

Public Law 109–155  
109th Congress

An Act

To authorize the programs of the National Aeronautics and Space Administration.

Dec. 30, 2005

[S. 1281]

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

**SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

(a) **SHORT TITLE.**—This Act may be cited as the “National Aeronautics and Space Administration Authorization Act of 2005”.

(b) **TABLE OF CONTENTS.**—The table of contents for this Act is as follows:

National  
Aeronautics and  
Space  
Administration  
Authorization  
Act of 2005.  
42 USC 16601  
note.

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Sec. 2. Definitions.

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- Sec. 321. George E. Brown, Jr. Near-Earth Object Survey.

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**SEC. 2. DEFINITIONS.**

42 USC 16601.

In this Act:

(1) ADMINISTRATOR.—The term “Administrator” means the Administrator of the National Aeronautics and Space Administration.

(2) ISS.—The term “ISS” means the International Space Station.

(3) NASA.—The term “NASA” means the National Aeronautics and Space Administration.

## TITLE I—GENERAL PRINCIPLES AND REPORTS

**SEC. 101. RESPONSIBILITIES, POLICIES, AND PLANS.**

42 USC 16611.

(a) GENERAL RESPONSIBILITIES.—

(1) PROGRAMS.—The Administrator shall ensure that NASA carries out a balanced set of programs that shall include, at a minimum, programs in—

- (A) human space flight, in accordance with subsection (b);
- (B) aeronautics research and development; and
- (C) scientific research, which shall include, at a minimum—

- (i) robotic missions to study the Moon and other planets and their moons, and to deepen understanding of astronomy, astrophysics, and other areas of science that can be productively studied from space;

- (ii) earth science research and research on the Sun-Earth connection through the development and operation of research satellites and other means;

- (iii) support of university research in space science, earth science, and microgravity science; and

- (iv) research on microgravity, including research that is not directly related to human exploration.

(2) CONSULTATION AND COORDINATION.—In carrying out the programs of NASA, the Administrator shall—

(A) consult and coordinate to the extent appropriate with other relevant Federal agencies, including through the National Science and Technology Council;

(B) work closely with the private sector, including by—

(i) encouraging the work of entrepreneurs who are seeking to develop new means to launch satellites, crew, or cargo;

Contracts.

(ii) contracting with the private sector for crew and cargo services, including to the International Space Station, to the extent practicable;

(iii) using commercially available products (including software) and services to the extent practicable to support all NASA activities; and

(iv) encouraging commercial use and development of space to the greatest extent practicable; and

(C) involve other nations to the extent appropriate.

(b) VISION FOR SPACE EXPLORATION.—

(1) IN GENERAL.—The Administrator shall establish a program to develop a sustained human presence on the Moon, including a robust precursor program, to promote exploration, science, commerce, and United States preeminence in space, and as a stepping-stone to future exploration of Mars and other destinations. The Administrator is further authorized to develop and conduct appropriate international collaborations in pursuit of these goals.

(2) MILESTONES.—The Administrator shall manage human space flight programs to strive to achieve the following milestones (in conformity with section 503)—

(A) Returning Americans to the Moon no later than 2020.

(B) Launching the Crew Exploration Vehicle as close to 2010 as possible.

(C) Increasing knowledge of the impacts of long duration stays in space on the human body using the most appropriate facilities available, including the ISS.

(D) Enabling humans to land on and return from Mars and other destinations on a timetable that is technically and fiscally possible.

(c) AERONAUTICS.—

President.

(1) IN GENERAL.—The President of the United States, through an official the President shall designate, and in consultation with appropriate Federal agencies, shall develop a national policy to guide the aeronautics research and development programs of the United States through 2020. The policy shall include national goals for aeronautics research and development and shall describe the role and responsibilities of each Federal agency that will carry out the policy. The development of the policy shall utilize external studies that have been conducted on the state of United States aeronautics and aviation research and development and have suggested policies to ensure continued competitiveness.

(2) CONTENT.—(A) At a minimum, the national aeronautics research and development policy shall describe for NASA—

(i) the priority areas of research for aeronautics through fiscal year 2011;

(ii) the basis on which and the process by which priorities for ensuing fiscal years will be selected;

(iii) the facilities and personnel needed to carry out the aeronautics program through fiscal year 2011; and

(iv) the budget assumptions on which the policy is based, which for fiscal years 2007 and 2008 shall be the authorized level for aeronautics provided in title II of this Act.

(B) The policy shall be based on the premises that—

(i) the Federal Government has an established interest in conducting research and development programs for improving the usefulness, performance, speed, safety, and efficiency of aeronautical vehicles, as described in section 102(d)(2) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451(d)(2)); and

(ii) the Federal Government has an established interest in conducting research and development programs that help preserve the role of the United States as a global leader in aeronautical technologies and in their application, as described in section 102(d)(5) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451(d)(5)).

(3) CONSIDERATIONS.—In developing the national aeronautics research and development policy, the President shall consider the following issues, which shall be discussed in the transmittal under paragraph (5):

(A) The extent to which NASA should focus on long-term, high-risk research or more incremental research, and the expected impact of that decision on the United States economy, and the ability to achieve environmental and other public goals related to aeronautics.

(B) The extent to which NASA should address military and commercial needs.

(C) How NASA will coordinate its aeronautics program with other Federal agencies.

(D) The extent to which NASA will conduct research in-house, fund university research, and collaborate on industry research, and the expected impact of that mix of funding on the supply of United States workers for the aeronautics industry.

(E) The extent to which the priority areas of research listed pursuant to paragraph (2)(A) should include the activities authorized by title IV of this Act, the discussion of which shall include a priority ranking of all of the activities authorized in title IV and an explanation for that ranking.

(4) CONSULTATION.—In the development of the national aeronautics research and development policy, the President shall consult widely with academic and industry experts and with other Federal agencies. The Administrator may enter into an arrangement with the National Academy of Sciences to help develop the policy.

(5) SCHEDULE.—(A) Not later than 1 year after the date of enactment of this Act, the President shall transmit the national aeronautics research and development policy to the Committee on Appropriations of the House of Representatives, the Committee on Appropriations of the Senate, the Committee

Deadline.  
President.

on Science of the House of Representatives, and the Committee on Commerce, Science, and Transportation of the Senate.

Deadline.

(B) Not later than 60 days after the transmittal of the policy under subparagraph (A), the Administrator shall transmit to the Committee on Appropriations of the House of Representatives, the Committee on Appropriations of the Senate, the Committee on Science of the House of Representatives, and the Committee on Commerce, Science, and Transportation of the Senate a report describing how NASA will carry out the policy.

Reports.

(C) At the time the President's fiscal year 2007 budget is transmitted to the Congress, the Administrator shall transmit to the Committee on Appropriations of the House of Representatives, the Committee on Appropriations of the Senate, the Committee on Science of the House of Representatives, and the Committee on Commerce, Science, and Transportation of the Senate a report on the proposed NASA aeronautics budget describing—

(i) the rationale for the budget levels and activities in the proposed fiscal year 2007 NASA aeronautics budget;

(ii) the extent to which the program directions proposed for fiscal year 2007 are likely to be consistent with the national policy being prepared under this section; and

(iii) the extent to which the proposed programs for fiscal year 2007 are consistent with past reports and current studies of the National Academy of Sciences, and other relevant reports and studies.

(d) SCIENCE.—

(1) IN GENERAL.—The Administrator shall develop a plan to guide the science programs of NASA through 2016.

(2) CONTENT.—At a minimum, the plan developed under paragraph (1) shall be designed to ensure that NASA has a rich and vigorous set of science activities, and shall describe—

(A) the missions NASA will initiate, design, develop, launch, or operate in space science and earth science through fiscal year 2016, including launch dates;

(B) a priority ranking of all of the missions listed under subparagraph (A), and the rationale for the ranking; and

(C) the budget assumptions on which the policy is based, which for fiscal years 2007 and 2008 shall be consistent with the authorizations provided in title II of this Act.

(3) CONSIDERATIONS.—In developing the science plan under this subsection, the Administrator shall consider the following issues, which shall be discussed in the transmittal under paragraph (6):

(A) What the most important scientific questions in space science and earth science are.

(B) How to best benefit from the relationship between NASA's space and earth science activities and those of other Federal agencies.

(C) Whether the Magnetospheric Multiscale Mission, SIM-Planet Quest, and missions under the Future Explorers Programs can be expedited to meet previous schedules.

(D) Whether any NASA Earth observing missions that have been delayed or cancelled can be restored.

(E) How to ensure the long-term vitality of Earth observation programs at NASA, including their satellite, science, and data system components.

(F) Whether current and currently planned Earth observation missions should be supplemented or replaced with new satellite architectures and instruments that enable global coverage, and all-weather, day and night imaging of the Earth's surface features.

(G) How to integrate NASA earth science missions with the Global Earth Observing System of Systems.

(4) CONSULTATION.—In developing the plan under this subsection, the Administrator shall draw on decadal surveys and other reports in planetary science, astronomy, solar and space physics, earth science, and any other relevant fields developed by the National Academy of Sciences. The Administrator shall also consult widely with academic and industry experts and with other Federal agencies.

(5) HUBBLE SPACE TELESCOPE.—The plan developed under this subsection shall address plans for a human mission to repair the Hubble Space Telescope consistent with section 302 of this Act.

(6) SCHEDULE.—The Administrator shall transmit the plan developed under this subsection to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 1 year after the date of enactment of this Act. The Administrator shall make available to those committees any study done by a nongovernmental entity that was used in the development of the plan.

Deadline.

(e) FACILITIES.—

(1) IN GENERAL.—The Administrator shall develop a plan for managing NASA's facilities through fiscal year 2015. The plan shall be consistent with the policies and plans developed pursuant to this section.

(2) CONTENT.—At a minimum, the plan developed under paragraph (1) shall describe—

(A) any new facilities NASA intends to acquire, whether through construction, purchase, or lease, and the expected dates for doing so;

(B) any facilities NASA intends to significantly modify, refurbish, or upgrade, and the expected dates for doing so;

(C) any facilities NASA intends to close, and the expected dates for doing so;

(D) any transactions NASA intends to conduct to sell, lease, or otherwise transfer the ownership of a facility, and the expected dates for doing so;

(E) how each of the actions described in subparagraphs (A), (B), (C), and (D) will enhance the ability of NASA to carry out its programs;

(F) the expected costs or savings expected from each of the actions described in subparagraphs (A), (B), (C), and (D);

(G) the priority order of the actions described in subparagraphs (A), (B), (C), and (D);

(H) the budget assumptions of the plan, which for fiscal years 2007 and 2008 shall be consistent with the authorizations provided in title II of this Act, including the funding levels for maintenance and repairs; and

(I) how facilities were evaluated in developing the plan.

Deadline.

(3) SCHEDULE.—The Administrator shall transmit the plan developed under this subsection to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than the date on which the President submits the proposed budget for the Federal Government for fiscal year 2008 to the Congress.

(f) WORKFORCE.—

(1) IN GENERAL.—The Administrator shall develop a human capital strategy to ensure that NASA has a workforce of the appropriate size and with the appropriate skills to carry out the programs of NASA, consistent with the policies and plans developed pursuant to this section. Under the strategy, NASA shall utilize current personnel, to the maximum extent feasible, in implementing the vision for space exploration and NASA's other programs. The strategy shall cover the period through fiscal year 2011.

(2) CONTENT.—The strategy developed under paragraph (1) shall describe, at a minimum—

(A) any categories of employees NASA intends to reduce, the expected size and timing of those reductions, the methods NASA intends to use to make the reductions, and the reasons NASA no longer needs those employees;

(B) any categories of employees NASA intends to increase, the expected size and timing of those increases, the methods NASA intends to use to recruit the additional employees, and the reasons NASA needs those employees;

(C) the steps NASA will use to retain needed employees; and

(D) the budget assumptions of the strategy, which for fiscal years 2007 and 2008 shall be consistent with the authorizations provided in title II of this Act, and any expected additional costs or savings from the strategy by fiscal year.

Deadlines.

(3) SCHEDULE.—The Administrator shall transmit the strategy developed under this subsection to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 60 days after the date on which the President submits the proposed budget for the Federal Government for fiscal year 2007 to the Congress. At least 60 days before transmitting the strategy, NASA shall provide a draft of the strategy to its Federal employee unions for a 30-day consultation period after which NASA shall respond in writing to any written concerns provided by the unions.

(4) LIMITATION.—NASA may not implement any Reduction in Force or other involuntary separations (except for cause) prior to March 16, 2007.

(g) CENTER MANAGEMENT.—

(1) IN GENERAL.—The Administrator shall conduct a study to determine whether any of NASA's centers should be operated by or with the private sector by converting a center to a



Federally Funded Research and Development Center or through any other mechanism.

