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FEDERAL AVIATION ADMINISTRATION

Reauthorization Provides Opportunities to Address Key Agency Challenges

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Highlights

Highlights of [GAO-03-653T](#), a testimony before the Senate Committee on Commerce, Science, and Transportation

Why GAO Did This Study

Much has changed since the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21) reauthorized the Federal Aviation Administration's (FAA) programs 3 years ago. At that time, air traffic was increasing, and concerns about congestion and flight delays were paramount. Since then, the downturn in the nation's economy, the terrorist attacks of September 11, 2001, and, most recently, the war in Iraq have taken a heavy toll on aviation. Analysts nonetheless expect the demand for air travel to rebound, and the nation's aviation system must be ready to accommodate the projected growth safely and securely.

The current reauthorization of FAA's programs provides an opportunity for the Congress and the administration to focus on challenges in increasing aviation capacity, efficiency, and safety and in controlling aviation program costs.

What GAO Recommends

This testimony does not contain recommendations. However, GAO reports containing relevant recommendations are listed among the Related GAO Products following the testimony.

www.gao.gov/cgi-bin/getrpt?GAO-03-653T.

To view the full report, including the scope and methodology, click on the link above. For more information, contact Gerald L. Dillingham at (202) 512-2834 or dillingham@gao.gov.

FEDERAL AVIATION ADMINISTRATION

Reauthorization Provides Opportunities to Address Key Agency Challenges

What GAO Found

Increasing capacity and service in the national airspace system poses several challenges. While airports currently receive enough funding to cover FAA's estimate of their planned capital development costs, a declining surplus in the trust fund that helps to support development and the need to spend up to \$5 billion over the next 5 years for security-related capital improvements make the financial outlook for the next 5 to 8 years uncertain. Runway development, the principal means of increasing capacity, is now taking 10 to 14 years to complete, in large part because of time-consuming environmental reviews and community concerns. Providing air service for small communities is also becoming more difficult as costs increase and passenger ticket revenues decline. Intermodal alternatives may hold promise.

Efforts to improve the efficiency of the national airspace system by modernizing the air traffic control system face challenges despite actions taken by the Congress and the administration to eliminate the cost overruns, schedule delays, and performance shortfalls that have plagued FAA's modernization efforts. Overall, FAA is improving its management of the air traffic modernization program and has implemented some systems, but key projects continue to experience problems.

To enhance aviation safety, FAA and the aviation industry have undertaken an initiative to reduce the fatal accident rate, and FAA is working to strengthen its safety inspections of airlines' operations. Interagency coordination of aviation safety and aviation security activities has emerged as a challenge with the transfer of aviation security responsibilities from FAA to the Transportation Security Administration.

FAA faces challenges in implementing controls over its costs. Although it has partially implemented a new cost accounting system that enables it to track 70 percent of its air traffic services costs, this system lacks internal controls over \$3.1 billion in labor costs, according to the Department of Transportation's Inspector General. Congressional oversight is important to ensure that FAA implements controls and spends its resources effectively.

Increasing Capacity through Runway Construction



Source: HNTS.

Mr. Chairman and Members of the Committee:

We are here today to discuss the reauthorization of federal aviation programs and issues relevant to ensuring the safe and efficient operation of the national airspace system.¹ Much has changed since the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21) reauthorized the Federal Aviation Administration's (FAA) programs 3 years ago. At that time, as you know, air traffic was increasing, and concerns about congestion and flight delays were paramount. Since then, the downturn in the nation's economy, the terrorist attacks of September 11, 2001, and, most recently, the war in Iraq have taken a heavy toll on aviation. Flights that were once filled are now being canceled for lack of business, and major air carriers are in serious financial difficulty. Furthermore, as the federal budget deficit has increased, competition for federal resources has intensified. Analysts nonetheless expect the demand for air travel to rebound, and the nation's aviation system must be ready to accommodate the projected growth safely and securely. The current slowdown in the economy and in the aviation industry has created a window of opportunity to prepare for this growth without the pressures of congestion and flight delays. My statement today focuses on the challenges that the Congress, the administration, and FAA face in increasing aviation capacity, efficiency, and safety, and maintaining controls over costs. My statement is based primarily on our published reports, as well as our ongoing work for this Committee discussed in the scope and methodology section at the end of the statement.

In summary:

- Increasing capacity and service in the national airspace system poses several challenges for the Congress and the administration during this reauthorization process. Chief among them is deciding how much of airports' planned capital development should be funded to increase capacity and service, as well as improve the efficiency and safety of the national airspace system. Funds for airports' capital development have increased over the last 5 years, in part because of increases in the federal grant funding provided to airports under the Airport Improvement Program. Current funding levels are sufficient to cover much of the estimated cost of planned capital development. However, future funding

¹See the Aviation Investment and Revitalization Vision Act, a Senate bill to reauthorize federal aviation programs and the administration's draft reauthorization proposal, the Centennial of Flight Aviation Authorization Act, or "Flight 100."

levels may be affected by changes in the allocation of Airport Improvement Program grant funds and by projected decreases in the Airport and Airway Trust Fund, which supports the Airport Improvement Program and other FAA accounts. Other challenges include building runways expeditiously to increase capacity and providing air service to small communities. Runway development now takes 10 to 14 years, primarily because of time-consuming environmental reviews and community concerns. Two federal programs, the Essential Air Service and the Small Community Air Service Development Pilot programs, help bring air service to small communities, but the costs of this service are increasing while passenger ticket revenues are declining. The administration is proposing an approach to streamline the environmental reviews required for runway development, and intermodal alternatives, such as rail or bus service, could provide access to the national air transportation system for some small communities.

- Efforts to improve the efficiency of the national airspace system by modernizing its principal component, the air traffic control system, face ongoing challenges despite actions taken by the Congress and the administration to eliminate the cost overruns, schedule delays, and performance shortfalls that have plagued FAA's air traffic modernization program and led us to designate this program as high risk. These actions include granting FAA acquisition and human capital flexibilities in 1996 and creating a new, three-component structure to improve the oversight, management, and operation of the air traffic control system in 2000. Our work has shown that FAA has responded to these actions to varying degrees, but more remains to be done. Overall, FAA is improving its management of the air traffic modernization program and has implemented some systems, but key projects continue to experience cost, schedule, and performance problems. Additionally, FAA has used its acquisition flexibilities to establish an acquisition management system and its human capital flexibilities to fully or partially implement human capital reform initiatives. The acquisition management system has provided FAA with a structured management approach for selecting and controlling its investments, and the human capital reform initiatives are affording opportunities for FAA to manage its workforce more efficiently. However, in implementing both of these reforms, FAA has not yet incorporated important processes or elements for evaluating the results of its efforts, modifying these efforts as necessary, and holding its managers accountable. Finally, one of the three components of the new structure for improving the performance of the air traffic control system has been implemented. The oversight component, the Air Traffic Services Subcommittee, has been meeting since January 2001 and emphasizing performance management, but without the management and operating

components, the new structure is not yet functioning as intended. Completing the implementation of, and continuing to improve, these efforts will be important to enhancing the efficiency of the air traffic control system.

