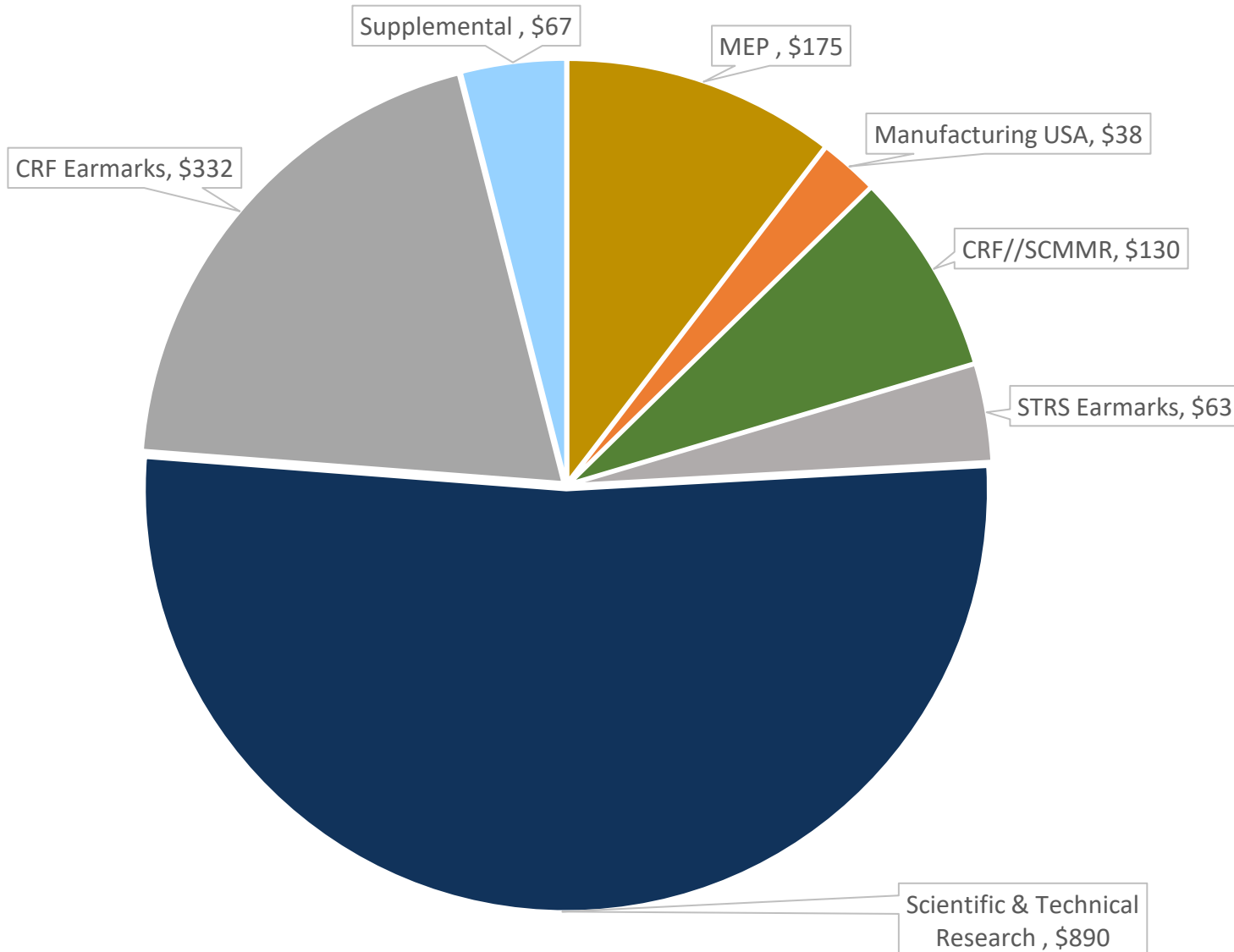


NIST Budget Update

Dr. Christopher Szakal
Acting Director,
Program Coordination Office

NIST FY 2023 Enacted (\$1,627.3 M)