(2) CONTENT.—The study conducted under paragraph (1) shall, at a minimum—

(A) make a recommendation for the operation of each center and provide reasons for that recommendation; and

(B) describe the advantages and disadvantages of each mode of operation considered in the study.

(3) CONSIDERATIONS.—In conducting the study, the Administrator shall take into consideration the experiences of other relevant Federal agencies in operating laboratories and centers, and any reports that have reviewed the mode of operation of those laboratories and centers, as well as any reports that have reviewed NASA's centers.

(4) SCHEDULE.—The Administrator shall transmit the study conducted under this subsection to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than May 31, 2006.

Deadline.

(h) BUDGETS.—

(1) CATEGORIES.—The proposed budget for NASA submitted by the President for each fiscal year shall be accompanied by documents showing—

(A) by program—

(i) the budget for space operations, including the ISS and the Space Shuttle;

(ii) the budget for exploration systems;

(iii) the budget for aeronautics;

(iv) the budget for space science;

(v) the budget for earth science;

(vi) the budget for microgravity science;

(vii) the budget for education;

(viii) the budget for safety oversight; and

(ix) the budget for public relations;

(B) the budget for technology transfer programs;

(C) the budget for the Integrated Enterprise Management Program, by individual element;

(D) the budget for the Independent Technical Authority, both total and by center;

(E) the total budget for the prize program under section 104, and the administrative budget for that program; and

(F) the comparable figures for at least the 2 previous fiscal years for each item in the proposed budget.

(2) SENSE OF CONGRESS REGARDING EVALUATION CRITERIA FOR BUDGET REQUESTS.—It is the sense of the Congress that each budget of the United States submitted to the Congress after the date of enactment of this Act should be evaluated for compliance with the findings and priorities established by this Act and the amendments made by this Act.

(i) ADDITIONAL BUDGET INFORMATION.—NASA shall make available, upon request from the Committee on Science of the House of Representatives or the Committee on Commerce, Science, and Transportation of the Senate—

(1) information on corporate and center general and administrative costs and service pool costs, including—

(A) the total amount of funds being allocated for those purposes for any fiscal year for which the President has submitted an annual budget request to Congress;

(B) the amount of funds being allocated for those purposes for each center, for headquarters, and for each directorate; and

(C) the major activities included in each cost category; and

(2) the figures on the amount of unobligated funds and unexpended funds, by appropriations account—

(A) that remained at the end of the fiscal year prior to the fiscal year in which the budget is being presented that were carried over into the fiscal year in which the budget is being presented;

(B) that are estimated will remain at the end of the fiscal year in which the budget is being presented that are proposed to be carried over into the fiscal year for which the budget is being presented; and

(C) that are estimated will remain at the end of the fiscal year for which the budget is being presented.

(j) NASA AERONAUTICS TEST FACILITIES AND SIMULATORS.—

(1) REVIEW.—The Director of the Office of Science and Technology Policy shall commission an independent review of the Nation's long-term strategic needs for aeronautics test facilities and shall submit the review to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate. The review shall include an evaluation of the facility needs described pursuant to subsection (c)(2)(A)(iii). The review shall take into consideration the results of the study conducted pursuant to the instructions on page 582 of the conference report (H. Rept. 108-767) to accompany the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (P.L. 108-375).

(2) LIMITATION.—The Administrator shall not close or mothball any aeronautics test facilities identified in the 2003 independent assessment by the RAND Corporation titled "Wind Tunnel and Propulsion Test Facilities: An Assessment of NASA's Capabilities to Serve National Needs" as being part of the minimum set of those facilities necessary to retain and manage to serve national needs, or any aeronautics simulators, that were in use as of January 1, 2004, with the exception of the already closed 16-foot transonic tunnel, until—

(A) the review conducted under paragraph (1) has been transmitted to the Congress; and

(B) 60 days after the Administrator has transmitted to the Committee on Appropriations and the Committee on Science of the House of Representatives and the Committee on Appropriations and the Committee on Commerce, Science, and Transportation of the Senate a written certification that the proposed closure will not have an adverse impact on NASA's ability to execute the national policy developed under subsection (c) and to achieve the goals described in that policy.

Deadline.  
Certification.

Termination  
date.

Subparagraph (B) shall cease to be effective five years after the date the study required by this section has been transmitted to the Congress.

**SEC. 102. REPORTS.**

42 USC 16612.

**(a) NATIONAL AWARENESS CAMPAIGN.—**

(1) **IN GENERAL.**—The Administrator shall implement, beginning not later than May 1, 2006, a national awareness campaign through various media, including print, radio, television, and the Internet, to articulate missions, publicize recent accomplishments, and facilitate efforts to encourage young Americans to enter the fields of science, mathematics, and engineering to help maintain United States leadership in those fields.

(2) **REPORTS.**—(A) Not later than April 1, 2006, the Administrator shall transmit a plan to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the activities that will be undertaken as part of the national awareness campaign required by paragraph (1) and the expected cost of those activities. NASA may undertake activities as part of the national awareness campaign prior to the transmittal of the plan required by this subparagraph, but the plan shall include a description of any activities undertaken prior to the transmittal and the estimated cost of those activities.

(B) Not later than three years after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an assessment of the impact of the national awareness campaign.

**(b) BUDGET INFORMATION.**—Not later than April 30, 2006, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report describing—

(1) the expected cost of the Crew Exploration Vehicle through fiscal year 2020, based on the public specifications for that development contract; and

(2) the expected budgets for each fiscal year through 2020 for human spaceflight, aeronautics, space science, and earth science—

(A) first assuming inflationary growth for the budget of NASA as a whole and including costs for the Crew Exploration Vehicle as projected under paragraph (1); and

(B) then assuming inflationary growth for the budget of NASA as a whole and including at least two cost estimates for the Crew Exploration Vehicle that are higher than those projected under paragraph (1), based on NASA's past experience with cost increases for similar programs, along with a description of the reasons for selecting the cost estimates used for the calculations under this subparagraph and the confidence level for each of the cost estimates used in this section.

**(c) SPACE COMMUNICATIONS PLAN.—**

(1) **PLAN.**—The Administrator shall develop a plan, in consultation with relevant Federal agencies, for updating NASA's space communications architecture for both low-Earth orbital operations and deep space exploration so that it is capable of meeting NASA's needs over the next 20 years. The plan shall include life-cycle cost estimates, milestones, estimated performance capabilities, and 5-year funding profiles. The plan

shall also include an estimate of the amounts of any reimbursements NASA is likely to receive from other Federal agencies during the expected life of the upgrades described in the plan. At a minimum, the plan shall include a description of the following:

(A) Projected Deep Space Network requirements for the next 20 years, including those in support of human space exploration missions.

(B) Upgrades needed to support Deep Space Network requirements.

(C) Cost estimates for the maintenance of existing Deep Space Network capabilities.

(D) Cost estimates and schedules for the upgrades described in subparagraph (B).

(E) Projected Tracking and Data Relay Satellite System requirements for the next 20 years, including those in support of other relevant Federal agencies.

(F) Cost and schedule estimates to maintain and upgrade the Tracking and Data Relay Satellite System to meet projected requirements.

(2) CONSULTATIONS.—The Administrator shall consult with other relevant Federal agencies in developing the plan under this subsection.

Deadline.

(3) SCHEDULE.—The Administrator shall transmit the plan under this subsection to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than February 17, 2007.

(d) JOINT DARK ENERGY MISSION.—The Administrator and the Director of the Department of Energy Office of Science shall jointly transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later than July 15, 2006, a report on plans for a Joint Dark Energy Mission. The report shall include the amount of funds each agency intends to expend on the Joint Dark Energy Mission for each of the fiscal years 2007 through 2011, and any specific milestones for the development and launch of the Mission.

(e) OFFICE OF SCIENCE AND TECHNOLOGY POLICY.—

(1) STUDY.—As part of ongoing efforts to coordinate research and development across the Federal agencies, the Director of the Office of Science and Technology Policy shall conduct a study to determine—

(A) if any research and development programs of NASA are unnecessarily duplicating aspects of programs of other Federal agencies; and

(B) if any research and development programs of NASA are neglecting any topics of national interest that are related to the mission of NASA.

(2) REPORT.—Not later than one year after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that—

(A) describes the results of the study under paragraph (1);

(B) lists the research and development programs of Federal agencies other than NASA that were reviewed as part of the study, which shall include any program supporting research and development in an area related to the programs of NASA, and the most recent budget figures for those programs of other agencies;

(C) recommends any changes to the research and development programs of NASA that should be made in response to the findings of the study required by paragraph (1); and

(D) describes mechanisms the Office of Science and Technology Policy will use to ensure adequate coordination between NASA and Federal agencies that operate related programs.

(3) CONTRACT.—The Director of the Office of Science and Technology Policy may contract with a nongovernmental entity to conduct the study required by paragraph (1).

#### SEC. 103. BASELINES AND COST CONTROLS.

42 USC 16613.

##### (a) CONDITIONS FOR DEVELOPMENT.—

(1) IN GENERAL.—NASA shall not enter into a contract for the development of a major program unless the Administrator determines that—

(A) the technical, cost, and schedule risks of the program are clearly identified and the program has developed a plan to manage those risks;

(B) the technologies required for the program have been demonstrated in a relevant laboratory or test environment; and

(C) the program complies with all relevant policies, regulations, and directives of NASA.

(2) REPORT.—The Administrator shall transmit a report describing the basis for the determination required under paragraph (1) to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at least 30 days before entering into a contract for development under a major program.

(3) NONDELEGATION.—The Administrator may not delegate the determination requirement under this subsection, except in cases in which the Administrator has a conflict of interest.

##### (b) MAJOR PROGRAM ANNUAL REPORTS.—

(1) REQUIREMENT.—Annually, at the same time as the President's annual budget submission to the Congress, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that includes the information required by this section for each major program for which NASA proposes to expend funds in the subsequent fiscal year. Reports under this paragraph shall be known as Major Program Annual Reports.

(2) BASELINE REPORT.—The first Major Program Annual Report for each major program shall include a Baseline Report that shall, at a minimum, include—

(A) the purposes of the program and key technical characteristics necessary to fulfill those purposes;

(B) an estimate of the life-cycle cost for the program, with a detailed breakout of the development cost, program

reserves, and an estimate of the annual costs until development is completed;

(C) the schedule for development, including key program milestones;

(D) the plan for mitigating technical, cost, and schedule risks identified in accordance with subsection (a)(1)(A); and

(E) the name of the person responsible for making notifications under subsection (c), who shall be an individual whose primary responsibility is overseeing the program.

(3) INFORMATION UPDATES.—For major programs for which a Baseline Report has been submitted, each subsequent Major Program Annual Report shall describe any changes to the information that had been provided in the Baseline Report, and the reasons for those changes.

Deadlines.

(c) NOTIFICATION.—

(1) REQUIREMENT.—The individual identified under subsection (b)(2)(E) shall immediately notify the Administrator any time that individual has reasonable cause to believe that, for the major program for which he or she is responsible—

(A) the development cost of the program is likely to exceed the estimate provided in the Baseline Report of the program by 15 percent or more; or

(B) a milestone of the program is likely to be delayed by 6 months or more from the date provided for it in the Baseline Report of the program.

(2) REASONS.—Not later than 30 days after the notification required under paragraph (1), the individual identified under subsection (b)(2)(E) shall transmit to the Administrator a written notification explaining the reasons for the change in the cost or milestone of the program for which notification was provided under paragraph (1).

(3) NOTIFICATION OF CONGRESS.—Not later than 15 days after the Administrator receives a written notification under paragraph (2), the Administrator shall transmit the notification to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Deadlines.  
Notification.

(d) FIFTEEN PERCENT THRESHOLD.—Not later than 30 days after receiving a written notification under subsection (c)(2), the Administrator shall determine whether the development cost of the program is likely to exceed the estimate provided in the Baseline Report of the program by 15 percent or more, or whether a milestone is likely to be delayed by 6 months or more. If the determination is affirmative, the Administrator shall—

Reports.

(1) transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later than 15 days after making the determination, a report that includes—

(A) a description of the increase in cost or delay in schedule and a detailed explanation for the increase or delay;

(B) a description of actions taken or proposed to be taken in response to the cost increase or delay; and

(C) a description of any impacts the cost increase or schedule delay, or the actions described under subparagraph (B), will have on any other program within NASA; and

(2) if the Administrator intends to continue with the program, promptly initiate an analysis of the program, which shall include, at a minimum—

(A) the projected cost and schedule for completing the program if current requirements of the program are not modified;

(B) the projected cost and the schedule for completing the program after instituting the actions described under paragraph (1)(B); and

(C) a description of, and the projected cost and schedule for, a broad range of alternatives to the program.

