

## FULL COMMITTEE

## HEARING CHARTER

"An Overview of the Budget Proposal for the National Aeronautics and Space Administration for Fiscal Year 2025"

Tuesday, April 30, 2024
10:00 A.M. EST
2318 Rayburn House Office Building

## Purpose

The purpose of the hearing is to review the Administration's Fiscal Year 2025 (FY25) budget request for the National Aeronautics and Space Administration.

## $\underline{\text { Witnesses }}$

- The Honorable Bill Nelson, Administrator, National Aeronautics and Space Administration


## Overarching Questions

- What new initiatives and terminations are proposed in the FY25 budget request for NASA?
- How does the proposed budget allocate funding among NASA's human exploration, science, space technology, and aeronautics objectives?
- How do mission delays and cost overruns affect NASA's overall portfolio, and how are these issues being addressed?


## Background

The National Aeronautics and Space Administration (NASA) stands as the world's preeminent civil space agency. Through its space exploration and scientific research activities, NASA strengthens our understanding of our home planet, Earth, as well as the universe around it. Because space activities present a diverse range of challenges, NASA also supports the development of new technology, enabling future capabilities and benefiting humanity. Finally, NASA empowers STEM education and skills development through programs that engage students from elementary school to higher education.

NASA employs approximately 17,000 civil servants and 35,000 contractors across the country. ${ }^{1}$ In addition to its headquarters in Washington, DC, the agency operates nine Federal research facilities: Goddard Space Flight Center in Greenbelt, MD; Kennedy Space Center in Merritt Island, FL; Langley Research Center in Hampton, VA; Glenn Research Center in Cleveland, OH; Johnson Space Center in Houston, TX; Ames Research Center in Mountain View, CA; Armstrong Flight Research Center at Edwards Air Force Base, CA; Marshall Space Flight Center in Huntsville, AL; and Stennis Space Center in Bay St. Louis, MS. The Jet Propulsion Laboratory (JPL) in Pasadena, CA serves as a NASA-sponsored Federally Funded Research and Development Center operated by the California Institute of Technology. NASA also operates the Wallops Flight Facility in Wallops Island, VA, the White Sands Test Facility near Las Cruces, NM, the Neil Armstrong Test Facility in Sandusky, OH, the Goddard Institute of Space Studies in New York, NY, and the Michoud Assembly Facility (MAF) east of New Orleans, Louisiana.

