner or style in which a locomotor activity is undertaken.

**Image Processing** - Any activity that transforms an original input image to an output image (ref. OSAC 2024-N-0011 Standard Guide for Forensic Digital Image Management).

**Incompatible features** - Features exhibited by either the figure in the questioned footage or the subject in the reference footage, which would preclude them from being the same person.

**Inconclusive** - The basis of this opinion is that the observed characteristics are equally probable given the proposition that the images depict different sources (i.e., different persons) and the proposition that the images depict the same source (i.e., same person). (adapted from OSAC 2022-S-0001 Standard Guide for Image Comparison Conclusions/Opinions, Sept. 2021).

**Locomotor Activity** - A method of moving from one location to another using the musculoskeletal system e.g., walking or running.

**Limitation(s)** - A limitation is an attribute of a piece of footage that introduces an element of doubt to any observation(s) of features of gait that have been made from the footage.

**Mid Gait Steps** - A step taken in a sequence of steps during which there is no significant deviation from usual gait such as acceleration, deceleration, or change of direction.

**Opinion Categories** - Defines categories that shall be reached by the examiner; category names may vary but they should show correspondence to categories noted herein; categories may be expanded to include more specific levels of confidence or support strength (adapted from OSAC 2022-S-0001 Standard Guide for Image Comparison Conclusions/ Opinions, Sept. 2021).

**OSAC Opinion Categories** - A standard that provides a framework that can be reached by a practitioner performing comparisons of people, objects, or scenes captured in images, and it lists categories for opinions about the relative support that the images provide for the hypothesis that they depict the same source as opposed to the hypothesis that they depict a different source (ref. OSAC 2022-S-0001 Standard Guide for Image Comparison Opinions, Version 2.0.).

**Questioned footage** - Footage associated with a an investigation.

**Reference footage** - Footage of a known person.

**Sheffield Gait Tool** - A validated, systematic method of examining features of gait.

**Subject** - The person of interest in the referenced footage.

**Usual steps** - Steps that demonstrate the usual gait of a person.