NASA shall complete an analysis initiated under paragraph (2) not later than 6 months after the Administrator makes a determination under this subsection. The Administrator shall transmit the analysis to the Committee on Science of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate not later than 30 days after its completion.

(e) THIRTY PERCENT THRESHOLD.—If the Administrator determines under subsection (d) that the development cost of a program will exceed the estimate provided in the Baseline Report of the program by more than 30 percent, then, beginning 18 months after the date the Administrator transmits a report under subsection (d)(1), the Administrator shall not expend any additional funds on the program, other than termination costs, unless the Congress has subsequently authorized continuation of the program by law. An appropriation for the specific program enacted subsequent to a report being transmitted shall be considered an authorization for purposes of this subsection. If the program is continued, the Administrator shall submit a new Baseline Report for the program no later than 90 days after the date of enactment of the Act under which Congress has authorized continuation of the program.

Effective date.

Reports.  
Deadline.

(f) DEFINITIONS.—For the purposes of this section—

(1) the term “development” means the phase of a program following the formulation phase and beginning with the approval to proceed to implementation, as defined in NASA’s Procedural Requirements 7120.5c, dated March 22, 2005;

(2) the term “development cost” means the total of all costs, including construction of facilities and civil servant costs, from the period beginning with the approval to proceed to implementation through the achievement of operational readiness, without regard to funding source or management control, for the life of the program;

(3) the term “life-cycle cost” means the total of the direct, indirect, recurring, and nonrecurring costs, including the construction of facilities and civil servant costs, and other related expenses incurred or estimated to be incurred in the design, development, verification, production, operation, maintenance, support, and retirement of a program over its planned lifespan, without regard to funding source or management control; and

(4) the term “major program” means an activity approved to proceed to implementation that has an estimated life-cycle cost of more than \$250,000,000.

**SEC. 104. PRIZE AUTHORITY.**

The National Aeronautics and Space Act of 1958 (42 U.S.C. 2451, et seq.) is amended by inserting after section 313 the following new section:

“PRIZE AUTHORITY

42 USC 2459f-1.

“SEC. 314. (a) IN GENERAL.—The Administration may carry out a program to competitively award cash prizes to stimulate innovation in basic and applied research, technology development, and prototype demonstration that have the potential for application to the performance of the space and aeronautical activities of the Administration. The Administration may carry out a program to award prizes only in conformity with this section.

“(b) TOPICS.—In selecting topics for prize competitions, the Administrator shall consult widely both within and outside the Federal Government, and may empanel advisory committees.

“(c) ADVERTISING.—The Administrator shall widely advertise prize competitions to encourage participation.

Notice.  
Federal Register,  
publication.

“(d) REQUIREMENTS AND REGISTRATION.—For each prize competition, the Administrator shall publish a notice in the Federal Register announcing the subject of the competition, the rules for being eligible to participate in the competition, the amount of the prize, and the basis on which a winner will be selected.

“(e) ELIGIBILITY.—To be eligible to win a prize under this section, an individual or entity—

“(1) shall have registered to participate in the competition pursuant to any rules promulgated by the Administrator under subsection (d);

“(2) shall have complied with all the requirements under this section;

“(3) in the case of a private entity, shall be incorporated in and maintain a primary place of business in the United States, and in the case of an individual, whether participating singly or in a group, shall be a citizen or permanent resident of the United States; and

“(4) shall not be a Federal entity or Federal employee acting within the scope of their employment.

“(f) LIABILITY.—(1) Registered participants must agree to assume any and all risks and waive claims against the Federal Government and its related entities, except in the case of willful misconduct, for any injury, death, damage, or loss of property, revenue, or profits, whether direct, indirect, or consequential, arising from their participation in a competition, whether such injury, death, damage, or loss arises through negligence or otherwise. For the purposes of this paragraph, the term ‘related entity’ means a contractor or subcontractor at any tier, and a supplier, user, customer, cooperating party, grantee, investigator, or detailee.

“(2) Participants must obtain liability insurance or demonstrate financial responsibility, in amounts determined by the Administrator, for claims by—

“(A) a third party for death, bodily injury, or property damage, or loss resulting from an activity carried out in connection with participation in a competition, with the Federal



Government named as an additional insured under the registered participant's insurance policy and registered participants agreeing to indemnify the Federal Government against third party claims for damages arising from or related to competition activities; and

“(B) the Federal Government for damage or loss to Government property resulting from such an activity.

“(g) JUDGES.—For each competition, the Administration, either directly or through an agreement under subsection (h), shall assemble a panel of qualified judges to select the winner or winners of the prize competition on the basis described pursuant to subsection (d). Judges for each competition shall include individuals from outside the Administration, including from the private sector. A judge may not—

“(1) have personal or financial interests in, or be an employee, officer, director, or agent of any entity that is a registered participant in a competition; or

“(2) have a familial or financial relationship with an individual who is a registered participant.

“(h) ADMINISTERING THE COMPETITION.—The Administrator may enter into an agreement with a private, nonprofit entity to administer the prize competition, subject to the provisions of this section.

“(i) FUNDING.—(1) Prizes under this section may consist of Federal appropriated funds and funds provided by the private sector for such cash prizes. The Administrator may accept funds from other Federal agencies for such cash prizes. The Administrator may not give any special consideration to any private sector entity in return for a donation.

“(2) Notwithstanding any other provision of law, funds appropriated for prize awards under this section shall remain available until expended, and may be transferred, reprogrammed, or expended for other purposes only after the expiration of 10 fiscal years after the fiscal year for which the funds were originally appropriated. No provision in this section permits obligation or payment of funds in violation of the Anti-Deficiency Act (31 U.S.C. 1341).

“(3) No prize may be announced under subsection (d) until all the funds needed to pay out the announced amount of the prize have been appropriated or committed in writing by a private source. The Administrator may increase the amount of a prize after an initial announcement is made under subsection (d) if—

“(A) notice of the increase is provided in the same manner as the initial notice of the prize; and

“(B) the funds needed to pay out the announced amount of the increase have been appropriated or committed in writing by a private source.

“(4) No prize competition under this section may offer a prize in an amount greater than \$10,000,000 unless 30 days have elapsed after written notice has been transmitted to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

“(5) No prize competition under this section may result in the award of more than \$1,000,000 in cash prizes without the approval of the Administrator.

Notification.

“(j) USE OF NASA NAME AND INSIGNIA.—A registered participant in a competition under this section may use the Administration’s name, initials, or insignia only after prior review and written approval by the Administration.

“(k) COMPLIANCE WITH EXISTING LAW.—The Federal Government shall not, by virtue of offering or providing a prize under this section, be responsible for compliance by registered participants in a prize competition with Federal law, including licensing, export control, and non-proliferation laws, and related regulations.”.

42 USC 16614.

**SEC. 105. FOREIGN LAUNCH VEHICLES.**

(a) ACCORD WITH SPACE TRANSPORTATION POLICY.—NASA shall not launch a payload on a foreign launch vehicle except in accordance with the Space Transportation Policy announced by the President on December 21, 2004. This subsection shall not be construed to prevent the President from waiving the Space Transportation Policy.

Deadline.

(b) INTERAGENCY COORDINATION.—NASA shall not launch a payload on a foreign launch vehicle unless NASA commenced the interagency coordination required by the Space Transportation Policy announced by the President on December 21, 2004, at least 90 days before entering into a development contract for the payload.

(c) APPLICATION.—This section shall not apply to any payload for which development has begun prior to the date of enactment of this Act, including the James Webb Space Telescope.

**SEC. 106. SAFETY MANAGEMENT.**

Section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (42 U.S.C. 2477) is amended—

(1) by inserting “(a) IN GENERAL.—” before “There”;

(2) by striking “to it” and inserting “to it, including evaluating NASA’s compliance with the return-to-flight and continue-to-fly recommendations of the Columbia Accident Investigation Board,”;

(3) by inserting “and the Congress” after “advise the Administrator”;

(4) by striking “and with respect to the adequacy of proposed or existing safety standards and shall” and inserting “with respect to the adequacy of proposed or existing safety standards, and with respect to management and culture related to safety. The Panel shall also”; and

(5) by adding at the end the following:

“(b) ANNUAL REPORT.—The Panel shall submit an annual report to the Administrator and to the Congress. In the first annual report submitted after the date of enactment of the National Aeronautics and Space Administration Authorization Act of 2005, the Panel shall include an evaluation of NASA’s management and culture related to safety. Each annual report shall include an evaluation of the Administration’s compliance with the recommendations of the Columbia Accident Investigation Board through retirement of the Space Shuttle.”.

42 USC 16615.

**SEC. 107. LESSONS LEARNED AND BEST PRACTICES.**

Deadline.

(a) IN GENERAL.—The Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an implementation plan describing NASA’s approach for obtaining, implementing, and sharing lessons learned and best practices for

its major programs and projects not later than 180 days after the date of enactment of this Act. The implementation plan shall be updated and maintained to ensure that it is current and consistent with the burgeoning culture of learning and safety that is emerging at NASA.

(b) **REQUIRED CONTENT.**—The implementation plan shall contain at a minimum the lessons learned and best practices requirements for NASA, the organizations or positions responsible for enforcement of the requirements, the reporting structure, and the objective performance measures indicating the effectiveness of the activity.

(c) **INCENTIVES.**—The Administrator shall provide incentives to encourage sharing and implementation of lessons learned and best practices by employees, projects, and programs, as well as penalties for programs and projects that are determined not to have demonstrated use of those resources.

**SEC. 108. COMMERCIALIZATION PLAN.**

42 USC 16616.

(a) **IN GENERAL.**—The Administrator, in consultation with other relevant agencies, shall develop a commercialization plan to support the human missions to the Moon and Mars, to support low-Earth orbit activities and earth science missions and applications, and to transfer science research and technology to society. The plan shall identify opportunities for the private sector to participate in the future missions and activities, including opportunities for partnership between NASA and the private sector in conducting research and the development of technologies and services. The plan shall include provisions for developing and funding sustained university and industry partnerships to conduct commercial research and technology development, to proactively translate results of space research to Earth benefits, to advance United States economic interests, and to support the vision for exploration. The plan shall also emphasize the utilization by NASA of advancements made by the private sector in space launch and orbital hardware, and shall include opportunities for innovative collaborations between NASA and the private sector under existing authorities of NASA for reimbursable and nonreimbursable agreements under the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.).

(b) **REPORT.**—Not later than 180 days after the date of enactment of this Act, the Administrator shall submit a copy of the plan to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

**SEC. 109. STUDY ON THE FEASIBILITY OF USE OF GROUND SOURCE HEAT PUMPS.**

42 USC 16617.

(a) **IN GENERAL.**—The Administrator shall conduct a feasibility study on the use of ground source heat pumps in future NASA facilities or substantial renovation of existing NASA facilities involving the installation of heating, ventilating, and air conditioning systems. Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit the study to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Deadline.

(b) **CONTENTS.**—The study shall examine—

(1) the life-cycle costs, including maintenance costs, of the operation of such heat pumps compared to generally available heating, cooling, and water heating equipment;

(2) barriers to installation, such as availability and suitability of terrain; and

(3) such other issues as the Administrator considers appropriate.

(c) DEFINITION.—In this section, the term “ground source heat pump” means an electric-powered system that uses the Earth’s relatively constant temperature to provide heating, cooling, or hot water.

42 USC 16618.

**SEC. 110. WHISTLEBLOWER PROTECTION.**

Deadlines.

(a) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing steps to be taken by NASA to protect from retaliation NASA employees who raise concerns about substantial and specific dangers to public health and safety or about substantial and specific factors that could threaten the success of a mission. The plan shall be designed to ensure that NASA employees have the full protection required by law. The Administrator shall implement the plan not more than 1 year after its transmittal.

(b) GOAL.—The Administrator shall ensure that the plan describes a system that will protect employees who wish to raise or have raised concerns described in subsection (a).

(c) PLAN.—At a minimum, the plan shall include, consistent with Federal law—

(1) a reporting structure that ensures that the officials who are the subject of a whistleblower’s complaint will not learn the identity of the whistleblower;

(2) a single point to which all complaints can be made without fear of retribution;

(3) procedures to enable the whistleblower to track the status of the case;

(4) activities to educate employees about their rights as whistleblowers and how they are protected by law;

(5) activities to educate employees about their obligations to report concerns and their accountability before and after receiving the results of the investigations into their concerns; and

(6) activities to educate all appropriate NASA Human Resources professionals, and all NASA managers and supervisors, regarding personnel laws, rules, and regulations.

(d) REPORT.—Not later than February 15 of each year beginning with the year after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the concerns described in subsection (a) that were raised during the previous fiscal year. At a minimum, the report shall provide—

(1) the number of concerns that were raised, divided into the categories of safety and health, mission assurance, and mismanagement, and the disposition of those concerns, including whether any employee was disciplined as a result of a concern having been raised; and

(2) any recommendations for reforms to further prevent retribution against employees who raise concerns.