| Budget Authority (\$ in millions) | Fiscal Year |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \hline \text { Op Plan } \\ 2023 \\ \hline \end{gathered}$ | $\begin{gathered} \text { CR } \\ 2024 \end{gathered}$ | $\begin{gathered} \hline \text { Request } \\ 2025 \\ \hline \end{gathered}$ | 2026 | 2027 | 2028 | 2029 |
| NASA Total | 25,383.7 | 25,383.7 | 25,383.7 | 25,891.3 | 26,409.1 | 26,937.3 | 27,476.1 |
|  |  |  |  |  |  |  |  |
| Deep Space Exploration Systems | 7,447.6 | 7,468.9 | 7,618.2 | 7,803.7 | 7,959.8 | 8,119.0 | 8,281.4 |
| Moon to Mars Transportation System <br> Moon to Mars Lunar Systems <br> Development <br> Human Exploration Requirements \& Architecture | 4,716.6 | -- | 4,213.0 | 4,254.0 | 4,267.3 | 3,880.9 | 3,713.6 |
|  | $2,630.5$ | -- | 3,288.1 | 3,285.7 | 3,389.5 | 3,868.8 | 3,712.3 |
|  | 100.5 | -- | 117.1 | 264.1 | 303.0 | 369.3 | 855.5 |
| Space Operations | 4,266.7 | 4,250.0 | 4,389.7 | 4,497.6 | 4,587.6 | 4,679.4 | 4,773.0 |
| International Space Station | 1,286.2 | -- | 1,269.6 | 1,267.8 | 1,262.8 | 1,259.4 | 1,259.4 |
| Space Transportation | 1,759.6 | -- | 1,862.1 | 1,876.2 | 1,840.9 | 1,895.7 | 1,804.1 |
| Space and Flight Support (SFS) | 983.4 | -- | 1,088.4 | 1,051.3 | 1,048.7 | 1,059.0 | 1,080.2 |
| Commercial LEO Development | 224.3 | -- | 169.6 | 302.3 | 435.2 | 465.2 | 629.3 |
| Exploration Operations | 13.2 | -- | - | -- | -- | - | - |
| Space Technology | 1,193.0 | 1,200.0 | 1,181.8 | 1,205.4 | 1,229.5 | 1,254.1 | 1,279.2 |
|  |  |  |  | $7,717.0$ |  |  |  |
| Science | 7,791.5 | 7,795.0 | 7,565.7 |  | 7,871.3 | 8,028.7 | 8,189.3 |
| Earth Science | 2,175.0 | -- | 2,378.7 | 2,396.3 | 2,446.1 | 2,489.7 | 2,543.4 |
| Planetary Science | 3,216.5 | -- | 2,731.5 | 2,850.5 | 2,911.6 | 2,976.8 | 3,042.5 |
| Astrophysics | 1,510.0 | -- | 1,578.1 | $\begin{array}{r} 1,587.0 \\ 791.9 \end{array}$ | $\begin{array}{r} 1,613.6 \\ 807.0 \end{array}$ | $\begin{array}{r} 1,647.1 \\ 820.3 \end{array}$ | $\begin{array}{r} 1,673.4 \\ 833.4 \end{array}$ |
| Heliophysics | 805.0 | -- |  |  |  |  |  |
| Biological and Physical Sciences | 85.0 |  | $90.8$ | 91.3 | 93.0 | 94.8 | 96.6 |
| Aeronautics | 935.0 | 935.0 | 965.8 | 985.1 | 1,004.8 | 1,024.9 | 1,045.4 |
|  |  |  |  |  |  |  |  |
| STEM Engagement | 143.5 | 143.5 | 143.5 | 146.4 | 149.3 | 152.3 | 155.3 |
|  |  |  |  |  |  |  |  |
| Safety, Security, and Mission Services | 3,136.5 | 3,129.5 | 3,044.4 | 3,105.3 | 3,167.4 | 3,230.7 | 3,295.3 |
| Mission Services \& Capabilities | 2,067.4 | -- | 2,058.1 | $\begin{aligned} & 2,099.2 \\ & 1,006.1 \end{aligned}$ | $\begin{aligned} & 2,141.3 \\ & 1,026.1 \end{aligned}$ | $\begin{aligned} & 2,184.1 \\ & 1,046.6 \end{aligned}$ | $\begin{aligned} & 2,227.6 \\ & 1,067.7 \end{aligned}$ |
| Engineering, Safety, \& Operations | 1,069.1 | -- | 986.3 |  |  |  |  |
| Construction and Environmental Compliance and Restoration | 422.4 | 414.3 | 424.1 | 379.3 | 386.9 | 394.6 | 402.5 |
|  | 346.2 | -- | 344.7 | 298.3 | 304.3 | 310.4 | 316.6 |
| Environmental Compliance and Restoration | $76.2$ | -- | 79.4 | 81.0 | 82.6 | 84.2 | 85.9 |
| Inspector General | 47.6 | 47.6 | 50.5 | 25,891.3 | 52.5 | 53.6 | 54.7 |
|  |  |  |  |  |  |  | 27,476.1 |

[^0]
## Budget Request

The President's FY25 budget request was released on March 11, 2024. The Administration requested $\$ 25.38$ billion for NASA in FY25. This represents a $\$ 509$ million ( $2 \%$ ) increase over the FY24 enacted appropriations.

The programs in the Administration's FY25 NASA budget proposal are summarized below by major organization (directorate or office). The provided budget numbers are based on the information in the NASA FY25 Congressional Budget Justification document ${ }^{2}$ and the legislative text and explanatory statement of the Consolidated Appropriations Act, 2024. ${ }^{3}$

## Exploration Systems Development Mission Directorate

| Budget Authority (in \$ millions) | Op Plan <br> FY 2023 | CR <br> FY 2024 | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Moon to Mars Transportation System | $4,716.6$ | - | $\mathbf{4 , 2 1 3 . 0}$ | $4,254.0$ | $4,267.3$ | $3,880.9$ | $3,713.6$ |
| Moon to Mars Lunar Systems Development | $2,630.5$ | - | $\mathbf{3 , 2 8 8 . 1}$ | $3,285.7$ | $3,389.5$ | $3,868.8$ | $3,712.3$ |
| Human Exploration Requirements \& Architecture | 100.5 | - | $\mathbf{1 1 7 . 1}$ | 264.1 | 303.0 | 369.3 | 855.5 |
| Total Budget | $\mathbf{7 , 4 4 7 . 6}$ | $\mathbf{7 , 4 6 8 . 9}$ | $\mathbf{7 , 6 1 8 . 2}$ | $\mathbf{7 , 8 0 3 . 7}$ | $\mathbf{7 , 9 5 9 . 8}$ | $\mathbf{8 , 1 1 9 . 0}$ | $\mathbf{8 , 2 8 1 . 4}$ |

The Administration's FY25 request for the Exploration Systems Development Mission Directorate (ESDMD) is $\$ 7.62$ billion, a decrease of $\$ 48$ million ( $0.63 \%$ ) compared to FY24 enacted. The funding for ESDMD is represented through the "Deep Space Exploration Systems" budget line.