Supplemental:

- \$40M for EL, NCST Investigations from FY 22 storms
- \$27M for ITS to support CHIPS (\$13M MEP; \$14M MFG USA)

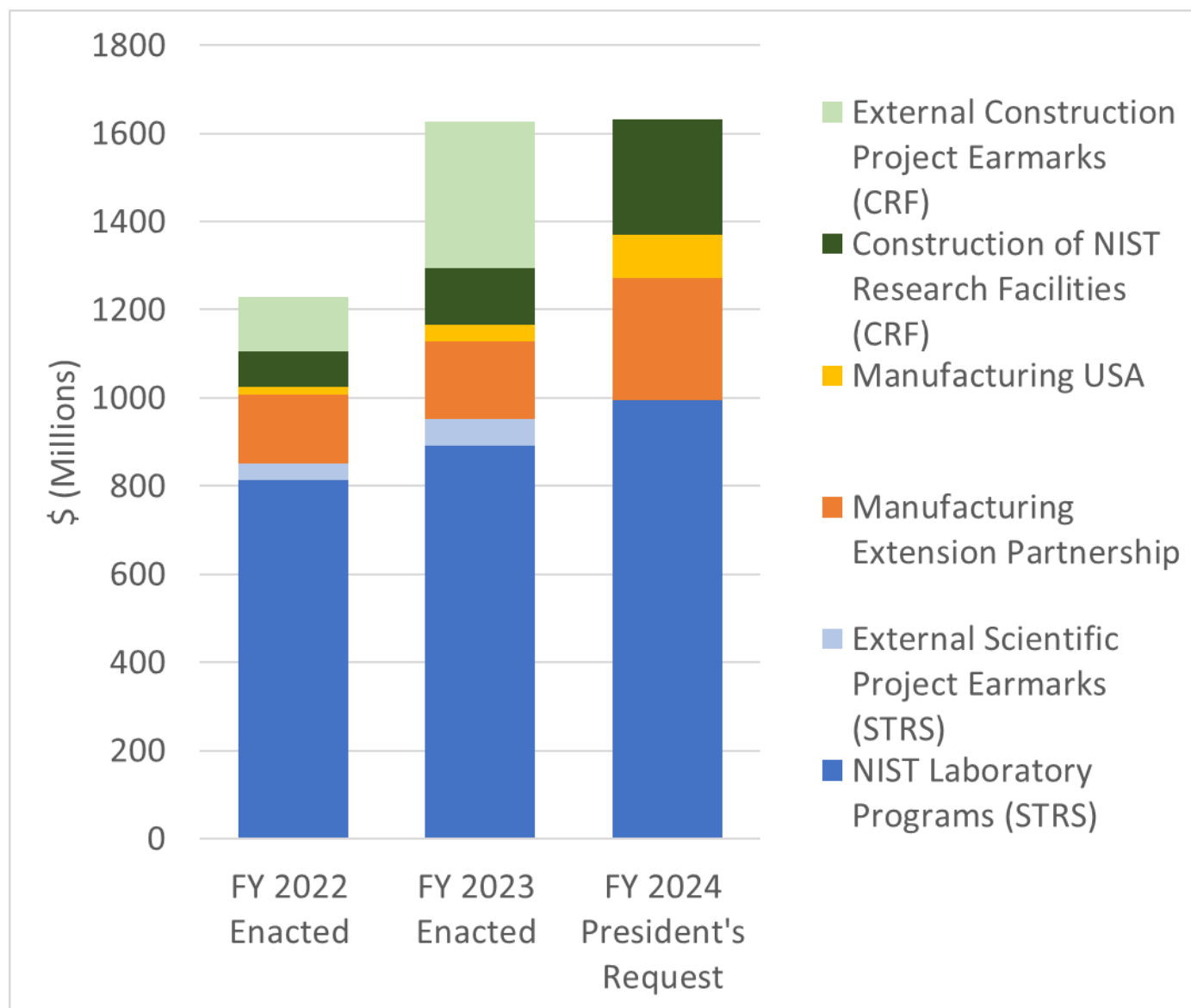
Update:

- NIST spend plan approved by House end of May 2023
- Growing conversation about authorized activities (ex: CHIPS and Science Act) without direct appropriations

NIST FY 2024 Budget Request (\$1,632.0 M)



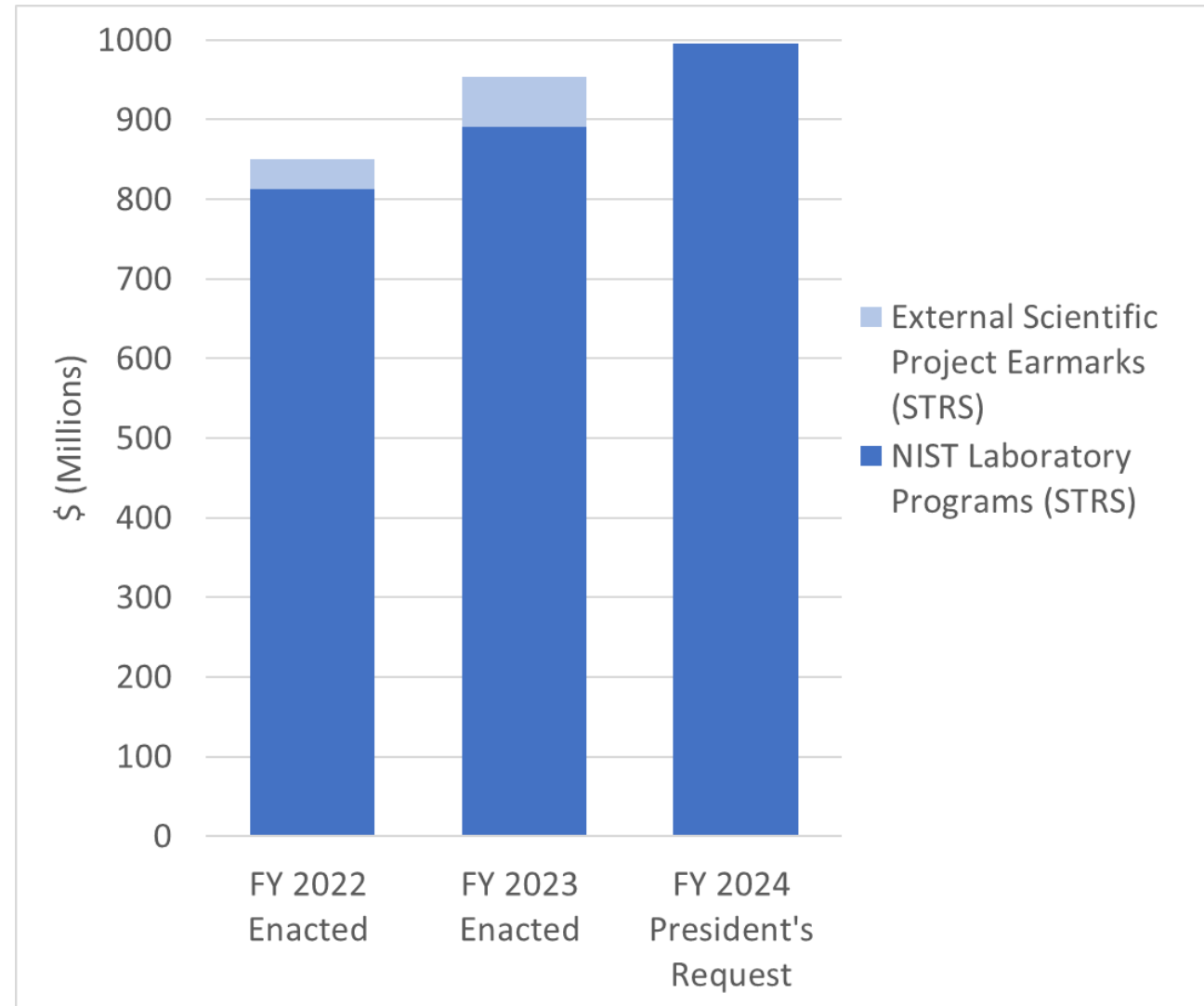
- The FY 2024 budget request is an increase of **\$358.5 M** over FY 2023 enacted levels (without FY 2023 earmarks)
- A **29% increase** over FY 2023 enacted (without FY23 earmarks) to address priorities