## TITLE II—AUTHORIZATION OF APPROPRIATIONS

### SEC. 201. STRUCTURE OF BUDGET ACCOUNTS.

Section 313 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2459f) is amended—

(1) by amending subsection (a) to read as follows:

“(a)(1) Appropriations for the Administration for fiscal year 2007 and thereafter shall be made in three accounts, ‘Science, Aeronautics, and Education’, ‘Exploration Systems and Space Operations’, and an account for amounts appropriated for the necessary expenses of the Office of the Inspector General.

“(2) Within the Exploration Systems and Space Operations account, no more than 10 percent of the funds for a fiscal year for Exploration Systems may be reprogrammed for Space Operations, and no more than 10 percent of the funds for a fiscal year for Space Operations may be reprogrammed for Exploration Systems. This paragraph shall not apply to reprogramming for the purposes described in subsection (b)(2).

“(3) Appropriations shall remain available for two fiscal years, unless otherwise specified in law. Each account shall include the planned full costs of Administration activities.”; and

(2) in subsection (b)—

(A) by inserting “(1)” before “To ensure”; and

(B) by adding at the end the following new paragraph:

“(2) The Administration may also transfer amounts among accounts for the immediate costs of recovering from damage caused by a major disaster (as defined in section 102 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5122)) or by an act of terrorism, or for the immediate costs associated with an emergency rescue of astronauts.”.

### SEC. 202. FISCAL YEAR 2007.

42 USC 16631.

There are authorized to be appropriated to NASA for fiscal year 2007, \$17,932,000,000, as follows:

(1) For Science, Aeronautics, and Education (including amounts for construction of facilities), \$7,136,800,000, of which \$962,000,000 shall be for Aeronautics.

(2) For Exploration Systems and Space Operations (including amounts for construction of facilities), \$10,761,700,000, of which \$6,618,600,000 shall be for Space Operations.

(3) For the Office of Inspector General, \$33,500,000.

### SEC. 203. FISCAL YEAR 2008.

42 USC 16632.

There are authorized to be appropriated to NASA for fiscal year 2008, \$18,686,300,000 as follows:

(1) For Science, Aeronautics, and Education (including amounts for construction of facilities), \$7,747,800,000, of which \$990,000,000 shall be for Aeronautics.

(2) For Exploration Systems and Space Operations (including amounts for construction of facilities),

\$10,903,900,000, of which \$6,546,600,000 shall be for Space Operations.

(3) For the Office of Inspector General, \$34,600,000.

42 USC 16633.

**SEC. 204. ISS RESEARCH.**

Beginning with fiscal year 2006, the Administrator shall allocate at least 15 percent of the funds budgeted for ISS research to ground-based, free-flyer, and ISS life and microgravity science research that is not directly related to supporting the human exploration program, consistent with section 305.

42 USC 16634.

**SEC. 205. TEST FACILITIES.**Deadline.  
Notice.

(a) CHARGES.—The Administrator shall establish a policy of charging users of NASA's test facilities for the costs associated with their tests at a level that is competitive with alternative test facilities. The Administrator shall not implement a policy of seeking full cost recovery for a facility until at least 30 days after transmitting a notice to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(b) FUNDING ACCOUNT.—In planning and budgeting, the Administrator shall establish a funding account that shall be used for all test facilities. The account shall be sufficient to maintain the viability of test facilities during periods of low utilization.

42 USC 16635.

**SEC. 206. OFFICIAL REPRESENTATION FUND.**

Amounts appropriated pursuant to this Act may be used, but not to exceed a total of \$70,000 in any fiscal year, for official reception and representation expenses.

42 USC 16636.

**SEC. 207. ISS COST CAP.**

(a) REPORT.—The Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report providing the current expected development costs of the ISS and describing any changes to those costs that have occurred because of the grounding of the Space Shuttle after the loss of the Space Shuttle Columbia and because of the implementation of full-cost accounting.

(b) REPEAL.—Thirty days after the transmittal of the report described in subsection (a), section 202 of the National Aeronautics and Space Administration Act of 2000 (42 U.S.C. 2451 note) is repealed.

## TITLE III—SCIENCE

### Subtitle A—General Provisions

42 USC 16651.

**SEC. 301. PERFORMANCE ASSESSMENTS.**

(a) IN GENERAL.—The performance of each division in the Science directorate of NASA shall be reviewed and assessed by the National Academy of Sciences at 5-year intervals.

(b) TIMING.—Beginning with the first fiscal year following the date of enactment of this Act, the Administrator shall select at least one division for review under this section. The Administrator shall select divisions so that all disciplines will have received their

first review within six fiscal years of the date of enactment of this Act.

(c) **REPORTS.**—Not later than March 1 of each year, beginning with the first fiscal year after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate—

(1) setting forth in detail the results of any external review under subsection (a);

(2) setting forth in detail actions taken by NASA in response to any external review; and

(3) including a summary of findings and recommendations from any other relevant external reviews of NASA’s science mission priorities and programs.

**SEC. 302. STATUS ON HUBBLE SPACE TELESCOPE SERVICING MISSION.** 42 USC 16652.

It is the sense of the Congress that the Hubble Space Telescope is an extraordinary instrument that has provided, and should continue to provide, answers to profound scientific questions. In accordance with the recommendations of the National Academy of Sciences study titled “Assessment of Options for Extending the Life of the Hubble Space Telescope”, all appropriate efforts should be expended to complete the Space Shuttle servicing mission. Upon successful completion of the planned return-to-flight schedule of the Space Shuttle, the Administrator shall determine the schedule for a Space Shuttle servicing mission to the Hubble Space Telescope, unless such a mission would compromise astronaut safety. Not later than 60 days after the landing of the second Space Shuttle mission for return-to-flight certification, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a status report on plans for a Hubble Space Telescope servicing mission.

Deadline.  
Reports.

**SEC. 303. INDEPENDENT ASSESSMENT OF LANDSAT-NPOESS INTEGRATED MISSION.** 42 USC 16653.

(a) **ASSESSMENT.**—In view of the importance of ensuring continuity of Landsat data and in view of the challenges facing the National Polar-Orbiting Operational Environmental Satellite System program, the Administrator shall seek an independent assessment of the costs as well as the technical, cost, and schedule risks associated with incorporating the Landsat instrument on the first National Polar-Orbiting Operational Environmental Satellite System spacecraft compared with undertaking various alternatives, including a dedicated Landsat data “gap-filler” mission followed by the incorporation of the Landsat instrument on the second National Polar-Orbiting Operational Environmental Satellite System spacecraft. The assessment shall also include an evaluation of the budgetary requirements of each of the options under consideration.

(b) **REPORT.**—

(1) **DEADLINE.**—The Administrator shall transmit the independent assessment to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 180 days after the date of enactment of this Act unless, prior to that date, NASA cancels plans to fly the Landsat instrument on

the first National Polar-Orbiting Operational Environmental Satellite System spacecraft.

Deadlines.

(2) CANCELLATION.—If NASA cancels such plans, the Administrator shall—

(A) not later than 7 days after a cancellation decision, inform the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, in writing, of the cancellation; and

(B) not later than 90 days after the transmittal of the cancellation notice, transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan for undertaking a dedicated gap-filler mission or alternative means for ensuring the continuity of Landsat data, which shall include consideration of a low-cost constellation of small satellites.

42 USC 16654.

**SEC. 304. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.**

(a) ASSESSMENT.—The Administrator shall carry out biennial reviews within each of the Science divisions to assess the cost and benefits of extending the date of the termination of data collection for those missions that have exceeded their planned mission lifetime. In addition—

Deadline.

(1) not later than 60 days after the date of enactment of this Act, the Administrator shall carry out such an assessment for at least the following missions: FAST, TIMED, Cluster, Wind, Geotail, Polar, TRACE, Ulysses, and Voyager; and

(2) for those missions that have an operational component, the National Oceanic and Atmospheric Administration or any other affected agency shall be consulted and the potential benefits of instruments on missions that are beyond their planned mission lifetime taken into account.

(b) REPORT.—Not later than 30 days after completing each assessment required by subsection (a)(1), the Administrator shall transmit a report on the assessment to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

42 USC 16655.

**SEC. 305. MICROGRAVITY RESEARCH.**

The Administrator shall—

Reports.

(1) transmit the report required by section 506;

(2) ensure the capacity to support ground-based research leading to space-based basic and applied scientific research in a variety of disciplines with potential direct national benefits and applications that can be advanced significantly from the uniqueness of microgravity and the space environment; and

(3) carry out, to the maximum extent practicable, basic, applied, and commercial ISS research in fields such as molecular crystal growth, animal research, basic fluid physics, combustion research, cellular biotechnology, low-temperature physics, and cellular research at a level that will sustain the existing United States scientific expertise and research capability in microgravity research.



**SEC. 306. COORDINATION WITH THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.** 42 USC 16656.

(a) **JOINT WORKING GROUP.**—The Administrator and the Administrator of the National Oceanic and Atmospheric Administration shall appoint a Joint Working Group, which shall review and monitor missions of the two agencies to ensure maximum coordination in the design, operation, and transition of missions where appropriate. The Joint Working Group shall also prepare the plans required by subsection (c). Establishment.

(b) **COORDINATION REPORT.**—Not later than February 15 of each year, beginning with the first fiscal year after the date of enactment of this Act, the Administrator and the Administrator of the National Oceanic and Atmospheric Administration shall jointly transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on how the earth science programs of the National Oceanic and Atmospheric Administration and NASA will be coordinated during the fiscal year following the fiscal year in which the report is transmitted.

(c) **COORDINATION OF TRANSITION PLANNING AND REPORTING.**—The Administrator, in conjunction with the Administrator of the National Oceanic and Atmospheric Administration and in consultation with other relevant agencies, shall evaluate relevant NASA science missions for their potential operational capabilities and shall prepare transition plans for the existing and future Earth observing systems found to have potential operational capabilities.

(d) **LIMITATION.**—The Administrator shall not transfer any NASA earth science mission or Earth observing system to the National Oceanic and Atmospheric Administration until the plan required under subsection (c) has been approved by the Administrator and the Administrator of the National Oceanic and Atmospheric Administration and until financial resources have been identified to support the transition or transfer in the President's budget request for the National Oceanic and Atmospheric Administration.

**SEC. 307. REVIEW AND REPORT ON HEADQUARTERS EARTH-SUN SYSTEM APPLIED SCIENCES PROGRAM.** 42 USC 16657.

(a) **REVIEW.**—The Administrator shall review the policies, processes, and procedures in the planning and management of applications research and development implemented in calendar years 2001 to 2005 within the Headquarters Earth-Sun System Applied Sciences Program and former Earth Science Applications Program. This review shall include—

(1) the program planning and analysis process used to formulate applied science research and development requirements, priorities, and solicitation schedules, including changes to the process within the period under review, and the effects of such planning on the quality and clarity of applied sciences research announcements;

(2) the peer review process including, but not limited to—

(A) membership selection, determination of qualifications, and use of NASA and non-NASA reviewers;

(B) management of conflicts of interest, including reviewers funded by the program with a significant consulting or contractual relationship with NASA, and individuals who both review proposals and participate in the

submission of proposals under the same solicitation announcement; and

(C) compensation of non-NASA proposal reviewers;  
(3) the process for assigning or allocating applied research to NASA researchers and to non-NASA researchers; and

(4) alternative models for NASA planning and management of applied science and applications research, including an evaluation of the relevance for NASA of—

(A) National Institutes of Health intramural and extramural research program structure, peer review process, management of conflicts of interests, compensation of reviewers, and the effects of compensation on reviewer efficiency and quality;

(B) Department of Agriculture Cooperative State Research Education and Extension Service program and structure, peer review process, management of conflicts of interest, compensation of reviewers, and the effects of compensation on reviewer efficiency and quality;

(C) National Institutes of Health and Department of Agriculture best practices in the planning, selection, and management of applied sciences research and development; and

(D) any other relevant models.

(b) REPORT.—Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the results of the review conducted under subsection (a). The report shall include a plan to ensure that the peer review process is transparent and selects proposals in a manner that instills public and stakeholder confidence.

## Subtitle B—Remote Sensing

42 USC 16671.

### SEC. 311. DEFINITIONS.

In this subtitle—

(1) the term “geospatial information” means knowledge of the nature and distribution of physical and cultural features on the landscape based on analysis of data from airborne or spaceborne platforms or other types and sources of data;

(2) the term “high resolution” means resolution better than five meters; and

(3) the term “institution of higher education” has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

42 USC 16672.

### SEC. 312. GENERAL RESPONSIBILITIES.

The Administrator shall—

(1) develop a sustained relationship with the United States commercial remote sensing industry and, consistent with applicable policies and law, to the maximum practicable, rely on their services; and

(2) in conjunction with United States industry and universities, research, develop, and demonstrate prototype earth science applications to enhance Federal, State, local, and tribal governments’ use of government and commercial remote sensing

data, technologies, and other sources of geospatial information for improved decision support to address their needs.