ESDMD manages the Moon to Mars (M2M) program and supports development of systems and capabilities required for human space exploration beyond low Earth orbit (LEO). Missions in this directorate are sorted into three themes: M2M Transportation System; M2M Lunar Systems Development; and Human Exploration Requirements \& Architecture. The most prominent ESDMD project is the Artemis campaign, which will return Americans to the surface of the Moon. The requested funding for FY25 supports the Artemis II mission in September 2025, the Artemis III mission in September 2026, the Artemis IV mission in September 2028, and an Artemis V mission in 2030. The budget request also lists several changes to ESDMD in FY25 intended to fully implement the M2M Program Office concept and improve the management of the M2M portfolio.

M2M Transportation System. The FY25 request for the Moon to Mars Transportation System is $\$ 4.21$ billion, a decrease of $\$ 530$ million (11\%) compared to FY24 enacted. This budget line was renamed in the FY25 budget request and provides funding to programs that were formerly included under the "Common Exploration Systems Development" budget line. The M2M Transportation System theme is charged with developing three systems (the Orion crew vehicle, the Space Launch System (SLS), and Exploration Ground Systems (EGS)) that will support NASA's Artemis Campaign and other human deep space exploration efforts. The request includes $\$ 1.03$ billion for Orion, a decrease of $\$ 108$ million ( $9.5 \%$ ) compared to FY24 enacted. It includes $\$ 2.42$ billion for SLS, a decrease of $\$ 177$ million ( $6.8 \%$ ) compared to FY24 enacted. Additionally, it includes $\$ 758.8$ million for EGS, a decrease of $\$ 35$ million (4.4\%) compared to FY24 enacted.

[^1]M2M Lunar Systems Development. The FY25 request for the M2M Lunar Systems Development is $\$ 3.29$ billion. This budget line was renamed in the FY25 budget request and provides funding to programs that were formerly included under the "Artemis Campaign Development" budget line. The M2M Lunar Systems Development theme is responsible for the development of systems and infrastructure that will enable humans to live and operate in deep space, land humans on the Moon, explore the lunar surface, and prepare for Mars exploration. The theme manages four programs: Gateway, the Human Landing System (HLS), Extravehicular Activity (xEVA) and Human Surface Mobility Program (EHP), and Advanced Exploration Systems (AES).

Human Exploration Requirements \& Architecture. The FY25 request for Human Exploration Requirements \& Architecture (HERA) is $\$ 117.1$ million. The HERA theme funds the Moon to Mars Architecture program, which is responsible for the managing strategy and architecture across ESDMD. HERA also conducts the annual Architecture Concept Review to ensure the program maintains its alignment with NASA's exploration objectives.

## Space Operations Mission Directorate

|  | Op Plan <br> FY 2023 | CR <br> FY 2024 | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Budget Authority (in \$ millions) | $1,286.2$ | - | $\mathbf{1 , 2 6 9 . 6}$ | $1,267.8$ | $1,262.8$ | $1,259.4$ | $1,259.4$ |
| International Space Station | $1,759.6$ | - | $\mathbf{1 , 8 6 2 . 1}$ | $1,876.2$ | $1,840.9$ | $1,895.7$ | $1,804.1$ |
| Space Transportation | 983.4 | - | $\mathbf{1 , 0 8 8 . 4}$ | $1,051.3$ | $1,048.7$ | $1,059.0$ | $1,080.2$ |
| Space and Flight Support (SFS) | 224.3 | - | $\mathbf{1 6 9 . 6}$ | 302.3 | 435.2 | 465.2 | 629.3 |
| Commercial LEO Development | 13.2 | - | $\mathbf{0 . 0}$ | 0.0 | 0.0 | 0.0 | 0.0 |
| Exploration Operations | $\mathbf{4 , 2 6 6 . 7}$ | $\mathbf{4 , 2 5 0 . 0}$ | $\mathbf{4 , 3 8 9 . 7}$ | $\mathbf{4 , 4 9 7 . 6}$ | $\mathbf{4 , 5 8 7 . 6}$ | $\mathbf{4 , 6 7 9 . 4}$ | $\mathbf{4 , 7 7 3 . 0}$ |
| Total Budget |  |  |  |  |  |  |  |

