

## Subtitle IV—Aeronautics and Space Research and Education

### CHAPTER 401—AERONAUTICS

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#### SUBCHAPTER I—GENERAL

### § 40101. Definition of institution of higher education

In this chapter, the term “institution of higher education” has the meaning given the term by section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3378.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40101 .....	42 U.S.C. 16701.	Pub. L. 109–155, title IV, § 401, Dec. 30, 2005, 119 Stat. 2923.

### § 40102. Governmental interest in aeronautics research and development

Congress reaffirms the national commitment to aeronautics research made in chapter 201 of this title. Aeronautics research and development remains a core mission of the Administration. The Administration is the lead agency for civil aeronautics research. Further, the government of the United States shall promote aeronautics research and development that will expand the capacity, ensure the safety, and increase the efficiency of the Nation’s air transportation system, promote the security of the Nation, protect the environment, and retain the leadership of the United States in global aviation.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3379.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40102 .....	42 U.S.C. 16711.	Pub. L. 109–155, title IV, § 411, Dec. 30, 2005, 119 Stat. 2923.

### Statutory Notes and Related Subsidiaries

#### EXPERIMENTAL AIRCRAFT PROJECTS

Pub. L. 117–167, div. B, title VII, § 10831, Aug. 9, 2022, 136 Stat. 1746, provided that:

“(a) SENSE OF CONGRESS.—It is the sense of Congress that—

“(1) developing high-risk, precompetitive aerospace technologies for which there is not yet a profit rationale is a fundamental role of the [National Aeronautics and Space] Administration;

“(2) large-scale flight test experimentation and validation are necessary for—

“(A) transitioning new technologies and materials, including associated manufacturing processes, for aviation and aeronautics use; and

“(B) capturing the full extent of benefits from investments made by the Aeronautics Research Mission Directorate; and

“(3) a level of funding that adequately supports large-scale flight test experimentation and validation, including related infrastructure, should be ensured over a sustained period of time to restore the capacity of the Administration—

“(A) to see legacy priority programs through to completion; and

“(B) to achieve national economic and security objectives.

“(b) STATEMENT OF POLICY.—It is the policy of the United States—

“(1) to maintain world leadership in—

“(A) civilian aeronautical science and technology; and

“(B) aerospace industrialization; and

“(2) to maintain as a fundamental objective of the aeronautics research of the Administration the steady progression and expansion of flight research and capabilities, including the science and technology of critical underlying disciplines and competencies, such as—

“(A) computational-based analytical and predictive tools and methodologies;

“(B) aerothermodynamics;

“(C) propulsion;

“(D) advanced materials and manufacturing processes;

“(E) high-temperature structures and materials; and

“(F) guidance, navigation, and flight controls.

“(c) EXPERIMENTAL AIRCRAFT FLIGHT DEMONSTRATIONS.—

“(1) IN GENERAL.—In meeting the objectives described in subsection (b), the Administrator [of the National Aeronautics and Space Administration] shall carry out experimental aircraft demonstrations, including—

“(A) a subsonic demonstrator to demonstrate the performance and feasibility of advanced, ultra-efficient, and low emissions subsonic flight demonstrator configurations;

“(B) a low boom flight demonstrator to validate design tools and technologies that can be applied to low sonic boom commercial supersonic aircraft and support the development of a noise-based standard for supersonic overland flight; and

“(C) a flight research demonstrator to test the performance and feasibility of advanced, ultra-efficient and net-zero emissions aircraft concepts and configurations.

“(2) ELEMENTS.—For each demonstration under paragraph (1), the Administrator shall—

“(A) include the development of experimental aircraft and all necessary supporting flight test assets;

“(B) pursue a robust technology maturation and flight test validation effort;

“(C) improve necessary facilities, flight testing capabilities, and computational tools to support the demonstration;

“(D) award any primary contracts for design, procurement, and manufacturing to United States per-

sons, consistent with international obligations and commitments; and

“(E) coordinate research and flight test demonstration activities with other Federal agencies and the United States aviation community, as the Administrator considers appropriate.

“(3) UNITED STATES PERSON DEFINED.—In this subsection, the term ‘United States person’ means—

“(A) a United States citizen or an alien lawfully admitted for permanent residence to the United States; or

“(B) an entity organized under the laws of the United States or of any jurisdiction within the United States, including a foreign branch of such an entity.

