



NASA Authorization Act Priorities January 2024

The Aerospace Industries Association (AIA), representing more than 320 member companies representing an industry of 2.2 million American workers, urges Congress to affirm its consistent, bipartisan support for NASA through a comprehensive NASA Authorization Act. In considering an authorization, AIA supports the following elements:

Overall

- Affirm NASA remain a multi-mission agency carrying out its activities in partnership with academia, industry, and international partners under a balanced program of aeronautics, education, human exploration, science, and space technology.
- Recognize U.S. industry as an essential partner in our Nation's science, aviation, and space achievements and that industry capabilities should be leveraged to advance NASA objectives.
- Authorize appropriations at no less than Fiscal Year 2023 appropriations, with real dollar increases across NASA's programs in Fiscal Year 2025 and beyond.

Aeronautics

- Authorize research and demonstration efforts to advance sustainable aviation, including subsonic aircraft, engine design and technology, high-rate composites for wings and fuselages, sustainable aviation fuels, future energy sources, and electric and hybrid-electric propulsion that will lead to emissions and noise reductions.
- Affirm NASA's role in hypersonics on NASA research and flight demonstration technologies needed to support U.S. global leadership in hypersonics.
- Affirm NASA's role in advancing all aspects of advanced air mobility, including urban and regional air mobility research and partnerships.
- Affirm NASA's commitment to the research and demonstration of advanced aircraft automation with a focus on maturing airspace integration technologies to integrate remotely piloted aircraft systems into controlled airspace.
- Affirm NASA's commitment to supersonic and hypersonic research and development and data that supports industry standards, as well as its role in expanding partnerships and advancing research in urban air mobility.
- Require a report on the Nation's aeronautics workforce, the status of NASA's aeronautical modeling and test facilities, and provide recommendations on future workforce and infrastructure needs.
- Authorize supply chain modeling and simulation efforts to analyze gaps, needs, risks, and scalability considerations to ensure the future aeronautics industry will remain competitive and sustainable.
- Affirm development of airspace management concepts and technology to support wildfire mitigation and suppression efforts.

- Authorize NASA development of High Mach Turbine Engine technology.
- Authorize the X-66 Sustainable Flight Demonstrator program as ongoing flying testbed for NASA and industry partners to test advanced aeronautics technologies that will improve efficiency, safety and continue noise reductions, including but not limited to hybrid-electric, advanced structures and autonomy technology demonstrations.
- Authorize Assured Autonomy Flight Demonstrator (funded in FY24 HAC-CJS) as a NASA flight demonstrator program in partnership with industry to advance technologies allowing the continued development and flight testing of technologies necessary to support a trusted, semi-autonomous aircraft architecture with aviation safety management system capabilities.
- Authorize Beyond Visual Line of Sight (BVLOS) Airspace Operations Demonstration for Advanced Air Mobility (AAM) National Campaign program (funded in FY24 HAC-CJS) to enable safe autonomous flight enabling infrastructure. This infrastructure is required to support flight testing and advancement of autonomous flight technologies.
- Authorize Hi-Rate Ceramic Matrix Composite (HiCMC) as a follow-on to the current Hi-Rate Composite Aircraft Manufacturing (HiCAM) program to develop and demonstrate materials technologies at scale for aerospace efficient propulsion and high temperature environments, including subsonic and supersonic flight.
- Ensure annual alignment between DOE R&D, NASA Aeronautics and FAA R&D technologies roadmaps to ensure TRL advancement is aligned between the three agencies, including considering how the National Academies can play a role in convening and facilitating alignment between the agencies on technologies alignment, prioritization, and maturation.
- Direct the NASA Administrator to develop a report comparing U.S. aeronautics competitiveness (investment, R&D priorities, etc.) compared to foreign aerospace markets and regions, including but not limited to Europe, Japan, Brazil, Canada, and China.

Human Space Exploration and Space Operations

Artemis

- Authorize NASA's Artemis Moon to Mars program with the goal of sending humans to the surface of Mars enabled by human exploration of the cis-lunar vicinity and lunar surface.
- Affirm program elements of the Artemis program, including Gateway, Orion Crew Vehicle, Space Launch System, and Exploration Upper Stage, Exploration Ground Systems, including VAB high bays for SLS and Mobile Launcher-2, Human Lander System, Exploration Space Suits, and required ground and communications systems.
- Affirm the need for deep space and lunar infrastructure, including Gateway, to study the long-term effects of deep space, prepare for future human deep space missions, and provide the necessary communications systems, and offer logistical support for lunar missions.
- Authorize and expand Gateway Logistics Services to enable dissimilar redundancy for the provision of cargo to Gateway.
- After Artemis III, sustain a cadence of at least one Artemis crewed mission per year to the Moon and to develop and test future Mars transport platforms at the Gateway as appropriate.
- Authorize architecture development for Mars transport systems leveraging the investments made in Artemis and leveraging ISS, Gateway, and commercial platforms to test systems for long-duration deep space travel.

