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1ST SESSION

# H. R. 3070

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IN THE SENATE OF THE UNITED STATES

JULY 25, 2005

Received; read twice and referred to the Committee on Commerce, Science,  
and Transportation

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## AN ACT

To reauthorize the human space flight, aeronautics, and science programs of the National Aeronautics and Space Administration, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

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

2 (a) SHORT TITLE.—This Act may be cited as the  
 3 “National Aeronautics and Space Administration Author-  
 4 ization Act of 2005”.

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

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings.
- Sec. 3. Definitions.

TITLE I—GENERAL PRINCIPLES AND REPORTS

- Sec. 101. Responsibilities, policies, and plans.
- Sec. 102. Reports.
- Sec. 103. Baselines and cost controls.
- Sec. 104. Prize authority.
- Sec. 105. Foreign launch vehicles.
- Sec. 106. Safety management.
- Sec. 107. Lessons learned and best practices.
- Sec. 108. Commercialization plan.
- Sec. 109. Study on the feasibility of use of ground source heat pumps.
- Sec. 110. Space shuttle return to flight.
- Sec. 111. Whistleblower protection.

TITLE II—AUTHORIZATION OF APPROPRIATIONS

- Sec. 201. Structure of budgetary accounts.
- Sec. 202. Fiscal year 2006.
- Sec. 203. Fiscal year 2007.
- Sec. 204. ISS research.
- Sec. 205. Test facilities.
- Sec. 206. Proportionality.
- Sec. 207. Limitations on authority.
- Sec. 208. Notice of reprogramming.
- Sec. 209. Cost overruns.
- Sec. 210. Official representational fund.
- Sec. 211. International Space Station cost cap.

TITLE III—SCIENCE

Subtitle A—General Provisions

- Sec. 301. Performance assessments.
- Sec. 302. Status report on Hubble Space Telescope servicing mission.
- Sec. 303. Independent assessment of Landsat-NPOESS integrated mission.
- Sec. 304. Assessment of science mission extensions.
- Sec. 305. Microgravity research.
- Sec. 306. Coordination with the National Oceanic and Atmospheric Administra-  
 tion.

## 3

### Subtitle B—Remote Sensing

- Sec. 311. Definitions.
- Sec. 312. Pilot projects to encourage public sector applications.
- Sec. 313. Program evaluation.
- Sec. 314. Data availability.
- Sec. 315. Education.

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

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

## TITLE IV—AERONAUTICS

- Sec. 401. Definition.

### Subtitle A—National Policy for Aeronautics Research and Development

- Sec. 411. Policy.

### Subtitle B—NASA Aeronautics Breakthrough Research Initiatives

- Sec. 421. Environmental aircraft research and development initiative.
- Sec. 422. Civil supersonic transport research and development initiative.
- Sec. 423. Rotorcraft and other runway-independent air vehicles research and development initiative.

### Subtitle C—Other NASA Aeronautics Research and Development Activities

- Sec. 431. Fundamental research and technology base program.
- Sec. 432. Airspace systems research.
- Sec. 433. Aviation safety and security research.
- Sec. 434. Zero-emissions aircraft research.
- Sec. 435. Mars aircraft research.
- Sec. 436. Hypersonics research.
- Sec. 437. NASA aeronautics scholarships.
- Sec. 438. Aviation weather research.
- Sec. 439. Assessment of wake turbulence research and development program.
- Sec. 440. University-based centers.

## TITLE V—HUMAN SPACE FLIGHT

- Sec. 501. International Space Station completion.
- Sec. 502. Human exploration priorities.
- Sec. 503. GAO assessment.

## TITLE VI—OTHER PROGRAM AREAS

### Subtitle A—Space and Flight Support

- Sec. 601. Orbital debris.
- Sec. 602. Secondary payload capability.

### Subtitle B—Education

- Sec. 611. Institutions in NASA's minority institutions program.
- Sec. 612. Program to expand distance learning in rural underserved areas.
- Sec. 613. Charles "Pete" Conrad Astronomy Awards.
- Sec. 614. Review of education programs.

- Sec. 615. Equal access to NASA's education programs.
- Sec. 616. Museums.
- Sec. 617. Review of MUST program.

#### TITLE VII—MISCELLANEOUS AMENDMENTS

- Sec. 701. Retrocession of jurisdiction.
- Sec. 702. Extension of indemnification.
- Sec. 703. NASA scholarships.
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- Sec. 705. Limitations on off-shore performance of contracts for the procurement of goods and services.
- Sec. 706. Long duration flight.

#### TITLE VIII—INDEPENDENT COMMISSIONS

- Sec. 801. Definitions.

##### Subtitle A—International Space Station Independent Safety Commission

- Sec. 811. Establishment of Commission.
- Sec. 812. Tasks of the Commission.
- Sec. 813. Sunset.

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

- Sec. 821. Establishment of Commission.
- Sec. 822. Tasks of the Commission.

##### Subtitle C—Organization and Operation of Commissions

- Sec. 831. Composition of Commissions.
- Sec. 832. Powers of Commission.
- Sec. 833. Public meetings, information, and hearings.
- Sec. 834. Staff of Commission.
- Sec. 835. Compensation and travel expenses.
- Sec. 836. Security clearances for Commission members and staff.
- Sec. 837. Reporting requirements and termination.

## 1 **SEC. 2. FINDINGS.**

2       The Congress finds the following:

3           (1) On January 14, 2004, the President un-  
 4       veiled the Vision for Space Exploration to guide  
 5       United States policy on human space exploration.

6           (2) The President's vision of returning humans  
 7       to the Moon and working toward a sustainable  
 8       human presence there and then venturing further

1       into the solar system provides a sustainable rationale  
2       for the United States human space flight program.

3           (3) As we enter the Second Space Age, the Na-  
4       tional Aeronautics and Space Administration should  
5       continue to support robust programs in space  
6       science, aeronautics, and earth science as it moves  
7       forward with plans to send Americans to the Moon,  
8       Mars, and worlds beyond.

9           (4) The National Aeronautics and Space Ad-  
10      ministration's programs can advance the frontiers of  
11      science, expanding understanding of our planet and  
12      of the universe, and contribute to American pros-  
13      perity.

14          (5) The United States should honor its inter-  
15      national commitments to the International Space  
16      Station program.

17          (6) The United States must remain the leader  
18      in aeronautics and aviation. Any erosion of this pre-  
19      eminence is not in the Nation's economic or security  
20      interests. Past Federal investments in aeronautics  
21      research and development have benefited the econ-  
22      omy and national security of the United States and  
23      improved the quality of life of its citizens.

24          (7) Long-term progress in aeronautics and  
25      space requires continued Federal investment in fun-

1       damental research, test facilities, and maintenance  
 2       of a skilled civil service workforce at NASA’s Cen-  
 3       ters.

4           (8) An important part of NASA’s mission is  
 5       education and outreach.

### 6 **SEC. 3. DEFINITIONS.**

7       In this Act:

8           (1) ADMINISTRATOR.—The term “Adminis-  
 9       trator” means the Administrator of the National  
 10      Aeronautics and Space Administration.

11          (2) ISS.—The term “ISS” means the Inter-  
 12      national Space Station.

13          (3) NASA.—The term “NASA” means the Na-  
 14      tional Aeronautics and Space Administration.

## 15 **TITLE I—GENERAL PRINCIPLES** 16 **AND REPORTS**

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

18      (a) GENERAL RESPONSIBILITIES.—

19          (1) PROGRAMS.—The Administrator shall en-  
 20      sure that NASA carries out a balanced set of pro-  
 21      grams that shall include, at a minimum, programs  
 22      in—

23           (A) human space flight, in accordance with  
 24      subsection (b);

1 (B) aeronautics research and development;  
2 and

3 (C) scientific research, which shall include,  
4 at a minimum—

5 (i) robotic missions to study planets,  
6 and to deepen understanding of astronomy,  
7 astrophysics, and other areas of science  
8 that can be productively studied from  
9 space;

10 (ii) earth science research and re-  
11 search on the Sun-Earth connection  
12 through the development and operation of  
13 research satellites and other means;

14 (iii) support of university research in  
15 space science, earth science and micro-  
16 gravity science.

17 (iv) research on microgravity, includ-  
18 ing research that is not directly related to  
19 human exploration.

20 (2) CONSULTATION AND COORDINATION.—In  
21 carrying out the programs of NASA, the Adminis-  
22 trator shall—

23 (A) consult and coordinate to the extent  
24 appropriate with other relevant Federal agen-

1           cies, including through the National Science  
2           and Technology Council;

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

5                 (i) encouraging the work of entre-  
6                 preneurs who are seeking to develop new  
7                 means to launch satellites, crew, or cargo;

8                 (ii) contracting with the private sector  
9                 for crew and cargo services to the extent  
10                practicable; and

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

15           (C) involve other nations to the extent ap-  
16           propriate.

17       (b) VISION FOR SPACE EXPLORATION.—The Admin-  
18       istrator shall manage human space flight programs to  
19       strive to achieve the following goals:

20               (1) Returning Americans to the Moon no later  
21       than 2020.

22               (2) Launching the Crew Exploration Vehicle as  
23       close to 2010 as possible.



1           (3) Increasing knowledge of the impacts of long  
2           duration stays in space on the human body using the  
3           most appropriate facilities available.

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

7           (c) AERONAUTICS.—

8           (1) IN GENERAL.—The President of the United  
9           States, through the Administrator, and in consulta-  
10          tion with other Federal agencies, shall develop a na-  
11          tional aeronautics policy to guide the aeronautics  
12          programs of NASA through 2020.

13          (2) CONTENT.—At a minimum, the national  
14          aeronautics policy shall describe for NASA—

15                (A) the priority areas of research for aero-  
16                nautics through fiscal year 2011;

17                (B) the basis on which and the process by  
18                which priorities for ensuing fiscal years will be  
19                selected;

20                (C) the facilities and personnel needed to  
21                carry out the aeronautics program through fis-  
22                cal year 2011; and

23                (D) the budget assumptions on which the  
24                national aeronautics policy is based, which for  
25                fiscal years 2006 and 2007 shall be the author-

1            ized level for aeronautics provided in title II of  
2            this Act.

3            (3) CONSIDERATIONS.—In developing the na-  
4            tional aeronautics policy, the President shall con-  
5            sider the following issues, which shall be discussed  
6            in the transmittal under paragraph (5):

7                    (A) The extent to which NASA should  
8                    focus on long-term, high-risk research or more  
9                    incremental research, and the expected impact  
10                  on the United States aircraft and airline indus-  
11                  tries of that decision.

12                  (B) The extent to which NASA should ad-  
13                  dress military and commercial needs.

14                  (C) How NASA will coordinate its aero-  
15                  nautics program with other Federal agencies.

16                  (D) The extent to which NASA will fund  
17                  university research, and the expected impact of  
18                  that funding on the supply of United States  
19                  workers for the aeronautics industry.

20                  (E) The extent to which the priority areas  
21                  of research listed pursuant to paragraph (2)(A)  
22                  should include the activities authorized by title  
23                  IV of this Act, the discussion of which shall in-  
24                  clude a priority ranking of all of the activities

1 authorized in title IV and an explanation for  
2 that ranking.

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

10 (5) SCHEDULE.—The Administrator shall  
11 transmit the national aeronautics policy to the Com-  
12 mittee on Appropriations and the Committee on  
13 Science of the House of Representatives, and to the  
14 Committee on Appropriations and the Committee on  
15 Commerce, Science, and Transportation of the Sen-  
16 ate, not later than the date on which the President  
17 submits the proposed budget for the Federal Gov-  
18 ernment for fiscal year 2007 to the Congress. The  
19 Administrator shall make available to those commit-  
20 tees any study done by a nongovernmental entity  
21 that was used in the development of the national  
22 aeronautics policy.  
23 (d) SCIENCE.—

1           (1) IN GENERAL.—The Administrator shall de-  
2       velop a policy to guide the science programs of  
3       NASA through 2016.

4           (2) CONTENT.—At a minimum, the policy shall  
5       describe—

6           (A) the missions NASA will initiate, de-  
7       sign, develop, launch, or operate in space  
8       science and earth science through fiscal year  
9       2016, including launch dates;

10          (B) a priority ranking of all of the mis-  
11       sions listed under subparagraph (A), and the  
12       rationale for the ranking;

13          (C) the budget assumptions on which the  
14       policy is based, which for fiscal years 2006 and  
15       2007 shall be consistent with the authorizations  
16       provided in title II of this Act; and

17          (D) the facilities and personnel needed to  
18       carry out the policy through fiscal year 2016.

19          (3) CONSIDERATIONS.—In developing the  
20       science policy under this subsection, the Adminis-  
21       trator shall consider the following issues, which shall  
22       be discussed in the transmittal under paragraph (6):

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

1           (B) The relationship between NASA's  
2           space and earth science activities and those of  
3           other Federal agencies.

