

Calendar No. 697

107th Congress }
2d Session }

SENATE

{ REPORT
{ 107-309

**FEDERAL AVIATION ADMINISTRATION RE-
SEARCH, ENGINEERING, AND DEVELOP-
MENT REAUTHORIZATION ACT OF 2002**

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

on

S. 2951



OCTOBER 10, 2002.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

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FEDERAL AVIATION ADMINISTRATION RESEARCH, ENGI- NEERING, AND DEVELOPMENT REAUTHORIZATION ACT OF 2002

OCTOBER 10, 2002.—Ordered to be printed

Mr. HOLLINGS, from the Committee on Commerce, Science, and
Transportation, submitted the following

R E P O R T

[To accompany S. 2951]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 2951) a bill to authorize appropriations for the Federal Aviation Administration, and for other purposes, having considered the same, reports favorably thereon without amendment and recommends that the bill do pass.

PURPOSE OF THE BILL

The purpose of this bill, as reported, would authorize \$261,000,000 in fiscal year (FY) 2003, \$274,000,000 in FY 2004, and \$287,000,000 in FY 2005 for the Federal Aviation Administration (FAA) to conduct research, engineering, and development (RE&D) activities.

BACKGROUND AND NEEDS

The FAA was created in 1958 with the primary responsibilities of promoting safety in the nation's air transportation system and developing air commerce. As part of the Airport and Airway Trust Fund established by Congress in 1982, it was determined that a comprehensive research and development program was necessary at FAA to maintain a safe, efficient air traffic system. To further address this need, Congress mandated FAA issue an annual report on the subject, and the National Aviation Research Plan was created to provide a blueprint for developing new RE&D capabilities as the means for communicating and coordinating development directions within the agency and the aviation community.

The FAA RE&D account finances projects to improve the safety, security, capacity, and efficiency of the U.S. aviation system. Aimed at providing the systems and procedures needed for a safe and efficient system of air navigation and air traffic control, the FAA RE&D program develops and validates the technologies, systems, designs, and procedures required for the full range of the agency's operational and regulatory activities to succeed. The RE&D program is functionally divided into the following eight areas: Air Traffic Services; Airport Technology; Aircraft Safety; Information Security and Technology; Human Factors and Aviation Medicine; Environmental; Commercial Space Transportation; and an overall planning and coordinating function known as Aviation Research Mission Support.

Funding for the FAA RE&D program was last authorized by the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (P.L. 106-181). This authorization expired at the end of FY 2002.

SUMMARY OF MAJOR PROVISIONS

S. 2951 would provide a three-year authorization for the FAA RE&D programs of \$261 million in FY 2003, \$274 million in FY 2004, and \$287 million in FY 2005. The funding in this bill is to be used for the following purposes: 1) to improve aviation safety; 2) to improve the efficiency of the air traffic control system; 3) to reduce the environmental impact of aviation; and 4) to improve the efficiency of mission support.

S. 2951 would require the FAA, the National Aeronautics and Space Administration (NASA), and the Transportation Security Administration (TSA) to coordinate a civil aviation research and development (R&D) plan to improve on the ways that new technology is being used. It would require that a plan is submitted to Congress that outlines ways to improve the exchange of information to have a more efficient use of technological advances.

The bill would mandate the continuation of a research program for airfield pavement improvement by which the FAA may provide grants or other incentives to non-profit concrete pavement foundations to improve safety through improved runway planning, building, and repair. It also would require the FAA to review standards to ensure current 20-year life requirements for runways are being met and to provide adjustments if they are not. The FAA would be directed to report to Congress on this review within 1 year.

S. 2951 would direct the FAA to work with NASA to develop plans for the creation of a new air traffic management system to meet the long-term aviation needs of the U.S., and to work with the proper Federal agencies to implement it with the development of a blueprint and transition plan to incorporate it into the National Airspace System.

Under the bill, FAA also would be required to make an arrangement with the National Research Council (NRC) to assess the FAA's proposed wake turbulence research and development program. The bill would authorize \$500,000 to be spent on this initiative, and would require that a report be submitted to Congress on the results the NRC assessment within 1 year.

Finally, S. 2951 would give the FAA the option of conducting research on the creation of analytical tools to improve certification

methods to reduce costs for manufacturers, developing a “cabin air quality” research program based on National Academy of Science reports on the matter, and performing a systematic review and assessment of the causes of delay at the nation’s 31 busiest airports.

LEGISLATIVE HISTORY

On September 17, 2002, Senator Rockefeller introduced S. 2951, a bill to authorize appropriations for the FAA RE&D program. The bill was originally cosponsored by Senators Hollings, McCain, and Hutchison.