“(d) COLLABORATION WITH INDUSTRY AND ACADEMIA.—The Administration shall seek means to expand collaboration with industry and academia on basic research and technology development related to experimental aircraft, and on the experimental aircraft demonstrations required by subsection (c).

“(e) ADVANCED MATERIALS AND MANUFACTURING TECHNOLOGY PROGRAM.—

“(1) IN GENERAL.—The Administrator may establish an advanced materials and manufacturing technology program—

“(A) to develop—

“(i) new materials, including composite and high-temperature materials, from base material formulation through full-scale structural validation and manufacture;

“(ii) advanced materials and manufacturing processes, including additive manufacturing, to reduce the cost of manufacturing scale-up and certification for use in aeronautics; and

“(iii) noninvasive or nondestructive techniques for testing or evaluating aviation and aeronautics structures, including for materials and manufacturing processes;

“(B) to reduce the time it takes to design, industrialize, and certify advanced materials and manufacturing processes;

“(C) to provide education and training opportunities for the aerospace workforce; and

“(D) to address global cost and human capital competitiveness for United States aeronautical industries and technological leadership in advanced materials and manufacturing technology.

“(2) ELEMENTS.—In carrying out a program under paragraph (1), the Administrator may—

“(A) build on work that was carried out by the Advanced Composites Project of the Administration;

“(B) partner with the private and academic sectors, such as members of the Advanced Composites Consortium of the Administration, the Joint Advanced Materials and Structures Center of Excellence of the Federal Aviation Administration, the Manufacturing USA institutes of the Department of Commerce, and national laboratories, as the Administrator considers appropriate;

“(C) provide a structure for managing intellectual property generated by the program based on or consistent with the structure established for the Advanced Composites Consortium of the Administration;

“(D) ensure adequate Federal cost share for applicable research; and

“(E) coordinate with advanced manufacturing and composites initiatives in other mission directorates of the Administration, as the Administrator considers appropriate.

“(f) RESEARCH PARTNERSHIPS.—In carrying out the demonstrations under subsection (c) and a program under subsection (e), the Administrator may engage in cooperative research programs with—

“(1) academia; and

“(2) commercial aviation and aerospace manufacturers.”

[For definition of “Manufacturing USA institute” as used in section 10831 of Pub. L. 117–167, set out above,

see section 18901 of Title 42, The Public Health and Welfare.]

### Executive Documents

#### EX. ORD. NO. 13419. NATIONAL AERONAUTICS RESEARCH AND DEVELOPMENT

Ex. Ord. No. 13419, Dec. 20, 2006, 71 F.R. 77565, provided:

By the authority vested in me as President by the Constitution and the laws of the United States of America, including section 204 of the National Science and Technology Policy, Organization, and Priorities Act of 1976, as amended (42 U.S.C. 6613), section 101(c) of the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155), and section 301 of title 3, United States Code, it is hereby ordered as follows:

SECTION 1. *National Aeronautics Research and Development Policy.* Continued progress in aeronautics, the science of flight, is essential to America’s economic success and the protection of America’s security interests at home and around the globe. Accordingly, it shall be the policy of the United States to facilitate progress in aeronautics research and development (R&D) through appropriate funding and activities of the Federal Government, in cooperation with State, territorial, tribal, local, and foreign governments, international organizations, academic and research institutions, private organizations, and other entities, as appropriate. The Federal Government shall only undertake roles in supporting aeronautics R&D that are not more appropriately performed by the private sector. The National Aeronautics Research and Development Policy prepared by the National Science and Technology Council should, to the extent consistent with this order and its implementation, guide the aeronautics R&D programs of the United States through 2020.