STRS: \$995.0 M (+\$104.5 M)

The FY 2024 President's Budget targets increased funding of critical research and services and fully funds inflationary adjustments

- Ensures a strong foundation for future standards development by investing in critical and emerging technologies research, measurements, and data
- Provides resources for NIST to meet increased industry and government demands for cybersecurity and privacy-related standards and guidelines
- Supports new technology, data, and measurements to mitigate climate change
- Enhances and improves NIST mission delivery and stakeholder engagement



New Efforts to Advance Critical Technologies

\$229.8 M (+\$20.0 M)

- **Advancing Research in Critical and Emerging Technologies (+\$20.0 M)**
 - **Artificial Intelligence**, including acceleration of standards for trustworthy systems
 - **Quantum Information Science**, including metrology for scaled quantum systems and networking
 - **Biotechnology**, including measurements and standards to support the Bioeconomy E.O.
 - **Advanced Communications Research and Standards**, including measurements to accelerate development of next-generation technologies

ARTIFICIAL INTELLIGENCE

New work through NIST AI Collaborative Institute



QUANTUM INFORMATION SCIENCE

Support U.S. industry efforts in large-scale quantum processors



BIOTECHNOLOGY

Measurement platforms, standards, automation, and advanced data analytics



ADVANCED COMMUNICATIONS

Standards leadership and next generation communication technologies



New Efforts to Ensure U.S. Leadership in Cybersecurity and Privacy \$113.9 M (+\$20.0 M)



- RAMPS Cybersecurity Education and Workforce Development
- Research, standards, and guidance in critical areas such as industrial Internet of Things devices, cryptography, biometrics, etc.
- Congressional mandates and Executive Orders



Credit: N.Hanacek, B.Hayes/NIST

New Efforts to Ensure Trustworthy and Resilient Domestic Supply Chains \$153.9 M (+\$8.0 M)

NIST

- National Initiative for Improving Cybersecurity in Supply Chains to help **build trust and address vulnerabilities** (+\$4.0 M)
- **Verifying authenticity** of components in domestic supply chains to ensure system integrity (+\$2.0 M)
- **Advanced manufacturing technologies** to validate approaches aimed at reducing reliance on critical minerals (+\$2.0 M)