- Authorize development of dissimilar human lunar lander capabilities.
- Identify opportunities for NASA to leverage partnerships with Artemis signatory countries to accelerate the fielding of mission critical technologies.
- Authorize xEVAS program requiring NASA to maintain two spacesuit system providers for Artemis missions that have been developed, certified, and tested in space under the xEVAS program, including requirement that all Artemis missions be competed starting with Artemis IV to ensure competition on price, capability, and performance.
- Authorize the Moon to Mars Environmental Control and Life Support Systems (ECLSS) Development program to develop, certify and test in space the life support systems necessary for the small form factor, high resiliency, and operational environment necessary for deep space missions (funded in FY24 HAC-CJS bill).

Low Earth Orbit

- Affirm the Administration's extension of the International Space Station and accompanying transportation and research activities to 2030.
- Affirm U.S. policy to maintain a continuous U.S. human presence in low Earth orbit with the utilization of dissimilar redundant capabilities for crew transfer to and from low-Earth orbit.
- Authorize NASA's Commercial Low Earth Orbit Destinations (CLD) program and NASA efforts to enable commercial activity in low Earth orbit at levels adequate to meet the program's objectives.
- Require a report on assured crew access to the ISS and future low Earth orbit platforms.
- Provide for a transition period of no less than two years to ensure the development of a capability that supplements the ISS with the goal of providing further operations in LEO beyond the ISS.
- Identify and develop a plan to address the U.S. government's specific needs for a presence in LEO both leveraging the ISS and future platforms with regard to both U.S. government astronauts, U.S. laboratories and equipment, and critical national systems as part of the developing ecosystem in LEO.
- Establish timelines and funding approaches for ISS deorbit, including the United States Deorbit Vehicle (USDV), that provides a predictable set of goals that are communicated to industry with the goal of building a deorbit vehicle and providing storage until commercial LEO destinations can meet domestic and global needs.

Communications

- Affirm NASA's Space Communications and Navigation development of its next generation Direct-to-Earth and space-based relay systems, leveraging industry capabilities.
- Require a report on communication requirements, including bandwidth and communications needs, to serve current and future scientific and human missions to the Moon and Mars leveraging industry capabilities.

Launch

- Direct NASA to use the Venture-Class Acquisition of Dedicated and Rideshare (VADR) program for all eligible smallsat launch procurements, providing new opportunities for science and technology payloads and fostering the U.S. commercial launch market.
- Direct NASA to provide further cost transparency for ranges and launch facilities. As NASA continues to drive down the cost of launching, landing, and processing commercial vehicles and payloads from NASA facilities when charging commercial users, a cost

breakdown by line-item should be provided. Commercial users should be permitted to abstain from employing services offered by the NASA facility, particularly when a commercial alternative is available.

- Authorize NASA's Suborbital Crew Program under the Commercial Crew Program to facilitate training and microgravity research capabilities for government astronauts and researchers and direct NASA to determine a timeline for qualifying commercial suborbital vehicles that acknowledges current flightworthiness of such vehicles.