The Administration's FY25 request for the Space Operations Mission Directorate (SOMD) is $\$ 4.39$ billion, an increase of $\$ 170$ million ( $4 \%$ ) compared to FY24 enacted. SOMD funds human spaceflight operations in LEO. Three objectives drive the Directorate: a sustained human presence in LEO; enabling future exploration and advanced operations in our solar system; and advancing scientific discoveries that benefit life on Earth. Funding for SOMD is distributed among four themes: the International Space Station, Space Transportation, Space and Flight Support, and Commercial LEO development.

International Space Station. The FY25 request for the International Space Station (ISS) is $\$ 1.27$ billion, of which approximately $\$ 1$ billion is for maintenance and operations and $\$ 261$ million is for station research. The request prospectively states that beginning in FY26, as NASA prepares for the ISS end-of-life, funding for research and other activities aboard the ISS will be gradually reduced and instead be used to provide the funding necessary for U.S. Deorbit Vehicle (USDV) development and Commercial LEO Development efforts.

Space Transportation. The FY25 request for Space Transportation is $\$ 1.86$ billion. NASA purchases commercial transportation services to LEO using Commercial Resupply Services (CRS) contracts for cargo, and Commercial Crew transportation Capability (CCtCap) contracts for crew. As of September 2023, NASA has allocated approximately $\$ 25.5$ billion in total to commercial crew and cargo service providers, supporting vehicle development and 54 flights to the ISS, with 47 carrying cargo and 7 carrying crew.

Using the request for Space Transportation for FY25, NASA expects to complete five commercial resupply flights and two commercial crew flights. Additionally, NASA expects to complete the Crew Flight Test for Boeing's crewed Starliner spacecraft in FY24. The request also includes $\$ 109$ million for USDV development in FY25. Under the Intergovernmental Agreement for the ISS, each partner country is responsible for deorbiting their respective segments. ${ }^{4}$ NASA's cost estimate for the entire deorbit capability is approximately $\$ 1$ billion. ${ }^{5}$

Space and Flight Support. The FY25 request for Space and Flight Support (SFS) is $\$ 1.09$ billion. SFS provides mission critical space communications, launch and test services, and astronaut training for NASA and other government and non-government customer missions using NASA infrastructure.

Commercial LEO Development. The FY25 request for Commercial LEO Development is $\$ 169.6$ million. NASA intends to use the Commercial LEO Development program to develop a robust commercial space economy and ensure a continued U.S. presence in LEO following the retirement of the ISS. This funding also enables NASA to continue to support the development of commercial space stations. NASA is targeting 2028 for the completion and certification of at least one commercial station; this will allow for a two-year transition from the ISS to a commercial station before ISS is decommissioned.

## Space Technology Mission Directorate

| Budget Authority (in \$ millions) | Op Plan <br> FY 2023 | FY <br> CR | Request <br> RY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Farly Stage Innovation and Partnerships | 122.0 | - | $\mathbf{1 4 0 . 1}$ | 145.1 | 149.6 | 154.2 | 160.4 |
| Technology Maturation | 323.9 | - | $\mathbf{3 4 0 . 8}$ | 353.2 | 363.1 | 370.4 | 377.8 |
| Technology Demonstration | 515.4 | - | $\mathbf{4 5 9 . 1}$ | 460.5 | 465.2 | 472.8 | 479.1 |
| SBIR and STTR | 231.7 | - | $\mathbf{2 4 1 . 8}$ | 246.6 | 251.6 | 256.7 | 261.9 |
| Total Budget | $\mathbf{1 , 1 9 3 . 0}$ | $\mathbf{1 , 2 0 0 . 0}$ | $\mathbf{1 , 1 8 1 . 8}$ | $\mathbf{1 , 2 0 5 . 4}$ | $\mathbf{1 , 2 2 9 . 5}$ | $\mathbf{1 , 2 5 4 . 1}$ | $\mathbf{1 , 2 7 9 . 2}$ |

The Administration's FY25 request for the Space Technology Mission Directorate (STMD) is $\$ 1.18$ billion, an increase of $\$ 82$ million ( $7.5 \%$ ) over FY24 enacted. STMD supports the development of transformative, crosscutting technologies of varying levels of maturation, measured by Technology Readiness Levels. STMD's role is to enhance needed capabilities to benefit the missions of other Mission Directorates and to reduce costs. STMD includes four portfolios: Early-Stage Innovation and Partnerships, Technology Maturation, Technology Demonstration, and SBIR and STTR.