SEC. 2. *Functions of the Director of the Office of Science and Technology Policy.* To implement the policy set forth in section 1 of this order, the Director of the Office of Science and Technology Policy (the “Director”) shall:

(a) review the funding and activities of the Federal Government relating to aeronautics R&D;

(b) recommend to the President, the Director of the Office of Management and Budget, and the heads of executive departments and agencies, as appropriate, such actions with respect to funding and activities of the Federal Government relating to aeronautics R&D as may be necessary to

(i) advance United States technological leadership in aeronautics;

(ii) support innovative research leading to significant advances in aeronautical concepts, technologies, and capabilities;

(iii) pursue and develop advanced aeronautics concepts and technologies, including those for advanced aircraft systems and air transportation management systems, to benefit America’s security and effective and efficient national airspace management;

(iv) maintain and advance United States aeronautics research, development, test and evaluation infrastructure to provide effective experimental and computational capabilities in support of aeronautics R&D;

(v) facilitate the educational development of the future aeronautics workforce as needed to further Federal Government interests;

(vi) enhance coordination and communication among executive departments and agencies to maximize the effectiveness of Federal Government R&D resources; and

(vii) ensure appropriate Federal Government coordination with State, territorial, tribal, local, and foreign governments, international organizations, academic and research institutions, private organizations, and other entities.

SEC. 3. *Implementation of National Aeronautics Research and Development Policy.* To implement the policy set forth in section 1 of this order, the Director shall:

(a) develop and, not later than 1 year after the date of this order, submit for approval by the President a plan for national aeronautics R&D and for related infrastructure, (the “plan”), and thereafter submit, not less often than biennially, to the President for approval any changes to the plan;

(b) monitor and report to the President as appropriate on the implementation of the approved plan;

(c) ensure that executive departments and agencies conducting aeronautics R&D:

(i) obtain and exchange information and advice, as appropriate, from organizations and individuals outside the Federal Government in support of Federal Government planning and performance of aeronautics R&D;

(ii) develop and implement, as appropriate, measures for improving dissemination of R&D results and facilitating technology transition from R&D to applications; and

(iii) identify and promote innovative policies and approaches that complement and enhance Federal Government aeronautics R&D investment; and

(d) report to the President on the results of the efforts of executive departments and agencies to implement paragraphs (c)(i) through (iii) of this section.

SEC. 4. *General Provisions.* (a) In implementing this order, the Director shall:

(i) obtain as appropriate the assistance of the National Science and Technology Council in the performance of the Director’s functions under this order, consistent with Executive Order 12881 of November 23, 1993, as amended;

(ii) coordinate as appropriate with the Director of the Office of Management and Budget; and

(iii) obtain information and advice from all sources as appropriate, including individuals associated with academic and research institutions and private organizations.

(b) The functions of the President under subsection (c) of section 101 of the National Aeronautics and Space Administration Authorization Act of 2005, except the function of designation, are assigned to the Director of the Office of Science and Technology Policy. In performing these assigned functions, the Director shall, as appropriate, consult the Administrator of the National Aeronautics and Space Administration, the Secretary of Defense, the Secretary of Transportation, the Director of the Office of Management and Budget, and other heads of executive departments and agencies as appropriate. The Director also shall ensure that all actions taken in the performance of such functions are consistent with the authority set forth in subsections (a) through (d) of section 6 of Executive Order 13346 of July 8, 2004.

(c) This order shall be implemented in a manner consistent with:

(i) applicable law, including section 102A(i) of the National Security Act of 1947, as amended ([former] 50 U.S.C. 403-1(i)) [now 50 U.S.C. 3024(i)], and subject to the availability of appropriations; and

(ii) statutory authority of the principal officers of executive departments and agencies as the heads of their respective departments and agencies.

(d) This order shall not be construed to impair or otherwise affect the functions of the Director of the Office of Management and Budget relating to budget, administrative, and legislative proposals.

(e) This order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity by a party against the United States, its departments, agencies, instrumentalities, or entities, its officers, employees, or agents, or any other person.

GEORGE W. BUSH.

#### § 40103. Cooperation with other agencies on aeronautics activities

The Administrator shall coordinate, as appropriate, the Administration’s aeronautics activities with relevant programs in the Department

of Transportation, the Department of Defense, the Department of Commerce, and the Department of Homeland Security, including the activities of the Next Generation Air Transportation System Joint Planning and Development Office established under section 709 of the Vision 100—Century of Aviation Reauthorization Act (Public Law 108–176, 49 U.S.C. 40101 note).

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3379.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40103 .....	42 U.S.C. 16712(b).	Pub. L. 110–69, title II, § 2002(b), Aug. 9, 2007, 121 Stat. 583.

The words “Next Generation Air Transportation System” are inserted before “Joint Planning and Development Office” for consistency with section 709 of the Vision 100—Century of Aviation Reauthorization Act (Public Law 108–176, 49 U.S.C. 40101 note).