On September 19, 2002, the Committee on Commerce, Science, and Transportation met in open executive session to consider S. 2951. The Committee reported S. 2951 favorably, without amendment, by voice vote.

ESTIMATED COSTS

In compliance with subsection (a)(3) of paragraph 11 of rule XXVI of the Standing Rules of the Senate, the Committee states that, in its opinion, it is necessary to dispense with the requirements of paragraphs (1) and (2) of that subsection in order to expedite the business of the Senate.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

S. 2951 would authorize appropriations for the FAA RE&D program for Fiscal Years 2003, 2004, and 2005. Although the funding levels authorized are higher than current levels, the legislation should not affect the number of persons covered under existing programs.

ECONOMIC IMPACT

As reported, S. 2951 would extend an existing program. No negative impact to taxpayers is expected from the enactment of this legislation. The funding levels in the bill are modest and are not expected to have an inflationary impact on the nation’s economy.

PRIVACY

S. 2951 should not have any adverse impact on the personal privacy of the individuals affected by the legislation.

PAPERWORK

The Committee does not anticipate any increase in the paperwork burden resulting from the extension of the FAA RE&D program.

SECTION-BY-SECTION ANALYSIS

Sec. 1. Short Title.

The short title of the bill is the “Federal Aviation Administration Research, Engineering, and Development Act of 2002.”

Sec. 2. Authorization of Appropriations.

This section would direct that funds appropriated to the Secretary of Transportation for Research, Engineering, and Development activities for projects including aviation safety, improving efficiency of the air traffic control system, reducing the environmental impact of aviation, and improving the efficiency of mission support, may not exceed \$261,000,000 in FY 2003, \$274,000,000 in FY 2004, and \$287,000,000 in FY 2005.

Sec. 3. Coordination of National Aviation Safety and Security Research Programs.

This section would require the FAA Administrator, the NASA Administrator, and the Under Secretary of Transportation for Security to develop and submit to Congress a civil aviation research and development plan by June 30, 2003. This updated plan must recognize the appropriate role and responsibility of the FAA, NASA, and TSA in the research and development arena, and review the necessary steps that may be pursued to improve the exchange and utilization of new technology in an operational setting that will provide for a more efficient use of these advances.

Sec. 4. Research Program to Improve Airfield Pavement.

This section would direct the FAA Administrator to continue the airfield pavement research program, which permits grants, cooperative agreements, or other incentives that may be provided to non-profit concrete pavement research foundations that are tasked with improving the safety and efficiency of runway planning, building, and repair.

Sec. 5. Ensuring Appropriate Standards for Airfield Pavement.

This section would require the FAA Administrator to review and determine whether FAA’s standards regarding airfield pavement thickness meet the current life-cycle requirements, and, if not, the Administrator must provide for appropriate adjustments. Within 1 year of passage of this legislation, the Administrator would be required to provide the results of this review to the appropriate House and Senate Committees.

Sec. 6. Air Traffic Management Research and Development Initiative.

This section would require the FAA Administrator to work with NASA to develop a blueprint for the creation of an innovative air traffic management system that will meet the long-term aviation security, safety, and capacity needs of the U.S. This system should utilize current air traffic initiatives, improve on aviation services, use a systems approach, develop an advanced information network, and ensure seamless global operations for users.

This section further would direct the FAA Administrator to work with NASA and other appropriate government agencies on implementing the air traffic management system that would be designed under the Air Traffic Management Research and Development Initiative by developing performance requirements, determining the best operational concept and architecture, utilizing modern design tools, ensuring the readiness of enabling technologies, and devel-

oping a transition plan that will effectively place the new air traffic management plan in the National Airspace System.

Sec. 7. Assessment of Wake Turbulence Research and Development Program.

This section would instruct the FAA Administrator to enter into an arrangement with the NRC to assess the FAA's proposed wake turbulence research and development program. The assessment is required to address the following: program goals and objectives; any additional goals and objectives that should be included in the program; the ability of the program to achieve its goals and the resources needed to meet the program goals and objectives; and the role other Federal agencies should play in the program and how best to incorporate them.

Sec. 8. Development of Analytical Tools and Certification Methods.

This section would give the FAA the option of conducting research to advance the creation of analytical tools to improve current certification methods, and reduce the total cost to manufacturers for the certification of new products.

Sec. 9. Cabin Air Quality Research Program.

This section would give the FAA the option of developing a research program to address issues regarding the cabin air quality of passenger planes in an effort to comply with the recommendation of the National Academy of Sciences report, "The Airliner Cabin Environment and the Health of Passengers and Crew."