Early-Stage Innovation and Partnerships. The Administration's FY25 request for Early-Stage Innovation and Partnerships (ESIP) is $\$ 140.1$ million. ESIP funds concept studies, applied research, and early technology development with an emphasis on identifying emerging concepts and technologies that support NASA's long-term objectives in robotic and human exploration of space.

[^2]Technology Maturation. The Administration's FY25 request for Technology Maturation is $\$ 340.8$ million. Technology Maturation advances revolutionary space technologies that are past early-stage research, but have not yet reached the level of flight demonstration. Technology Maturation seeks to identify technologies that fulfill the needs of multiple stakeholders, including NASA's mission directorates, commercial partners, and other government agencies. According to the budget request, Technology Maturation will continue to focus on technology developments for lunar surface payloads and multi-application technologies.

Technology Demonstration. The Administration's FY25 request for Technology Demonstration is $\$ 459.1$ million. This funding supports testing and demonstrations on the ground and in flight intended to mature new technologies to a point where such technologies can be incorporated into NASA exploration missions, and potentially in the missions of industry or other federal agencies. The budget request identifies several changes within Technology Demonstration for FY25. It proposes to establish Space Nuclear Propulsion Technology as a stand-alone program and specifically requests funding for nuclear electric propulsion for the first time. It also includes $\$ 11$ million to complete closeout activities for the On-orbit Servicing, Assembly, and Manufacturing Demonstration-1 (OSAM-1) project following NASA's proposed cancelation of the project earlier this year. However, this contrasts with the $\$ 227$ million provided for OSAM-1 in the FY24 Appropriations language. It also notes a delay in the Fission Surface Power (FSP) project from 2029 to 2032 .

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR). The Administration's FY25 request for SBIR and STTR is $\$ 241.8$ million. NASA uses this account to satisfy its NASA statutory responsibility to allocate $3.2 \%$ of its extramural budget for research and development to small business. ${ }^{6}$ The budget request notes that NASA plans to select over 600 new awards, grants, and contracts in FY25.

## Science Mission Directorate

| Budget Authority (in \$ millions) | $\begin{aligned} & \hline \text { Op Plan } \\ & \text { FY } 2023 \end{aligned}$ | $\begin{array}{r} \text { CR } \\ \text { FY } 2024 \end{array}$ | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Earth Science | 2,175.0 | -- | 2,378.7 | 2,396.3 | 2,446.1 | 2,489.7 | 2,543.4 |
| Planetary Science | 3,216.5 | -- | 2,731.5 | 2,850.5 | 2,911.6 | 2,976.8 | 3,042.5 |
| Astrophysics | 1,510.0 | -- | 1,578.1 | 1,587.0 | 1,613.6 | 1,647.1 | 1,673.4 |
| Heliophysics | 805.0 | -- | 786.7 | 791.9 | 807.0 | 820.3 | 833.4 |
| Biological and Physical Sciences | 85.0 | - | 90.8 | 91.3 | 93.0 | 94.8 | 96.6 |
| Total Budget | 7,791.5 | 7,795.0 | 7,565.7 | 7,717.0 | 7,871.3 ${ }^{\text {² }}$ | 8,028.7 | 8,189.3 |

The Administration's FY25 request for the Science Mission Directorate (SMD) is $\$ 7.57$ billion, an increase of $\$ 232$ million ( $3.2 \%$ ) over FY24 enacted. SMD expands human knowledge through its fundamental research, focusing on three overarching objectives: discovering the secrets of the Universe; searching for life in the Solar System and beyond; and protecting and improving life on Earth. Additionally, NASA's current science plan ${ }^{7}$ and the priorities and recommendations of National Academies "decadal surveys" guide the selection of missions for each scientific discipline.

[^3]SMD pursues its objectives through its five discipline divisions: Earth Science, Planetary Science, Astrophysics, Heliophysics, and Biological and Physical Sciences. Each Division funds research, development, and operation of flight missions, data management systems, and technology development programs. In addition to the Divisions, SMD funds the Joint Agency Satellite Division, which manages the development and launch of reimbursable satellite programs, projects, and instruments for other agencies like the National Oceanic and Atmospheric Administration (NOAA) and the United States Geological Survey (USGS).