Science

- Affirm a balanced set of activities across space science disciplines, including research and analysis programs, technology development, small-, medium-, and large-sized space science missions, and suborbital research activities.
- Affirm the National Academies of Sciences, Engineering, and Medicine Decadal Survey process to develop scientific consensus plans across space science disciplines.
- Affirm the critical importance of completing decadal survey priorities, including the Roman/Wide-Field Infrared Survey Telescope, Mars Sample Return, Europa Clipper, Earth Systems Observatory, and recommendations for increased small satellite use in programs such as Astrophysics Pioneers.
- Partner with industry to fully leverage the Habitable Worlds Observatory's expertise, facilities, and capabilities by utilizing technology advancements and lessons learned from the James Webb Space Telescope and Nancy Grace Roman Telescope to implement the Astrophysics decadal survey's top priority.
- Affirm NASA's ability to leverage the Space Launch System for payloads and missions that substantially benefit from the unique capabilities of the Space Launch System as established under the *U.S. Commercial Space Launch Competitiveness Act*.
- Affirm the importance of NASA science and human spaceflight collaboration and authorize the Lunar Discovery and Exploration Program and Commercial Lunar Payload Services programs within NASA Science.
- Affirm the findings of the National Academies Pathways to Discovery in Astronomy and Astrophysics for the 2020s and authorize NASA to create a new Great Observatories Mission and Technology Maturation Program, which would formulate several major overlapping space missions to maintain U.S. leadership in space science. The first mission of these programs should be a large infrared/optical/ultraviolet (IR/O/UV) space telescope capable of searching for life on planets orbiting stars in our galactic neighborhood.
- Authorize microgravity research aboard suborbital and orbital research platforms, including the use of human participants to support NASA-funded research.
- Affirm the expansion of Earth science data use and applications, including leveraging commercial capabilities and partnerships to enhance data sets and data analysis.
- Authorize a dedicated survey mission to accomplish the objectives of the George E. Brown Near-Earth Object Survey Act.
- Authorize the Planetary Defense office and require development of a near-earth object and planetary defense roadmap.
- Authorize a Space Weather Research and Applications Program to support research to operations and improve modeling, forecasting, and prediction of space weather phenomena.
- Authorize a data science and management initiative to expand data analytic capabilities.

- Direct NASA to prioritize working with industry to move forward on procuring LANDSAT Next to ensure continuity of data and sovereign capability informing agriculture, forestry, emergency/disasters, public health, water quality, water resource planning, and wildfire response and assessment.

Space Technology

- Affirm an independent NASA Space Technology Mission Directorate (STMD) with continued investments in nuclear propulsion and fission surface power systems; solar electric propulsion demonstrations; small satellite technologies; large scale additive manufacturing; on-orbit servicing, assembly, and manufacturing; in-situ resource utilization; competitively selected technology demonstrations, and the Flight Opportunities Program.
- Authorize NASA's STMD and tipping point contracts to be fully funded at no less than PBR levels.
- Affirm that NASA's technology development activities should feed into its future mission needs, but foster growth of the U.S. commercial space industry by refraining from duplicating or competing with industry offerings. Require a report from GAO to assess if NASA STMD's current and planned technology development activities compete with industry and submit the findings to the appropriate Committees.
- Affirm development of a joint national security roadmap for nuclear power generation in space.
- In partnership with industry, support research and testing of the potential of various enrichment levels of uranium fuel for nuclear propulsion and surface power activities.
- Affirm the expansion of the *Price-Anderson Act* nuclear indemnification to NASA. Extending these activities beyond the Department of Energy will allow for great autonomy of NASA nuclear programs, lowering costs, reducing bureaucracy, and preventing duplicity.
- Authorize NASA's partnership in the DRACO program with a flight demonstration of nuclear thermal propulsion by 2027.
- Support nuclear surface power to enable long-term presence in space and further technologies for nuclear electric propulsion.
- Affirm the critical role of the Small Spacecraft Technology (SST) program in the development and execution of unique missions in cooperation with the U.S. commercial space industry focused on orbital debris inspection, cislunar activities and other advanced small spacecraft technology.
- Authorize NASA's On-orbit Servicing, Assembly, and Manufacturing (OSAM) program and ensure continued partnership with industry to expand OSAM technology development and demonstrations, recognizing the innovative commercial technologies and commercially available OSAM services.
- Authorize NASA to conduct research & development for debris remediation technologies in partnership with industry, including for active debris removal (ADR) above TRL 4, leading to an on-orbit demonstration of active debris removal of a U.S.-owned object by 2028.
- Affirm NASA's ability to collaborate with public-private partners for high-performance materials research. This includes NASA's Rapid Analysis and Manufacturing Propulsion Technology (RAMPT) partnership and NASA's Game Changing Development (GCD) Program to further research engine thrust chamber components and use *Space Act*

agreements to allow industry to better embrace additive manufacturing for propulsion systems in almost all new launch vehicles.

- Ensure NASA makes investments to expand the capacity and capability of the U.S. space solar cell, panel, and array industrial base, reducing the Nation's dependence on foreign suppliers.
- Authorize NASA to carry out activities, including research and development, orbital debris measurement, tracking, modeling, mitigation, remediation, conjunction analysis, and collision avoidance to advance the sustainability of the space environment for the future of civil and commercial activities in space.

Education

- Maintain an independent STEM Engagement program and affirm NASA's role in inspiring, engaging, and educating the Nation's future aerospace workforce.