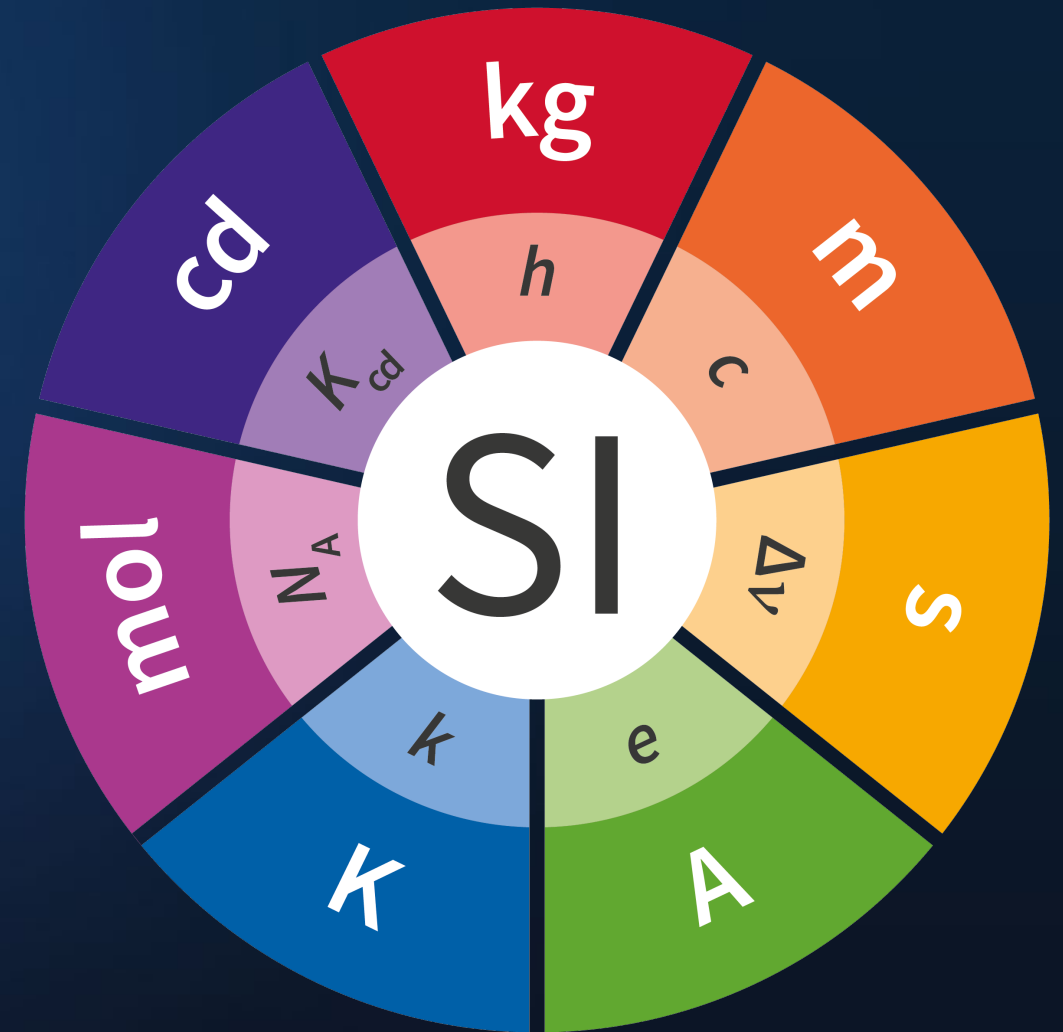


Credit: NIST

New Efforts to Strengthen NIST's Mission Delivery

\$100.9 M (+\$15.2 M)

- **Measurement Services Modernization**, including new types of reference materials (+\$5.0 M)
- **Strengthening Equity and Diversity in the NIST Workforce**, including partnerships with Minority-serving Institutions (MSIs) (+\$2.2 M)
- **National Construction Safety Team (NCST) Act implementation**, including increased safety team deployments (+\$5.0 M)
- **NCNR Advanced Research Instrumentation (+\$3.0 M)**, including new innovations to support users



New Efforts to Ensure U.S. Leadership in Climate and Environment \$97.6 M (+\$5.5 M)



- **CO₂ removal strategies** - to quantify the effectiveness of carbon removal solutions including from direct air capture (DAC) and natural-based systems **(+\$2.0 M)**
- **Greenhouse gas (GHG) measurement tools and standards** - to expand efforts in GHG measurement and monitoring, including implementation of GHG IWG* recommendations **(+\$3.5 M)**

*GHG IWG - Greenhouse Gas Monitoring and Measurement Interagency Working Group



Credit: pixaby

NIST's Decaying Facilities and Mission Impacts



The February 2023 report on NIST's facilities by the National Academies found: **"...that facility issues are preventing NIST from achieving its mission, that valuable researcher time is being wasted due to inadequate facilities, and that in many cases NIST facilities are no longer world class."**

Negative Mission Impacts

- Productivity loss of 10% to 40%
- Frequent power outages
- Delays of months to years as staff wait for functional space
- Difficulty in recruiting and retention
- Poor conditions prevent research completion
- Loss of sensitive equipment worth millions of dollars from flood damage
- Difficulty in maintaining health and safety standards