Earth Science. The Administration's FY25 request for the Earth Science Division is $\$ 2.38$ billion, an increase of $\$ 184$ million ( $8.4 \%$ ) over FY24 enacted. Earth Science seeks to deepen our understanding of the Earth system and its changes. The Division's request supports a restructuring of the Earth System Observatory program in FY25, this includes changes to the Atmosphere Observing System (AOS) missions and the Surface Biology and Geology (SBG). It also provides $\$ 150$ million for Landsat Next, with the caveat that NASA expects the estimated 2030 launch date to be delayed. Additionally, the budget request supports the new Responsive Science Initiatives program established under Earth Science.

Planetary Science. The Administration's FY25 request for the Planetary Science Division is $\$ 2.73$ billion, an increase of $\$ 15$ million ( $0.55 \%$ ) over FY24 enacted. Planetary Science investigates the planets and other celestial bodies in our solar system. Division activities improve our awareness of the chemical and physical processes in our solar system, as well as our understanding of the formation and evolution of the objects within it. The Division also funds missions and research related to planetary defense, which involves the identification, characterization, and possible mitigation of asteroids and comets that are potentially hazardous to Earth.

The request for Planetary Science funds the establishment of a new Planetary Technology project to enable integrated technology development for high-priority science missions, as recommended by the Decadal Survey. It also supports the Near-Earth Object (NEO) Surveyor mission's updated profile and associated June 2028 launch readiness date. The Planetary Division also requests $\$ 200$ million for Mars Sample Return (MSR). MSR funding will focus on developing mission components and capabilities that have a high likelihood of being used in any future sample return architecture and could also support alternative sample return architecture studies from industry.

Astrophysics. The Administration's FY25 request for the Astrophysics Division is $\$ 1.58$ billion, an increase of $\$ 48$ million ( $3 \%$ ) over FY24 enacted. The Astrophysics Division studies the universe, its properties and processes, and humanity's place in it. The Division's request increases funding for the Habitable Worlds Observatory Technology Maturation project. It also reduces funding for the Explorer Future missions budget, as well as the budgets for the Hubble Space Telescope and Chandra X-ray observatory.

Heliophysics. The Administration's FY25 request for the Heliophysics Division is $\$ 786.7$ million, a decrease of $\$ 18$ million ( $2.2 \%$ ) compared to FY24 enacted. The Heliophysics Division improves our understanding of the Sun, the Sun-Earth connection and its implications for life on Earth, and the Sun's interaction with the rest of the Solar System and beyond. The Heliophysics budget request proposes the cancellation of Geospace Dynamics Constellation mission to fund higher priorities. For example, Heliophysics requests increased funding for the Space Weather program, as well as for Sounding Rockets.

Biological and Physical Sciences. The Administration's FY25 request for the Biological and Physical Sciences (BPS) Division is $\$ 90.8$ million, an increase of $\$ 2.8$ million (3.2\%) over FY24 enacted. BPS studies biological and physical systems under the extreme environmental conditions found in space. The request for BPS prioritizes the Commercially Enabled Rapid Space Science Initiative (CERISS) project, particularly the expansion of suborbital or orbital demonstrations.

## Aeronautics

| Budget Authority (in \$ millions) | Op Plan <br> FY 2023 | CR <br> FY 2024 | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Airspace Operations and Safety Program | 151.6 | - | $\mathbf{1 5 1 . 2}$ | 164.3 | 174.1 | 177.7 | 180.9 |
| Advanced Air Vehicles Program | 258.0 | - | $\mathbf{2 7 8 . 8}$ | 269.6 | 262.4 | 248.8 | 218.7 |
| Integrated Aviation Systems Program | 261.1 | - | $\mathbf{2 6 4 . 4}$ | 277.0 | 277.6 | 300.9 | 342.0 |
| Transformative Aeronautics Concepts Program | 147.1 | - | $\mathbf{1 5 5 . 3}$ | 157.6 | 171.1 | 175.2 | 179.0 |
| Aerosciences Evaluation and Test Capabilities | 117.3 | - | $\mathbf{1 1 6 . 2}$ | 116.5 | 119.5 | 122.3 | 124.7 |
| Total Budget | $\mathbf{9 3 5 . 0}$ | $\mathbf{9 3 5 . 0}$ | $\mathbf{9 6 5 . 8}$ | $\mathbf{9 8 5 . 1}$ | $\mathbf{1 , 0 0 4 . 8}$ | $\mathbf{1 , 0 2 4 . 9}$ | $\mathbf{1 , 0 4 5 . 4}$ |