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

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

16          (6) SCHEDULE.—The Administrator shall  
17          transmit the policy developed under this subsection  
18          to the Committee on Science of the House of Rep-  
19          resentatives and the Committee on Commerce,  
20          Science, and Transportation of the Senate not later  
21          than the date on which the President submits the  
22          proposed budget for the Federal Government for fis-  
23          cal year 2007 to the Congress. The Administrator  
24          shall make available to those committees any study

1 done by a nongovernmental entity that was used in  
2 the development of the policy.

3 (e) FACILITIES.—

4 (1) IN GENERAL.—The Administrator shall de-  
5 velop a plan for managing NASA’s facilities through  
6 fiscal year 2015. The plan shall be consistent with  
7 the policies and plans developed pursuant to this  
8 section.

9 (2) CONTENT.—At a minimum, the plan shall  
10 describe—

11 (A) any new facilities NASA intends to ac-  
12 quire, whether through construction, purchase,  
13 or lease, and the expected dates for doing so;

14 (B) any facilities NASA intends to signifi-  
15 cantly modify, and the expected dates for doing  
16 so;

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

19 (D) any transaction NASA intends to con-  
20 duct to sell, lease, or otherwise transfer the  
21 ownership of a facility, and the expected dates  
22 for doing so;

23 (E) how each of the actions described in  
24 subparagraphs (A), (B), (C), and (D) will en-

1           hance the ability of NASA to carry out its pro-  
2           grams;

3                 (F) the expected costs or savings expected  
4           from each of the actions described in subpara-  
5           graphs (A), (B), (C), and (D);

6                 (G) the priority order of the actions de-  
7           scribed in subparagraphs (A), (B), (C), and  
8           (D);

9                 (H) the budget assumptions of the plan,  
10          which for fiscal years 2006 and 2007 shall be  
11          consistent with the authorizations provided in  
12          title II of this Act; and

13                 (I) how facilities were evaluated in devel-  
14          oping the plan.

15                 (3) SCHEDULE.—The Administrator shall  
16          transmit the plan developed under this subsection to  
17          the Committee on Science of the House of Rep-  
18          resentatives and the Committee on Commerce,  
19          Science, and Transportation of the Senate not later  
20          than the date on which the President submits the  
21          proposed budget for the Federal Government for fis-  
22          cal year 2008 to the Congress.

23                 (f) WORKFORCE.—

24                         (1) IN GENERAL.—The Administrator shall de-  
25          velop a human capital strategy to ensure that NASA

1 has a workforce of the appropriate size and with the  
2 appropriate skills to carry out the programs of  
3 NASA, consistent with the policies and plans devel-  
4 oped pursuant to this section. The strategy shall  
5 cover the period through fiscal year 2011.

6 (2) CONTENT.—The strategy shall describe, at  
7 a minimum—

8 (A) any categories of employees NASA in-  
9 tends to reduce, the expected size and timing of  
10 those reductions, the methods NASA intends to  
11 use to make the reductions, and the reasons  
12 NASA no longer needs those employees;

13 (B) any categories of employees NASA in-  
14 tends to increase, the expected size and timing  
15 of those increases, the methods NASA intends  
16 to use to recruit the additional employees, and  
17 the reasons NASA needs those employees;

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

20 (D) the budget assumptions of the strat-  
21 egy, which for fiscal years 2006 and 2007 shall  
22 be consistent with the authorizations provided  
23 in title II of this Act, and any expected addi-  
24 tional costs or savings from the strategy by fis-  
25 cal year.



1           (3) SCHEDULE.—The Administrator shall  
2       transmit the strategy developed under this sub-  
3       section to the Committee on Science of the House of  
4       Representatives and the Committee on Commerce,  
5       Science, and Transportation of the Senate not later  
6       than the date on which the President submits the  
7       proposed budget for the Federal Government for fis-  
8       cal year 2007 to the Congress. At least 60 days be-  
9       fore transmitting the strategy, NASA shall provide  
10      a draft of the strategy to its Federal Employee  
11      Unions for a 30-day consultation period after which  
12      NASA shall respond in writing to any written con-  
13      cerns provided by the Unions.

14           (4) LIMITATION.—NASA may not initiate any  
15      buyout offer until 60 days after the strategy re-  
16      quired by this subsection has been transmitted to  
17      the Congress in accordance with paragraph (3).  
18      NASA may not implement any Reduction in Force  
19      or other involuntary separations (except for cause)  
20      prior to February 16, 2007.

21           (g) CENTER MANAGEMENT.—

22           (1) IN GENERAL.—The Administrator shall con-  
23      duct a study to determine whether any of NASA's  
24      centers should be operated by or with the private  
25      sector by converting a center to a Federally Funded

1 Research and Development Center or through any  
2 other mechanism.

3 (2) CONTENT.—The study shall, at a min-  
4 imum—

5 (A) make a recommendation for the oper-  
6 ation of each center and provide reasons for  
7 that recommendation; and

8 (B) describe the advantages and disadvan-  
9 tages of each mode of operation considered in  
10 the study.

11 (3) CONSIDERATIONS.—In conducting the  
12 study, the Administrator shall take into consider-  
13 ation the experiences of other relevant Federal agen-  
14 cies in operating laboratories and centers and any  
15 reports that have reviewed the mode of operation of  
16 those laboratories and centers, as well as any reports  
17 that have reviewed NASA's centers.

18 (4) SCHEDULE.—The Administrator shall  
19 transmit the study conducted under this subsection  
20 to the Committee on Science of the House of Rep-  
21 resentatives and the Committee on Commerce,  
22 Science, and Transportation of the Senate not later  
23 than May 31, 2006.

1 (h) BUDGETS.—The proposed budget for NASA sub-  
2 mitted by the President for each fiscal year shall be ac-  
3 companied by documents showing—

4 (1) the budget for each element of the human  
5 space flight program;

6 (2) the budget for aeronautics;

7 (3) the budget for space science;

8 (4) the budget for earth science;

9 (5) the budget for microgravity science;

10 (6) the budget for education;

11 (7) the budget for technology transfer pro-  
12 grams;

13 (8) the budget for the Integrated Financial  
14 Management Program, by individual element;

15 (9) the budget for the Independent Technical  
16 Authority, both total and by center;

17 (10) the budget for public relations, by pro-  
18 gram;

19 (11) the comparable figures for at least the 2  
20 previous fiscal years for each item in the proposed  
21 budget;

22 (12) the amount of unobligated funds and un-  
23 expended funds, by appropriations account—

24 (A) that remained at the end of the fiscal  
25 year prior to the fiscal year in which the budget

1 is being presented that were carried over into  
2 the fiscal year in which the budget is being pre-  
3 sented;

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

9 (C) that are estimated will remain at the  
10 end of the fiscal year for which the budget is  
11 being presented; and

12 (13) the budget for safety, by program.

13 (i) GENERAL AND ADMINISTRATIVE EXPENSES.—  
14 NASA shall make available, upon request from the Com-  
15 mittee on Science of the House of Representatives or the  
16 Committee on Commerce, Science, and Transportation of  
17 the Senate, information on Corporate and Center General  
18 and Administrative Costs and Service Pool costs, includ-  
19 ing—

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

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

4           (3) the major activities included in each cost  
5           category.

6           (j) NASA TEST FACILITIES.—

7           (1) REVIEW.—The Director of the Office of  
8           Science and Technology Policy shall commission an  
9           independent review of the Nation’s long-term stra-  
10          tegic needs for test facilities and shall submit the re-  
11          view to the Committee on Science of the House of  
12          Representatives and the Committee on Commerce,  
13          Science, and Transportation of the Senate. The re-  
14          view shall include an evaluation of the facility needs  
15          described pursuant to subsection (c)(2)(C).

16          (2) LIMITATION.—The Administrator shall not  
17          close or mothball any aeronautical test facilities  
18          identified in the 2003 independent assessment by  
19          the RAND Corporation, entitled “Wind Tunnel and  
20          Propulsion Test Facilities: An Assessment of  
21          NASA’s Capabilities to Serve National Needs” as  
22          being part of the minimum set of those facilities nec-  
23          essary to retain and manage to serve national needs,  
24          as well as any other non-aeronautical NASA test fa-  
25          cilities that were in use as of January 1, 2004, until

1 the review conducted under paragraph (1) has been  
2 transmitted to the Congress.

3 **SEC. 102. REPORTS.**

4 (a) IMMEDIATE ISSUES.—Not later than September  
5 30, 2005, the Administrator shall transmit to the Com-  
6 mittee on Science of the House of Representatives and the  
7 Committee on Commerce, Science, and Transportation of  
8 the Senate a report on each of the following items:

9 (1) The research agenda for the ISS and its  
10 proposed final configuration.

11 (2) The number of flights the Space Shuttle  
12 will make before its retirement, the purpose of those  
13 flights, and the expected date of the final flight.

14 (3) A description of the means, other than the  
15 Space Shuttle, that may be used to ferry crew and  
16 cargo to and from the ISS.

17 (4) A plan for the operation of the ISS in the  
18 event that the Iran Nonproliferation Act of 2000 is  
19 not amended.

20 (5) A description of the launch vehicle for the  
21 Crew Exploration Vehicle.

22 (6) A description of any heavy lift vehicle  
23 NASA intends to develop, the intended uses of that  
24 vehicle, and whether the decision to develop that ve-  
25 hicle has undergone an interagency review.

1           (7) A description of the intended purpose of  
2       lunar missions and the architecture for those mis-  
3       sions.

4           (8) The program goals for Project Prometheus.

5           (9) A plan for managing the cost increase for  
6       the James Webb Space Telescope.

7       (b) CREW EXPLORATION VEHICLE.—The Adminis-  
8       trator shall not enter into a development contract for the  
9       Crew Exploration Vehicle until at least 30 days after the  
10      Administrator has transmitted to the Committee on  
11      Science of the House of Representatives and the Com-  
12      mittee on Commerce, Science, and Transportation of the  
13      Senate a report describing—

14           (1) the expected cost of the Crew Exploration  
15      Vehicle through fiscal year 2020, based on the speci-  
16      fications for that development contract;

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

20           (A) first assuming inflationary growth for  
21      the budget of NASA as a whole and including  
22      costs for the Crew Exploration Vehicle as pro-  
23      jected under paragraph (1); and

24           (B) then assuming inflationary growth for  
25      the budget of NASA as a whole and including

1           at least two cost estimates for the Crew Explo-  
2           ration Vehicle that are higher than those pro-  
3           jected under paragraph (1), based on NASA's  
4           past experience with cost increases for similar  
5           programs, along with a description of the rea-  
6           sons for selecting the cost estimates used for  
7           the calculations under this subparagraph and  
8           the probability that the cost of the Crew Explo-  
9           ration Vehicle will reach those estimated  
10          amounts; and

11          (3) the extent to which the Crew Exploration  
12          Vehicle will allow for the escape of the crew in the  
13          event of an emergency.

14          (c) SPACE COMMUNICATIONS STUDY.—

15               (1) STUDY.—The Administrator shall develop a  
16               plan for updating NASA's space communications ar-  
17               chitecture for both low-Earth orbital operations and  
18               deep space exploration so that it is capable of meet-  
19               ing NASA's needs over the next 20 years. The plan  
20               shall also include life-cycle cost estimates, mile-  
21               stones, estimated performance capabilities, and 5-  
22               year funding profiles. The plan shall also include an  
23               estimate of the amounts of any reimbursements  
24               NASA is likely to receive from other Federal agen-  
25               cies during the expected life of the upgrades de-



1 scribed in the plan. The plan shall include a descrip-  
2 tion of the following:

3 (A) Projected Deep Space Network re-  
4 quirements for the next decade, including those  
5 in support of human space exploration missions.

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

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

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

12 (2) CONSULTATIONS.—The Administrator shall  
13 consult with other relevant Federal agencies in de-  
14 veloping the plan under this subsection.

15 (3) REPORT.—The Administrator shall trans-  
16 mit the plan under this subsection to the Committee  
17 on Science of the House of Representatives and the  
18 Committee on Commerce, Science, and Transpor-  
19 tation of the Senate not later than February 17,  
20 2007.

21 (d) PUBLIC RELATIONS.—Not later than December  
22 31, 2005, the Administrator shall transmit a plan to the  
23 Committee on Appropriations and the Committee on  
24 Science of the House of Representatives, and to the Com-  
25 mittee on Appropriations and the Committee on Com-

1 merce, Science, and Transportation of the Senate, describ-  
2 ing the activities that will be undertaken as part of the  
3 national awareness campaign required by the report of the  
4 Committee on Appropriations of the House of Representa-  
5 tives accompanying the Science, State, Justice, Commerce,  
6 and Related Agencies Appropriations Act, 2006, and the  
7 expected cost of those activities. NASA may undertake ac-  
8 tivities as part of the national awareness campaign prior  
9 to the transmittal of the plan required by this subsection,  
10 but not until 15 days after notifying the Committee on  
11 Science of the House of Representatives and the Com-  
12 mittee on Commerce, Science, and Transportation of the  
13 Senate of any activity. The plan required by this sub-  
14 section shall include the estimated costs of any activities  
15 undertaken pursuant to notice under the preceding sen-  
16 tence.