**SEC. 313. PILOT PROJECTS TO ENCOURAGE PUBLIC SECTOR APPLICATIONS.** 42 USC 16673.

(a) **IN GENERAL.**—The Administrator shall establish a program of grants for competitively awarded pilot projects to explore the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Grants.

(b) **PREFERRED PROJECTS.**—In awarding grants under this section, the Administrator shall give preference to projects that—

(1) make use of commercial data sets, including high resolution commercial satellite imagery and derived satellite data products, existing public data sets where commercial data sets are not available or applicable, or the fusion of such data sets;

(2) integrate multiple sources of geospatial information, such as geographic information system data, satellite-provided positioning data, and remotely sensed data, in innovative ways;

(3) include funds or in-kind contributions from non-Federal sources;

(4) involve the participation of commercial entities that process raw or lightly processed data, often merging that data with other geospatial information, to create data products that have significant value added to the original data; and

(5) taken together demonstrate as diverse a set of public sector applications as possible.

(c) **OPPORTUNITIES.**—In carrying out this section, the Administrator shall seek opportunities to assist—

(1) in the development of commercial applications potentially available from the remote sensing industry; and

(2) State, local, regional, and tribal agencies in applying remote sensing and other geospatial information technologies for growth management.

(d) **DURATION.**—Assistance for a pilot project under subsection (a) shall be provided for a period not to exceed 3 years.

(e) **REPORT.**—Each recipient of a grant under subsection (a) shall transmit a report to the Administrator on the results of the pilot project within 180 days of the completion of that project.

(f) **WORKSHOP.**—Each recipient of a grant under subsection (a) shall, not later than 180 days after the completion of the pilot project, conduct at least one workshop for potential users to disseminate the lessons learned from the pilot project as widely as feasible. Deadline.

(g) **REGULATIONS.**—The Administrator shall issue regulations establishing application, selection, and implementation procedures for pilot projects, and guidelines for reports and workshops required by this section.

**SEC. 314. PROGRAM EVALUATION.** 42 USC 16674.

(a) **ADVISORY COMMITTEE.**—The Administrator shall establish an advisory committee, consisting of individuals with appropriate expertise in State, local, regional, and tribal agencies, the university research community, and the remote sensing and other geospatial information industries, to monitor the program established under section 313. The advisory committee shall consult with the Federal Geographic Data Committee and other appropriate industry representatives and organizations. Notwithstanding section 14 of the Establishment.

- Deadline. Federal Advisory Committee Act, the advisory committee established under this subsection shall remain in effect until the termination of the program under section 313.
- (b) **EFFECTIVENESS EVALUATION.**—Not later than December 31, 2009, the Administrator shall transmit to the Congress an evaluation of the effectiveness of the program established under section 313 in exploring and promoting the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Such evaluation shall have been conducted by an independent entity.
- 42 USC 16675. **SEC. 315. DATA AVAILABILITY.**
- The Administrator shall ensure that the results of each of the pilot projects completed under section 313 shall be retrievable through an electronic, Internet-accessible database.
- 42 USC 16676. **SEC. 316. EDUCATION.**
- The Administrator shall establish an educational outreach program to increase awareness at institutions of higher education and State, local, regional, and tribal agencies of the potential applications of remote sensing and other geospatial information and awareness of the need for geospatial workforce development.

## **Subtitle C—George E. Brown, Jr. Near-Earth Object Survey**

George E. Brown, Jr. Near-Earth Object Survey Act.  
42 USC 16691.

### **SEC. 321. GEORGE E. BROWN, JR. NEAR-EARTH OBJECT SURVEY.**

(a) **SHORT TITLE.**—This section may be cited as the “George E. Brown, Jr. Near-Earth Object Survey Act”.

(b) **FINDINGS.**—The Congress makes the following findings:

(1) Near-Earth objects pose a serious and credible threat to humankind, as many scientists believe that a major asteroid or comet was responsible for the mass extinction of the majority of the Earth’s species, including the dinosaurs, nearly 65,000,000 years ago.

(2) Similar objects have struck the Earth or passed through the Earth’s atmosphere several times in the Earth’s history and pose a similar threat in the future.

(3) Several such near-Earth objects have only been discovered within days of the objects’ closest approach to Earth, and recent discoveries of such large objects indicate that many large near-Earth objects remain undiscovered.

(4) The efforts taken to date by NASA for detecting and characterizing the hazards of near-Earth objects are not sufficient to fully determine the threat posed by such objects to cause widespread destruction and loss of life.

(c) **DEFINITIONS.**—For purposes of this section the term “near-Earth object” means an asteroid or comet with a perihelion distance of less than 1.3 Astronomical Units from the Sun.

(d) **NEAR-EARTH OBJECT SURVEY.**—

(1) **SURVEY PROGRAM.**—The Administrator shall plan, develop, and implement a Near-Earth Object Survey program to detect, track, catalogue, and characterize the physical characteristics of near-Earth objects equal to or greater than 140 meters in diameter in order to assess the threat of such near-Earth objects to the Earth. It shall be the goal of the

Survey program to achieve 90 percent completion of its near-Earth object catalogue (based on statistically predicted populations of near-Earth objects) within 15 years after the date of enactment of this Act.

(2) AMENDMENTS.—Section 102 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451) is amended—

(A) by redesignating subsection (g) as subsection (h);

(B) by inserting after subsection (f) the following new subsection:

“(g) The Congress declares that the general welfare and security of the United States require that the unique competence of the National Aeronautics and Space Administration be directed to detecting, tracking, cataloguing, and characterizing near-Earth asteroids and comets in order to provide warning and mitigation of the potential hazard of such near-Earth objects to the Earth.”; and

(C) in subsection (h), as so redesignated by subparagraph (A) of this paragraph, by striking “and (f)” and inserting “(f), and (g)”.

(3) FIFTH-YEAR REPORT.—The Administrator shall transmit to the Congress, not later than February 28 of the fifth year after the date of enactment of this Act, a report that provides the following:

(A) A summary of all activities taken pursuant to paragraph (1) since the date of enactment of this Act.

(B) A summary of expenditures for all activities pursuant to paragraph (1) since the date of enactment of this Act.

(4) INITIAL REPORT.—The Administrator shall transmit to Congress not later than 1 year after the date of enactment of this Act an initial report that provides the following:

(A) An analysis of possible alternatives that NASA may employ to carry out the Survey program, including ground-based and space-based alternatives with technical descriptions.

(B) A recommended option and proposed budget to carry out the Survey program pursuant to the recommended option.

(C) Analysis of possible alternatives that NASA could employ to divert an object on a likely collision course with Earth.

## TITLE IV—AERONAUTICS

### SEC. 401. DEFINITION.

42 USC 16701.

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

## Subtitle A—Governmental Interest in Aeronautics Research and Development

### SEC. 411. GOVERNMENTAL INTEREST.

42 USC 16711.

Congress reaffirms the national commitment to aeronautics research made in the National Aeronautics and Space Act of 1958.

Aeronautics research and development remains a core mission of NASA. NASA 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.

## **Subtitle B—High Priority Aeronautics Research and Development Programs**

42 USC 16721.

**SEC. 421. 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.

Grants.

(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.

(c) **ASSESSMENT.**—The Administrator shall enter into an arrangement with the National Research Council for an assessment of the Nation's future requirements for fundamental aeronautics research and whether the Nation will have a skilled research workforce and research facilities commensurate with those requirements. The assessment shall include an identification of any projected gaps, and recommendations for what steps should be taken by the Federal Government to eliminate those gaps.

(d) **REPORT.**—The Administrator shall transmit the assessment, along with NASA's response to the assessment, to Congress not later than 2 years after the date of enactment of this Act.

42 USC 16722.

**SEC. 422. RESEARCH AND TECHNOLOGY PROGRAMS.**

(a) **ENVIRONMENTAL AIRCRAFT RESEARCH AND DEVELOPMENT.**—The Administrator may establish an initiative with the objective of developing, and demonstrating in a relevant environment, technologies to enable the following commercial aircraft performance characteristics:

(1) **NOISE.**—Noise levels on takeoff and on airport approach and landing that do not exceed ambient noise levels in the absence of flight operations in the vicinity of airports from which such commercial aircraft would normally operate.

(2) **ENERGY CONSUMPTION.**—Twenty-five percent reduction in the energy required for medium- to long-range flights, compared to aircraft in commercial service as of the date of enactment of this Act.

(3) **EMISSIONS.**—Nitrogen oxides on take-off and landing that are significantly reduced, without adversely affecting hydrocarbons and smoke, relative to aircraft in commercial service as of the date of enactment of this Act.

(b) **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.

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

#### **SEC. 423. AIRSPACE SYSTEMS RESEARCH.**

42 USC 16723.

(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 the date of enactment of this Act, the Administrator shall align the projects of

Deadline.

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.

42 USC 16724.

**SEC. 424. 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.

Deadline.

(b) ALIGNMENT.—Not later than 1 year after the date of enactment of this Act, 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.

42 USC 16725.

**SEC. 425. 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.

42 USC 16726.

**SEC. 426. ASSESSMENT OF WAKE TURBULENCE RESEARCH AND DEVELOPMENT PROGRAM.**

(a) ASSESSMENT.—The Administrator shall enter into an arrangement with the National Research Council for an assessment of Federal wake turbulence research and development programs. The assessment shall address at least the following questions:

(1) Are the Federal research and development goals and objectives well defined?

(2) Are there any deficiencies in the Federal research and development goals and objectives?

(3) What roles should be played by each of the relevant Federal agencies, such as NASA, the Federal Aviation Administration, and the National Oceanic and Atmospheric Administration, in wake turbulence research and development?

(b) REPORT.—A report containing the results of the assessment conducted pursuant to subsection (a) shall be provided to Congress not later than 2 years after the date of enactment of this Act.

42 USC 16727.

**SEC. 427. UNIVERSITY-BASED CENTERS FOR RESEARCH ON AVIATION TRAINING.**

(a) IN GENERAL.—The Administrator may 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 NASA Centers.

(b) PURPOSE.—The purpose of the Centers 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 by the Center in its application under subsection (c); and

(2) other requirements as specified by the Administrator.

## Subtitle C—Scholarships

### SEC. 431. NASA AERONAUTICS SCHOLARSHIPS.

42 USC 16741.

(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 the date of enactment of this Act, the Administrator shall publish regulations governing the scholarship program under this section.

Deadline.  
Publication.  
Regulations.

(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 NASA 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.

## Subtitle D—Data Requests

### SEC. 441. AVIATION DATA REQUESTS.

42 USC 16751.

The Administrator shall make available upon request satellite imagery and aerial photography of remote terrain that NASA 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.

## TITLE V—HUMAN SPACE FLIGHT

### SEC. 501. SPACE SHUTTLE FOLLOW-ON.

42 USC 16761.

(a) POLICY STATEMENT.—It is the policy of the United States to possess the capability for human access to space on a continuous basis.

(b) PROGRESS REPORT.—Not later than 180 days after the date of enactment of this Act and annually thereafter, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the progress being made toward developing the Crew Exploration Vehicle and the Crew

Launch Vehicle and the estimated time before they will demonstrate crewed, orbital spaceflight.

(c) COMPLIANCE REPORT.—If, 1 year before the final planned flight of the Space Shuttle orbiter, the United States has not demonstrated a replacement human space flight system, and the United States cannot uphold the policy described in subsection (a), the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing—

- (1) strategic risks to the United States associated with the failure to uphold the policy described in subsection (a);
- (2) the estimated length of time during which the United States will not have its own human access to space;
- (3) what steps will be taken to shorten that length of time; and
- (4) what other means will be used to allow human access to space during that time.

42 USC 16762.

**SEC. 502. TRANSITION.**

(a) IN GENERAL.—The Administrator shall, to the fullest extent possible consistent with a successful development program, use the personnel, capabilities, assets, and infrastructure of the Space Shuttle program in developing the Crew Exploration Vehicle, Crew Launch Vehicle, and a heavy-lift launch vehicle.

Deadline.

(b) PLAN.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing how NASA will proceed with its human space flight programs, which, at a minimum, shall describe—

- (1) how NASA will deploy personnel from, and use the facilities of, the Space Shuttle program to ensure that the Space Shuttle operates as safely as possible through its final flight and to ensure that personnel and facilities from the Space Shuttle program are used in NASA's exploration programs in accordance with subsection (a);
- (2) the planned number of flights the Space Shuttle will make before its retirement;
- (3) the means, other than the Space Shuttle and the Crew Exploration Vehicle, including commercial vehicles, that may be used to ferry crew and cargo to and from the ISS;
- (4) the intended purpose of lunar missions and the architecture for those missions; and
- (5) the extent to which the Crew Exploration Vehicle will allow for the escape of the crew in an emergency.