- Important steps have been taken to enhance aviation safety, but some challenges remain. Safer Skies, an initiative designed by FAA and the aviation industry to reduce the nation's fatal aviation accident rate by 80 percent by 2007, is the centerpiece of these efforts to improve aviation safety. This initiative began in 1998, and many preventive actions are under way but have not yet been fully implemented. Another key effort to improve aviation safety is FAA's Air Transportation Oversight System, which was redesigned to provide more effective inspections of the nation's airline operations. In reporting on this system in 1999, we noted that it incorporated important features to ensure that airlines have systems to control risks and prevent accidents, but that it had encountered startup problems with data collection and program guidance.² Many of these problems were not yet fully resolved when the Department of Transportation's Inspector General reported on the inspection system last year.³ Finally, because of the often vital link between aviation safety and aviation security, it will be critical for FAA to ensure that aviation safety is maintained as the Department of Homeland Security's Transportation Security Administration implements new security enhancements.
- With the decline in revenues to the Airport and Airway Trust Fund—the principal source of funding for most of FAA's operations, facilities and equipment, and grant programs—it is especially important that FAA control or reduce costs, run its programs efficiently, and detect and prevent fraudulent activities. FAA, however, faces challenges in implementing controls over its costs. For example, during fiscal year 2000, weaknesses in the internal controls over FAA's purchase card program contributed to \$5.4 million in improper purchases by FAA employees and over \$630,000 in purchases that were considered wasteful or questionable. In addition, FAA has partially implemented a new cost accounting system that enables it to track 70 percent of its air traffic services costs; however, according to the Department of Transportation's Inspector General, this

²U.S. General Accounting Office, *Aviation Safety: FAA's New Inspection System Offers Promise, but Problems Need to Be Addressed*, [GAO/RCED-99-183](#) (Washington, D.C.: June 28, 1999).

³U.S. Department of Transportation, Office of Inspector General, *Report on the Air Transportation Oversight System: Federal Aviation Administration*, AV-2002-088 (Washington, D.C.: Apr. 8, 2002).

system lacks internal controls over \$3.1 billion in labor costs. The Inspector General further noted that a portion of this system, if implemented as designed, could provide workforce data that would be helpful in determining how many controllers are needed and where. These data would assist FAA in planning for the anticipated retirement of large numbers of air traffic controllers in the near and long term.

Efforts to Increase Aviation Capacity and Service Face Funding and Other Challenges

During this reauthorization period, the Congress and the administration face several key challenges in attempting to increase the capacity of the national airspace system and expand service to small communities. These challenges include determining (1) how much airport capital development is needed, (2) how that development will be funded, (3) how assistance for enhancing air service to small communities will be provided, and (4) how the current process for enhancing capacity, particularly the runway development process, can be expedited.

FAA and the Airport Industry Have Developed Different Estimates of Airports' Planned Capital Development Costs

FAA and the Airport Council International (ACI), an organization representing the airport industry, have developed two different estimates of airports' planned capital development costs that are based on two different sets of projects. According to FAA's estimate, which includes only projects that are eligible for Airport Improvement Program (AIP) grants, such as runways, taxiways, and noise mitigation and noise reduction efforts, the total cost of airport development will be about \$46 billion, or over \$9 billion per year, for 2001 through 2005. FAA's estimate is based on the agency's National Plan of Integrated Airport Systems, which FAA published in August 2002. ACI's estimate includes all of the projects in FAA's estimate, plus other planned airport capital projects that may or may not be eligible for AIP grants. Projects that are not eligible for AIP funding include parking garages, hangars, and expansions of commercial space in terminals. ACI estimates a total cost of almost \$75 billion, or nearly \$15 billion per year, for 2002 through 2006. Neither ACI's nor FAA's estimate includes funding for the terminal modification projects that are needed to accommodate the new explosives detection systems required to screen checked baggage. ACI estimates that these projects will cost about \$3 billion to \$5 billion over the next 5 years.

Although there is a difference of \$6 billion a year between FAA's and ACI's estimates of planned development costs, both estimates cover projects for every type of airport. As table 1 indicates, the estimates are identical for all but the large- and medium-hub airports, which are responsible for transporting about 90 percent of the traveling public. For these airports,

ACI's estimate of planned development costs is about twice as large as FAA's. As the Congress moves forward with reauthorizing FAA's programs, it will have to determine what level of planned capital development is appropriate to increase the capacity, efficiency, and safety of the national airspace system.

Table 1: Average Annual Planned Development Costs Estimated by FAA and ACI, by Airport Type, 2001-2006

Dollars in millions				
Airport type	Number of airports	Estimated average annual costs		
		FAA	ACI	
Large hub	31	\$4,855	\$8,554	
Medium hub	37	1,073	3,109	
Small hub	71	675	675	
Nonhub	280	807	807	
Other commercial service	124	142	142	
Reliever	260	526	526	
General aviation	2,558	1,167	1,167	
Total	3,364	\$9,245	\$14,980	