17 (e) JOINT DARK ENERGY MISSION.—The Adminis-  
18 trator and the Director of the Department of Energy Of-  
19 fice of Science shall jointly transmit to the Committee on  
20 Science of the House of Representatives and the Com-  
21 mittee on Commerce, Science, and Transportation of the  
22 Senate, not later than the date on which the President  
23 submits the proposed budget for the Federal Government  
24 for fiscal year 2007, a report on plans for a Joint Dark  
25 Energy Mission. The report shall include the amount of

1 funds each agency intends to expend on the Joint Dark  
2 Energy Mission for each of the fiscal years 2007 through  
3 2011, and any specific milestones for the development and  
4 launch of the Mission.

5 (f) SHUTTLE EMPLOYEE TRANSITION.—The Admin-  
6 istrator shall consult with other appropriate Federal agen-  
7 cies and with NASA contractors and employees to develop  
8 a transition plan for Federal and contractor personnel en-  
9 gaged in the Space Shuttle program. The plan shall in-  
10 clude actions to assist Federal and contractor personnel  
11 to take advantage of training, retraining, job placement,  
12 and relocation programs, and any other actions that  
13 NASA will take to assist the employees. The plan shall  
14 also describe how the Administrator will ensure that  
15 NASA and its contractors will have an appropriate com-  
16 plement of employees to allow for the safest possible use  
17 of the Space Shuttle through its final flight. The Adminis-  
18 trator shall transmit the plan to the Committee on Science  
19 of the House of Representatives and the Committee on  
20 Commerce, Science, and Transportation of the Senate not  
21 later than February 1, 2006.

22 (g) OFFICE OF SCIENCE AND TECHNOLOGY POL-  
23 ICY.—

1           (1) STUDY.—The Director of the Office of  
2 Science and Technology Policy shall conduct a study  
3 to determine—

4           (A) if any research and development pro-  
5 grams of NASA are unnecessarily duplicating  
6 aspects of programs of other Federal agencies;  
7 and

8           (B) if any research and development pro-  
9 grams of NASA are neglecting any topics of na-  
10 tional interest that are related to the mission of  
11 NASA.

12          (2) REPORT.—Not later than March 1, 2006,  
13 the Director of the Office of Science and Technology  
14 Policy shall transmit to the Committee on Science of  
15 the House of Representatives and the Committee on  
16 Commerce, Science, and Transportation of the Sen-  
17 ate a report that—

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

20           (B) lists the research and development pro-  
21 grams of Federal agencies other than NASA  
22 that were reviewed as part of the study, which  
23 shall include any program supporting research  
24 and development in an area related to the pro-

1           grams of NASA, and the most recent budget  
2           figures for those programs of other agencies;

3           (C) recommends any changes to the re-  
4           search and development programs of NASA  
5           that should be made to eliminate unnecessary  
6           duplication or address topics of national inter-  
7           est; and

8           (D) describes mechanisms the Office of  
9           Science and Technology Policy will use to en-  
10          sure adequate coordination between NASA and  
11          Federal agencies that operate related programs.

12       (h) OFFICE OF SMALL AND DISADVANTAGED BUSI-  
13       NESS UTILIZATION.—The Administrator shall transmit to  
14       the Committee on Science and the Committee on Small  
15       Business of the House of Representatives and the Com-  
16       mittee on Commerce, Science, and Transportation and the  
17       Committee on Small Business and Entrepreneurship of  
18       the Senate a quarterly report on the NASA Office of Small  
19       and Disadvantaged Business Utilization, which shall in-  
20       clude a description of the outreach activities of the Office  
21       and the impact of such activities on the participation of  
22       small businesses, including small businesses owned by  
23       women and minorities, in NASA contracts.

24       **SEC. 103. BASELINES AND COST CONTROLS.**

25       (a) CONDITIONS FOR DEVELOPMENT.—

1           (1) IN GENERAL.—NASA shall not enter into a  
2       contract for the development phase of a major pro-  
3       gram unless the Administrator determines that—

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

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

10       (2) REPORT.—The Administrator shall trans-  
11       mit a report describing the basis for the determina-  
12       tion required under paragraph (1) to the Committee  
13       on Science of the House of Representatives and the  
14       Committee on Commerce, Science, and Transpor-  
15       tation of the Senate at least 30 days before entering  
16       into a contract for development under a major pro-  
17       gram.

18       (3) NONDELEGATION.—The Administrator may  
19       not delegate the determination requirement under  
20       this subsection, except in cases in which the Admin-  
21       istrator has a conflict of interest.

22       (b) MAJOR PROGRAM ANNUAL REPORTS.—

23           (1) REQUIREMENT.—Not later than February  
24       15 of each year following the date of enactment of  
25       this Act, the Administrator shall transmit to the

1 Committee on Science of the House of Representa-  
2 tives and the Committee on Commerce, Science, and  
3 Transportation of the Senate a report on each major  
4 program for which NASA proposes to expend funds  
5 in the subsequent fiscal year. Reports under this  
6 section shall be known as Major Program Annual  
7 Reports.

8 (2) BASELINE REPORT.—The first Major Pro-  
9 gram Annual Report for each major program shall  
10 include a Baseline Report that shall, at a minimum,  
11 include—

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

15 (B) an estimate of the life-cycle cost for  
16 the program, with a detailed breakout of the  
17 development cost, program reserves, and an es-  
18 timate of the annual costs until the develop-  
19 ment is completed;

20 (C) the schedule for the development, in-  
21 cluding key program milestones;

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

1 (E) the name of the person responsible for  
2 making notifications under subsection (c), who  
3 shall be an individual whose primary responsi-  
4 bility is overseeing the program.

5 (3) INFORMATION UPDATES.—For major pro-  
6 grams with respect to which a Baseline Report has  
7 been previously submitted, each subsequent Major  
8 Program Annual Report shall describe any changes  
9 to the information that had been provided in the  
10 Baseline Report, and the reasons for those changes.

11 (c) NOTIFICATION.—

12 (1) REQUIREMENT.—The individual identified  
13 under subsection (b)(2)(D) shall immediately notify  
14 the Administrator any time that individual has rea-  
15 sonable cause to believe that, for the major program  
16 for which he or she is responsible—

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

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



1           (2) REASONS.—Not later than 7 days after the  
2       notification required under paragraph (1), the indi-  
3       vidual identified under subsection (b)(2)(D) shall  
4       transmit to the Administrator a written notification  
5       explaining the reasons for the change in the cost or  
6       milestone of the program for which notification was  
7       provided under paragraph (1).

8           (3) NOTIFICATION OF CONGRESS.—Not later  
9       than 5 days after the Administrator receives a writ-  
10      ten notification under paragraph (2), the Adminis-  
11      trator shall transmit the notification to the Com-  
12      mittee on Science of the House of Representatives  
13      and the Committee on Commerce, Science, and  
14      Transportation of the Senate.

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

23           (1) transmit to the Committee on Science of the  
24      House of Representatives and the Committee on  
25      Commerce, Science, and Transportation of the Sen-

1       ate, not later than 14 days after making the deter-  
2       mination, a report that includes—

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

6               (B) a description of actions taken or pro-  
7               posed to be taken in response to the cost in-  
8               crease or delay; and

9               (C) a description of any impacts the cost  
10              increase or schedule delay will have on any  
11              other program within NASA; and

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

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

18               (B) the projected cost and the schedule for  
19               completing the program after instituting the ac-  
20               tions described under paragraph (1)(B); and

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

24       NASA shall complete an analysis initiated under para-  
25       graph (2) not later than 6 months after the Administrator

1 makes a determination under this subsection. The Admin-  
2 istrator shall transmit the analysis to the Committee on  
3 Science of the House of Representatives and Committee  
4 on Commerce, Science, and Transportation of the Senate  
5 not later than 30 days after its completion.

6 (e) THIRTY PERCENT THRESHOLD.—If the Adminis-  
7 trator determines under subsection (d) that the develop-  
8 ment cost of a program will exceed the estimate provided  
9 in the Baseline Report of the program by more than the  
10 lower of 30 percent or \$1,000,000,000, then, beginning  
11 18 months after the date the Administrator transmits a  
12 report under subsection (d)(1), the Administrator shall  
13 not expend any additional funds on the program, other  
14 than termination costs, unless the Congress has subse-  
15 quently authorized continuation of the program by law.  
16 An appropriation for the program enacted subsequent to  
17 a report being transmitted shall be considered an author-  
18 ization for purposes of this subsection. If the program is  
19 continued, the Administrator shall submit a new Baseline  
20 Report for the program no later than 90 days after the  
21 date of enactment of the Act under which Congress has  
22 authorized continuation of the program.

23 (f) DEFINITIONS.—For the purposes of this section—  
24 (1) the term “development” means the phase of  
25 a program following the formulation phase and be-

1       ginning with the approval to proceed to implementa-  
2       tion, as defined in NASA’s Procedural Requirements  
3       7120.5c, dated March 22, 2005;

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

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

20          (4) the term “major program” means an activ-  
21      ity approved to proceed to implementation that has  
22      an estimated life-cycle cost of more than  
23      \$150,000,000.

1 **SEC. 104. PRIZE AUTHORITY.**

2       The National Aeronautics and Space Act of 1958 (42  
3 U.S.C. 2451, et seq.) is amended by inserting after section  
4 313 the following new section:

5                       “PRIZE AUTHORITY

6       “SEC. 314. (a) IN GENERAL.—The Administration  
7 may carry out a program to competitively award cash  
8 prizes to stimulate innovation in basic and applied re-  
9 search, technology development, and prototype demonstra-  
10 tion that have the potential for application to the perform-  
11 ance of the space and aeronautical activities of the Admin-  
12 istration. The Administration may carry out a program  
13 to award prizes only in conformity with this section.

14       “(b) TOPICS.—In selecting topics for prize competi-  
15 tions, the Administrator shall consult widely both within  
16 and outside the Federal Government, and may empanel  
17 advisory committees.

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

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

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

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

6               “(2) shall have complied with all the require-  
7 ments under this section;

8               “(3) in the case of a private entity, shall be in-  
9 corporated in and maintain a primary place of busi-  
10 ness in the United States, and in the case of an in-  
11 dividual, whether participating singly or in a group,  
12 shall be a citizen or permanent resident of the  
13 United States; and

14               “(4) shall not be a Federal entity or Federal  
15 employee acting within the scope of their employ-  
16 ment.

17       “(f) LIABILITY.—(1) Registered participants must  
18 agree to assume any and all risks and waive claims against  
19 the United States Government and its related entities, ex-  
20 cept in the case of willful misconduct, for any injury,  
21 death, damage, or loss of property, revenue, or profits,  
22 whether direct, indirect, or consequential, arising from  
23 their participation in a competition, whether such injury,  
24 death, damage, or loss arises through negligence or other-  
25 wise. For the purposes of this paragraph, the term ‘related

1 entity’ means a contractor or subcontractor at any tier,  
2 and a supplier, user, customer, cooperating party, grantee,  
3 investigator, or detailee.

4 “(2) Participants must obtain liability insurance or  
5 demonstrate financial responsibility in amounts deter-  
6 mined by the Administrator, from claims by—

7 “(A) a third party for death, bodily injury, or  
8 property damage, or loss resulting from an activity  
9 carried out in connection with participation in a  
10 competition, with the Federal Government named as  
11 an additional insured under the registered partici-  
12 pant’s insurance policy and registered participants  
13 agreeing to indemnify the Federal Government  
14 against third party claims for damages arising from  
15 or related to competition activities; and

16 “(B) the United States Government for damage  
17 or loss to Government property resulting from such  
18 an activity.

19 “(g) JUDGES.—For each competition, the Adminis-  
20 tration, either directly or through a contract under sub-  
21 section (h), shall assemble a panel of qualified judges to  
22 select the winner or winners of the prize competition on  
23 the basis described pursuant to subsection (d). Judges for  
24 each competition shall include individuals from outside the

1 Administration, including from the private sector. A judge  
2 may not—

3 “(1) have personal or financial interests in, or  
4 be an employee, officer, director, or agent of any en-  
5 tity that is a registered participant in a competition;  
6 or

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

9 “(h) ADMINISTERING THE COMPETITION.—The Ad-  
10 ministrator may enter into an agreement with a private,  
11 nonprofit entity to administer the prize competition, sub-  
12 ject to the provisions of this section.

13 “(i) FUNDING.—(1) The Administrator may accept  
14 funds from other Federal agencies and from the private  
15 sector for cash prizes under this section. The Adminis-  
16 trator may not give any special consideration to any pri-  
17 vate sector entity in return for a donation.