(c) PERSONNEL.—The Administrator shall consult with other appropriate Federal agencies and with NASA contractors and employees to develop a transition plan for any Federal and contractor personnel engaged in the Space Shuttle program who can no longer be retained because of the retirement of the Space Shuttle. The plan shall include actions to assist Federal and contractor personnel in taking advantage of training, retraining, job placement and relocation programs, and any other actions that NASA will take to assist the employees. The plan shall also describe how the Administrator will ensure that NASA and its contractors will have an appropriate complement of employees to allow for the safest possible use of the Space Shuttle through its final flight.

The Administrator shall transmit the plan to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than March 31, 2006. Deadline.

**SEC. 503. REQUIREMENTS.**

42 USC 16763.

The Administrator shall—

(1) construct an architecture and implementation plan for NASA's human exploration program that is not critically dependent on the achievement of milestones by fixed dates;

(2) implement an exploration technology development program to enable lunar human and robotic operations consistent with section 101(b)(2), including surface power to use on the Moon and other locations;

(3) conduct an in-situ resource utilization technology program to develop the capability to use space resources to increase independence from Earth, and sustain exploration beyond low-Earth orbit; and

(4) pursue aggressively automated rendezvous and docking capabilities that can support the ISS and other mission requirements.

**SEC. 504. GROUND-BASED ANALOG CAPABILITIES.**

42 USC 16764.

(a) IN GENERAL.—The Administrator may establish a ground-based analog capability in remote United States locations in order to assist in the development of lunar operations, life support, and in-situ resource utilization experience and capabilities.

(b) ENVIRONMENTAL CHARACTERISTICS.—The Administrator shall select locations for the activities described in subsection (a) that—

(1) are regularly accessible;

(2) have significant temperature extremes and range; and

(3) have access to energy and natural resources (including geothermal, permafrost, volcanic, or other potential resources).

(c) INVOLVEMENT OF LOCAL POPULATIONS; PRIVATE SECTOR PARTNERS.—In carrying out this section, the Administrator shall involve local populations, academia, and industrial partners as much as possible to ensure that ground-based benefits and applications are encouraged and developed.

**SEC. 505. ISS COMPLETION.**

42 USC 16765.

(a) POLICY.—It is the policy of the United States to achieve diverse and growing utilization of, and benefits from, the ISS.

(b) ELEMENTS, CAPABILITIES, AND CONFIGURATION CRITERIA.—The Administrator shall ensure that the ISS will—

(1) be assembled and operated in a manner that fulfills international partner agreements, as long as the Administrator determines that the Shuttle can safely enable the United States to do so;

(2) be used for a diverse range of microgravity research, including fundamental, applied, and commercial research, consistent with section 305;

(3) have an ability to support a crew size of at least 6 persons, unless the Administrator transmits to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 60 days after the date of enactment of this Act, a report explaining why such a requirement should not be

met, the impact of not meeting the requirement on the ISS research agenda and operations and international partner agreements, and what additional funding or other steps would be required to have an ability to support crew size of at least 6 persons;

(4) support Crew Exploration Vehicle docking and automated docking of cargo vehicles or modules launched by either heavy-lift or commercially-developed launch vehicles;

(5) support any diagnostic human research, on-orbit characterization of molecular crystal growth, cellular research, and other research that NASA believes is necessary to conduct, but for which NASA lacks the capacity to return the materials that need to be analyzed to Earth; and

(6) be operated at an appropriate risk level.

(c) CONTINGENCIES.—

(1) POLICY.—The Administrator shall ensure that the ISS can have available, if needed, sufficient logistics and on-orbit capabilities to support any potential period during which the Space Shuttle or its follow-on crew and cargo systems are unavailable, and can have available, if needed, sufficient surge delivery capability or repositioning of spares and other supplies needed to accommodate any such hiatus.

Deadline.

(2) PLAN.—Not later than 60 days after the date of enactment of this Act, and before making any change in the ISS assembly sequence in effect on the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan to carry out the policy described in paragraph (1).

42 USC 16766.

**SEC. 506. ISS RESEARCH.**

The Administrator shall—

(1) carry out a program of microgravity research consistent with section 305;

(2) consider the need for a life sciences centrifuge and any associated holding facilities; and

Deadline.

(3) not later than 90 days after the date of enactment of this Act, transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the research plan for NASA utilization of the ISS and the proposed final configuration of the ISS, which shall include an identification of microgravity research that can be performed in ground-based facilities and then validated in space and an assessment of the impact of having or not having a life science centrifuge aboard the ISS.

42 USC 16767.

**SEC. 507. NATIONAL LABORATORY DESIGNATION.**

(a) DESIGNATION.—To further the policy described in section 501(a), the United States segment of the ISS is hereby designated a national laboratory.

(b) MANAGEMENT.—

(1) PARTNERSHIPS.—The Administrator shall seek to increase the utilization of the ISS by other Federal entities and the private sector through partnerships, cost-sharing agreements, and other arrangements that would supplement NASA funding of the ISS.

(2) CONTRACTING.—The Administrator may enter into a contract with a nongovernmental entity to operate the ISS

national laboratory, subject to all applicable Federal laws and regulations.

(c) **PLAN.**—Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing how the national laboratory will be operated. At a minimum, the plan shall describe—

Deadline.

(1) any changes in the research plan transmitted under section 506(3) and any other changes in the operation of the ISS resulting from the designation;

(2) any ground-based NASA operations or buildings that will be considered part of the national laboratory;

(3) the management structure for the laboratory, including the rationale for contracting or not contracting with a non-governmental entity to operate the ISS national laboratory;

(4) the workforce that will be considered employees of the national laboratory;

(5) how NASA will seek the participation of other parties described in subsection (b)(1); and

(6) a schedule for implementing any changes in ISS operations, utilization, or management described in the plan.

(d) **UNITED STATES SEGMENT DEFINED.**—In this section the term “United States segment of the ISS” means those elements of the ISS manufactured—

(1) by the United States; or

(2) for the United States by other nations in exchange for funds or launch services.

## **TITLE VI—OTHER PROGRAM AREAS**

### **Subtitle A—Space and Flight Support**

#### **SEC. 601. ORBITAL DEBRIS.**

42 USC 16781.

The Administrator, in conjunction with the heads of other Federal agencies, shall take steps to develop or acquire technologies that will enable NASA to decrease the risks associated with orbital debris.

#### **SEC. 602. SECONDARY PAYLOAD CAPABILITY.**

42 USC 16782.

(a) **IN GENERAL.**—In order to provide more routine and affordable access to space for a broad range of scientific payloads, the Administrator is encouraged to provide the capabilities to support secondary payload flight opportunities on United States launch vehicles, or free flyers, for satellites or scientific payloads weighing less than 500 kilograms.

(b) **FEASIBILITY STUDY.**—The Administrator shall initiate a feasibility study for designating a National Free Flyer Launch Coordination Center as a means of coordinating, consolidating, and integrating secondary launch capabilities, launch opportunities, and payloads.

(c) **ASSESSMENT.**—The feasibility study required by subsection (b) shall include an assessment of the feasibility of integrating a National Free Flyer Launch Coordination Center within the operations and facilities of an existing nonprofit organization such as the Inland Northwest Space Alliance in Missoula, Montana, or

a similar entity, and shall include an assessment of the potential utilization of existing launch and launch support facilities and capabilities, including but not limited to those in the States of Montana and New Mexico and their respective contiguous States, and the State of Alaska, for the integration and launch of secondary payloads, including an assessment of the feasibility of establishing cooperative agreements among such facilities, existing or future commercial launch providers, payload developers, and the designated Coordination Center.

## Subtitle B—Education

### SEC. 611. INSTITUTIONS IN NASA'S MINORITY INSTITUTIONS PROGRAM.

The matter appearing under the heading “NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SMALL AND DISADVANTAGED BUSINESS” in title III of the Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1990 (42 U.S.C. 2473b; 103 Stat. 863) is amended by striking “Historically Black Colleges and Universities and” and inserting “Historically Black Colleges and Universities that are part B institutions (as defined in section 322(2) of the Higher Education Act of 1965 (20 U.S.C. 1061(2))), Hispanic-serving institutions (as defined in section 502(a)(5) of that Act (20 U.S.C. 1101a(a)(5))), Tribal Colleges or Universities (as defined in section 316(b)(3) of that Act (20 U.S.C. 1059c(b)(3))), Alaskan Native-serving institutions (as defined in section 317(b)(2) of that Act (20 U.S.C. 1059d)(b)(2))), Native Hawaiian-serving institutions (as defined in section 317(b)(4) of that Act (20 U.S.C. 1059d)(b)(4))), and”.

42 USC 16791.

### SEC. 612. PROGRAM TO EXPAND DISTANCE LEARNING IN RURAL UNDERSERVED AREAS.

(a) IN GENERAL.—The Administrator shall develop or expand programs to extend science and space educational outreach to rural communities and schools through video conferencing, interpretive exhibits, teacher education, classroom presentations, and student field trips.

(b) PRIORITIES.—In carrying out subsection (a), the Administrator shall give priority to existing programs, including Challenger Learning Centers—

- (1) that utilize community-based partnerships in the field;
- (2) that build and maintain video conference and exhibit capacity;
- (3) that travel directly to rural communities and serve low-income populations; and
- (4) with a special emphasis on increasing the number of women and minorities in the science and engineering professions.

Charles “Pete”  
Conrad  
Astronomy  
Awards Act.  
42 USC 16792.

### SEC. 613. CHARLES “PETE” CONRAD ASTRONOMY AWARDS.

(a) SHORT TITLE.—This section may be cited as the “Charles ‘Pete’ Conrad Astronomy Awards Act”.

(b) DEFINITIONS.—For the purposes of this section—

- (1) the term “amateur astronomer” means an individual whose employer does not provide any funding, payment, or compensation to the individual for the observation of asteroids

and other celestial bodies, and does not include any individual employed as a professional astronomer;

(2) the term “Minor Planet Center” means the Minor Planet Center of the Smithsonian Astrophysical Observatory;

(3) the term “near-Earth asteroid” means an asteroid with a perihelion distance of less than 1.3 Astronomical Units from the Sun; and

(4) the term “Program” means the Charles “Pete” Conrad Astronomy Awards Program established under subsection (c).  
(c) PETE CONRAD ASTRONOMY AWARD PROGRAM.—

(1) IN GENERAL.—The Administrator shall establish the Charles “Pete” Conrad Astronomy Awards Program.

(2) AWARDS.—The Administrator shall make awards under the Program based on the recommendations of the Minor Planet Center.

(3) AWARD CATEGORIES.—The Administrator shall make one annual award, unless there are no eligible discoveries or contributions, for each of the following categories:

(A) The amateur astronomer or group of amateur astronomers who in the preceding calendar year discovered the intrinsically brightest near-Earth asteroid among the near-Earth asteroids that were discovered during that year by amateur astronomers or groups of amateur astronomers.

(B) The amateur astronomer or group of amateur astronomers who made the greatest contribution to the Minor Planet Center’s mission of cataloguing near-Earth asteroids during the preceding year.

(4) AWARD AMOUNT.—An award under the Program shall be in the amount of \$3,000.

(5) GUIDELINES.—(A) No individual who is not a citizen or permanent resident of the United States at the time of his discovery or contribution may receive an award under this section.

(B) The decisions of the Administrator in making awards under this section are final.

#### SEC. 614. REVIEW OF EDUCATION PROGRAMS.

42 USC 16793.

(a) IN GENERAL.—The Administrator shall enter into an arrangement with the National Research Council of the National Academy of Sciences to conduct a review and evaluation of NASA’s precollege science, technology, and mathematics education program. The review and evaluation shall be documented in a report to the Administrator and shall include such recommendations as the National Research Council determines will improve the effectiveness of the program.

(b) REVIEW.—The review and evaluation under subsection (a) shall include—

(1) an evaluation of the effectiveness of the overall program in meeting its defined goals and objectives;

(2) an assessment of the quality and educational effectiveness of the major components of the program, including an evaluation of the adequacy of assessment metrics and data collection requirements available for determining the effectiveness of individual projects;

(3) an evaluation of the funding priorities in the program, including a review of the funding level and funding trend for each major component of the program and an assessment

of whether the resources made available are consistent with meeting identified goals and priorities; and

(4) a determination of the extent and the effectiveness of coordination and collaboration between NASA and other Federal agencies that sponsor science, technology, and mathematics education activities.

(c) **REPORT TO CONGRESS.**—Not later than 18 months after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the results of the review and evaluation required under subsection (a).