Credit: NIST



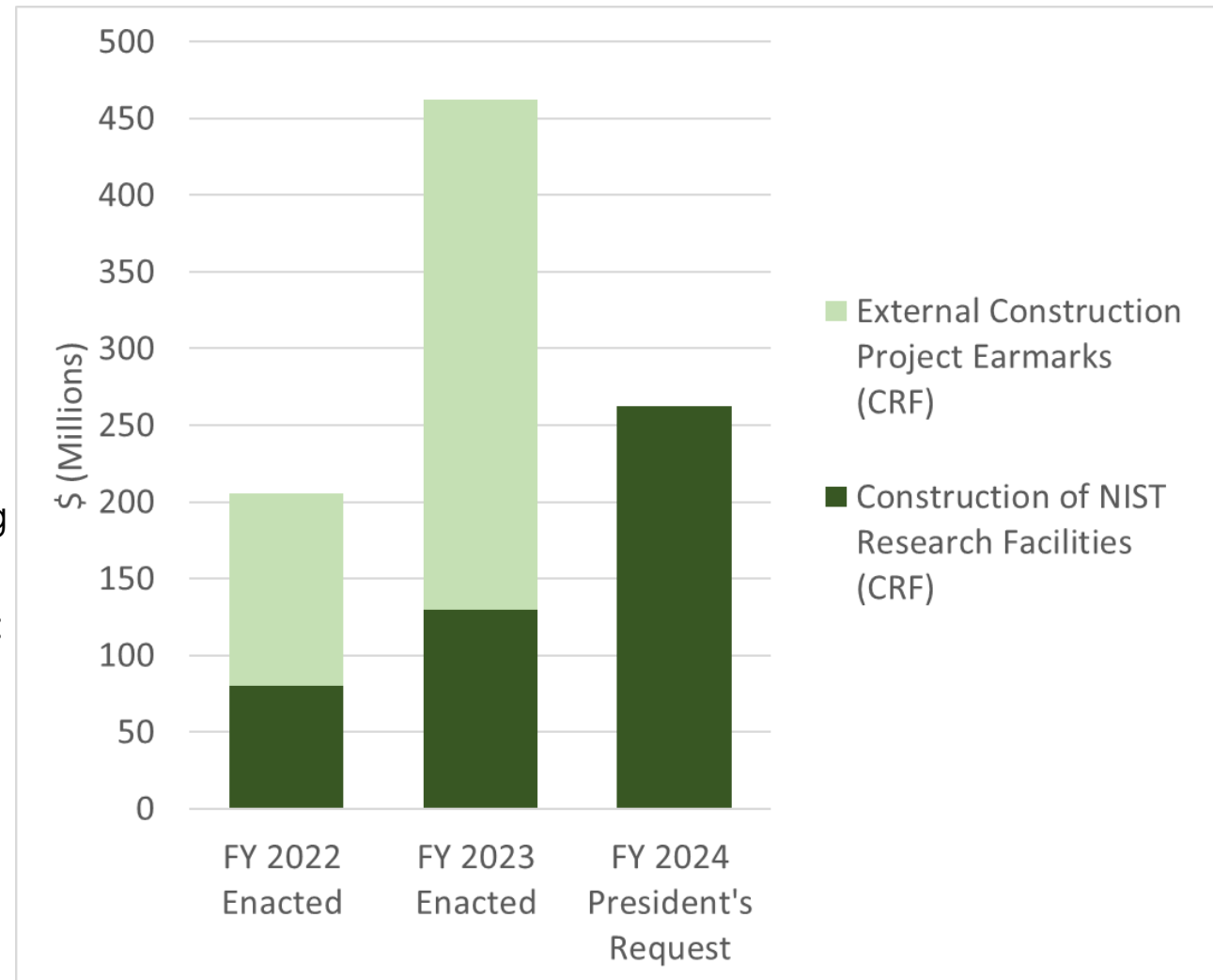
Credit: NIST



Credit: NIST

CRF: \$262.1 M (+\$128.6 M)