18 “(2) Notwithstanding any other provision of law,  
19 funds appropriated for prize awards under this section  
20 shall remain available until expended, and may be trans-  
21 ferred, reprogrammed, or expended for other purposes  
22 only after the expiration of 10 fiscal years after the fiscal  
23 year for which the funds were originally appropriated. No  
24 provision in this section permits obligation or payment of



1 funds in violation of the Anti-Deficiency Act (31 U.S.C.  
2 1341).

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

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

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

14 “(4) No prize competition under this section may  
15 offer a prize in an amount greater than \$10,000,000 un-  
16 less 30 days have elapsed after written notice has been  
17 provided to the Committee on Science of the House of  
18 Representatives and the Committee on Commerce,  
19 Science, and Transportation of the Senate.

20 “(j) USE OF NASA NAME AND INSIGNIA.—A reg-  
21 istered participant in a competition under this section may  
22 use the Administration’s name, initials, or insignia only  
23 after prior review and written approval by the Administra-  
24 tion.

1       “(k) COMPLIANCE WITH EXISTING LAW.—The Fed-  
2 eral Government shall not, by virtue of offering or pro-  
3 viding a prize under this section, be responsible for compli-  
4 ance by registered participants in a prize competition with  
5 Federal law, including licensing, export control, and non-  
6 proliferation laws, and related regulations.”.

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

8       (a) ACCORD WITH SPACE TRANSPORTATION POL-  
9 ICY.—NASA shall not launch a mission on a foreign  
10 launch vehicle except in accordance with the Space Trans-  
11 portation Policy announced by the President on December  
12 21, 2004.

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

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

1 **SEC. 106. SAFETY MANAGEMENT.**

2 Section 6 of the National Aeronautics and Space Ad-  
3 ministration Authorization Act, 1968 (42 U.S.C. 2477) is  
4 amended—

5 (1) by inserting “(a) IN GENERAL.—” before  
6 “There is hereby”;

7 (2) by striking “plans referred to it” and in-  
8 serting “plans referred to it, including evaluating the  
9 National Aeronautics and Space Administration’s  
10 compliance with the return-to-flight and continue-to-  
11 fly recommendations of the Columbia Accident In-  
12 vestigation Board,”;

13 (3) by inserting “and the Congress” after “ad-  
14 vise the Administrator”;

15 (4) by striking “and with respect to the ade-  
16 quacy of proposed or existing safety standards and  
17 shall” and inserting “, with respect to the adequacy  
18 of proposed or existing safety standards, and with  
19 respect to management and culture. The Panel shall  
20 also”; and

21 (5) by adding at the end the following:

22 “(b) ANNUAL REPORT.—The Panel shall submit an  
23 annual report to the Administrator and to the Congress.  
24 In the first annual report submitted after the date of en-  
25 actment of the National Aeronautics and Space Adminis-  
26 tration Authorization Act of 2005, the Panel shall include

1 an evaluation of the Administration's safety management  
2 culture. Each annual report shall include an evaluation of  
3 the Administration's compliance with the recommenda-  
4 tions of the Columbia Accident Investigation Board.”.

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

6 (a) IN GENERAL.—The Administrator shall transmit  
7 to the Committee on Science of the House of Representa-  
8 tives and the Committee on Commerce, Science, and  
9 Transportation of the Senate an implementation plan de-  
10 scribing NASA's approach for obtaining, implementing,  
11 and sharing lessons learned and best practices for its  
12 major programs and projects not later than 180 days after  
13 the date of enactment of this Act. The implementation  
14 plan shall be updated and maintained to ensure that it  
15 is current and consistent with the burgeoning culture of  
16 learning and safety that is emerging at NASA.

17 (b) REQUIRED CONTENT.—The implementation plan  
18 shall contain at a minimum the lessons learned and best  
19 practices requirements for NASA, the organizations or po-  
20 sitions responsible for enforcement of the requirements,  
21 the reporting structure, and the objective performance  
22 measures indicating the effectiveness of the activity.

23 (c) INCENTIVES.—The Administrator shall provide  
24 incentives to encourage sharing and implementation of les-  
25 sons learned and best practices by employees, projects,

1 and programs, as well as penalties for programs and  
2 projects that are determined not to have demonstrated use  
3 of those resources.

4 **SEC. 108. COMMERCIALIZATION PLAN.**

5 (a) IN GENERAL.—The Administrator, in consulta-  
6 tion with other relevant agencies, shall develop a commer-  
7 cialization plan to support the human missions to the  
8 Moon and Mars, to support Low-Earth Orbit activities  
9 and Earth science missions and applications, and to trans-  
10 fer science research and technology to society. The plan  
11 shall identify opportunities for the private sector to par-  
12 ticipate in the future missions and activities, including op-  
13 portunities for partnership between NASA and the private  
14 sector in conducting research and the development of tech-  
15 nologies and services. The plan shall include provisions for  
16 developing and funding sustained university and industry  
17 partnerships to conduct commercial research and tech-  
18 nology development, to proactively translate results of  
19 space research to Earth benefits, to advance United States  
20 economic interests, and to support the vision for explo-  
21 ration.

22 (b) REPORT.—Not later than 180 days after the date  
23 of enactment of this Act, the Administrator shall submit  
24 a copy of the plan to the Committee on Science of the

1 House of Representatives and the Committee on Com-  
2 merce, Science, and Transportation of the Senate.

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

5 (a) IN GENERAL.—The Administrator shall conduct  
6 a feasibility study on the use of ground source heat pumps  
7 in future NASA facilities or substantial renovation of ex-  
8 isting NASA facilities involving the installation of heating,  
9 ventilating, and air conditioning systems. Not later than  
10 1 year after the date of enactment of this Act, the Admin-  
11 istrator shall transmit the study to the Committee on  
12 Science of the House of Representatives and the Com-  
13 mittee on Commerce, Science, and Transportation of the  
14 Senate.

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

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

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

22 (3) such other issues as the Administrator con-  
23 siders appropriate.

24 (c) DEFINITION.—In this section, the term “ground  
25 source heat pump” means an electric-powered system that

1 uses the Earth's relatively constant temperature to pro-  
2 vide heating, cooling, or hot water.

3 **SEC. 110. SPACE SHUTTLE RETURN TO FLIGHT.**

4 It is the sense of Congress that, in keeping with the  
5 President's Vision for Space Exploration, the Space Shut-  
6 tle should return to flight as soon as the Administrator  
7 determines that a flight can be accomplished with an ac-  
8 ceptable level of safety.

9 **SEC. 111. WHISTLEBLOWER PROTECTION.**

10 Not later than 1 year after the date of enactment  
11 of this Act, the Administrator shall transmit to the Com-  
12 mittee on Science of the House of Representatives and the  
13 Committee on Commerce, Science and Transportation of  
14 the Senate a plan describing steps to be taken by NASA  
15 to protect the employment status of NASA employees who  
16 raise or have raised concerns about a potentially cata-  
17 strophic risk to health or safety.

18 **TITLE II—AUTHORIZATION OF**  
19 **APPROPRIATIONS**

20 **SEC. 201. STRUCTURE OF BUDGETARY ACCOUNTS.**

21 Section 313 of the National Aeronautics and Space  
22 Act of 1958 (42 U.S.C. 2459f) is amended to read as fol-  
23 lows:

1 **“SEC. 313. BUDGETARY ACCOUNTS.**

2       “Appropriations for the Administration for fiscal year  
3 2007 and thereafter shall be made in four accounts,  
4 ‘Science, Aeronautics, and Education’, ‘Exploration Sys-  
5 tems’, ‘Space Operations’, and an account for amounts ap-  
6 propriated for the necessary expenses of the Office of the  
7 Inspector General. Appropriations shall remain available  
8 for two fiscal years, unless otherwise specified in law.  
9 Each account shall include the planned full costs of Ad-  
10 ministration activities.”.

11 **SEC. 202. FISCAL YEAR 2006.**

12       There are authorized to be appropriated to NASA for  
13 fiscal year 2006 \$16,965,650,000, as follows:

14               (1) For Science, Aeronautics and Education  
15       (including amounts for construction of facilities),  
16       \$6,870,250,000 of which—

17                       (A) \$962,000,000 shall be for Aeronautics;

18                       (B) \$150,000,000 shall be for a Hubble  
19       Space Telescope servicing mission;

20                       (C) \$24,000,000 shall be for the National  
21       Space Grant College and Fellowship Program;  
22       and

23                       (D) \$8,900,000 for the Science and Tech-  
24       nology Scholarship Program.



1           (2) For Exploration Systems (including  
2           amounts for construction of facilities),  
3           \$3,844,100,000.

4           (3) For Space Operations (including amounts  
5           for construction of facilities), \$6,218,900,000.

6           (4) For the Office of Inspector General,  
7           \$32,400,000.

8   **SEC. 203. FISCAL YEAR 2007.**

9           There are authorized to be appropriated to NASA for  
10          fiscal year 2007 \$17,726,800,000, as follows:

11           (1) For Science, Aeronautics and Education  
12           (including amounts for construction of facilities),  
13           \$7,331,600,000 of which—

14                   (A) \$990,000,000 shall be for Aeronautics;  
15           and

16                   (B) \$24,000,000 shall be for the National  
17           Space Grant College and Fellowship Program.

18           (2) For Exploration Systems (including  
19           amounts for construction of facilities),  
20           \$4,514,000,000.

21           (3) For Space Operations (including amounts  
22           for construction of facilities), \$5,847,700,000.

23           (4) For the Office of Inspector General,  
24           \$33,500,000.

1 **SEC. 204. ISS RESEARCH.**

2       The Administrator shall allocate at least 15 percent  
3 of the funds budgeted for ISS research to research that  
4 is not directly related to supporting the human exploration  
5 program.

6 **SEC. 205. TEST FACILITIES.**

7       (a) CHARGES.—The Administrator shall establish a  
8 policy of charging users of NASA’s test facilities for the  
9 costs associated with their tests at a level that is competi-  
10 tive with alternative test facilities. As a general principle,  
11 NASA shall not seek to recover the full costs of the oper-  
12 ation of those facilities from the users. The Administrator  
13 shall not implement a policy of seeking full cost recovery  
14 for a facility until at least 30 days after transmitting a  
15 notice to the Committee on Science of the House of Rep-  
16 resentatives and the Committee on Commerce, Science,  
17 and Transportation of the Senate.

18       (b) FUNDING ACCOUNT.—The Administrator shall  
19 establish a funding account that shall be used for all test  
20 facilities. The account shall be sufficient to maintain the  
21 viability of test facilities during periods of low utilization.

22 **SEC. 206. PROPORTIONALITY.**

23       If the total amount appropriated for NASA pursuant  
24 to section 202 or 203 is less than the amount authorized  
25 under such section, the amounts authorized under each

1 of the accounts specified in such section shall be reduced  
2 proportionately.

3 **SEC. 207. LIMITATIONS ON AUTHORITY.**

4       Notwithstanding any other provision of this Act, no  
5 amount appropriated pursuant to this Act may be used  
6 for any program in excess of the amount actually author-  
7 ized for the particular program by section 202 or 203,  
8 unless a period of 30 days has passed after the receipt,  
9 by the Committee on Science of the House of Representa-  
10 tives and the Committee on Commerce, Science, and  
11 Transportation of the Senate, of notice given by the Ad-  
12 ministrator containing a full and complete statement of  
13 the action proposed to be taken and the facts and cir-  
14 cumstances relied upon in support of such a proposed ac-  
15 tion. NASA shall keep the Committee on Science of the  
16 House of Representatives and the Committee on Com-  
17 merce, Science, and Transportation of the Senate fully  
18 and currently informed with respect to all activities and  
19 responsibilities within the jurisdiction of those Commit-  
20 tees.

21 **SEC. 208. NOTICE OF REPROGRAMMING.**

22       If any funds authorized by this Act are subject to  
23 a reprogramming action that requires notice to be pro-  
24 vided to the Appropriations Committees of the House of  
25 Representatives and the Senate, notice of such action shall

1 concurrently be provided to the Committee on Science of  
2 the House of Representatives and the Committee on Com-  
3 merce, Science, and Transportation of the Senate.

4 **SEC. 209. COST OVERRUNS.**

5 When reprogramming funds to cover unexpected cost  
6 growth within a program, the Administrator shall, to the  
7 maximum extent practicable, protect funds intended for  
8 fundamental and applied Research and Analysis.

9 **SEC. 210. OFFICIAL REPRESENTATIONAL FUND.**

10 Amounts appropriated pursuant to this Act may be  
11 used, but not to exceed a total of \$35,000 in any fiscal  
12 year, for official reception and representation expenses.

13 **SEC. 211. INTERNATIONAL SPACE STATION COST CAP.**

14 Section 202 of the National Aeronautics and Space  
15 Administration Authorization Act of 2000 (42 U.S.C.  
16 2451 note) is repealed.

17 **TITLE III—SCIENCE**

18 **Subtitle A—General Provisions**

19 **SEC. 301. PERFORMANCE ASSESSMENTS.**

20 (a) IN GENERAL.—Performance of each discipline in  
21 the Science account of NASA shall be reviewed and as-  
22 sessed by the National Academy of Sciences at 5-year in-  
23 tervals.