#### § 40104. Cooperation among Mission Directorates

Research and development activities performed by the Aeronautics Research Mission Directorate with the primary objective of assisting in the development of a flight project in another Mission Directorate shall be funded by the Mission Directorate seeking assistance.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3379.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40104 .....	42 U.S.C. 17724.	Pub. L. 110–422, title III, § 307, Oct. 15, 2008, 122 Stat. 4788.

### SUBCHAPTER II—HIGH PRIORITY AERONAUTICS RESEARCH AND DEVELOPMENT PROGRAMS

#### § 40111. Fundamental research program

(a) OBJECTIVE.—In order to ensure that the Nation maintains needed capabilities in fundamental areas of aeronautics research, the Administrator shall establish a program of long-term fundamental research in aeronautical sciences and technologies that is not tied to specific development projects.

(b) OPERATION.—The Administrator shall conduct the program under this section, in part by awarding grants to institutions of higher education. The Administrator shall encourage the participation of institutions of higher education located in States that participate in the Experimental Program to Stimulate Competitive Research. All grants to institutions of higher education under this section shall be awarded through merit review.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3379.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40111 .....	42 U.S.C. 16721(a), (b).	Pub. L. 109–155, title IV, § 421(a), (b), Dec. 30, 2005, 119 Stat. 2924.

§ 40112. Research and technology programs

(a) SUPERSONIC TRANSPORT RESEARCH AND DEVELOPMENT.—The Administrator may establish an initiative with the objective of developing and demonstrating, in a relevant environment, airframe and propulsion technologies to enable efficient, economical overland flight of supersonic civil transport aircraft with no significant impact on the environment.

(b) RESEARCH AND DEVELOPMENT INITIATIVE ON REDUCTION OF GREENHOUSE GAS AND NOISE EMISSIONS FROM AIRCRAFT.—

(1) IN GENERAL.—The Administrator shall establish an initiative to research, develop, and demonstrate new technologies and concepts—

(A) to reduce greenhouse gas emissions from aviation, including carbon dioxide, nitrogen oxides, other greenhouse gases, water vapor, black carbon and sulfate aerosols, and increased cloudiness due to contrail formation;

(B) to reduce aviation noise emissions; and

(C) to enable associated aircraft performance characteristics.

(2) GOALS.—The goals of the initiative required by paragraph (1) shall be—

(A) to ensure United States leadership in research and technology innovation leading to substantial reductions in aviation noise and greenhouse gas emissions;

(B) to enhance and expand basic research, and the translation of basic research into applications, that may lead to transformational advances in reducing aviation noise and greenhouse gas emissions;

(C) to accelerate research and development that contributes to maturing new technologies for reducing aircraft noise and greenhouse gas emissions; and

(D) to obtain and disseminate associated testing and performance data that facilitates the incorporation of new technologies into commercial aircraft development as soon as practicable.

(3) OBJECTIVES.—The objectives of the initiative established under paragraph (1) and the goals described in paragraph (2) shall include—

(A) as soon as practicable, a reduction of greenhouse gas emissions from new aircraft by at least 50 percent, as compared to the highest-performing aircraft technologies in service as of December 31, 2021;

(B) noise levels from aircraft throughout all phases of flight that do not exceed ambient noise levels in the absence of flight operations in the vicinity of the flight route;

(C) net-zero greenhouse gas emissions from aircraft by 2050; and

(D) demonstration of new technologies developed pursuant to such initiative on—

(i) regional aircraft intended to enter into service by 2030; and

(ii) single-aisle aircraft designed to accommodate more than 125 passengers intended to enter into service by 2040.

(c) ROTORCRAFT AND OTHER RUNWAY-INDEPENDENT AIR VEHICLES.—The Administrator may establish a rotorcraft and other runway-independent air vehicles initiative with the objec-

tive of developing and demonstrating improved safety, noise, and environmental impact in a relevant environment.

(d) HYPERSONICS RESEARCH.—The Administrator may establish a hypersonics research program with the objective of exploring the science and technology of hypersonic flight using air-breathing propulsion concepts, through a mix of theoretical work, basic and applied research, and development of flight research demonstration vehicles. The program may also include the transition to the hypersonic range of Mach 3 to Mach 5.