Safety, Support, and Mission Services

- Affirm it is in the American taxpayer's best interest for NASA to allow non-Federal entities to use their space-related facilities on a reimbursable basis and that the agency should allow this to the maximum extent practicable.
- Affirm the need to revise the *Space Act* in contracts with NASA to extend data rights beyond five years. Address the challenge with a legislative solution that balances public access and protects trade secrets in industry-funded agreements, leveling the playing field with global competitors.
- Require NASA to conduct and publicly report on any foreign investment associated with privately held contractors, including state-run, state-controlled, or state-influenced investment entities or individuals, from countries of concern for national security, espionage, and human rights.
- Direct the Administrator to develop a cross-agency panel, with participation from outside government acquisition experts to study and report to Congress within one year on acquisition reform proposals that would:
 - Make fullest use of best practices in government procurement, including FAR 12 commercial acquisition models.
 - Ensure fairness, transparency, and accountability across the use of various contracting models between Mission Directorates, NASA Centers, and programs.
 - Provide consistent Congressional and taxpayer transparency, accountability, and insight especially in the use of commercial contracts, BAA and SAA contract types to provide comparable accountability insights on milestones, milestone payments, data rights and visibility and taxpayer benefit across contract type.
- Require a report on NASA's implementation of findings from the National Academies' pending assessment of NASA's critical facilities, workforce, and technology.
- Authorize Enhanced Use Leasing authority through at least 2030 and in-kind contribution authority. NASA lacks the authority to accept in-kind contributions for Enhanced Use Leases - except for the development of renewable energy production facilities.
- Require a report on spectrum needs and issues for current and future NASA missions and recommend NASA actions to support spectrum allocation, including by commercial entities in support of NASA activities.
- Authorize robust funding for NASA 2040 and its Enterprise IT modernization and cybersecurity initiatives.

NASA Legislative Priorities

AIA supports the following NASA legislative priorities:

1. **Amendment of Human Spaceflight Accident Investigation Committee** – The current Presidential Commission process may lead to mandated investigations of major human spaceflight mishaps and potentially overlap with other incident investigation processes. To address this issue, this proposal offers a solution in granting the President the discretion to decide whether to appoint a Presidential Commission. This provides NASA with a more adaptable investigative approach to handle incidents that may arise in various flight regimes.
2. **Updated Definition of Major Program** – An outdated definition of “Major Program” neglects inflationary pressures and lacks updates for over 15 years. This hampers proper program management due to its impact on reporting requirements. The proposal provides a solution by updating the definition to account for inflation, enabling effective management focus and oversight on projects susceptible to cost growth.
3. **Authority to Transfer and Receive Funds from Other Departments and Agencies for Scientific or Engineering Research or Education** – This proposal allows agencies to consolidate their funding and jointly manage projects. This approach streamlines resource allocation, promotes efficient fund utilization, and reduces administrative overhead.
4. **NASA Expanded Procurement Authority** – This proposal grants NASA the ability to purchase common supplies and services used by commercial partners in bulk and subsequently receive reimbursement from contractors as needed. This approach mirrors the existing authority granted to the Department of Defense (DoD) and aims to streamline procurement processes, improve cost-efficiency, and align with established practices in government procurement.
5. **SBIR Phase II Flexibility** - NASA lacks authority to directly award Phase II SBIR instruments to small businesses that have not completed Phase I, unlike other federal agencies. This proposal includes NASA in the list of agencies with the authority to award the Phase II SBIR instruments.
6. **Authority to Protect Certain Technical Data from Public Disclosure** - Absence of a specific Freedom of Information Act (FOIA) exemption for export control information creates concerns for NASA regarding potential legal challenges to their interpretation of withholding export-controlled data, which could compromise the protection of such information from unauthorized disclosure. This proposal grants NASA the same authority as DoD to withhold export control data, ensuring the safeguarding of sensitive information.
7. **Public-Private Talent Program Proposal** – Unlike the DoD, no established framework exists for personnel exchange or rotational assignments between NASA and its commercial partners. This proposal grants NASA the authority to establish personnel exchanges modeled on DoD’s existing authority.
8. **Authority for Other Transaction Prototype Projects and Follow-on Production Contracts** -This proposal enables acquisition of follow-on services or hardware production for other transaction agreements (OTA) prototype projects without separate contract competitions. This promotes the commercial deployment of platforms, systems, and services aligned with NASA requirements and accelerates operational use.