24 (b) TIMING.—Beginning with the first fiscal year fol-  
25 lowing the date of enactment of this Act, the Adminis-

1 trator shall select at least one discipline for review under  
2 this section. The Administrator shall select disciplines so  
3 that all disciplines will have received their first review  
4 within six fiscal years of the date of enactment of this  
5 Act.

6 (c) REPORTS.—Not later than March 1 of each year,  
7 beginning with the first fiscal year after the date of enact-  
8 ment of this Act, the Administrator shall transmit a report  
9 to the Committee on Science of the House of Representa-  
10 tives and the Committee on Commerce, Science, and  
11 Transportation of the Senate—

12 (1) setting forth in detail the results of any ex-  
13 ternal review under subsection (a);

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

16 (3) including a summary of findings and rec-  
17 ommendations from any other relevant external re-  
18 views of NASA's science mission priorities and pro-  
19 grams.

20 **SEC. 302. STATUS REPORT ON HUBBLE SPACE TELESCOPE**  
21 **SERVICING MISSION.**

22 It is the sense of the Congress that the Hubble Space  
23 Telescope is an extraordinary instrument that has pro-  
24 vided, and should continue to provide, answers to profound  
25 scientific questions. In accordance with the recommenda-

1 tions of the National Academy of Sciences study titled  
2 “Assessment of Options for Extending the Life of the  
3 Hubble Space Telescope”, all appropriate efforts should  
4 be expended to complete the Space Shuttle servicing mis-  
5 sion. Upon successful completion of the planned return-  
6 to-flight schedule of the Space Shuttle, the Administrator  
7 shall determine the schedule for a Space Shuttle servicing  
8 mission to the Hubble Space Telescope, unless such a mis-  
9 sion would compromise astronaut safety. Not later than  
10 60 days after the landing of the second Space Shuttle mis-  
11 sion for return-to-flight certification, the Administrator  
12 shall transmit to the Committee on Science of the House  
13 of Representatives and the Committee on Commerce,  
14 Science, and Transportation of the Senate a status report  
15 on plans for a Hubble Space Telescope servicing mission.

16 **SEC. 303. INDEPENDENT ASSESSMENT OF LANDSAT-**  
17 **NPOESS INTEGRATED MISSION.**

18 (a) ASSESSMENT.—In view of the importance of en-  
19 suring continuity of Landsat data and in view of the chal-  
20 lenges facing the National Polar-Orbiting Environmental  
21 Satellite System program, the Administrator shall seek an  
22 independent assessment of the costs as well as the tech-  
23 nical, cost, and schedule risks associated with incor-  
24 porating the Landsat instrument on the first National  
25 Polar-Orbiting Environmental Satellite System spacecraft

1 versus undertaking a dedicated Landsat data “gap-filler”  
2 mission followed by the incorporation of the Landsat in-  
3 strument on the second National Polar-Orbiting Environ-  
4 mental Satellite System spacecraft. The assessment shall  
5 also include an evaluation of the budgetary requirements  
6 of each of the options under consideration.

7 (b) REPORT.—The Administrator shall transmit the  
8 independent assessment to the Committee on Science of  
9 the House of Representatives and the Committee on Com-  
10 merce, Science, and Transportation of the Senate not later  
11 than 180 days after the date of enactment of this Act.

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

13 (a) ASSESSMENT.—The Administrator shall carry out  
14 annual termination reviews within each of the Science dis-  
15 ciplines to assess the cost and benefits of extending the  
16 date of the termination of data collection for those mis-  
17 sions which are beyond their primary goals. In addition:

18 (1) Not later than 60 days after the date of en-  
19 actment of this Act, the Administrator shall carry  
20 out such an assessment for the following missions:  
21 FAST, TIMED, Cluster, Wind, Geotail, Polar,  
22 TRACE, Ulysses, and Voyager.

23 (2) For those missions that have an operational  
24 component, the National Oceanic and Atmospheric  
25 Administration shall be consulted and the potential

1        benefits of instruments on missions which are be-  
2        yond their primary goals taken into account.

3        (b) REPORT.—Not later than 30 days after com-  
4        pleting the assessments required by subsection (a)(1), the  
5        Administrator shall transmit a report on the assessment  
6        to the Committee on Science of the House of Representa-  
7        tives and the Committee on Commerce, Science, and  
8        Transportation of the Senate.

9        **SEC. 305. MICROGRAVITY RESEARCH.**

10        (a) IN GENERAL.—The Administrator shall—

11                (1) not later than 60 days after the date of en-  
12        actment of this Act, provide to the Committee on  
13        Science of the House of Representatives and the  
14        Committee on Commerce, Science, and Transpor-  
15        tation of the Senate an assessment of microgravity  
16        research planned for implementation aboard the ISS  
17        that includes the identification of research which can  
18        be performed in ground-based facilities and then  
19        validated in space;

20                (2) ensure the capacity to support ground-based  
21        research leading to space-based basic and applied  
22        scientific research in a variety of disciplines with po-  
23        tential direct national benefits and applications that  
24        can advance significantly from the uniqueness of  
25        microgravity and the space environment; and



(c) ASSESSMENT OF POTENTIAL SCIENTIFIC  
USES.—The Administrator shall assess further potential  
scientific uses of the ISS for other applications, such as  
technology development, development of manufacturing  
processes, Earth observation and characterization, and as-  
tronomical observations.

24 (a) JOINT WORKING GROUP.—The Administrator  
25 and the Administrator of the National Oceanic and At-

1 mospheric Administration shall appoint a Joint Working  
2 Group, which shall review and monitor missions of the two  
3 agencies to ensure maximum coordination in the design,  
4 operation, and transition of missions. The Joint Working  
5 Group shall also prepare the transition plans required by  
6 subsection (c).

7 (b) COORDINATION REPORT.—Not later than Feb-  
8 ruary 15 of each year, the Administrator and the Adminis-  
9 trator of the National Oceanic and Atmospheric Adminis-  
10 tration shall jointly transmit a report to the Committee  
11 on Science of the House of Representatives and the Com-  
12 mittee on Commerce, Science, and Transportation of the  
13 Senate on how the earth science programs of the National  
14 Oceanic and Atmospheric Administration and NASA will  
15 be coordinated during the fiscal year following the fiscal  
16 year in which the report is transmitted.

17 (c) COORDINATION OF TRANSITION PLANNING AND  
18 REPORTING.—The Administrator, in conjunction with the  
19 Administrator of the National Oceanic and Atmospheric  
20 Administration, shall evaluate all NASA missions for their  
21 potential operational capabilities and shall prepare transi-  
22 tion plans for all existing and future Earth observing sys-  
23 tems found to have potential operational capabilities and  
24 all National Oceanic and Atmospheric Administration  
25 operational space-based systems.

1 (d) LIMITATION.—The Administrator shall not trans-  
2 fer any NASA earth science mission or Earth observing  
3 system to the National Oceanic and Atmospheric Adminis-  
4 tration until the transition plan required under subsection  
5 (c) has been approved by the Administrator and the Ad-  
6 ministrator of the National Oceanic and Atmospheric Ad-  
7 ministration and until financial resources have been iden-  
8 tified to support the transition or transfer in the Presi-  
9 dent’s budget request for the National Oceanic and At-  
10 mospheric Administration.

## 11 **Subtitle B—Remote Sensing**

### 12 **SEC. 311. DEFINITIONS.**

13 In this subtitle—

14 (1) the term “geospatial information” means  
15 knowledge of the nature and distribution of physical  
16 and cultural features on the landscape based on  
17 analysis of data from airborne or spaceborne plat-  
18 forms or other types and sources of data;

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

21 (3) the term “institution of higher education”  
22 has the meaning given that term in section 101(a)  
23 of the Higher Education Act of 1965 (20 U.S.C.  
24 1001(a)).

1 **SEC. 312. PILOT PROJECTS TO ENCOURAGE PUBLIC SEC-**  
2 **TOR APPLICATIONS.**

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

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

11 (1) make use of commercial data sets, including  
12 high resolution commercial satellite imagery and de-  
13 rived satellite data products, existing public data  
14 sets where commercial data sets are not available or  
15 applicable, or the fusion of such data sets;

16 (2) integrate multiple sources of geospatial in-  
17 formation, such as geographic information system  
18 data, satellite-provided positioning data, and re-  
19 motely sensed data, in innovative ways;

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

22 (4) involve the participation of commercial enti-  
23 ties that process raw or lightly processed data, often  
24 merging that data with other geospatial information,  
25 to create data products that have significant value  
26 added to the original data; and

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

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

5           (1) in the development of commercial applica-  
6       tions potentially available from the remote sensing  
7       industry; and

8           (2) State, local, regional, and tribal agencies in  
9       applying remote sensing and other geospatial infor-  
10      mation technologies for growth management.

11      (d) DURATION.—Assistance for a pilot project under  
12 subsection (a) shall be provided for a period not to exceed  
13 3 years.

14      (e) REPORT.—Each recipient of a grant under sub-  
15 section (a) shall transmit a report to the Administrator  
16 on the results of the pilot project within 180 days of the  
17 completion of that project.

18      (f) WORKSHOP.—Each recipient of a grant under  
19 subsection (a) shall, not later than 180 days after the com-  
20 pletion of the pilot project, conduct at least one workshop  
21 for potential users to disseminate the lessons learned from  
22 the pilot project as widely as feasible.

23      (g) REGULATIONS.—The Administrator shall issue  
24 regulations establishing application, selection, and imple-

1 mentation procedures for pilot projects, and guidelines for  
2 reports and workshops required by this section.

3 **SEC. 313. PROGRAM EVALUATION.**

4 (a) **ADVISORY COMMITTEE.**—The Administrator  
5 shall establish an advisory committee, consisting of indi-  
6 viduals with appropriate expertise in State, local, regional,  
7 and tribal agencies, the university research community,  
8 and the remote sensing and other geospatial information  
9 industry, to monitor the program established under sec-  
10 tion 312. The advisory committee shall consult with the  
11 Federal Geographic Data Committee and other appro-  
12 priate industry representatives and organizations. Not-  
13 withstanding section 14 of the Federal Advisory Com-  
14 mittee Act, the advisory committee established under this  
15 subsection shall remain in effect until the termination of  
16 the program under section 312.

17 (b) **EFFECTIVENESS EVALUATION.**—Not later than  
18 December 31, 2009, the Administrator shall transmit to  
19 the Congress an evaluation of the effectiveness of the pro-  
20 gram established under section 312 in exploring and pro-  
21 moting the integrated use of sources of remote sensing  
22 and other geospatial information to address State, local,  
23 regional, and tribal agency needs. Such evaluation shall  
24 have been conducted by an independent entity.

1 **SEC. 314. DATA AVAILABILITY.**

2       The Administrator shall ensure that the results of  
3 each of the pilot projects completed under section 312  
4 shall be retrievable through an electronic, Internet-acces-  
5 sible database.

6 **SEC. 315. EDUCATION.**

7       The Administrator shall establish an educational out-  
8 reach program to increase awareness at institutions of  
9 higher education and State, local, regional, and tribal  
10 agencies of the potential applications of remote sensing  
11 and other geospatial information.

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

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

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

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

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

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

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

10          (4) The efforts taken to date by NASA for de-  
11          tecting and characterizing the hazards of near-Earth  
12          objects are not sufficient to fully determine the  
13          threat posed by such objects to cause widespread de-  
14          struction and loss of life.

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

19          (d) NEAR-EARTH OBJECT SURVEY.—

20               (1) SURVEY PROGRAM.—The Administrator  
21               shall plan, develop, and implement a Near-Earth  
22               Object Survey program to detect, track, catalogue,  
23               and characterize the physical characteristics of near-  
24               Earth objects equal to or greater than 100 meters  
25               in diameter in order to assess the threat of such



1 near-Earth objects to the Earth. It shall be the goal  
2 of the Survey program to achieve 90 percent comple-  
3 tion of its near-Earth object catalogue (based on sta-  
4 tistically predicted populations of near-Earth ob-  
5 jects) within 15 years after the date of enactment of  
6 this Act.

7 (2) AMENDMENTS.—Section 102 of the Na-  
8 tional Aeronautics and Space Act of 1958 (42  
9 U.S.C. 2451) is amended—

10 (A) by redesignating subsection (g) as sub-  
11 section (h);

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

14 “(g) The Congress declares that the general welfare  
15 and security of the United States require that the unique  
16 competence of the National Aeronautics and Space Ad-  
17 ministration be directed to detecting, tracking, cata-  
18 logging, and characterizing near-Earth asteroids and com-  
19 ets in order to provide warning and mitigation of the po-  
20 tential hazard of such near-Earth objects to the Earth.”;  
21 and

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

1           (3) ANNUAL REPORT.—The Administrator shall  
2           transmit to the Congress, not later than February  
3           28 of each of the next 5 years beginning after the  
4           date of enactment of this Act, a report that provides  
5           the following:

6                   (A) A summary of all activities taken pur-  
7                   suant to paragraph (1) for the previous fiscal  
8                   year.