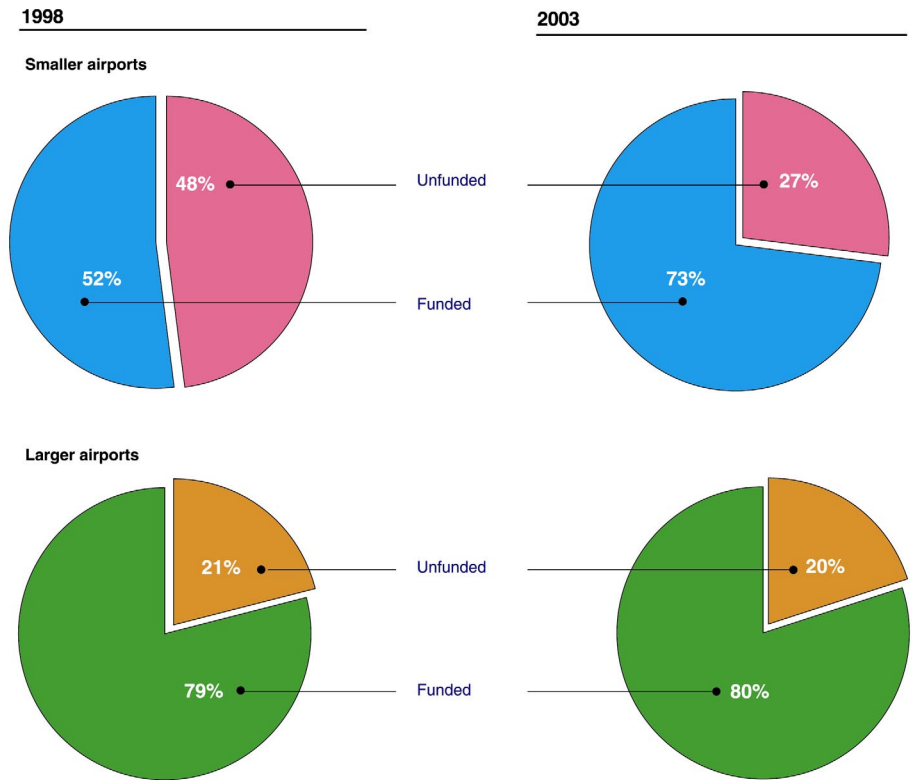
Source: FAA and ACI.

Airports' Ability to Fund Planned Capital Development Has Improved

Over the past 5 years, the ability of airports—especially smaller airports—to fund their capital development projects has improved, in part because AIR-21 increased both the total amount of funding for AIP grants and the proportion of AIP funding that went to smaller airports. In 1998, we reported that large- and medium-hub airports could fund about 79 percent of their planned capital development and smaller airports could fund about 52 percent of their planned capital development if they continued to receive funding at prior years' levels. In 2003, the funding ability of both groups of airports increased. As shown in figure 1, large- and medium-hub airports could fund about 80 percent of their planned capital development, an increase of 1 percentage point, while smaller airports could fund about 73 percent of their planned capital development, an increase of 21 percentage points, assuming the continuation of prior years' funding levels.⁴

⁴Over the past 5 years, the amount of funding available to airports for planned capital development ranged from about \$7 billion to \$13 billion annually.

Figure 1: Ability of Smaller and Larger Airports to Fund Estimated Planned Capital Development in 1998 and 2003



Source: GAO.

The primary reason why smaller airports are able to fund 73 percent of their planned development in 2003, rather than the 52 percent we reported in 1998, is that they have benefited significantly from the increases in AIP grants, which are a larger source of funding for smaller airports than for larger airports. In addition, smaller airports have received an increasing share of AIP grants because of statutorily required changes in the distribution of AIP grants. For example, in AIR-21, the Congress increased the funding for two grant categories that primarily or exclusively benefit smaller airports—the state apportionment fund and the small airport fund—and created general aviation entitlement grants, which also benefit smaller airports. The Senate’s and the administration’s reauthorization proposals continue to support increases in the amount of AIP grant funding awarded to smaller airports. In spite of the progress that has been made, over 25 percent of planned capital development is not funded. The

Congress needs to be mindful of this situation as it considers reauthorization issues.

Changes in the Use of AIP Grants and Additional Decreases in Trust Fund Revenue Could Affect Airports' Future Funding Ability

The use of AIP grants to fund new airport security requirements and additional decreases in the Airport and Airway Trust Fund's⁵ revenues could affect the future ability of airports to fund their planned capital development. In recent fiscal years, airports obtained most of their funding for planned capital development from bonds, AIP grants, and passenger facility charges.⁶ Because the Trust Fund is the source of funding for AIP grants, its financial condition is important to the ability of airports to fund capital development, and decreases in its revenues could reduce the amount of funding for airport planned capital development. Reductions in AIP grant funds would have the greatest effect on smaller airports, which derive most of their planned capital development funding from AIP grants, whereas large- and medium-hub airports derive most of their funding from bonds.

Continued Use of AIP Grant Funds for Security Projects Would Reduce Funding for Capacity Projects

According to FAA officials, FAA plans to allocate the same amount of AIP grant funds for new security projects at airports in fiscal year 2003 as it allocated in fiscal year 2002—\$561 million. As we reported in October 2002,⁷ the use of AIP grants for security projects reduced the funding available for other airport development projects, such as projects to bring airports up to FAA's design standards and reconstruction projects, and caused FAA to defer three letter-of-intent payments totaling \$28 million to three airports until fiscal year 2003 or later.⁸ Among the key reauthorization issues facing the Congress are how the funding needs for capacity and security projects will be balanced and how the new security requirements, including the terminal modification projects that are expected to cost \$3 billion to \$5 billion, will be funded.

⁵The Airport and Airway Trust Fund was established by the Airport and Airway Revenue Act of 1970 (P.L. 91-258) to aid in funding the development of a nationwide airport and airway system and to fund FAA investments in air traffic control facilities. The Trust Fund is supported by a number of excise taxes, including taxes on passenger tickets, fuel, and cargo.

⁶Under the Passenger Facility Charge program, airports with FAA's approval may charge passengers up to \$4.50 for boarding airplanes at their facilities.

⁷U.S. General Accounting Office, *Airport Finance: Using Airport Grant Funds for Security Projects*, [GAO-03-27](#) (Washington, D.C.: Oct. 15, 2002).

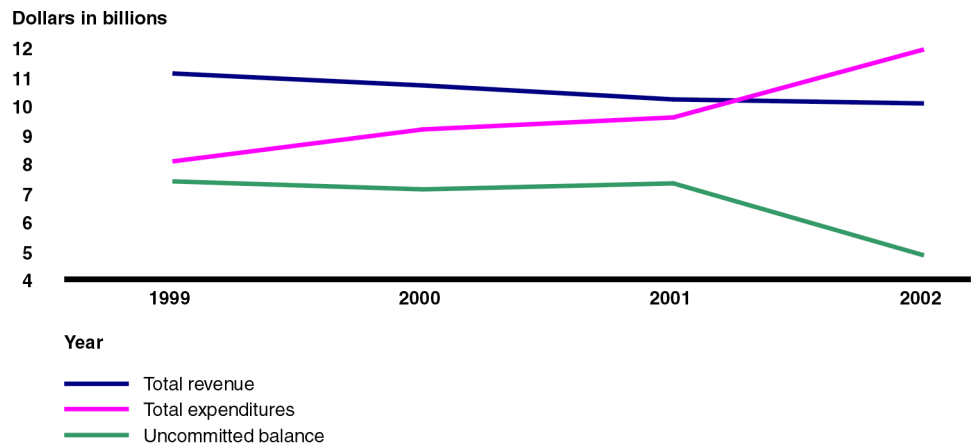
⁸Letters of intent represent a nonbonding commitment from FAA to provide multiyear funding to an airport beyond the current AIP authorization period.