(e) REVOLUTIONARY AERONAUTICAL CONCEPTS.—The Administrator may establish a research program which covers a unique range of subsonic, fixed wing vehicles and propulsion concepts. This research is intended to push technology barriers beyond current subsonic technology. Propulsion concepts include advanced materials, morphing engines, hybrid engines, and fuel cells.

(f) FUEL CELL-POWERED AIRCRAFT RESEARCH.—

(1) OBJECTIVE.—The Administrator may establish a fuel cell-powered aircraft research program whose objective shall be to develop and test concepts to enable a hydrogen fuel cell-powered aircraft that would have no hydrocarbon or nitrogen oxide emissions into the environment.

(2) APPROACH.—The Administrator may establish a program of competitively awarded grants available to teams of researchers that may include the participation of individuals from universities, industry, and government for the conduct of this research.

(g) MARS AIRCRAFT RESEARCH.—

(1) OBJECTIVE.—The Administrator may establish a Mars Aircraft project whose objective shall be to develop and test concepts for an uncrewed aircraft that could operate for sustained periods in the atmosphere of Mars.

(2) APPROACH.—The Administrator may establish a program of competitively awarded grants available to teams of researchers that may include the participation of individuals from universities, industry, and government for the conduct of this research.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3379; Pub. L. 117–167, div. B, title VII, § 10833(a), Aug. 9, 2022, 136 Stat. 1749.)

HISTORICAL AND REVISION NOTES

Revised Section	Source (U.S. Code)	Source (Statutes at Large)
40112(a) .....	42 U.S.C. 16722(b).	Pub. L. 109–155, title IV, § 422(b)–(g), Dec. 30, 2005, 119 Stat. 2925.
40112(b) .....	42 U.S.C. 16722(c).	
40112(c) .....	42 U.S.C. 16722(d).	
40112(d) .....	42 U.S.C. 16722(e).	
40112(e) .....	42 U.S.C. 16722(f).	
40112(f) .....	42 U.S.C. 16722(g).	

Editorial Notes

AMENDMENTS

2022—Subsecs. (b) to (g). Pub. L. 117–167 added subsec. (b) and redesignated former subsecs. (b) to (f) as (c) to (g), respectively.

### Statutory Notes and Related Subsidiaries

TECHNOLOGY FOCUS AREAS, IMPLEMENTATION, AND ANNUAL REPORT FOR THE RESEARCH AND DEVELOPMENT INITIATIVE

Pub. L. 117–167, div. B, title VII, §10833(b)–(d), Aug. 9, 2022, 136 Stat. 1750, 1751, provided that:

“(b) TECHNOLOGY FOCUS AREAS.—In carrying out the research and development initiative established under section 40112(b) of title 51, United States Code, the Administrator [of the National Aeronautics and Space Administration] shall advance research, development, and demonstration projects on promising technologies such as—

“(1) advanced subsonic propulsion technology, design, and integration;

“(2) electric and hybrid-electric propulsion, including battery electric and hydrogen fuel cell electric systems;

“(3) airframe concepts and configurations;

“(4) analysis of technology options, including cost-benefit analysis of greenhouse gas and noise emissions reduction technologies;

“(5) analytical tools for system-level and system-of-systems-level modeling and integration;

“(6) airspace operations improvements;

“(7) noise emissions reduction; and

“(8) any other effort, as determined by the [National Aeronautics and Space] Administration, that contributes to a sustainable future for aviation.

“(c) IMPLEMENTATION.—In implementing the initiative established under section 40112(b) of title 51, United States Code, the Administrator shall, to the extent practicable—

“(1) ensure that testing and performance data integrates the results of community acceptance surveys conducted by the Federal Aviation Administration and other relevant studies, including studies on the impacts of new noise effects from novel propulsion systems and from airspace operations changes;

“(2) provide testing and performance data on the technologies described in subsection (b) of this section to the Administrator of the Federal Aviation Administration to facilitate the work of the Federal Aviation Administration in identifying new requirements for policy, infrastructure, and administrative capacity necessary to enable the safe integration of such technologies on aircraft;

“(3) pursue partnerships with organizations, current commercial production aircraft providers, academic institutions, small businesses, and new entrants, including partnerships to advance research and development activities related to both regional aircraft and aircraft designed to accommodate more than 125 passengers;

“(4) include universities, academic institutions, and other research organizations in the partnerships described in paragraph (3);

“(5) expand basic research;