42 USC 16794.

**SEC. 615. EQUAL ACCESS TO NASA'S EDUCATION PROGRAMS.**

(a) **IN GENERAL.**—The Administrator shall strive to ensure equal access for minority and economically disadvantaged students to NASA's education programs.

(b) **REPORT.**—Not later than 1 year after the date of enactment of this Act, and every 2 years thereafter, the Administrator shall submit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the efforts by the Administrator to ensure equal access for minority and economically disadvantaged students under this section and the results of such efforts. As part of the report, the Administrator shall provide—

(1) data on minority participation in NASA's education programs, at a minimum in the following categories: elementary and secondary education, undergraduate education, and graduate education; and

(2) the total value of grants NASA made to Historically Black Colleges and Universities and to Hispanic Serving Institutions through education programs during the period covered by the report.

(c) **PROGRAM.**—The Administrator shall establish the Dr. Mae C. Jemison Grant Program to work with Minority Serving Institutions to bring more women of color into the field of space and aeronautics.

42 USC 16795.

**SEC. 616. MUSEUMS.**

The Administrator may provide grants to, and enter into cooperative agreements with, museums and planetariums to enable them to enhance programs related to space exploration, aeronautics, space science, earth science, or microgravity.

Deadline.  
Reports.  
42 USC 16796.

**SEC. 617. REVIEW OF MUST PROGRAM.**

Not later than 60 days after the date of enactment of this Act, the Administrator shall transmit a report to Congress on the legal status of the Motivating Undergraduates in Science and Technology program. If the report concludes that the program is in compliance with the laws of the United States, NASA shall implement the program, as planned in the July 5, 2005, NASA Research Announcement.

42 USC 16797.

**SEC. 618. CONTINUATION OF CERTAIN EDUCATION PROGRAMS.**

From amounts appropriated to NASA for education programs, the Administrator shall ensure the continuation of the Space Grant Program, the Experimental Program to Stimulate Competitive Research, and, consistent with the results of the review under



section 614, the NASA Explorer School program, to motivate and develop the next generation of explorers.

**SEC. 619. IMPLEMENTATION OF PREVIOUS RECOMMENDATIONS.**

42 USC 16798.

(a) GAO REPORT.—Not more than 180 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee of Commerce, Science, and Transportation of the Senate a report describing action taken by NASA to implement the recommendations contained in the Government Accountability Office’s Report No. 04–639.

(b) COMPLIANCE.—To comply with title IX of the Education Amendments of 1972 (20 U.S.C. 1681 et seq.), the Administrator shall conduct compliance reviews of at least 2 grantees annually.

## Subtitle C—Technology Transfer

**SEC. 621. COMMERCIAL TECHNOLOGY TRANSFER PROGRAM.**

42 USC 16811.

(a) IN GENERAL.—The Administrator shall execute a commercial technology transfer program with the goal of facilitating the exchange of services, products, and intellectual property between NASA and the private sector. This program shall place at least as much emphasis on encouraging the transfer of NASA technology to the private sector (“spinning out”) as on encouraging use of private sector technology by NASA. This program shall be maintained in a manner that provides clear benefits for the agency, the domestic economy, and the research community.

(b) PROGRAM STRUCTURE.—In carrying out the program described in subsection (a), the Administrator shall provide program participants with at least 45 days notice of any proposed changes to the structure of NASA’s technology transfer and commercialization organizations that is in effect as of the date of enactment of this Act.

Deadline.  
Notice.

## TITLE VII—MISCELLANEOUS PROVISIONS

### Subtitle A—National Aeronautics and Space Administration

**SEC. 701. RETROCESSION OF JURISDICTION.**

The National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.) is amended by adding at the end of title III the following new section:

“RETROCESSION OF JURISDICTION

“SEC. 316. (a) Notwithstanding any other provision of law, the Administrator may relinquish to a State all or part of the legislative jurisdiction of the United States over lands or interests under the control of the Administrator in that State.

42 USC 2459k.

“(b) For purposes of this section, the term ‘State’ means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American

Samoa, the Northern Mariana Islands, and any other commonwealth, territory, or possession of the United States.”

**SEC. 702. EXTENSION OF INDEMNIFICATION.**

Section 309 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2458c) is amended in subsection (f)(1) by striking “December 31, 2002” and all that follows and inserting “December 31, 2010.”.

**SEC. 703. NASA SCHOLARSHIPS.**

(a) AMENDMENTS.—Section 9809 of title 5, United States Code, is amended—

(1) in subsection (a)(2) by striking “Act.” and inserting “Act (42 U.S.C. 1885a or 1885b).”;

(2) in subsection (c) by striking “require.” and inserting “require to carry out this section.”;

(3) in subsection (f)(1) by striking the last sentence; and

(4) in subsection (g)(2) by striking “Treasurer of the” and all that follows through “by 3” and inserting “Treasurer of the United States”.

(b) REPEAL.—The Vision 100-Century of Aviation Reauthorization Act is amended by striking section 703 (42 U.S.C. 2473e).

**SEC. 704. INDEPENDENT COST ANALYSIS.**

Section 301 of the National Aeronautics and Space Administration Authorization Act of 2000 (42 U.S.C. 2459g) is amended—

(1) by striking “Phase B” in subsection (a) and inserting “implementation”;

(2) by striking “\$150,000,000” and inserting “\$250,000,000”;

(3) by striking “Chief Financial Officer” each place it appears in subsection (a) and inserting “Administrator”;

(4) by inserting “and consider” in subsection (a) after “shall conduct”; and

(5) by striking subsection (b) and inserting the following:  
“(b) IMPLEMENTATION DEFINED.—In this section, the term ‘implementation’ means all activity in the life cycle of a project after preliminary design, independent assessment of the preliminary design, and approval to proceed into implementation, including critical design, development, certification, launch, operations, disposal of assets, and, for technology programs, development, testing, analysis, and communication of the results.”.

**SEC. 705. RECOVERY AND DISPOSITION AUTHORITY.**

Title III of the National Aeronautics and Space Act of 1958, as amended by section 701 of this Act, is further amended by adding at the end the following:

42 USC 2459l.

**“SEC. 317. RECOVERY AND DISPOSITION AUTHORITY.**

“(a) IN GENERAL.—

“(1) CONTROL OF REMAINS.—Subject to paragraphs (2) and (3), when there is an accident or mishap resulting in the death of a crewmember of a NASA human space flight vehicle, the Administrator may take control over the remains of the crewmember and order autopsies and other scientific or medical tests.

“(2) TREATMENT.—Each crewmember shall provide the Administrator with his or her preferences regarding the treatment accorded to his or her remains and the Administrator shall, to the extent possible, respect those stated preferences.

“(3) CONSTRUCTION.—This section shall not be construed to permit the Administrator to interfere with any Federal investigation of a mishap or accident.

“(b) DEFINITIONS.—In this section:

“(1) CREWMEMBER.—The term ‘crewmember’ means an astronaut or other person assigned to a NASA human space flight vehicle.

“(2) NASA HUMAN SPACE FLIGHT VEHICLE.—The term ‘NASA human space flight vehicle’ means a space vehicle, as defined in section 308(f)(1), that

“(A) is intended to transport 1 or more persons;

“(B) is designed to operate in outer space; and

“(C) is either owned by NASA, or owned by a NASA contractor or cooperating party and operated as part of a NASA mission or a joint mission with NASA.”.

#### SEC. 706. CHANGES TO EXISTING LAWS ON REPORTS.

(a) Section 201 of the National Aeronautics and Space Administration Authorization Act of 2000 (42 U.S.C. 2451 note) is amended—

(1) by striking “and not later than the first day of every second month thereafter until October 1, 2006” and inserting “and semiannually thereafter until December 31, 2011”; and

(2) by adding at the end the following: “Each such report shall also identify each Russian entity or person to whom NASA has, since the date of the enactment of the Iran Non-proliferation Amendments Act of 2005, made a payment in cash or in-kind for work to be performed or services to be rendered under the Agreement Concerning Cooperation on the Civil International Space Station, with annex, signed at Washington January 29, 1998, and entered into force March 27, 2001, or any protocol, agreement, memorandum of understanding, or contract related thereto. Each report shall include the specific purpose of each payment made to each entity or person identified in the report.”.

(b) Section 304(b) of the Federal Aviation Administration Research, Engineering, and Development Authorization Act of 1992 (49 U.S.C. 47508 note) is amended by striking “2000” and inserting “2010”.

(c) Section 323 of the National Aeronautics and Space Administration Authorization Act of 2000 is amended by striking subsection (a).

114 Stat. 1599.

#### SEC. 707. SMALL BUSINESS CONTRACTING.

42 USC 16821.

(a) PLAN.—In consultation with the Small Business Administration, the Administrator shall develop a plan to maximize the number and amount of contracts awarded to small business concerns (within the meaning given that term in section 3 of the Small Business Act (15 U.S.C. 632)) and to meet established contracting goals for such concerns.

(b) PRIORITY.—The Administrator shall establish as a priority meeting the contracting goals developed in conjunction with the Small Business Administration to maximize the amount of prime contracts, as measured in dollars, awarded in each fiscal year

by NASA to small business concerns (within the meaning given that term in section 3 of the Small Business Act (15 U.S.C. 632)).

42 USC 16822.

**SEC. 708. NASA HEALTHCARE PROGRAM.**

The Administrator shall develop a plan to better understand the longitudinal health effects of space flight on humans. In the development of the plan, the Administrator shall consider the need for the establishment of a lifetime healthcare program for NASA astronauts and their families or other methods to obtain needed health data from astronauts and retired astronauts.

Deadline.  
Reports.  
42 USC 16823.

**SEC. 709. OFFSHORE PERFORMANCE OF CONTRACTS FOR THE PROCUREMENT OF GOODS AND SERVICES.**

The Administrator shall submit to Congress, not later than 120 days after the end of each fiscal year beginning with the first fiscal year after the date of enactment of this Act, a report on the contracts and subcontracts performed overseas and the amount of purchases directly or indirectly by NASA from foreign entities in that fiscal year. The report shall separately indicate—

(1) the contracts and subcontracts and their dollar values for which the Administrator determines that essential goods or services under the contract are available only from a source outside the United States; and

(2) the items and their dollar values for which the Buy American Act was waived pursuant to obligations of the United States under international agreements.

Deadline.  
42 USC 16824.

**SEC. 710. STUDY ON ENHANCED USE LEASING.**

Not later than one year after the date of enactment of this Act, the Comptroller General shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a review of NASA's enhanced use leasing pilot program established by section 315 of the National Aeronautics and Space Administration Act of 1958 (42 U.S.C. 2459j). At a minimum the review shall analyze—

(1) the financial impact of the program, taking into account revenue foregone by the United States, whether such revenue would have been realized in the absence of the program, and any revenue that accrued to NASA because of the program;

(2) the use and effectiveness of the program; and

(3) whether the arrangements made under the program would have been made in the absence of the program.

## Subtitle B—National Science Foundation

42 USC 16831.

**SEC. 721. DATA ON SPECIFIC FIELDS OF STUDY.**

The National Science Foundation shall continue to collect statistically reliable data on the field of degree of college-educated individuals to fulfill obligations under section 4(j)(1) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)(1)) and the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885 et. seq.). If the Director of the Foundation determines that there is a legal impediment to the continued collection of this data, he shall inform the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 180 days after the date of enactment of this Act.

Notice.  
Deadline.

**SEC. 722. NATIONAL SCIENCE FOUNDATION MAJOR RESEARCH EQUIPMENT AND FACILITIES.** 42 USC 16832.**(a) ASTRONOMICAL SCIENCES SENIOR REVIEW.—**

(1) **REVIEW.**—The Director of the National Science Foundation shall charge the Mathematical and Physical Sciences Advisory Committee with conducting a review of the astronomical facilities supported by the Foundation to determine the appropriate balance between supporting the operation of existing facilities and supporting the design, development, and eventual operation of new facilities. The review shall recommend actions that would enable the Foundation to support priorities recommended in the National Academy of Sciences reports “Astronomy and Astrophysics in the New Millennium” and “Connecting Quarks with the Cosmos”.

(2) **TRANSMITTAL.**—The Director shall transmit the review, along with a schedule for implementing any recommendations the Director accepts and an explanation for rejecting any recommendations, to the Committee on Science of the House of Representatives and the Committee of Commerce, Science, and Transportation of the Senate no later than June 30, 2006.

Deadline.

**(b) PLAN FOR FUNDING DESIGN AND DEVELOPMENT FOR MAJOR RESEARCH EQUIPMENT AND FACILITIES CONSTRUCTION PROJECTS.—**

(1) **IN GENERAL.**—The Director of the National Science Foundation shall develop a plan to facilitate more thorough design and development of facilities that can be considered for funding through the Major Research Equipment and Facilities Construction account.