- The NASEM report recommends: “... a **comprehensive strategy and plan to recover from long-term, inadequate funding of all facility needs funded by CRF: sustainment, restoration, modernization, and expansion, including backlogged needs for expansion to support mission-growth.**”
- **Gaithersburg Central Utility Plant (CUP) Modernization (+\$50.0 M):** sustainable systems, increased capacity, centralized control & monitoring
- **Repair and Revitalization of NIST Facilities (+\$48.6 M):** address maintenance backlog, modernize IT networks
- **Multiple HVAC System Replacements (+\$30.0 M):** Replace AHUs and control systems in 101, 304, and 301



Safety, Capacity, Maintenance & Major Repairs (SCMMR) of NIST facilities (+\$48.6 M)



This request provides for maintenance of NIST facilities and infrastructure to:

- **Repair and revitalize NIST facilities** and address maintenance backlog (steam, electrical, water, etc.)
- **Modernize IT networking infrastructure** to deliver the speed, reliability, and capacity needed to meet future data and computing demands
- **Support infrastructure improvements** and research space enhancements across Gaithersburg and Boulder campuses
- **Ensure that NIST is able to support a leading-edge research and development program** that advances U.S. innovation in critical and emerging technologies

ITS: \$374.9 M (+\$161.2 M)

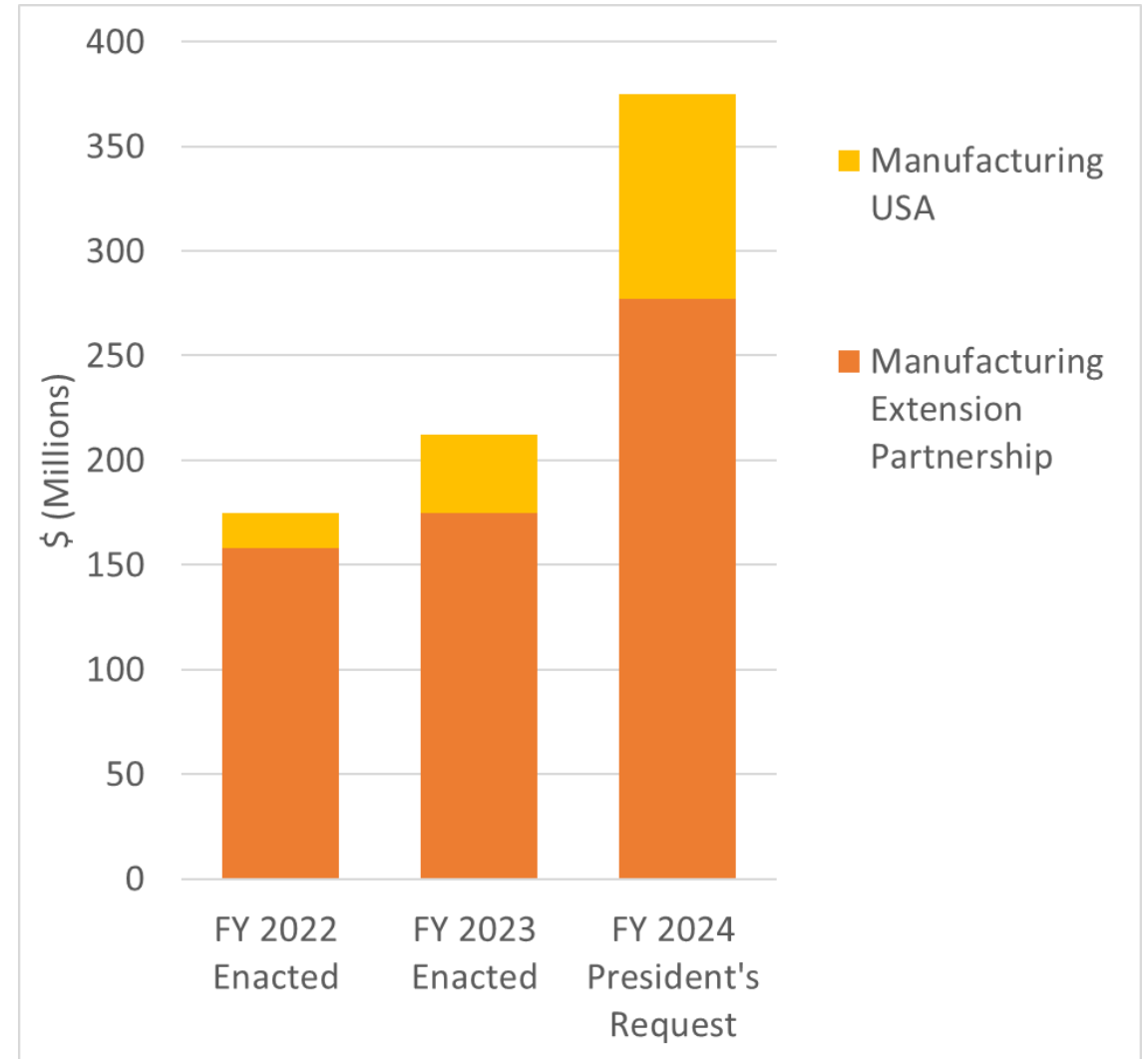
Manufacturing Extension Partnership (MEP)