“(6) ensure equity in research sponsorship of, and partnership opportunities with, underrepresented students, faculty, and minority-serving-institutions [sic];

“(7) continue to coordinate with the Secretary of Energy on battery technology research;

“(8) make available the research and development carried out under the initiative established under subsection (b) of section 40112 of title 51, United States Code, to help enable an industry-wide shift toward aircraft concepts that reduce greenhouse gas emissions and aircraft noise to achieve the goals and objectives under paragraphs (2) and (3) of that subsection; and

“(9) continue to support research, development, and demonstration of aircraft concepts, including systems architecture, materials and components, integration of systems and airframe structures, human factors, airspace planning and operations, and the integration of related advanced technologies and concepts, with the goal of carrying out test flights with integrated subsystems by 2025.

“(d) ANNUAL REPORT.—Not later than 1 year after the date of the enactment of this Act [Aug. 9, 2022], and annually thereafter, the Administrator shall submit to the appropriate committees of Congress [Committee on Commerce, Science, and Transportation of the Senate and Committee on Science, Space, and Technology of the House of Representatives] a report on the progress of the efforts carried out under the initiative established under subsection (b) of section 40112 of title 51, United States Code, including—

“(1) the status of progress on such initiative;

“(2) an updated, anticipated timeframe for readiness of technologies and aircraft to be adopted by industry with the emissions reduction levels directed under that subsection; and

“(3) an identification of fundamental aeronautics research activities contributing to achieving the goals and objectives of such initiative, as described in paragraphs (2) and (3) of that subsection, and a description of any obstacles to achieving such goals and objectives.”

[For definition of “minority-serving institution” as used in section 10833(b)–(d) of Pub. L. 117–167, set out above, see section 18901 of Title 42, The Public Health and Welfare.]

### NATIONAL AERO-SPACE PLANE PROGRAM

Pub. L. 101–611, title I, §116, Nov. 16, 1990, 104 Stat. 3202, provided that:

“(a) NATIONAL AERO-SPACE PLANE PROGRAM.—The Secretary of Defense (hereafter in this section referred to as the ‘Secretary’) and the Administrator shall jointly pursue on a high priority basis a National Aero-Space Plane program whose objective shall be the development and demonstration, by 1997, of a primarily air breathing single-stage-to-orbit and long range hypersonic cruise research flight vehicle. The program shall be a research program, and to the extent practicable technological information developed shall be transferred to the military and to the domestic civil aviation and other private industries.

“(b) MANAGEMENT PLAN.—

“(1) The Secretary and the Administrator [sic] shall jointly develop a management plan for the program established under subsection (a), which shall include goals, major tasks, anticipated schedules, organizational structure, funding profiles, details of the respective responsibilities of the Secretary and the Administrator, and resource procurement strategies.

“(2) The management plan developed pursuant to paragraph (1) shall be submitted to the Congress within 120 days after the date of enactment of this Act [Nov. 16, 1990].”

[Pub. L. 101–611, title I, §127, Nov. 16, 1990, 104 Stat. 3205, provided that: “For purposes of this title [see Tables for classification], the term ‘Administrator’ means the Administrator of the National Aeronautics and Space Administration.”]

### § 40113. Airspace systems research

(a) OBJECTIVE.—The Airspace Systems Research program shall pursue research and development to enable revolutionary improvements to and modernization of the National Airspace System, as well as to enable the introduction of new systems for vehicles that can take advantage of an improved, modern air transportation system.

(b) ALIGNMENT.—Not later than 1 year after December 30, 2005, the Administrator shall align the projects of the Airspace Systems Research program so that they directly support the objectives of the Joint Planning and Development Office’s Next Generation Air Transportation System Integrated Plan.

(Pub. L. 111–314, §3, Dec. 18, 2010, 124 Stat. 3380.)

## HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40113 .....	42 U.S.C. 16723.	Pub. L. 109-155, title IV, § 423, Dec. 30, 2005, 119 Stat. 2925.

In subsection (b), the date “December 30, 2005” is substituted for “the date of enactment of this Act” to reflect the date of enactment of the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109-155, 119 Stat. 2895).