Additional Declines in Airport and Airway Trust Fund Revenue Could Also Affect Amount of AIP Grant Funds Available for Future Capital Development

The future ability of airports to fund planned capital development may be affected by uncertainties surrounding the condition of the Trust Fund. As you know, the Trust Fund is the source of funding not only for AIP grants but also for other FAA accounts, including facilities and equipment; research, engineering, and development; and most operations. Revenues to the Trust Fund come from several types of taxes, including passenger ticket and fuel taxes. Although projections made in November 2002 indicate that the Trust Fund will be able to meet its traditional obligations over the next 10 years, the financial outlook for the next 5 to 8 years is uncertain, in part, because passenger traffic has decreased with the slowdown in the economy. Current estimates indicate that between fiscal year 2003 and fiscal year 2007, the Trust Fund's 2002 uncommitted balance of about \$4.8 billion will decline by about \$4 billion, leaving a balance of less than a billion dollars. In addition, if revenues fall short of current projections, the Trust Fund's uncommitted balance may be zero. Under this scenario, AIP grants and other FAA accounts supported by the Trust Fund could potentially receive less funding, and the Congress and the administration would have to decide how to offset the potential decreases.

As figure 2 shows, from 1999 through 2002, revenues to the Trust Fund have declined, while expenditures from the fund have increased. Revenues fell from about \$11 billion in 1999 to almost \$10 billion in 2002, a decrease of almost 10 percent. During the same period, expenditures increased from about \$8 billion to about \$12 billion, an increase of about 47 percent. As a result, the uncommitted balance (surplus) has fallen by nearly 35 percent, from \$7 billion in 1999 to almost \$5 billion in 2002.

Figure 2: Financial Condition of the Airport and Airway Trust Fund



Source: FAA.

The major reason for the decline in Trust Fund revenues was a drop in passenger ticket tax revenues, which fell by nearly \$1.2 billion from 1999 to 2002. The increase in Trust Fund expenditures from 1999 through 2002, amounting to almost \$4 billion, can be attributed primarily to increases in funding for FAA operations and AIP grants, which accounted for about 47 percent and about 34 percent of the total increase, respectively.

In addition, the administration is proposing actions that would further reduce the Trust Fund balance over the next several years. Specifically, the President's fiscal year 2004 budget request would increase the percentage of FAA operations funded by the Trust Fund from 75 percent⁹ to 79 percent. The decrease in Trust Fund revenues and increase in Trust Fund expenditures presents an issue that the Congress may want to address as it moves forward with the reauthorization process.

⁹This was the average for 1998 through 2002.

Resolving Challenges to Runway Development Remains an Important Issue

While there is a general consensus that building runways is one of the most effective ways to increase capacity in the national airspace system, resolving the challenges associated with planning and building runways is an important issue that is directly related to enhancing capacity. In December 2002, FAA published the most recent version of its Operational Evolution Plan, a 10-year plan to increase the capacity and efficiency of the national airspace system, primarily by building runways.¹⁰ Figure 3 illustrates how capacity will be increased at one airport through runway construction.

¹⁰In addition to runways, the plan addresses capacity enhancements designed to make more efficient use of the airspace.

Figure 3: Increasing Airport Capacity through Runway Development



Source: HNTS.

If successfully carried out, FAA's Operational Evolution Plan would substantially increase capacity and improve efficiency. However, FAA faces several challenges in implementing the plan. First, the success of the plan depends on adequate funding and on the consensus of FAA's aviation

industry partners. Yet according to the most recent version of the plan, the timing and implementation of some activities may be in jeopardy because of the current economic situation and the uncertain viability of some industry participants. For example, the plan calls for the airline industry to invest \$11 billion in new equipment for aircraft. FAA is currently reviewing the ability of the airlines to make this investment. Second, as noted, the plan relies heavily on runway development to increase capacity, but the most recent version of the plan reports mixed results in building new runways. While the plan indicates that one new runway will be built during the next 10 years, it points out that another runway has been canceled and the construction of six additional runways has been delayed because of local situations.

In January 2003, we reported that airports spent about 10 years planning and building recently completed runways and expect to spend about 14 years on runways that are not yet completed.¹¹ We also reported that several external factors affect how much time is spent planning and building runways, and several airports with unfinished runway projects identified significant challenges that had delayed the completion of their projects. While many airports believed that completing the environmental review phase was a significant challenge and is an issue that warrants immediate attention, airports also faced obstacles that some said were as onerous as the environmental review phase. They identified significant challenges in reaching agreement with community interest groups during the planning phase and in mitigating the potential impact of aircraft noise on the surrounding community. Although there may be no single solution to resolving all of the issues involved in planning and building runways, the federal government and airport authorities are taking some action. For example, the Senate's and the administration's reauthorization proposals call for streamlining the environmental review of transportation infrastructure projects.

Recognizing that building new runways is not always a practicable way to increase capacity at some airports, we identified three alternatives to building runways in our December 2001 report:¹²

¹¹U.S. General Accounting Office, *Aviation Infrastructure: Challenges Related to Building Runways and Actions to Address Them*, GAO-03-164 (Washington, D.C.: Jan. 30, 2003).

¹²U.S. General Accounting Office, *National Airspace System: Long-term Capacity Planning Needed Despite Recent Reduction in Flight Delays*, GAO-02-185 (Washington, D.C.: Dec. 14, 2001).

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- Find ways to manage and distribute demand within the system's existing capacity at busy airports such as LaGuardia, by, for example, limiting the number of takeoffs and landings during peak periods or limiting the ability of general aviation aircraft to use especially congested airports (under current law, all aircraft have equal access to even the largest airports). Airports are restricted in using pricing to reflect the scarcity and congestion of airspace.
 - Add capacity by using nearby airports that have available capacity.
 - Examine other modes of intercity travel, such as high-speed rail, where metropolitan areas are relatively close, to form an integrated, intermodal transportation network.