9                   (B) A summary of expenditures for all ac-  
10                  tivities pursuant to paragraph (1) for the pre-  
11                  vious fiscal year.

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

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

20                   (B) A recommended option and proposed  
21                   budget to carry out the Survey program pursu-  
22                   ant to the recommended option.

23                   (C) An analysis of possible alternatives  
24                   that NASA could employ to divert an object on  
25                   a likely collision course with Earth.

1           **TITLE IV—AERONAUTICS**

2   **SEC. 401. DEFINITION.**

3           For purposes of this title, the term “institution of  
4 higher education” has the meaning given that term by sec-  
5 tion 101 of the Higher Education Act of 1965 (20 U.S.C.  
6 1001).

7   **Subtitle   A—National   Policy   for**  
8           **Aeronautics   Research   and   De-**  
9           **velopment**

10 **SEC. 411. POLICY.**

11           It shall be the policy of the United States to reaffirm  
12 the National Aeronautics and Space Act of 1958 and its  
13 identification of aeronautical research and development as  
14 a core mission of NASA. Further, it shall be the policy  
15 of the United States to promote aeronautical research and  
16 development that will expand the capacity, ensure the  
17 safety, and increase the efficiency of the Nation’s air  
18 transportation system, promote the security of the Nation,  
19 protect the environment, and retain the leadership of the  
20 United States in global aviation.

1       **Subtitle B—NASA Aeronautics**  
2       **Breakthrough Research Initiatives**

3       **SEC. 421. ENVIRONMENTAL AIRCRAFT RESEARCH AND DE-**  
4               **VELOPMENT INITIATIVE.**

5           (a) OBJECTIVE.—The Administrator may establish  
6 an initiative with the objective of developing, and dem-  
7 onstrating in a relevant environment, within 10 years after  
8 the date of enactment of this Act, technologies to enable  
9 the following commercial aircraft performance characteris-  
10 ties:

11           (1) NOISE.—Noise levels on takeoff and on air-  
12 port approach and landing that do not exceed ambi-  
13 ent noise levels in the absence of flight operations in  
14 the vicinity of airports from which such commercial  
15 aircraft would normally operate.

16           (2) ENERGY CONSUMPTION.—Twenty-five per-  
17 cent reduction in the energy required for medium to  
18 long range flights, compared to aircraft in commer-  
19 cial service as of the date of enactment of this Act.  
20 This reduction may be achieved by a combination of  
21 improvements to—

22                   (A) specific fuel consumption;

23                   (B) lift-to-drag ratio; and

24                   (C) structural weight fraction.

1           (3) EMISSIONS.—Nitrogen oxides on take-off  
2           and landing that are reduced by 50 percent relative  
3           to aircraft in commercial service as of the date of  
4           enactment of this Act.

5           (b) STUDY.—

6           (1) REQUIREMENT.—The Administrator shall  
7           enter into an arrangement for the National Research  
8           Council to conduct a study to identify and quantify  
9           new markets that would be created, as well as exist-  
10          ing markets that would be expanded, by the incorpo-  
11          ration of the technologies developed pursuant to this  
12          section into future commercial aircraft. The study  
13          shall identify whether any of the performance char-  
14          acteristics specified in subsection (a) would need to  
15          be made more stringent in order to create new mar-  
16          kets or expand existing markets. The National Re-  
17          search Council shall seek input from at least the air-  
18          craft manufacturing industry, academia, and the air-  
19          lines in carrying out the study.

20          (2) REPORT.—A report containing the results  
21          of the study conducted under paragraph (1) shall be  
22          provided to Congress not later than 18 months after  
23          the date of enactment of this Act.

1 **SEC. 422. CIVIL SUPERSONIC TRANSPORT RESEARCH AND**  
2 **DEVELOPMENT INITIATIVE.**

3 The Administrator may establish an initiative with  
4 the objective of developing, and demonstrating in a rel-  
5 evant environment, within 20 years after the date of enact-  
6 ment of this Act, technologies to enable overland flight of  
7 supersonic civil transport aircraft with at least the fol-  
8 lowing performance characteristics:

9 (1) Mach number of at least 1.4.

10 (2) Range of at least 4,000 nautical miles.

11 (3) Payload of at least 24 passengers.

12 (4) Noise levels on takeoff and on airport ap-  
13 proach and landing that meet community noise  
14 standards in place at airports from which such com-  
15 mercial supersonic aircraft would normally operate  
16 at the time the aircraft would enter commercial serv-  
17 ice.

18 (5) Shaped sonic boom signatures sufficiently  
19 low to permit overland flight over populated areas.

20 (6) Nitrogen oxide, carbon dioxide, and water  
21 vapor emissions consistent with regulations likely to  
22 be in effect at the time of this aircraft's introduc-  
23 tion.

1 **SEC. 423. ROTORCRAFT AND OTHER RUNWAY-INDE-**  
2 **PENDENT AIR VEHICLES RESEARCH AND DE-**  
3 **VELOPMENT INITIATIVE.**

4 The Administrator may establish a rotorcraft and  
5 other runway-independent air vehicles initiative with the  
6 objective of developing and demonstrating in a relevant en-  
7 vironment, within 10 years after the date of enactment  
8 of this Act, technologies to enable significantly safer,  
9 quieter, and more environmentally compatible operation  
10 from a wider range of airports under a wider range of  
11 weather conditions than is the case for rotorcraft and  
12 other runway-independent air vehicles in service as of the  
13 date of enactment of this Act.

14 **Subtitle C—Other NASA Aero-**  
15 **navics Research and Develop-**  
16 **ment Activities**

17 **SEC. 431. FUNDAMENTAL RESEARCH AND TECHNOLOGY**  
18 **BASE PROGRAM.**

19 (a) OBJECTIVE.—In order to ensure that the Nation  
20 maintains needed capabilities in fundamental areas of  
21 aeronautical research, the Administrator shall establish a  
22 program of long-term fundamental research in aero-  
23 nautical sciences and technologies that is not tied to spe-  
24 cific development projects.

25 (b) ASSESSMENT.—The Administrator shall enter  
26 into an arrangement with the National Research Council

1 for an assessment of the Nation’s future requirements for  
2 fundamental aeronautics research and whether the Nation  
3 will have a skilled research workforce and research facili-  
4 ties commensurate with those requirements. The assess-  
5 ment shall include an identification of any projected gaps,  
6 and recommendations for what steps should be taken by  
7 the Federal Government to eliminate those gaps.

8 (c) REPORT.—The Administrator shall transmit the  
9 assessment, along with NASA’s response to the assess-  
10 ment, to Congress not later than 2 years after the date  
11 of enactment of this Act.

12 **SEC. 432. AIRSPACE SYSTEMS RESEARCH.**

13 (a) OBJECTIVE.—The Airspace Systems Research  
14 program shall pursue research and development to enable  
15 revolutionary improvements to and modernization of the  
16 National Airspace System, as well as to enable the intro-  
17 duction of new systems for vehicles that can take advan-  
18 tage of an improved, modern air transportation system.

19 (b) ALIGNMENT.—Not later than 2 years after the  
20 date of enactment of this Act, the Administrator shall  
21 align the projects of the Airspace Systems Research pro-  
22 gram so that they directly support the objectives of the  
23 Joint Planning and Development Office’s Next Generation  
24 Air Transportation System Integrated Plan.



1 **SEC. 433. AVIATION SAFETY AND SECURITY RESEARCH.**

2 (a) OBJECTIVE.—The Aviation Safety and Security  
3 Research program shall pursue research and development  
4 activities that directly address the safety and security  
5 needs of the National Airspace System and the aircraft  
6 that fly in it. The program shall develop prevention, inter-  
7 vention, and mitigation technologies aimed at causal, con-  
8 tributory, or circumstantial factors of aviation accidents.

9 (b) PLAN.—Not later than 1 year after the date of  
10 enactment of this Act, the Administrator shall transmit  
11 to Congress a 5-year prioritized plan for the research to  
12 be conducted within the Aviation Safety and Security Re-  
13 search program. The plan shall be aligned with the objec-  
14 tives of the Joint Planning and Development Office’s Next  
15 Generation Air Transportation System Integrated Plan.

16 **SEC. 434. ZERO-EMISSIONS AIRCRAFT RESEARCH.**

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

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

1   **SEC. 435. MARS AIRCRAFT RESEARCH.**

2           (a) OBJECTIVE.—The Administrator may establish a  
3 Mars Aircraft project whose objective shall be to develop  
4 and test concepts for an uncrewed aircraft that could oper-  
5 ate for sustained periods in the atmosphere of Mars.

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

11   **SEC. 436. HYPERSONICS RESEARCH.**

12           The Administrator may establish a hypersonics re-  
13 search program whose objective shall be to explore the  
14 science and technology of hypersonic flight using air-  
15 breathing propulsion concepts, through a mix of theo-  
16 retical work, basic and applied research, and development  
17 of flight research demonstration vehicles.

18   **SEC. 437. NASA AERONAUTICS SCHOLARSHIPS.**

19           (a) ESTABLISHMENT.—The Administrator shall es-  
20 tablish a program of scholarships for full-time graduate  
21 students who are United States citizens and are enrolled  
22 in, or have been accepted by and have indicated their in-  
23 tention to enroll in, accredited Masters degree programs  
24 in aeronautical engineering at institutions of higher edu-  
25 cation. Each such scholarship shall cover the costs of

1 room, board, tuition, and fees, and may be provided for  
2 a maximum of 2 years.

3 (b) IMPLEMENTATION.—Not later than 180 days  
4 after the date of enactment of this Act, the Administrator  
5 shall publish regulations governing the scholarship pro-  
6 gram under this section.

7 (c) COOPERATIVE TRAINING OPPORTUNITIES.—Stu-  
8 dents who have been awarded a scholarship under this sec-  
9 tion shall have the opportunity for paid employment at  
10 one of the NASA Centers engaged in aeronautics research  
11 and development during the summer prior to the first year  
12 of the student's Masters program, and between the first  
13 and second year, if applicable.

14 **SEC. 438. AVIATION WEATHER RESEARCH.**

15 The Administrator may carry out a program of col-  
16 laborative research with the National Oceanic and Atmos-  
17 pheric Administration on convective weather events, with  
18 the goal of significantly improving the reliability of 2-hour  
19 to 6-hour aviation weather forecasts.

20 **SEC. 439. ASSESSMENT OF WAKE TURBULENCE RESEARCH**  
21 **AND DEVELOPMENT PROGRAM.**

22 (a) ASSESSMENT.—The Administrator may enter  
23 into an arrangement with the National Research Council  
24 for an assessment of Federal wake turbulence research

1 and development programs. The assessment shall address  
2 at least the following questions:

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

5 (2) Are there any deficiencies in the Federal re-  
6 search and development goals and objectives?

7 (3) What roles should be played by each of the  
8 relevant Federal agencies, such as NASA, the Fed-  
9 eral Aviation Administration, and the National Oce-  
10 anic and Atmospheric Administration, in wake tur-  
11 bulence research and development?

12 (b) REPORT.—A report containing the results of the  
13 assessment conducted pursuant to subsection (a) shall be  
14 provided to Congress not later than 1 year after the date  
15 of enactment of this Act.

16 **SEC. 440. UNIVERSITY-BASED CENTERS.**

17 (a) IN GENERAL.—The Administrator may award  
18 grants to institutions of higher education (or consortia  
19 thereof) to establish one or more centers for the purpose  
20 described in subsection (b).

21 (b) PURPOSE.—The purpose of the centers is to con-  
22 duct basic and applied research on the impact of new tech-  
23 nologies and procedures, particularly those related to aero-  
24 nautical navigation and control.

1 (c) APPLICATION.—An institution of higher edu-  
 2 cation (or a consortium of such institutions) seeking fund-  
 3 ing under this section shall submit an application to the  
 4 Administrator at such time, in such manner, and con-  
 5 taining such information as the Administrator may re-  
 6 quire, including, at a minimum, a 5-year research plan.

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

10 (1) satisfactory performance in meeting the  
 11 goals of the research plan proposed by the Center in  
 12 its application under subsection (c); and

13 (2) other requirements as specified by the Ad-  
 14 ministrator.

## 15 **TITLE V—HUMAN SPACE FLIGHT**

### 16 **SEC. 501. INTERNATIONAL SPACE STATION COMPLETION.**

17 (a) ELEMENTS, CAPABILITIES, AND CONFIGURATION  
 18 CRITERIA.—The Administrator shall ensure that the ISS  
 19 will be able to—

20 (1) be used for a diverse range of microgravity  
 21 research, including fundamental, applied, and com-  
 22 mercial research;

23 (2) have an ability to support crew size of at  
 24 least 6 persons, unless the Administrator transmits  
 25 a report to the Committee on Science of the House

1 of Representatives and the Committee on Commerce,  
2 Science, and Transportation of the Senate prior to  
3 awarding a development contract for the Crew Ex-  
4 ploration Vehicle, explaining why such a requirement  
5 should not be met and the impact of not meeting the  
6 requirement on the ISS research agenda and oper-  
7 ations;

8 (3) support Crew Exploration Vehicle docking  
9 and automated docking of cargo vehicles or modules  
10 launched by either heavy-lift or commercially-devel-  
11 oped launch vehicles; and

12 (4) be operated at an appropriate risk level.