**Statutory Notes and Related Subsidiaries**

## UNMANNED AIRCRAFT SYSTEMS

Pub. L. 117-167, div. B, title VII, § 10832, Aug. 9, 2022, 136 Stat. 1748, provided that:

“(a) UNMANNED AIRCRAFT SYSTEMS OPERATION PROGRAM.—The Administrator [of the National Aeronautics and Space Administration] shall—

“(1) research and test capabilities and concepts, including unmanned aircraft systems communications, for integrating unmanned aircraft systems into the national airspace system;

“(2) leverage the partnership NASA [National Aeronautics and Space Administration] has with industry focused on the advancement of technologies for future air traffic management systems for unmanned aircraft systems; and

“(3) continue to leverage the research and testing portfolio of NASA to inform the integration of unmanned aircraft systems into the national airspace system, consistent with public safety and national security objectives.

“(b) SENSE OF CONGRESS ON COORDINATION WITH FEDERAL AVIATION ADMINISTRATION.—It is the sense of Congress that—

“(1) NASA should continue—

“(A) to coordinate with the Federal Aviation Administration on research on air traffic management systems for unmanned aircraft systems; and

“(B) to assist the Federal Aviation Administration in the integration of air traffic management systems for unmanned aircraft systems into the national airspace system; and

“(2) the test ranges (as defined in section 44801 of title 49, United States Code) should continue to be leveraged for research on—

“(A) air traffic management systems for unmanned aircraft systems; and

“(B) the integration of such systems into the national airspace system.”

[For definition of “unmanned aircraft system” as used in section 10832 of Pub. L. 117-167, set out above, see section 10802 of Pub. L. 117-167, set out as a Definitions note under section 10101 of this title.]

**§ 40114. Aviation safety and security research**

(a) OBJECTIVE.—The Aviation Safety and Security Research program shall pursue research and development activities that directly address the safety and security needs of the National Airspace System and the aircraft that fly in it. The program shall develop prevention, intervention, and mitigation technologies aimed at causal, contributory, or circumstantial factors of aviation accidents.

(b) ALIGNMENT.—Not later than 1 year after December 30, 2005, the Administrator shall align the projects of the Aviation Safety and Security Research program so that they directly support the objectives of the Joint Planning and Development Office’s Next Generation Air Transportation System Integrated Plan.

(Pub. L. 111-314, § 3, Dec. 18, 2010, 124 Stat. 3380.)

## HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40114 .....	42 U.S.C. 16724.	Pub. L. 109-155, title IV, § 424, Dec. 30, 2005, 119 Stat. 2926.

In subsection (b), the date “December 30, 2005” is substituted for “the date of enactment of this Act” to reflect the date of enactment of the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109-155, 119 Stat. 2895).

**§ 40115. Aviation weather research**

The Administrator may carry out a program of collaborative research with the National Oceanic and Atmospheric Administration on convective weather events, with the goal of significantly improving the reliability of 2-hour to 6-hour aviation weather forecasts.

(Pub. L. 111-314, § 3, Dec. 18, 2010, 124 Stat. 3381.)

## HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40115 .....	42 U.S.C. 16725.	Pub. L. 109-155, title IV, § 425, Dec. 30, 2005, 119 Stat. 2926.

**§ 40116. University-based Centers for Research on Aviation Training**

(a) IN GENERAL.—The Administrator shall award grants to institutions of higher education (or consortia thereof) to establish one or more Centers for Research on Aviation Training under cooperative agreements with appropriate Administration Centers.

(b) PURPOSE.—The purpose of the Centers for Research on Aviation Training shall be to investigate the impact of new technologies and procedures, particularly those related to the aircraft flight deck and to the air traffic management functions, on training requirements for pilots and air traffic controllers.

(c) APPLICATION.—An institution of higher education (or a consortium of such institutions) seeking funding under this section shall submit an application to the Administrator at such time, in such manner, and containing such information as the Administrator may require, including, at a minimum, a 5-year research plan.

(d) AWARD DURATION.—An award made by the Administrator under this section shall be for a period of 5 years and may be renewed on the basis of—

(1) satisfactory performance in meeting the goals of the research plan proposed in the application submitted under subsection (c); and

(2) other requirements as specified by the Administrator.

(Pub. L. 111-314, § 3, Dec. 18, 2010, 124 Stat. 3381.)

## HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40116 .....	42 U.S.C. 16727.	Pub. L. 109-155, title IV, § 427, Dec. 30, 2005, 119 Stat. 2926; Pub. L. 110-422, title III, § 308, Oct. 15, 2008, 122 Stat. 4788.