Accordingly, we recommended that the Department of Transportation (DOT) begin a more extensive evaluation of initiatives, including intermodal solutions and a dialogue with transportation stakeholders, as a basis for developing a comprehensive blueprint for addressing the nation's long-term transportation needs. DOT has recognized the need for more and better long-range planning on the potential use of such measures and agreed with our recommendation. The Department's evaluation efforts are in the beginning stages. The current hiatus in air traffic growth creates an opportunity for the development of long-term transportation plans.

Federal Programs to Help Small Communities Improve Air Service Face Budgetary Pressures and Questions about Their Effectiveness

While the need for greater capacity is a vital issue for some large- and medium-hub airports, the primary issue at other airports that serve small communities is to obtain or retain commercial air service. The reauthorization process provides an opportunity for the Congress to clarify the federal strategy for helping small communities acquire the commercial air service they desire. Currently, the challenges that small communities have long faced in obtaining or retaining commercial air service are increasing as many U.S. airlines try to stem unprecedented financial losses through numerous cost-cutting measures, including reducing or eliminating service in some markets. Small communities feel such losses disproportionately because they may have service from only one or two airlines. For them, reductions can mean no air service at all.

The Essential Air Service (EAS) program, authorized under the Airline Deregulation Act of 1978, guarantees that small communities served before deregulation will continue to receive a certain level of scheduled air service. Its costs have more than tripled since fiscal year 1995, and indications are that without changes to the program, the demand for

subsidies will soon exceed the program's \$113 million appropriation for fiscal year 2003. At the same time, aggregate passenger levels at EAS-subsidized airports continue to fall. Often fewer than 10 percent of a community's potential passengers use the subsidized local service; the rest choose to drive to their destination or drive to a larger airport that offers lower fares or more frequent service to more destinations. In 2000, the median number of passengers on each EAS-subsidized flight was three. The administration's budget proposal for fiscal year 2004 would substantially reduce the federal subsidy for small community air service and require communities that wish to retain the service to help subsidize it. Specifically, the budget proposal would reduce federal EAS funding from \$133 million in 2003 to \$50 million in 2004, alter the eligibility criteria for funding, and require nonfederal matching funds. Consistent with its budget proposal, the administration's reauthorization proposal would restructure the EAS program to direct its resources to the small communities with the greatest need to maintain access to national air transportation service. The Senate bill proposes to reauthorize funding for the program at current levels.

The Small Community Air Service Development Pilot Program, authorized as part of AIR-21, provides grants to communities to enhance local air service. In fiscal year 2002, 180 communities requested over \$142 million in air service development grants, and \$20 million was appropriated. In March 2003, we reported that the program funded some innovative approaches.¹³ For example, Mobile, Alabama, received about \$450,000 to provide ground-handling services to an airline, and Caspar, Wyoming, received \$500,000 to purchase and lease back an aircraft to an airline to ensure service to the community. The program also funded the same types of projects that many small communities have undertaken in recent years, such as evaluations of marketing activities and the use of financial incentives to encourage airlines to either start or enhance service. According to our analysis of similar approaches used by about 100 small communities, financial incentives offered the most promise for attracting new or additional service. However, the additional service typically ended with the incentives. The sustainability of such improvements in air service over the longer term appeared to depend on the community's size and ability to demonstrate a commitment to that air service, either by

¹³U.S. General Accounting Office, *Commercial Aviation: Issues Regarding Federal Assistance for Enhancing Air Service to Small Communities*, [GAO-03-540T](#) (Washington, D.C.: Mar. 11, 2003).

providing a profitable passenger base or through direct financial assistance. As you know, the administration's fiscal year 2004 budget proposal would eliminate the funding for this pilot program. It is too soon to determine how effective the various types of initiatives funded through this program might prove to be. Other options for making the national air transportation system more accessible to small communities might include intermodal initiatives such as those we proposed as alternatives to runway development.

Efforts to Improve the Efficiency of the Air Traffic Control System Face Ongoing Challenges

Improving the efficiency of the air traffic control system will be important to accommodate the expected return to pre-September 11 air traffic levels. Efforts to achieve this improvement pose continuing challenges, as FAA attempts to put acquisition management and human capital reforms in place and establish an effective oversight and organizational structure to help ensure that resources are spent cost-effectively and improvements are realized.

FAA's Air Traffic Modernization Remains High Risk

To increase the safety, capacity, and efficiency of the national airspace system, FAA undertook a major effort in 1981 to modernize and replace aging air traffic control equipment. This effort, which includes major projects in such areas as communications, surveillance, navigation, and weather, has been plagued by cost overruns, schedule delays, and performance shortfalls. As a result, we designated FAA's air traffic modernization program as high risk in 1995, and we continue to designate it as such.¹⁴ Figure 4 combines our and the DOT Inspector General's analysis of FAA's progress in meeting cost and schedule goals for selected air traffic control projects—the Standard Terminal Automation Replacement System (STARS), Wide Area Augmentation System (WAAS), Next-Generation Air/Ground Communication (NEXCOM), free flight, Local Area Augmentation System (LAAS), and Integrated Terminal Weather System (ITWS).

¹⁴U.S. General Accounting Office, *High-Risk Series: An Update*, [GAO-03-119](#) (Washington, D.C.: Jan. 2003).

Figure 4: Status of Selected FAA Air Traffic Control Projects

	Cost	Schedule
STARS	●	●
WAAS	●	●
NEXCOM	●	●
Free flight	●	●
LAAS	●	●
ITWS	●	●

- Problems
- Mixed results
- On track

Source: GAO and DOT Inspector General analysis of FAA data.

FAA is making progress in managing the air traffic control modernization effort and has implemented some key projects. For example, the agency has replaced the automated color display equipment used by air traffic controllers to control traffic in some facilities (Display System Replacement); installed the initial phase of the computer that receives, processes, and tracks aircraft movement throughout the airspace system (HOST computer); and implemented some free flight technologies that are expected to allow for more efficient use of the system by improving operations in various segments of flight. Figure 5 shows an FAA representative using the Display System Replacement to monitor and handle air traffic.

Figure 5: Air Traffic Controller



Source: FAA.