The Administration's FY25 request for the Aeronautics Research Mission Directorate (ARMD) is $\$ 965.8$ million, an increase of $\$ 30.8$ million (3.3\%) over FY24 enacted. ARMD focuses on the development of transformative air travel technologies, helping to improve efficiency, capacity, and safety while reducing noise and emissions. NASA's Aeronautics Strategic Implementation Plan guides ARMD's activities. ${ }^{8}$ The plan includes six strategic thrusts: Safe, Efficient Growth in Global Operations; Innovation in Commercial Supersonic Aircraft; Ultra-Efficient Subsonic Transports; Safe, Quiet, and Affordable Vertical Lift Air Vehicles; In-Time System-Wide Safety Assurance; and Assured Autonomy for Aviation Transformation.

ARMD manages and funds five programs, Airspace Operations and Safety Program (AOSP), Advanced Air Vehicles Program (AAVP), Integrated Aviation Systems Program (IASP), Transformative Aeronautics Concepts Program (TACP), and Aerosciences Evaluation and Test Capabilities Portfolio (AETC).

The FY25 budget request includes funding changes to several projects under ARMD. Within the Sustainable Flight National Partnership (SFNP) program, funding increases are proposed for the Sustainable Flight Demonstrator, to support the X-66 aircraft's transition to the design/build phase, and for the High-Rate Composite Aircraft Manufacturing, to facilitate the completion of major ground tests. The request also proposes a funding decrease for the Electrified Powertrain Flight Demonstrations project. Additional funding increases are proposed for the Low Boom Flight Demonstrator (LBFD), to cover re-baselined commitments for cost and schedule, and for non-CO2 greenhouse gas emissions research and studies. The funding also supports fundamental and applied research to enable a broad spectrum of hypersonic systems and missions.

[^4]
## Office of STEM Engagement

| Budget Authority (in \$ millions) | $\begin{aligned} & \hline \text { Op Plan } \\ & \text { FY } 2023 \end{aligned}$ | $\begin{array}{r} \text { CR } \\ \text { FY } 2024 \end{array}$ | Request FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NASA Space Grant | 58.0 | -- | 57.0 | 58.2 | 59.3 | 60.5 | 61.6 |
| Established Program to Stimulate Competitive Research | 26.0 | - | 24.8 | 25.3 | 25.8 | 26.3 | 26.8 |
| Minority University Research and Education Project | 45.5 | -- | 46.3 | 47.2 | 48.2 | 49.2 | 50.1 |
| Next Gen STEM | 14.0 | -- | 15.4 | 15.7 | 16.0 | 16.3 | 16.7 |
| Total Budget | 143.5 | 143.5 | 143.5 | 146.4 | 149.3 | 152.3 | 155.3 |

The Administration's FY25 request for the Office of STEM Engagement (OSTEM) is $\$ 143.5$ million, an increase of $\$ 500$ thousand ( $0.3 \%$ ) over FY24 enacted. OSTEM leads NASA's STEM efforts to engage students from the pre-K level to higher education and supporting educators and educational institutions, in programs supporting STEM career paths. Three goals guide NASA's strategy for STEM engagement: (1) create unique opportunities for a diverse set of students to contribute to NASA's work in exploration and discovery; (2) build a diverse future STEM workforce by engaging students in authentic learning experiences with NASA's people, content, and facilities; and (3) attract diverse groups of students to STEM through learning opportunities that spark interest and provide connections to NASA's mission and work.

OSTEM manages NASA's STEM Engagement program and its four components: National Space Grant College and Fellowship Project (Space Grant), Established Program to Stimulate Competitive Research (EPSCoR), Minority University Research and Education Project (MUREP), and Next Generation STEM Project (Next Gen STEM). These projects support educators and educational institutions as well as efforts to attract, engage, and educate students. The FY25 budget request prioritizes funding for MUREP and Next Gen STEM to expand the reach and impact of NASA's STEM efforts.

## Mission Support Directorate

The Mission Support Directorate (MSD) manages the Safety, Security, and Mission Services (SSMS) and Construction and Environmental Compliance and Restoration (CECR) budget accounts. CECR manages construction and repair activities and SSMS manages maintenance activities. Together they provide foundational support capabilities that ensure NASA has the technical skills, physical assets, financial resources, and talent the agency needs. SSMS and CECR are mutually dependent and jointly enable NASA's efforts to maintain critical infrastructure.