In subsection (b), the words “Centers for Research on Aviation Training” are substituted for “Centers” for

clarity. There are references to both “Centers for Research on Aviation Training” and “Administration Centers” in subsection (a).

In subsection (d)(1), the words “proposed in the application submitted under subsection (c)” are substituted for “proposed by the Center in its application under subsection (c)” for clarity. Under section (c), applications are filed by an institution of higher education (or a consortium of such institutions) seeking funding, and not by the Center for which such funding is sought.

### SUBCHAPTER III—SCHOLARSHIPS

#### § 40131. Aeronautics scholarships

(a) **ESTABLISHMENT.**—The Administrator shall establish a program of scholarships for full-time graduate students who are United States citizens and are enrolled in, or have been accepted by and have indicated their intention to enroll in, accredited Masters degree programs in aeronautical engineering or equivalent programs at institutions of higher education. Each such scholarship shall cover the costs of room, board, tuition, and fees, and may be provided for a maximum of 2 years.

(b) **IMPLEMENTATION.**—Not later than 180 days after December 30, 2005, the Administrator shall publish regulations governing the scholarship program under this section.

(c) **COOPERATIVE TRAINING OPPORTUNITIES.**—Students who have been awarded a scholarship under this section shall have the opportunity for paid employment at one of the Administration Centers engaged in aeronautics research and development during the summer prior to the first year of the student’s Masters program, and between the first and second year, if applicable.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3381.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40131 .....	42 U.S.C. 16741.	Pub. L. 109–155, title IV, § 431, Dec. 30, 2005, 119 Stat. 2927.

In subsection (b), the date “December 30, 2005” is substituted for “the date of enactment of this Act” to reflect the date of enactment of the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155, 119 Stat. 2895).

### SUBCHAPTER IV—DATA REQUESTS

#### § 40141. Aviation data requests

The Administrator shall make available upon request satellite imagery and aerial photography of remote terrain that the Administration owns at the time of the request to the Administrator of the Federal Aviation Administration or the Director of the Five Star Medallion Program, to assist and train pilots in navigating challenging topographical features of such terrain.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3382.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40141 .....	42 U.S.C. 16751.	Pub. L. 109–155, title IV, § 441, Dec. 30, 2005, 119 Stat. 2927.

## CHAPTER 403—NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

<i>Sec.</i>	<i>Purposes.</i>
40301.	Purposes.
40302.	Definitions.
40303.	National space grant college and fellowship program.
40304.	Grants or contracts.
40305.	Specific national needs.
40306.	Space grant college and space grant regional consortium.
40307.	Space grant fellowship program.
40308.	Space grant review panel.
40309.	Availability of other Federal personnel and data.
40310.	Designation or award to be on competitive basis.
40311.	Continuing emphasis.

#### § 40301. Purposes

The purposes of this chapter are to—

(1) increase the understanding, assessment, development, and utilization of space resources by promoting a strong educational base, responsive research and training activities, and broad and prompt dissemination of knowledge and techniques;

(2) utilize the abilities and talents of the universities of the Nation to support and contribute to the exploration and development of the resources and opportunities afforded by the space environment;

(3) encourage and support, within the university community of the Nation, the existence of interdisciplinary and multidisciplinary programs of space research that—

(A) engage in integrated activities of training, research, and public service;

(B) have cooperative programs with industry; and

(C) are coordinated with the overall program of the Administration;

(4) encourage and support the existence of consortia, made up of university and industry members, in order to advance the exploration and development of space resources in cases in which national objectives can be better fulfilled through such consortia than through the programs of single universities;

(5) encourage and support Federal funding for graduate fellowships in fields related to space; and

(6) support activities in colleges and universities generally for the purpose of creating and operating a network of institutional programs that will enhance achievements resulting from efforts under this chapter.

(Pub. L. 111–314, § 3, Dec. 18, 2010, 124 Stat. 3382.)

#### HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
40301 .....	42 U.S.C. 2486a.	Pub. L. 100–147, title II, § 203, Oct. 30, 1987, 101 Stat. 869.

In paragraph (3), the word “that” is substituted for “, to” for clarity.

In paragraph (4), the words “in order to” are substituted for “to”, and the words “through such consortia” are added, for clarity.