However, other key projects continue to experience cost, schedule, and performance problems. The Inspector General has reported that the costs of five acquisitions have grown by \$3 billion—the equivalent of 1 year’s budget for the modernization program—and the delay in completing these acquisitions has ranged from 3 to 5 years.¹⁵ Problems in implementing the Standard Terminal Automation Replacement System are indicative of the problems that have plagued the modernization program. Since September 1996, FAA has been developing the STARS project to replace the outdated

¹⁵These five programs are the Wide Area Augmentation System, Standard Terminal Automation Replacement System, Airport Surveillance Radar-11, Weather and Radar Processor, and Operational, Supportability, and Implementation System. See U.S. Department of Transportation, Office of Inspector General, *Reauthorization of the Federal Aviation Administration*, CC-2003-058 (Washington, D.C.: Feb. 12, 2003).

computer equipment that air traffic controllers currently use in some facilities to control air traffic within 5 to 50 nautical miles of an airport.

The current program presently bears little resemblance to the program envisioned in 1996. Initially FAA anticipated very little software development, planned to install STARS in 172 facilities at a cost of \$940 million, and expected implementation to begin in 1998 and end in 2005. In 1999, FAA modified its acquisition approach (from off-the-shelf software to a combination of customized and off-the-shelf software) and increased to 188 the number of facilities scheduled to receive STARS. Then the agency concluded that it did not have adequate funding to deploy STARS to 188 facilities, and in March 2002, it received approval to deploy STARS at 74 facilities that had frequent equipment failures, were new, or had the digital radar needed to operate STARS.

FAA does not yet know to what extent its estimate of STARS's remaining development costs is reliable because, as we reported in January 2003, FAA lacks accurate, valid, current data on the STARS program's remaining costs and progress.¹⁶ Without such data, FAA is limited in its ability to effectively oversee the contractor's performance and reliably estimate future costs. Although FAA has adopted clear procurement management policies and procedures, it did not consistently apply this guidance in managing the STARS contract. For example, the development cost estimate is based on the contractor's projections, which FAA had not yet independently analyzed as its guidance directs. We made several recommendations to improve the management of STARS and subsequent terminal modernization programs and to provide the Congress with more reliable information for oversight. FAA agreed with our recommendations and is implementing them.

Acquisition Management System Is in Place, but Weaknesses Limit FAA's Ability to Manage Its Investments Effectively

As part of its procurement reforms, FAA introduced an acquisition management system in 1996 to reduce the time and cost to deploy new products and services. In 1999, we reported that this system provided a structured management approach for selecting and controlling investments, but still had weaknesses, such as incomplete data on projects' costs, schedule, benefits, performance, and risks, that limited

¹⁶U.S. General Accounting Office, *National Airspace System: Better Cost Data Could Improve FAA's Management of the Standard Terminal Automation Replacement System*, [GAO-03-343](#) (Washington, D.C.: Jan. 31, 2003).

FAA's ability to manage its investments effectively. We made several recommendations to address these weaknesses and FAA has made changes to better manage its investments. We have since found that FAA is overseeing investment risk and capturing key information from the investment selection process in a management information system and is also developing guidance for validating costs, benefits, and risks. However, FAA is not yet incorporating actual costs from related system development efforts in its processes for estimating the costs of new projects. Moreover, FAA has not yet implemented processes for evaluating projects after implementation in order to identify lessons learned and improve the investment management process. These weaknesses have impeded FAA's ability to manage its investments effectively and make sound decisions about continuing, modifying, or canceling projects. Because its acquisition reform effort is not complete, major projects continue to face challenges that could affect their costs, schedule, and performance.

Human Capital Reform Initiatives Do Not Incorporate Elements Important for Effective Management

In response to claims by FAA that burdensome governmentwide human capital rules impeded its ability to hire, train, and deploy personnel, the Congress exempted FAA from many federal laws¹⁷ governing human capital, and the agency began implementing sweeping human capital reforms in 1996.¹⁸ These reforms addressed three broad areas: (1) compensation and performance management, (2) workforce management, and (3) labor and employee relations. Figure 6 summarizes our analysis of FAA's progress in implementing initiatives in each of these areas.

¹⁷This is a result of 1995 legislation that granted FAA broad exemptions from laws governing federal civilian personnel management found in title 5 of the United States Code.

¹⁸U.S. General Accounting Office, *Human Capital Management: FAA's Reform Effort Requires a More Strategic Approach*, [GAO-03-156](#) (Washington, D.C.: Feb. 3, 2003).

Figure 6: Implementation Status of Selected FAA Personnel Reform Initiatives

Reform area	Initiatives	Status
Compensation and performance management	Broadbanded pay systems	○
	Performance appraisals without ratings	○
Workforce management	Workforce planning	○
	Decentralized competitive hiring	●
	Delegated training management	●
	Flexible relocation policies	●
Labor and employee relations	Labor partnership forums	●
	Workplace improvement policies	●

- In progress
- Completed

Source: GAO analysis of FAA data.

While FAA has fully or partially implemented the initiatives in each of its three broad reform areas, it has not fully incorporated elements that are important to effective human capital management into its overall reform effort. These elements include data collection and analysis, performance goals and measures, and links between reform goals and program goals. Furthermore, as we reported in February 2003, FAA has not developed specific steps and time frames for building these missing elements into its human capital management and for using these elements to evaluate the effects of its personnel reform initiatives, make strategic improvements, and hold the agency’s leadership accountable.

New Structure for Improving the Performance of the Air Traffic Control System Has Not Been Fully Implemented

In 2000, AIR-21 and an executive order established a new structure to accelerate the modernization and improve the performance of the air traffic control system. This structure was to consist of (1) a five-member board, called the Air Traffic Services Subcommittee (Subcommittee), to oversee the air traffic control system, (2) a chief operating officer to manage the air traffic control system, and (3) a new performance-based organization, to be known as the Air Traffic Organization, to operate the air traffic control system. Under the act, the Subcommittee provides oversight by, among other things, reviewing and approving strategic plans, large contracts, and budget requests for the air traffic control system.

The Subcommittee has been meeting since January 2001, but a chief operating officer has not yet been appointed, and FAA is waiting for an

appointment before putting the new air traffic organization in place. To date, the Subcommittee has focused on bringing performance management, accountability, and a more businesslike structure to the air traffic control system, and it has taken some specific actions, including reviewing and approving performance metrics, a budget, and three large procurements that FAA initiated. However, without a chief operating officer or a performance-based organization, the new structure is not functioning as intended.