13 (b) CONTINGENCY PLAN.—The transportation plan  
14 to support ISS shall include contingency options to ensure  
15 sufficient logistics and on-orbit capabilities to support any  
16 potential period during which the Space Shuttle or its fol-  
17 low-on crew and cargo systems is unavailable, and require  
18 sufficient surge delivery capability or prepositioning of  
19 spares and other supplies needed to accommodate any  
20 such hiatus.

21 (c) CERTIFICATION.—Not later than 60 days after  
22 the date of enactment of this Act, and before making any  
23 change in the ISS assembly sequence in effect on the date  
24 of enactment of this Act, the Administrator shall certify  
25 in writing to the Committee on Science of the House of

1 Representatives and the Committee on Commerce,  
2 Science, and Transportation of the Senate NASA's plan  
3 to meet the requirements of subsections (a) and (b).

4 (d) CENTRIFUGE.—Nothing in this Act shall be con-  
5 strued to prohibit the installation of the centrifuge on the  
6 ISS.

7 **SEC. 502. HUMAN EXPLORATION PRIORITIES.**

8 (a) IN GENERAL.—The Administrator shall—

9 (1) construct an architecture and implementa-  
10 tion plan for NASA's human exploration program  
11 that is not critically dependent on the achievement  
12 of milestones by fixed dates; and

13 (2) determine the relative priority of each of the  
14 potential elements of NASA's implementation plan  
15 for its human exploration program in case funding  
16 shortfalls or cost growth necessitate the adjustment  
17 of NASA's implementation plan.

18 (b) PRIORITIES.—Development of a Crew Explo-  
19 ration Vehicle with a robust crew escape system, develop-  
20 ment of a launch system for the Crew Exploration Vehicle,  
21 and definition of an overall architecture and prioritized  
22 implementation plan shall be the highest priorities of the  
23 human exploration program over the period governed by  
24 this Act.

1 **SEC. 503. GAO ASSESSMENT.**

2 Not later than 9 months after the date of enactment  
3 of this Act, the Comptroller General shall transmit to the  
4 Committee on Science of the House of Representatives  
5 and the Committee on Commerce, Science, and Transpor-  
6 tation of the Senate an assessment of the milestones and  
7 estimated costs of the plans submitted under section  
8 102(a)(7).

9 **TITLE VI—OTHER PROGRAM**  
10 **AREAS**

11 **Subtitle A—Space and Flight**  
12 **Support**

13 **SEC. 601. ORBITAL DEBRIS.**

14 The Administrator, in conjunction with the heads of  
15 other Federal agencies, shall take steps to develop or ac-  
16 quire technologies that will enable NASA to decrease the  
17 risks associated with orbital debris.

18 **SEC. 602. SECONDARY PAYLOAD CAPABILITY.**

19 The Administrator is encouraged to provide the capa-  
20 bilities to support secondary payloads on United States  
21 launch vehicles, including freeflyers, for satellites or sci-  
22 entific payloads.



## **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”.

### **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 edu-

1 cational outreach to rural communities and schools  
2 through video conferencing, interpretive exhibits, teacher  
3 education, classroom presentations, and student field  
4 trips.

5 (b) PRIORITIES.—In carrying out subsection (a), the  
6 Administrator shall give priority to existing programs—

7 (1) that utilize community-based partnerships  
8 in the field;

9 (2) that build and maintain video conference  
10 and exhibit capacity;

11 (3) that travel directly to rural communities  
12 and serve low-income populations; and

13 (4) with a special emphasis on increasing the  
14 number of women and minorities in the science and  
15 engineering professions.

16 **SEC. 613. CHARLES “PETE” CONRAD ASTRONOMY AWARDS.**

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

19 (b) DEFINITIONS.—For the purposes of this sec-  
20 tion—

21 (1) the term “amateur astronomer” means an  
22 individual whose employer does not provide any  
23 funding, payment, or compensation to the individual  
24 for the observation of asteroids and other celestial

1 bodies, and does not include any individual employed  
2 as a professional astronomer;

3 (2) the term “Minor Planet Center” means the  
4 Minor Planet Center of the Smithsonian Astro-  
5 physical Observatory;

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

9 (4) the term “Program” means the Charles  
10 “Pete” Conrad Astronomy Awards Program estab-  
11 lished under subsection (c).

12 (c) PETE CONRAD ASTRONOMY AWARD PROGRAM.—

13 (1) IN GENERAL.—The Administrator shall es-  
14 tablish the Charles “Pete” Conrad Astronomy  
15 Awards Program.

16 (2) AWARDS.—The Administrator shall make  
17 awards under the Program based on the rec-  
18 ommendations of the Minor Planet Center.

19 (3) AWARD CATEGORIES.—The Administrator  
20 shall make one annual award, unless there are no el-  
21 igible discoveries or contributions, for each of the  
22 following categories:

23 (A) The amateur astronomer or group of  
24 amateur astronomers who in the preceding cal-  
25 endar year discovered the intrinsically brightest

1 near-Earth asteroid among the near-Earth as-  
2 teroids that were discovered during that year by  
3 amateur astronomers or groups of amateur as-  
4 tronomers.

5 (B) The amateur astronomer or group of  
6 amateur astronomers who made the greatest  
7 contribution to the Minor Planet Center's mis-  
8 sion of cataloguing near-Earth asteroids during  
9 the preceding year.

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

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

16 (B) The decisions of the Administrator in mak-  
17 ing awards under this section are final.

18 **SEC. 614. REVIEW OF EDUCATION PROGRAMS.**

19 (a) IN GENERAL.—The Administrator shall enter  
20 into an arrangement with the National Research Council  
21 of the National Academy of Sciences to conduct a review  
22 and evaluation of NASA's science, technology, engineer-  
23 ing, and mathematics education program. The review and  
24 evaluation shall be documented in a report to the Adminis-  
25 trator and shall include such recommendations as the Na-

1 tional Research Council determines will improve the effec-  
2 tiveness of the program.

3 (b) REVIEW.—The review and evaluation under sub-  
4 section (a) shall include—

5 (1) an evaluation of the effectiveness of the  
6 overall program in meeting its defined goals and ob-  
7 jectives;

8 (2) an assessment of the quality and edu-  
9 cational effectiveness of the major components of the  
10 program, including an evaluation of the adequacy of  
11 assessment metrics and data collection requirements  
12 available for determining the effectiveness of indi-  
13 vidual projects;

14 (3) an evaluation of the funding priorities in  
15 the program, including a review of the funding level  
16 and funding trend for each major component of the  
17 program and an assessment of whether the resources  
18 made available are consistent with meeting identified  
19 goals and priorities; and

20 (4) a determination of the extent and the effec-  
21 tiveness of coordination and collaboration between  
22 NASA and other Federal agencies that sponsor  
23 science, technology, engineering, and mathematics  
24 education activities.

9           The Administrator shall strive to ensure equal access  
10 for minority and economically disadvantaged students to  
11 NASA's Education programs. Not later than 1 year after  
12 the date of enactment of this Act, and every 2 years there-  
13 after, the Administrator shall submit a report to the Com-  
14 mittee on Science of the House of Representatives and the  
15 Committee on Commerce, Science, and Transportation of  
16 the Senate describing the efforts by the Administrator to  
17 ensure equal access for minority and economically dis-  
18 advantaged students under this section, and the results  
19 of such efforts. As part of the report, the Administrator  
20 shall provide data on minority participation in NASA's  
21 education programs, at a minimum in the following cat-  
22 egories: elementary and secondary education, under-  
23 graduate education, and graduate education.

1 **SEC. 616. MUSEUMS.**

2       The Administrator may provide grants to, and enter  
3 into cooperative agreements with museums and planetar-  
4 iums to enable them to enhance programs related to space  
5 exploration, aeronautics, space science, earth science, or  
6 microgravity.

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

8       Not later than 60 days after the date of enactment  
9 of this Act, the Administrator shall transmit a report to  
10 Congress on the legal status of the Motivating Under-  
11 graduates in Science and Technology program. If the re-  
12 port concludes that the program is in compliance with the  
13 laws of the United States, NASA shall implement the pro-  
14 gram, as planned in the July 5, 2005 National Research  
15 Announcement.

16       **TITLE VII—MISCELLANEOUS**  
17                   **AMENDMENTS**

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

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

22                   “RETROCESSION OF JURISDICTION

23       “SEC. 316. (a) Notwithstanding any other provision  
24 of law, the Administrator may relinquish to a State all  
25 or part of the legislative jurisdiction of the United States

1 over lands or interests under the control of the Adminis-  
2 trator in that State.

3 “(b) For purposes of this section, the term ‘State’  
4 means any of the several States, the District of Columbia,  
5 the Commonwealth of Puerto Rico, the United States Vir-  
6 gin Islands, Guam, American Samoa, the Northern Mar-  
7 iana Islands, and any other commonwealth, territory, or  
8 possession of the United States.”.

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

10 Section 309 of the National Aeronautics and Space  
11 Act of 1958 (42 U.S.C. 2458c) is amended in subsection  
12 (f)(1) by striking “December 31, 2002” through “Sep-  
13 tember 30, 2005” and inserting, “December 31, 2010, ex-  
14 cept that the Administrator may extend the termination  
15 date to a date not later than September 30, 2015, if the  
16 Administrator has entered into an arrangement with the  
17 National Academy of Public Administration to determine  
18 the impact on private parties and the Federal Government  
19 of eliminating this section”.

20 **SEC. 703. NASA SCHOLARSHIPS.**

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

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



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

3           (3) in subsection (f)(1) by striking the last sen-  
4           tence; and

5           (4) in subsection (g)(2) by striking “Treasurer  
6           of the” and all that follows through “by 3” and in-  
7           serting “Treasurer of the United States”.

8           (b) REPEAL.—The Vision 100—Century of Aviation  
9           Reauthorization Act is amended by striking section 703  
10          (42 U.S.C. 2473e).

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

12          Section 301 of the National Aeronautics and Space  
13          Administration Authorization Act of 2000 (42 U.S.C.  
14          2459g) is amended—

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

17               (2) by striking “Chief Financial Officer” each  
18               place it appears in subsection (a) and inserting “Ad-  
19               ministrators”;

20               (3) by inserting “and consider” in subsection  
21               (a) after “shall conduct”; and

22               (4) by striking subsection (b) and inserting the  
23               following:

24               “(b) IMPLEMENTATION DEFINED.—In this section,  
25               the term ‘implementation’ means all activity in the life

1 cycle of a project after preliminary design, independent as-  
2 sessment of the preliminary design, and approval to pro-  
3 ceed into implementation, including critical design, devel-  
4 opment, certification, launch, operations, disposal of as-  
5 sets, and, for technology programs, development, testing,  
6 analysis and communication of the results.”.

7 **SEC. 705. LIMITATIONS ON OFF-SHORE PERFORMANCE OF**  
8 **CONTRACTS FOR THE PROCUREMENT OF**  
9 **GOODS AND SERVICES.**

10 (a) CONVERSIONS TO CONTRACTOR PERFORMANCE  
11 OF ADMINISTRATION ACTIVITIES.—Except as provided in  
12 subsection (c), an activity or function of the Administra-  
13 tion that is converted to contractor performance under Of-  
14 fice of Management and Budget Circular A–76 may not  
15 be performed by the contractor or any subcontractor at  
16 a location outside the United States.

17 (b) CONTRACTS FOR THE PROCUREMENT OF SERV-  
18 ICES.—(1) Except as provided in subsection (c), a contract  
19 for the procurement of goods or services that is entered  
20 into by the Administrator may not be performed outside  
21 the United States unless it is to meet a requirement of  
22 the Administration for goods or services specifically at a  
23 location outside the United States.

24 (2) The President may waive the prohibition in para-  
25 graph (1) in the case of any contract for which the Presi-

1 dent determines in writing that it is necessary in the na-  
2 tional security interests of the United States for goods or  
3 services under the contract to be performed outside the  
4 United States.

5 (3) The Administrator may waive the prohibition in  
6 paragraph (1) in the case of any contract for which the  
7 Administrator determines in writing that essential goods  
8 or services under the contract are only available from a  
9 source outside the United States.

10 (c) EXCEPTION.—Subsections (a) and (b)(1) shall  
11 not apply to the extent that the activity or function under  
12 the contract was previously performed by Federal Govern-  
13 ment employees outside the United States.

14 (d) CONSISTENCY WITH INTERNATIONAL AGREE-  
15 MENTS.—The provisions of this section shall not apply to  
16 the extent that they are inconsistent with obligations of  
17 the United States under international agreements.