(2) **CONSIDERATIONS.**—In developing the plan, the Director shall consider—

(A) steps to encourage and ease cross-directorate collaboration;

(B) ways to ensure that a Directorate that will eventually support the operation of a facility is fully committed to that facility from the outset;

(C) providing funding for the design and development of facilities from new sources within the Foundation; and

(D) ways to enable and encourage entities proposing facilities projects to receive design and development funding from nongovernmental sources.

(3) **TRANSMITTAL.**—No later than June 30, 2006, the Director of the National Science Foundation shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the plan, along with a statement from the Director describing how the plan addresses the considerations described in paragraph (2).

Deadline.

## TITLE VIII—TASK FORCE AND COMMISSION

### Subtitle A—International Space Station Independent Safety Task Force

#### SEC. 801. ESTABLISHMENT OF TASK FORCE.

(a) **ESTABLISHMENT.**—The Administrator shall establish an independent task force to review the International Space Station program with the objective of discovering and assessing any vulnerabilities of the International Space Station that could lead to its destruction, compromise the health of its crew, or necessitate its premature abandonment.

(b) **DEADLINE FOR ESTABLISHMENT.**—The Administrator shall establish the independent task force within 60 days after the date of enactment of this Act.

#### SEC. 802. TASKS OF THE TASK FORCE.

The independent task force established under section 801 shall, to the extent possible, undertake the following tasks:

(1) Catalogue threats to and vulnerabilities of the ISS, including design flaws, natural phenomena, computer software or hardware flaws, sabotage or terrorist attack, number of crewmembers, inability to adequately deliver replacement parts and supplies, and management or procedural deficiencies.

(2) Make recommendations for corrective actions.

(3) Provide any additional findings or recommendations related to ISS safety.

(4) Prepare a report to the Administrator, Congress, and the public.

Reports.  
Public  
information.

#### SEC. 803. COMPOSITION OF THE TASK FORCE.

(a) **EXTERNAL ORGANIZATIONS.**—The independent task force shall include at least one representative from each of the following external organizations:

(1) The Aerospace Safety Advisory Panel.

(2) The Task Force on International Space Station Operational Readiness of the NASA Advisory Council, or its successor.

(3) The Aeronautics and Space Engineering Board of the National Research Council.

(b) **INDEPENDENT ORGANIZATIONS WITHIN NASA.**—The independent task force shall also include at least the following individuals from within NASA:

(1) NASA's Chief Engineer.

(2) The head of the Independent Technical Authority.

(3) The head of the Safety and Mission Assurance Office.

(4) The head of the NASA Engineering and Safety Center.

#### SEC. 804. REPORTING REQUIREMENTS.

(a) **INTERIM REPORTS.**—The independent task force may transmit to the Administrator and Congress, and make concurrently available to the public, interim reports containing such findings, conclusions, and recommendations for corrective actions as have been agreed to by a majority of the task force members.

(b) **FINAL REPORT.**—The task force shall transmit to the Administrator and Congress, and make concurrently available to the public, a final report containing such findings, conclusions, and recommendations for corrective actions as have been agreed to by a majority of task force members. Such report shall include any minority views or opinions not reflected in the majority report.

(c) **APPROVAL.**—The independent task force shall not be required to seek the approval of the contents of any of the reports submitted under subsection (a) or (b) by the Administrator or by any person designated by the Administrator prior to the submission of the reports to the Administrator and Congress and to their being made concurrently available to the public.

**SEC. 805. SUNSET.**

The independent task force established under this subtitle shall transmit its final report to the Administrator and to Congress and make it available to the public not later than 1 year after the independent task force is established and shall cease to exist after the transmittal.

Reports.  
Public  
information.  
Deadline.

## **Subtitle B—Human Space Flight Independent Investigation Commission**

**SEC. 821. DEFINITIONS.**

For purposes of this subtitle—

- (1) the term “Commission” means a Commission established under this title; and
- (2) the term “incident” means either an accident or a deliberate act.

**SEC. 822. ESTABLISHMENT OF COMMISSION.**

(a) **ESTABLISHMENT.**—The President shall establish an independent, nonpartisan Commission within the executive branch to investigate any incident that results in the loss of—

President.

- (1) a Space Shuttle;
- (2) the International Space Station or its operational viability;
- (3) any other United States space vehicle carrying humans that is owned by the Federal Government or that is being used pursuant to a contract with the Federal Government; or
- (4) a crew member or passenger of any space vehicle described in this subsection.

(b) **DEADLINE FOR ESTABLISHMENT.**—The President shall establish a Commission within 7 days after an incident specified in subsection (a).

**SEC. 823. TASKS OF THE COMMISSION.**

A Commission established pursuant to this subtitle shall, to the extent possible, undertake the following tasks:

- (1) Investigate the incident.
- (2) Determine the cause of the incident.
- (3) Identify all contributing factors to the cause of the incident.
- (4) Make recommendations for corrective actions.

(5) Provide any additional findings or recommendations deemed by the Commission to be important, whether or not they are related to the specific incident under investigation.

Reports.  
Public  
information.

(6) Prepare a report to Congress, the President, and the public.

**SEC. 824. COMPOSITION OF COMMISSION.**

(a) **NUMBER OF COMMISSIONERS.**—A Commission established pursuant to this subtitle shall consist of 15 members.

(b) **SELECTION.**—The members of a Commission shall be chosen in the following manner:

President.

(1) The President shall appoint the members, and shall designate the Chairman and Vice Chairman of the Commission from among its members.

(2) The majority leader of the Senate, the minority leader of the Senate, the Speaker of the House of Representatives, and the minority leader of the House of Representatives shall each provide to the President a list of candidates for membership on the Commission. The President may select one of the candidates from each of the 4 lists for membership on the Commission.

(3) No officer or employee of the Federal Government or Member of Congress shall serve as a member of the Commission.

(4) No member of the Commission shall have, or have pending, a contractual relationship with NASA.

(5) The President shall not appoint any individual as a member of a Commission under this section who has a current or former relationship with the Administrator that the President determines would constitute a conflict of interest.

(6) To the extent practicable, the President shall ensure that the members of the Commission include some individuals with experience relative to human carrying spacecraft, as well as some individuals with investigative experience and some individuals with legal experience.

(7) To the extent practicable, the President shall seek diversity in the membership of the Commission.

(c) **DEADLINE FOR APPOINTMENT.**—All members of a Commission established under this subtitle shall be appointed no later than 30 days after the incident.

(d) **INITIAL MEETING.**—A Commission shall meet and begin operations as soon as practicable.

(e) **QUORUM; VACANCIES.**—After its initial meeting, a Commission shall meet upon the call of the Chairman or a majority of its members. Eight members of a Commission shall constitute a quorum. Any vacancy in a Commission shall not affect its powers, but shall be filled in the same manner in which the original appointment was made.

**SEC. 825. POWERS OF COMMISSION.**

(a) **HEARINGS AND EVIDENCE.**—A Commission or, on the authority of the Commission, any subcommittee or member thereof, may, for the purpose of carrying out this subtitle—

(1) hold such hearings and sit and act at such times and places, take such testimony, receive such evidence, administer such oaths; and



(2) require, by subpoena or otherwise, the attendance and testimony of such witnesses and the production of such books, records, correspondence, memoranda, papers, and documents, as the Commission or such designated subcommittee or designated member may determine advisable.

(b) CONTRACTING.—A Commission may, to such extent and in such amounts as are provided in appropriation Acts, enter into contracts to enable the Commission to discharge its duties under this subtitle.

(c) INFORMATION FROM FEDERAL AGENCIES.—

(1) IN GENERAL.—A Commission may secure directly from any executive department, bureau, agency, board, commission, office, independent establishment, or instrumentality of the Government, information, suggestions, estimates, and statistics for the purposes of this subtitle. Each department, bureau, agency, board, commission, office, independent establishment, or instrumentality shall, to the extent authorized by law, furnish such information, suggestions, estimates, and statistics directly to the Commission, upon request made by the Chairman, the chairman of any subcommittee created by a majority of the Commission, or any member designated by a majority of the Commission.

(2) RECEIPT, HANDLING, STORAGE, AND DISSEMINATION.—Information shall only be received, handled, stored, and disseminated by members of the Commission and its staff consistent with all applicable statutes, regulations, and Executive orders.

(d) ASSISTANCE FROM FEDERAL AGENCIES.—

(1) GENERAL SERVICES ADMINISTRATION.—The Administrator of General Services shall provide to a Commission on a reimbursable basis administrative support and other services for the performance of the Commission's tasks.

(2) OTHER DEPARTMENTS AND AGENCIES.—In addition to the assistance prescribed in paragraph (1), departments and agencies of the United States may provide to the Commission such services, funds, facilities, staff, and other support services as they may determine advisable and as may be authorized by law.

(3) NASA ENGINEERING AND SAFETY CENTER.—The NASA Engineering and Safety Center shall provide data and technical support as requested by the Commission.

#### **SEC. 826. PUBLIC MEETINGS, INFORMATION, AND HEARINGS.**

(a) PUBLIC MEETINGS AND RELEASE OF PUBLIC VERSIONS OF REPORTS.—A Commission shall—

(1) hold public hearings and meetings to the extent appropriate; and

(2) release public versions of the reports required under this subtitle. Reports.

(b) PUBLIC HEARINGS.—Any public hearings of a Commission shall be conducted in a manner consistent with the protection of information provided to or developed for or by the Commission as required by any applicable statute, regulation, or Executive order.

#### **SEC. 827. STAFF OF COMMISSION.**

(a) APPOINTMENT AND COMPENSATION.—The Chairman, in consultation with Vice Chairman, in accordance with rules agreed

upon by a Commission, may appoint and fix the compensation of a staff director and such other personnel as may be necessary to enable the Commission to carry out its functions.

(b) **DETAILEES.**—Any Federal Government employee, except for an employee of NASA, may be detailed to a Commission without reimbursement from the Commission, and such detailee shall retain the rights, status, and privileges of his or her regular employment without interruption.

(c) **CONSULTANT SERVICES.**—A Commission may procure the services of experts and consultants in accordance with section 3109 of title 5, United States Code, but at rates not to exceed the daily rate paid a person occupying a position at level IV of the Executive Schedule under section 5315 of title 5, United States Code. Any consultant or expert whose services are procured under this subsection shall disclose any contract or association it has with NASA or any NASA contractor.

**SEC. 828. COMPENSATION AND TRAVEL EXPENSES.**

(a) **COMPENSATION.**—Each member of a Commission may be compensated at not to exceed the daily equivalent of the annual rate of basic pay in effect for a position at level IV of the Executive Schedule under section 5315 of title 5, United States Code, for each day during which that member is engaged in the actual performance of the duties of the Commission.

(b) **TRAVEL EXPENSES.**—While away from their homes or regular places of business in the performance of services for the Commission, members of a Commission shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703(b) of title 5, United States Code.

**SEC. 829. SECURITY CLEARANCES FOR COMMISSION MEMBERS AND STAFF.**

The appropriate Federal agencies or departments shall cooperate with a Commission in expeditiously providing to the Commission members and staff appropriate security clearances to the extent possible pursuant to existing procedures and requirements. No person shall be provided with access to classified information under this subtitle without the appropriate security clearances.

**SEC. 830. REPORTING REQUIREMENTS AND TERMINATION.**

(a) **INTERIM REPORTS.**—A Commission may submit to the President and Congress interim reports containing such findings, conclusions, and recommendations for corrective actions as have been agreed to by a majority of Commission members.

(b) **FINAL REPORT.**—A Commission shall submit to the President and Congress, and make concurrently available to the public, a final report containing such findings, conclusions, and recommendations for corrective actions as have been agreed to by a majority of Commission members. Such report shall include any minority views or opinions not reflected in the majority report.

(c) **TERMINATION.**—

(1) **IN GENERAL.**—A Commission, and all the authorities of this subtitle with respect to that Commission, shall terminate 60 days after the date on which the final report is submitted under subsection (b).

Public  
information.

(2) ADMINISTRATIVE ACTIVITIES BEFORE TERMINATION.—A Commission may use the 60-day period referred to in paragraph (1) for the purpose of concluding its activities, including providing testimony to committees of Congress concerning its reports and disseminating the final report.

Approved December 30, 2005.

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**LEGISLATIVE HISTORY—S. 1281 (H.R. 3070):**

**HOUSE REPORTS:** Nos. 109–173 accompanying H.R. 3070 (Comm. on Science) and 109–354 (Comm. of Conference).

**SENATE REPORTS:** No. 109–108 (Comm. on Commerce, Science, and Transportation).

**CONGRESSIONAL RECORD, Vol. 151 (2005):**

Sept. 28, considered and passed Senate.

Nov. 18, considered and passed House, amended, in lieu of H.R. 3070.

Dec. 17, House agreed to conference report.

Dec. 21, Senate agreed to conference report.