FAA and other stakeholders have suggested reasons for the difficulties in implementing the new structure and have proposed changes to AIR-21 that they believe would address these reasons. For example, they have noted that the Subcommittee's authority to approve the budget request for the air traffic control system challenges the administration's prerogative to submit a budget request reflecting its priorities, and they have cited uncertainties in the responsibilities and reporting relationships of the chief operating officer, the FAA Administrator, and the Subcommittee that, they say, have made it difficult to hire a chief operating officer. To address these issues, the administration's reauthorization proposal would (1) eliminate the Subcommittee's approval authority, making the Subcommittee an advisory body, and (2) designate the FAA Administrator as the chair of the Subcommittee, thereby strengthening the Administrator's authority over, and accountability for the performance of, the chief operating officer. While these changes would eliminate the challenge that the Subcommittee's approval authority poses to the administration's prerogatives; would clarify the lines of authority between the chief operating officer, the FAA Administrator, and the Subcommittee; and could make it easier to hire a chief operating officer, they would also limit the power of the Subcommittee. The Senate's reauthorization proposal would also designate the FAA Administrator as the chair of the Subcommittee, but it would retain the Subcommittee's approval authority. The merits of these and other proposed changes depend, in large part, on the extent to which approval authority is viewed as necessary or desirable to bring about improvements in the performance of the air traffic control system.

FAA Is Implementing Safety Initiatives and Faces New Challenges in Ensuring That Security Enhancements Maintain Aircraft Safety

Safety has always been and continues to be FAA's highest priority. FAA has taken a number of important steps to improve aviation safety; however, its planning and implementation could sometimes be more effective. In addition, with the transfer of most aviation security responsibilities to the Transportation Security Administration (TSA), FAA faces the challenge of maintaining close coordination with TSA to ensure that aircraft safety is maintained as TSA implements new security enhancements.

FAA and Industry Have Taken Actions to Reduce the Fatal Accident Rate

Reducing fatal aviation accidents is key to improving aviation safety. FAA's centerpiece for reaching this goal is Safer Skies, an initiative that dates back to 1998, when FAA and aviation industry representatives worked together to identify the major causes of fatal accidents and to design and implement actions to prevent future accidents. Safer Skies is intended to reduce the fatal accident rate for commercial aviation by 80 percent and to reduce the number of fatal accidents for general aviation to 350 a year by 2007.¹⁹ Because many preventive actions have not yet been fully implemented, it may be too early to assess their effectiveness. Achieving the initiative's goals will require FAA to systematically implement preventive actions, such as requiring additional safety inspections of aircraft, and to maintain good data to monitor the progress of these actions and evaluate their effectiveness. As of February 2003, 44 preventive actions had been undertaken—of which 16 are completed and 28 are under way, according to FAA.

¹⁹Commercial aviation includes both large air carrier operations and smaller commuter operations. General aviation includes a wide variety of aircraft, ranging from corporate jets to small piston-engine aircraft as well as helicopters, gliders, and aircraft used in operations such as firefighting and agricultural spraying.

FAA's New Safety Inspection System Offers Promise, but Problems Still Need to Be Addressed

Improving the effectiveness of FAA's inspections of airline operations is key to improving aviation safety. The FAA Administrator has noted that perhaps the greatest support the agency can provide to the industry is a robust safety oversight role that will not waver in difficult times. FAA's new inspection program, the Air Transportation Oversight System, is central to this oversight role. This program, which was implemented in 1998, aims to ensure not only that airlines comply with FAA's safety requirements but also that they have operating systems to control risks and prevent accidents. Figure 7 shows an FAA inspector inspecting an aircraft for compliance with FAA's safety requirements.

Figure 7: FAA Safety Inspection in Progress



Source: FAA.

We reported in 1999 that FAA had not completed many critical steps, such as developing guidance for inspectors and creating databases to use in prioritizing inspection resources, before implementing the new inspection system in 1998.²⁰ As a result, the agency's ability to conduct effective

²⁰ U.S. General Accounting Office, *Aviation Safety: FAA's New Inspection System Offers Promise, but Problems Need to Be Addressed*, [GAO/RCED-99-183](#) (Washington, D.C.: June 28, 1999).

inspections remains limited. FAA has begun to address some of the problems that we identified with the guidance and the databases. However, according to a 2002 review by the DOT Inspector General, many of the problems that we identified persist, and the program's implementation remains inconsistent because FAA has not established strong oversight and accountability procedures.²¹ This situation limits FAA's ability to conduct more systematic, structured inspections; analyze the resulting data to identify safety trends; and target its resources to the greatest aviation safety risks.

Aviation Safety and Security Require Close Coordination between FAA and TSA

Some key efforts under way to improve aviation security require interagency coordination between FAA and TSA because they could also affect aircraft safety. While TSA is responsible for most issues related to aviation security, FAA retains responsibility for those related to aviation safety, including approving the initial aircraft design, structural modifications, and procedures for emergency evacuation and the transportation of hazardous cargo.²² For example, strengthening cockpit doors to increase cockpit security during flights was one of the government's earliest responses to the September 11 terrorist attacks. Because the modifications could increase the weight of the doors and change the way they are attached to the aircraft, FAA has been certifying these modifications to ensure that they will not cause decompression during flight or affect the aircraft's structural integrity. In addition, new security procedures require that the cockpit door remain locked during flight and that access to the cockpit be restricted to the flight crew. As a result, senior flight attendants will no longer carry keys to the cockpit, and FAA is approving changes to the procedures for rescuing the flight crew in an emergency.

FAA is also responsible for the safe transport of dangerous materials onboard aircraft. Dangerous goods are chemical (including infectious) substances (or anything containing such substances) that pose a threat to public safety or the environment during transportation. When these goods are properly packaged, labeled, and stowed onboard, they can be

²¹U.S. Department of Transportation, Office of Inspector General, *Report on the Air Transportation Oversight System: Federal Aviation Administration*, AV-2002-088 (Washington, D.C.: Apr. 8, 2002).

²²FAA has responsibility for maintaining the security of its air traffic control facilities and computer systems.

transported safely, but when they are not, they can pose significant threats to people and property. TSA is responsible for screening all passengers and property, including cargo, that will be carried aboard an aircraft. If, during the screening of passengers or baggage, TSA discovers dangerous goods that are not properly packaged or labeled, TSA will need to coordinate and share information with FAA, which is responsible for enforcing any regulatory violations.