- Enables new investments to narrow the workforce gap, mitigate supply chain vulnerabilities, and leverage advanced technologies
- Strengthens a network of 51 centers, one in every state and Puerto Rico

Manufacturing USA

- Provides critical support for the Manufacturing USA institutes
- Continues support for NIIMBL

Both programs increase engagement of underserved communities in network's workforce development programs



MEP \$277.2 M (+\$100.9 M)

Narrow Workforce Gap

- Build out apprenticeship, upskilling and training for global competitiveness
- Collaborate with HBCUs, MSIs, and community colleges to build a diverse U.S. manufacturing workforce

Mitigate Supply Chain Vulnerability

- Map supply chain(s) and identify risks
- Support Supplier Scouting
- Enhance partnerships with initiatives like Buy America and Building America
- Build new capabilities for MEP centers to support CETs

Technology and Innovation

- Support adoption of advanced manufacturing practices for Industry 4.0
- Boost cybersecurity services



Manufacturing USA

\$97.7 M (+\$60.3 M)



- NIST coordinates the nationwide Manufacturing USA network of 16 innovation institutes
- Funding increase provides **critical support** for existing Manufacturing USA institutes, creation and operation of testbeds and support for emerging priority areas
- Increases **engagement of underserved communities** in network's workforce development programs
- **Continues base support** for NIST/DOC NIIMBL institute

Electronics	Digital / Automation	Energy / Environment	Materials	Bio Manufacturing	
 AIM Photonics Integrated Albany, NY Rochester, NY	 America Makes Additive Manufacturing Youngstown, OH	 Digital Manufacturing Chicago, IL	 RAPID Transforming Process Industries Modular Chemical Process Intensification New York, NY	 lift Lightweight Metals Detroit, MI	 NIIMBL Bio-pharmaceutical Manufacturing Newark, DE
 NEXTFLEX Flexible Hybrid Electronics San Jose, CA	 ARM INSTITUTE Advanced Robotics Pittsburgh, PA	 CYMANII Cybersecurity in Manufacturing San Antonio, TX	 REMADE INSTITUTE Sustainable Manufacturing Rochester, NY	 iacmi Advanced Composites Knoxville, TN	 biofabusa Regenerative Manufacturing Manchester, NH
 POWERAMERICA Wide Bandgap Semiconductors Raleigh, NC	 CESMII THE SMART MANUFACTURING INSTITUTE Smart Manufacturing Los Angeles, CA	Institutes are sponsored by the Departments of Commerce, Defense, & Energy		 affoa Advanced Fibers and Textiles Cambridge, MA	 BioMADE Bioindustrial Manufacturing Minneapolis, MN

FY 2025 Budget Planning Has Begun

- Secretarial process (align request with DOC priorities)
- WH/OMB process (align request with Administration priorities)
- Separate House and Senate markups
- Resolution

- Considerations: recent debt ceiling deal freezes FY 2024 discretionary spending and 1% increase in FY 2025