18 (e) ANNUAL REPORT.—The Administrator shall sub-  
19 mit to Congress, not later than 120 days after the end  
20 of each fiscal year, a report on the contracts performed  
21 overseas and amount of purchases by NASA from foreign  
22 entities in that fiscal year. Such report shall separately  
23 indicate the dollar value of contracts for which the provi-  
24 sions of this section were waived and the dollar value of  
25 items for which the Buy American Act was waived pursu-

1 ant to obligations of the United States under international  
2 agreements.

3 **SEC. 706. LONG DURATION FLIGHT.**

4 No provision of this or any other Act shall be con-  
5 strued to prohibit NASA from accommodating the exercise  
6 of religion by astronauts engaged in long duration space  
7 flight missions.

8 **TITLE VIII—INDEPENDENT**  
9 **COMMISSIONS**

10 **SEC. 801. DEFINITIONS.**

11 For purposes of this title—

12 (1) the term “Commission” means a Commis-  
13 sion established under this title; and

14 (2) the term “incident” means either an acci-  
15 dent or a deliberate act.

16 **Subtitle A—International Space**  
17 **Station Independent Safety**  
18 **Commission**

19 **SEC. 811. ESTABLISHMENT OF COMMISSION.**

20 (a) ESTABLISHMENT.—The President shall establish  
21 an independent, nonpartisan Commission within the exec-  
22 utive branch to discover and assess any vulnerabilities of  
23 the International Space Station that could lead to its de-  
24 struction, compromise the health of its crew, or necessitate  
25 its premature abandonment.

1 (b) DEADLINE FOR ESTABLISHMENT.—The Presi-  
2 dent shall issue an executive order establishing a Commis-  
3 sion within 30 days after the date of enactment of this  
4 Act.

5 **SEC. 812. TASKS OF THE COMMISSION.**

6 The Commission established under section 811 shall,  
7 to the extent possible, undertake the following tasks:

8 (1) Catalog threats to and vulnerabilities of the  
9 ISS, including design flaws, natural phenomena,  
10 computer software or hardware flaws, sabotage or  
11 terrorist attack, number of crewmembers, and inabil-  
12 ity to adequately deliver replacement parts and sup-  
13 plies, and management or procedural deficiencies.

14 (2) Make recommendations for corrective ac-  
15 tions.

16 (3) Provide any additional findings or rec-  
17 ommendations related to ISS safety.

18 (4) Prepare a report to Congress, the Presi-  
19 dent, and the public.

20 **SEC. 813. SUNSET.**

21 The Commission established under this subtitle shall  
22 transmit its final report not later than 1 year after the  
23 date on which the full Commission membership is ap-  
24 pointed.

1 **Subtitle B—Human Space Flight**  
2 **Independent Investigation Com-**  
3 **mission**

4 **SEC. 821. ESTABLISHMENT OF COMMISSION.**

5 (a) ESTABLISHMENT.—The President shall establish  
6 an independent, nonpartisan Commission within the exec-  
7 utive branch to investigate any incident that results in the  
8 loss of—

9 (1) a Space Shuttle;

10 (2) the International Space Station or its oper-  
11 ational viability;

12 (3) any other United States space vehicle car-  
13 rying humans that is owned by the Federal Govern-  
14 ment or that is being used pursuant to a contract  
15 with the Federal Government; or

16 (4) a crew member or passenger of any space  
17 vehicle described in this subsection.

18 (b) DEADLINE FOR ESTABLISHMENT.—The Presi-  
19 dent shall issue an executive order establishing a Commis-  
20 sion within 7 days after an incident specified in subsection  
21 (a).

22 **SEC. 822. TASKS OF THE COMMISSION.**

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

25 (1) Investigate the incident.

1 (2) Determine the cause of the incident.

2 (3) Identify all contributing factors to the cause  
3 of the incident.

4 (4) Make recommendations for corrective ac-  
5 tions.

6 (5) Provide any additional findings or rec-  
7 ommendations deemed by the Commission to be im-  
8 portant, whether or not they are related to the spe-  
9 cific incident under investigation.

10 (6) Prepare a report to Congress, the Presi-  
11 dent, and the public.

12 **Subtitle C—Organization and**  
13 **Operation of Commissions**

14 **SEC. 831. COMPOSITION OF COMMISSIONS.**

15 (a) NUMBER OF COMMISSIONERS.—A Commission  
16 established pursuant to this title shall consist of 15 mem-  
17 bers.

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

20 (1) The President shall appoint the members,  
21 and shall designate the Chairman and Vice Chair-  
22 man of the Commission from among its members.

23 (2) Four of the 15 members appointed by the  
24 President shall be selected by the President in the  
25 following manner:

1           (A) The majority leader of the Senate, the  
2           minority leader of the Senate, the Speaker of  
3           the House of Representatives, and the minority  
4           leader of the House of Representatives shall  
5           each provide to the President a list of can-  
6           didates for membership on the Commission.

7           (B) The President shall select one of the  
8           candidates from each of the 4 lists for member-  
9           ship on the Commission.

10          (3) In the case of a Commission established  
11          under subtitle A, the President shall select one can-  
12          didate from a list of candidates for membership on  
13          the Commission provided by the President of the col-  
14          lective-bargaining organization including the largest  
15          number of NASA engineers.

16          (4) No officer or employee of the Federal Gov-  
17          ernment shall serve as a member of the Commission.

18          (5) No member of the Commission shall have,  
19          or have pending, a contractual relationship with  
20          NASA.

21          (6) The President shall not appoint any indi-  
22          vidual as a member of a Commission under this sec-  
23          tion who has a current or former relationship with  
24          the Administrator that the President determines  
25          would constitute a conflict of interest.



1           (7) To the extent practicable, the President  
2       shall ensure that the members of the Commission in-  
3       clude some individuals with experience relative to  
4       human carrying spacecraft, as well as some individ-  
5       uals with investigative experience and some individ-  
6       uals with legal experience.

7           (8) To the extent practicable, the President  
8       shall seek diversity in the membership of the Com-  
9       mission.

10          (9) The President may waive the prohibitions in  
11       paragraphs (5) and (6) with respect to the selection  
12       of not more than two members of a Commission es-  
13       tablished under subtitle A.

14          (c) DEADLINE FOR APPOINTMENT.—All members of  
15       a Commission established under subtitle A shall be ap-  
16       pointed no later than 60 days after issuance of the execu-  
17       tive order establishing the Commission. All members of a  
18       Commission established under subtitle B shall be ap-  
19       pointed no later than 30 days after the incident.

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

22          (e) QUORUM; VACANCIES.—After its initial meeting,  
23       a Commission shall meet upon the call of the Chairman  
24       or a majority of its members. Eight members of a Com-  
25       mission shall constitute a quorum. Any vacancy in a Com-

1 mission shall not affect its powers, but shall be filled in  
2 the same manner in which the original appointment was  
3 made.

4 **SEC. 832. POWERS OF COMMISSION.**

5 (a) HEARINGS AND EVIDENCE.—A Commission or,  
6 on the authority of the Commission, any subcommittee or  
7 member thereof, may, for the purpose of carrying out this  
8 title—

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

12 (2) require, by subpoena or otherwise, the at-  
13 tendance and testimony of such witnesses and the  
14 production of such books, records, correspondence,  
15 memoranda, papers, and documents,

16 as the Commission or such designated subcommittee or  
17 designated member may determine advisable.

18 (b) CONTRACTING.—A Commission may, to such ex-  
19 tent and in such amounts as are provided in appropriation  
20 Acts, enter into contracts to enable the Commission to dis-  
21 charge its duties under this title.

22 (c) INFORMATION FROM FEDERAL AGENCIES.—

23 (1) IN GENERAL.—A Commission may secure  
24 directly from any executive department, bureau,  
25 agency, board, commission, office, independent es-

1       tablishment, or instrumentality of the Government,  
2       information, suggestions, estimates, and statistics  
3       for the purposes of this title. Each department, bu-  
4       reau, agency, board, commission, office, independent  
5       establishment, or instrumentality shall, to the extent  
6       authorized by law, furnish such information, sugges-  
7       tions, estimates, and statistics directly to the Com-  
8       mission, upon request made by the Chairman, the  
9       chairman of any subcommittee created by a majority  
10      of the Commission, or any member designated by a  
11      majority of the Commission.

12           (2) RECEIPT, HANDLING, STORAGE, AND DIS-  
13      SEMINATION.—Information shall only be received,  
14      handled, stored, and disseminated by members of  
15      the Commission and its staff consistent with all ap-  
16      plicable statutes, regulations, and Executive orders.

17      (d) ASSISTANCE FROM FEDERAL AGENCIES.—

18           (1) GENERAL SERVICES ADMINISTRATION.—  
19      The Administrator of General Services shall provide  
20      to a Commission on a reimbursable basis adminis-  
21      trative support and other services for the perform-  
22      ance of the Commission's tasks.

23           (2) OTHER DEPARTMENTS AND AGENCIES.—In  
24      addition to the assistance prescribed in paragraph  
25      (1), departments and agencies of the United States

1       may provide to the Commission such services, funds,  
2       facilities, staff, and other support services as they  
3       may determine advisable and as may be authorized  
4       by law.

5               (3) NASA ENGINEERING AND SAFETY CEN-  
6       TER.—The NASA Engineering and Safety Center  
7       shall provide data and technical support as re-  
8       quested by a Commission.

9   **SEC. 833. PUBLIC MEETINGS, INFORMATION, AND HEAR-**  
10                   **INGS.**

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

13               (1) hold public hearings and meetings to the ex-  
14       tent appropriate; and

15               (2) release public versions of the reports re-  
16       quired under this Act.

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

22   **SEC. 834. STAFF OF COMMISSION.**

23       (a) APPOINTMENT AND COMPENSATION.—The  
24   Chairman, in consultation with Vice Chairman, in accord-  
25   ance with rules agreed upon by a Commission, may ap-

1 point and fix the compensation of a staff director and such  
2 other personnel as may be necessary to enable the Com-  
3 mission to carry out its functions.

4 (b) DETAILEES.—Any Federal Government em-  
5 ployee, except for an employee of NASA, may be detailed  
6 to a Commission without reimbursement from the Com-  
7 mission, and such detailee shall retain the rights, status,  
8 and privileges of his or her regular employment without  
9 interruption.

10 (c) CONSULTANT SERVICES.—A Commission may  
11 procure the services of experts and consultants in accord-  
12 ance with section 3109 of title 5, United States Code, but  
13 at rates not to exceed the daily rate paid a person occu-  
14 pying a position at level IV of the Executive Schedule  
15 under section 5315 of title 5, United States Code. Any  
16 consultant or expert whose services are procured under  
17 this subsection shall disclose any contract or association  
18 it has with NASA or any NASA contractor.

19 **SEC. 835. COMPENSATION AND TRAVEL EXPENSES.**

20 (a) COMPENSATION.—Each member of a Commission  
21 may be compensated at not to exceed the daily equivalent  
22 of the annual rate of basic pay in effect for a position  
23 at level IV of the Executive Schedule under section 5315  
24 of title 5, United States Code, for each day during which

1 that member is engaged in the actual performance of the  
2 duties of the Commission.

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

11 **SEC. 836. SECURITY CLEARANCES FOR COMMISSION MEM-**  
12 **BERS AND STAFF.**

13 The appropriate Federal agencies or departments  
14 shall cooperate with a Commission in expeditiously pro-  
15 viding to the Commission members and staff appropriate  
16 security clearances to the extent possible pursuant to ex-  
17 isting procedures and requirements. No person shall be  
18 provided with access to classified information under this  
19 title without the appropriate security clearances.

20 **SEC. 837. REPORTING REQUIREMENTS AND TERMINATION.**

21 (a) INTERIM REPORTS.—A Commission may submit  
22 to the President and Congress interim reports containing  
23 such findings, conclusions, and recommendations for cor-  
24 rective actions as have been agreed to by a majority of  
25 Commission members.

1       (b) FINAL REPORT.—A Commission shall submit to  
2 the President and Congress, and make concurrently avail-  
3 able to the public, a final report containing such findings,  
4 conclusions, and recommendations for corrective actions  
5 as have been agreed to by a majority of Commission mem-  
6 bers. Such report shall include any minority views or opin-  
7 ions not reflected in the majority report.

8       (c) TERMINATION.—

9           (1) IN GENERAL.—A Commission, and all the  
10 authorities of this title with respect to that Commis-  
11 sion, shall terminate 60 days after the date on which  
12 the final report is submitted under subsection (b).

13          (2) ADMINISTRATIVE ACTIVITIES BEFORE TER-  
14 MINATION.—A Commission may use the 60-day pe-  
15 riod referred to in paragraph (1) for the purpose of  
16 concluding its activities, including providing testi-  
17 mony to committees of Congress concerning its re-  
18 ports and disseminating the final report.

Passed the House of Representatives July 22, 2005.

Attest:

JEFF TRANDAHL,

*Clerk.*