Sec. 10. Research to Improve Capacity and Reduce Delays.

This section would give the FAA the authority to perform a systematic review and assessment of the causes of airport delay at the airports identified in the agency's Airport Benchmarking Study.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

TITLE 49, UNITED STATES CODE

TRANSPORTATION

SUBTITLE VII. AVIATION PROGRAMS

PART C—FINANCING

CHAPTER 481. AIRPORT AND AIRWAY TRUST FUND AUTHORIZATIONS

* * * * *

§ 48102. Research and development

(a) AUTHORIZATION OF APPROPRIATIONS.—Not more than the following amounts may be appropriated to the Secretary of Transportation out of the Airport and Airway Trust Fund established under section 9502 of the Internal Revenue Code of 1986 (26 U.S.C.

9502) to carry out sections 44504, 44505, 44507, 44509, and 44511–44513 of this title:

(1) for fiscal year 1995—

(A) \$7,673,000 for management and analysis projects and activities;

(B) \$80,901,000 for capacity and air traffic management technology projects and activities;

(C) \$39,242,000 for communications, navigation, and surveillance projects and activities;

(D) \$2,909,000 for weather projects and activities;

(E) \$8,660,000 for airport technology projects and activities;

(F) \$51,004,000 for aircraft safety technology projects and activities;

(G) \$36,604,000 for system security technology projects and activities;

(H) \$26,484,000 for human factors and aviation medicine projects and activities;

(I) \$8,124,000 for environment and energy projects and activities; and

(J) \$5,199,000 for innovative/cooperative research projects and activities;

(2) for fiscal year 1996—

(A) \$8,056,000 for management and analysis projects and activities;

(B) \$84,946,000 for capacity and air traffic management technology projects and activities;

(C) \$41,204,000 for communications, navigation, and surveillance projects and activities;

(D) \$3,054,000 for weather projects and activities;

(E) \$9,093,000 for airport technology projects and activities;

(F) \$53,554,000 for aircraft safety technology projects and activities;

(G) \$38,434,000 for system security technology projects and activities;

(H) \$27,808,000 for human factors and aviation medicine projects and activities;

(I) \$8,532,000 for environment and energy projects and activities; and

(J) \$5,459,000 for innovative/cooperative research projects and activities;

(3) for fiscal year 1997—

(A) \$13,660,000 for system development and infrastructure projects and activities;

(B) \$34,889,000 for capacity and air traffic management technology projects and activities;

(C) \$19,000,000 for communications, navigation, and surveillance projects and activities;

(D) \$13,000,000 for weather projects and activities;

(E) \$5,200,000 for airport technology projects and activities;

(F) \$36,504,000 for aircraft safety technology projects and activities;

(G) \$57,055,000 for system security technology projects and activities;

(H) \$23,504,000 for human factors and aviation medicine projects and activities;

(I) \$3,600,000 for environment and energy projects and activities; and

(J) \$2,000,000 for innovative/cooperative research projects and activities;

(4) for fiscal year 1998, \$226,800,000, including—

(A) \$16,379,000 for system development and infrastructure projects and activities;

(B) \$27,089,000 for capacity and air traffic management technology projects and activities;

(C) \$23,362,000 for communications, navigation, and surveillance projects and activities;

(D) \$16,600,000 for weather projects and activities;

(E) \$7,854,000 for airport technology projects and activities;

(F) \$49,202,000 for aircraft safety technology projects and activities;

(G) \$53,759,000 for system security technology projects and activities;

(H) \$26,550,000 for human factors and aviation medicine projects and activities;

(I) \$2,891,000 for environment and energy projects and activities; and

(J) \$3,114,000 for innovative/cooperative research projects and activities, of which \$750,000 shall be for carrying out the grant program established under subsection (h);

(5) for fiscal year 1999, \$229,673,000;

(6) for fiscal year 2000, \$224,000,000, including—

(A) \$17,269,000 for system development and infrastructure projects and activities;

(B) \$33,042,500 for capacity and air traffic management technology projects and activities;

(C) \$11,265,400 for communications, navigation, and surveillance projects and activities;

(D) \$19,300,000 for weather projects and activities;

(E) \$6,358,200 for airport technology projects and activities;

(F) \$44,457,000 for aircraft safety technology projects and activities;

(G) \$53,218,000 for system security technology projects and activities;

(H) \$26,207,000 for human factors and aviation medicine projects and activities;

(I) \$3,481,000 for environment and energy projects and activities; and

(J) \$2,171,000 for innovative/cooperative research projects and activities, of which \$750,000 shall be for carrying out subsection (h);