## Safety, Security, and Mission Services

| Budget Authority (in \$ millions) | Op Plan <br> FY 2023 | CR <br> FY 2024 | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Mission Services \& Capabilities | $2,067.4$ | -- | $\mathbf{2 , 0 5 8 . 1}$ | $2,099.2$ | $2,141.3$ | $2,184.1$ | $2,227.6$ |
| Engineering, Safety, \& Operations | $1,069.1$ | -- | $\mathbf{9 8 6 . 3}$ | $1,006.1$ | $1,026.1$ | $1,046.6$ | $1,067.7$ |
| Total Budget | $\mathbf{3 , 1 3 6 . 5}$ | $\mathbf{3 , 1 2 9 . 5}$ | $\mathbf{3 , 0 4 4 . 4}$ | $\mathbf{3 , 1 0 5 . 3}$ | $\mathbf{3 , 1 6 7 . 4}$ | $\mathbf{3 , 2 3 0 . 7}$ | $\mathbf{3 , 2 9 5 . 3}$ |

The Administration's FY25 request for SSMS is $\$ 3.04$ billion, a decrease of $\$ 85$ million ( $2.7 \%$ ) compared to the FY24 CR. SSMS funds NASA Center operations and provides foundational
services to NASA missions, ensuring they have the business, infrastructure, and technical capabilities needed to enable success. SSMS also funds independent oversight of NASA's missions and programs.

## Construction and Environmental Compliance and Restoration

| Budget Authority (in \$ millions) | Op Plan <br> FY 2023 | CR <br> FY 2024 | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |$|$

The Administration's FY25 request for CECR is $\$ 424.1$ million, an increase of $\$ 124$ million ( $41 \%$ ) over FY24 enacted. CECR is responsible for capital repair and improvements to NASA's infrastructure as well as environmental compliance and restoration activities. The budget request notes that $83 \%$ of NASA's infrastructure is beyond its design life, and that NASA faces a deferred maintenance backlog of $\$ 3$ billion dollars.

## Inspector General

| Budget Authority (in \$ millions) | Op Plan <br> FY 2023 | CR <br> FY 2024 | Request <br> FY 2025 | FY 2026 | FY 2027 | FY 2028 | FY 2029 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Budget | 47.6 | 47.6 | 50.5 | 51.5 | 52.5 | 53.6 | 54.7 |

The Administration's FY25 request for the Office of the Inspector General (OIG) is $\$ 50.5$, an increase of $\$ 2.5$ million ( $5.2 \%$ ) over the FY24 CR. The OIG conducts audits, investigations, and reviews NASA programs and workforce to prevent and detect waste, fraud, abuse, and mismanagement.


[^0]:    ${ }^{1}$ Daniel Morgan, "National Aeronautics and Space Administration (NASA): A Primer," CRS, January 3, 2024. Available at: https://crsreports.congress.gov/product/pdf/R/R47891

[^1]:    ${ }^{2}$ NASA, "FY 2025 Full Budget Request (Congressional Justification)," March 11, 2024. Available at: https://www.nasa.gov/fy-2025-budget-request/
    ${ }^{3}$ P.L. 118-42. Available at: https://www.congress.gov/bill/118th-congress/house-
    bill/4366?s=2\&r=7\&q=\%7B\%22search $\% 22 \% 3 A \% 22$ appropriations+appropriation $\% 22 \% 7 \mathrm{D}$

[^2]:    ${ }^{4}$ Agreement Among the Government of Canada, Governments of Member States of the European Space Agency, The Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station. January 29, 1998. Available at: https://www.state.gov/wp-content/uploads/2019/02/12927-Multilateral-Space-Space-Station-1.29.1998.pdf
    ${ }^{5}$ Jeff Foust, "NASA planning to spend up to $\$ 1$ billion on space station deorbit module," SpaceNews, March 13, 2023.
    Available at: https://spacenews.com/nasa-planning-to-spend-up-to-1-billion-on-space-station-deorbit-module/

[^3]:    ${ }^{6} 15$ USC §638(f). Available at: https://www.govinfo.gov/content/pkg/USCODE-2019-title15/pdf/USCODE-2019-title15-chap14Asec638.pdf
    ${ }^{7}$ NASA, " Science 2020-2024: A Vision for Scientific Excellence (second update)," September 1, 2023. Available at: https://smd-cms.nasa.gov/wp-content/uploads/2023/09/2020-2024-nasa-science-plan-yr-23-update-final.pdf

[^4]:    ${ }^{8}$ NASA, "NASA Aeronautics Strategic Implementation Plan 2023," Available at: https://www.nasa.gov/wp-
    content/uploads/2021/04/sip-2023-final-508.pdf?emrc=c0bac2