In addition, aircraft crashes could fall under the jurisdiction of either FAA or TSA, depending on whether they were the results of accidents (FAA) or deliberate acts (TSA). It will be important for the two agencies to work together closely during the initial stages of crash investigations. To facilitate coordination on these and other security issues that affect aviation safety, TSA and FAA signed a memorandum of agreement on February 28, 2003. In addition, on March 4, 2003, the Secretary of Transportation agreed to assign a senior official within the Office of the Secretary to serve as DOT's primary liaison to TSA. It is important that both FAA and TSA remain committed to coordinating closely on safety and security issues and that congressional oversight ensures that the memorandum of agreement is implemented.

FAA Faces Challenges in Implementing Controls over Its Costs

As the administration and the Congress focus on increasing aviation capacity, efficiency, and safety, they do so in an extremely challenging fiscal environment—the federal budget deficit has increased and competition for federal resources has intensified. Moreover, as we mentioned previously in this statement, revenues to the aviation Trust Fund, which is the source of funding for most of FAA's operations, facilities and equipment, and grant programs, have declined in recent years while outlays have increased. It is, therefore, especially important that FAA control or reduce costs, run its programs efficiently, and detect and prevent fraudulent activities. We and DOT's Inspector General have reported that improvements are needed in these areas.

For example, in March 2003, we reported that weaknesses in FAA's purchase card²³ controls resulted in instances of improper, wasteful, and

²³As of January 2002, over 8,000 FAA employees (17 percent of its workforce) had been issued commercial purchase cards. In fiscal year 2001, FAA made over 364,000 purchases using these cards.

questionable purchases, as well as missing and stolen assets.²⁴ These internal control weaknesses included inadequate segregation of duties (i.e., the cardholder requested the purchase, placed the order, and picked up or received the goods without any other review or approval), lax supervisory review and approval, missing purchase documents, inadequate training, and insufficient program monitoring activities, all of which created an environment vulnerable to fraud, waste, and abuse. During fiscal year 2000, these weaknesses contributed to \$5.4 million in improper purchases by FAA employees and over \$630,000 in purchases that were considered wasteful or questionable because they were missing a receipt to show what was actually purchased. To reduce the likelihood of improper and wasteful purchases, we recommended a number of actions to strengthen the internal controls over FAA's purchase card program, such as developing detailed procedures that specify the type and extent of review or approval that is expected. FAA agreed with our recommendations.

In addition, DOT's Inspector General reported in January 2003 that FAA needs to contain increases in its operating costs and improve its internal controls over costs.²⁵ Over the past 6 years, FAA's operations budget, which is 73 percent personnel costs, increased by over 41 percent, from \$5.3 billion in fiscal year 1998 to \$7.5 billion in fiscal year 2003. The Inspector General noted that FAA has made extensive use of its human capital flexibilities to substantially increase salaries, but has done little to reduce operating costs. FAA has improved its ability to track its costs by partially implementing a new cost accounting system that the Congress directed it to develop in 1996. The new system, which FAA expects to be fully operational by the end of 2003, now tracks 70 percent of the personnel, overhead, and other costs related to air traffic services. However, DOT's Inspector General has reported problems with the labor distribution system, which is part of the cost accounting system and is used to account for and distribute air traffic controller labor costs of about \$3.1 billion annually to specific facilities and functions. The Inspector General noted that the system omitted important internal controls needed to ensure that the time worked by air traffic controllers would be

²⁴U.S. General Accounting Office, *FAA Purchase Cards: Weak Controls Resulted in Instances of Improper and Wasteful Purchases and Missing Assets*, [GAO-03-405](#) (Washington, D.C.: Mar. 21, 2003).

²⁵Department of Transportation, Office of Inspector General, *DOT's Top Management Challenges* (Washington, D.C.: Jan. 21, 2003).

accurately recorded in the accounting system and paid from the proper account. The Inspector General brought these deficiencies to the attention of FAA, and the Administrator agreed to correct them. The Inspector General further noted that the system as designed could provide workforce data that would help determine how many controllers are needed and where. These data would assist FAA in planning for the anticipated retirement of large numbers of air traffic controllers in the near and long term.²⁶ Congressional oversight is important to ensure that FAA follows through and corrects the problems that we and the Inspector General have identified so that FAA can spend its resources on projects and services that will provide the greatest return on the public's investment.

Scope and Methodology

This statement is based primarily on issued reports that are listed under Related GAO Products. However, the sections on the Airport and Airway Trust Fund and the Air Traffic Services Subcommittee reflect our ongoing work for this Committee. As a result, the results of this work that we discuss in this testimony are still preliminary.

To assess the current and projected financial status of the Airport and Airway Trust Fund, we obtained financial data from FAA and interviewed FAA officials familiar with the information. To assess the status of efforts to implement the new structure established under AIR-21 to improve the oversight, management, and operation of the air traffic control system, we analyzed the legislation and related executive order, the administration's reauthorization proposal, and the first report of the Air Traffic Services Subcommittee. We also interviewed officials from FAA, the Air Traffic Services Subcommittee, and aviation industry organizations. We performed our work in accordance with generally accepted government auditing standards.

²⁶U.S. General Accounting Office, *Air Traffic Control: FAA Needs to Better Prepare for Impending Wave of Controller Attrition*, [GAO-02-591](#) (Washington, D.C.: June 14, 2002).

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Related GAO Products

FAA Purchase Cards: Weak Controls Resulted in Instances of Improper and Wasteful Purchases and Missing Assets. [GAO-03-405](#). Washington, D.C.: March 21, 2003.

Commercial Aviation: Issues Regarding Federal Assistance for Enhancing Air Service to Small Communities. [GAO-03-540T](#). Washington, D.C.: March 11, 2003.

Airport Finance: Past Funding Levels May Not Be Sufficient to Cover Airports' Planned Capital Development. [GAO-03-497T](#). Washington, D.C.: February 25, 2003.

National Airspace System: Reauthorizing FAA Provides Opportunities and Options to Address Challenges. [GAO-03-473T](#). Washington, D.C.: February 12, 2003.

Aviation Finance: Implementation of General Aviation Entitlement Grants. [GAO-03-347](#). Washington, D.C.: February 11, 2003.

Human Capital Management: FAA's Reform Effort Requires a More Strategic Approach. [GAO-03-156](#). Washington, D.C.: February 3, 2003.

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Air Traffic Control: Impact of Revised Personnel Relocation Policies Is Uncertain. [GAO-03-141](#). Washington, D.C.: October 31, 2002.

Airport Finance: Using Airport Grant Funds for Security Projects Has Affected Some Development Projects. [GAO-03-27](#). Washington, D.C.: October 15, 2002.

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