(7) for fiscal year 2001, \$237,000,000; **[and]**

(8) for fiscal year 2002, \$249,000,000**[.]** ;

(9) for fiscal year 2003, \$261,000,000, including—

- (A) \$211,000,000 to improve aviation safety;
- (B) \$18,000,000 to improve the efficiency of the air traffic control system;
- (C) \$16,000,000 to reduce the environmental impact of aviation; and
- (D) \$16,000,000 to improve the efficiency of mission support;
- (10) for fiscal year 2004, \$274,000,000, including—
 - (A) \$221,000,000 to improve aviation safety;
 - (B) \$19,000,000 to improve the efficiency of the air traffic control system;
 - (C) \$17,000,000 to reduce the environmental impact of aviation; and
 - (D) \$17,000,000 to improve the efficiency of mission support; and
- (11) for fiscal year 2005, \$287,000,000, including—
 - (A) \$231,000,000 to improve aviation safety;
 - (B) \$20,000,000 to improve the efficiency of the air traffic control system;
 - (C) \$18,000,000 to reduce the environmental impact of aviation; and
 - (D) \$18,000,000 to improve the efficiency of mission support.

(b) RESEARCH PRIORITIES.—(1) The Administrator shall consider the advice and recommendations of the research advisory committee established by section 44508 of this title in establishing priorities among major categories of research and development activities carried out by the Federal Aviation Administration.

(2) At least 15 percent of the amount appropriated under subsection (a) of this section shall be for long-term research projects.

(3) At least 3 percent of the amount appropriated under subsection (a) of this section shall be available to the Administrator of the Federal Aviation Administration to make grants under section 44511 of this title.

(c) TRANSFERS BETWEEN CATEGORIES.—(1) Not more than 10 percent of the net amount authorized for a category of projects and activities in a fiscal year under subsection (a) of this section may be transferred to or from that category in that fiscal year.

(2) The Secretary may transfer more than 10 percent of an authorized amount to or from a category only after—

(A) submitting a written explanation of the proposed transfer to the Committees on Science and Appropriations of the House of Representatives and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate; and

(B) 30 days have passed after the explanation is submitted or each Committee notifies the Secretary in writing that it does not object to the proposed transfer.

(d) AIRPORT CAPACITY RESEARCH AND DEVELOPMENT.—(1) Of the amounts made available under subsection (a) of this section, at least \$25,000,000 may be appropriated each fiscal year for research and development under section 44505(a) and (c) of this title on preserving and enhancing airport capacity, including research and development on improvements to airport design standards, maintenance, safety, operations, and environmental concerns.

(2) The Administrator shall submit to the Committees on Science and Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on expenditures made under paragraph (1) of this subsection for each fiscal year. The report shall be submitted not later than 60 days after the end of the fiscal year.

(e) AIR TRAFFIC CONTROLLER PERFORMANCE RESEARCH.—Necessary amounts may be appropriated to the Secretary out of amounts in the Fund available for research and development to conduct research under section 44506(a) and (b) of this title.

(f) AVAILABILITY OF AMOUNTS.—Amounts appropriated under subsection (a) of this section remain available until expended.

(h) RESEARCH GRANTS PROGRAM INVOLVING UNDERGRADUATE STUDENTS.—

(1) ESTABLISHMENT.—The Administrator of the Federal Aviation Administration shall establish a program to utilize undergraduate and technical colleges, including Historically Black Colleges and Universities and Hispanic Serving Institutions, in research on subjects of relevance to the Federal Aviation Administration. Grants may be awarded under this subsection for—

(A) research projects to be carried out at primarily undergraduate institutions and technical colleges;

(B) research projects that combine research at primarily undergraduate institutions and technical colleges with other research supported by the Federal Aviation Administration; or

(C) research on future training requirements on projected changes in regulatory requirements for aircraft maintenance and power plant licensees.

(2) NOTICE OF CRITERIA.—Within 6 months after the date of the enactment of the FAA Research, Engineering, and Development Authorization Act of 1998, the Administrator of the Federal Aviation Administration shall establish and publish in the Federal Register criteria for the submittal of proposals for a grant under this subsection, and for the awarding of such grants.

(3) PRINCIPAL CRITERIA.—The principal criteria for the awarding of grants under this subsection shall be—

(A) the relevance of the proposed research to technical research needs identified by the Federal Aviation Administration;

(B) the scientific and technical merit of the proposed research; and

(C) the potential for participation by undergraduate students in the proposed research.

(4) COMPETITIVE, MERIT-BASED EVALUATION.—Grants shall be awarded under this subsection on the basis of evaluation of proposals through a competitive, merit-based process.