

January 2003

Major Management Challenges and Program Risks

Department of Transportation



G A O

Accountability * Integrity * Reliability

A Glance at the Agency Covered in This Report

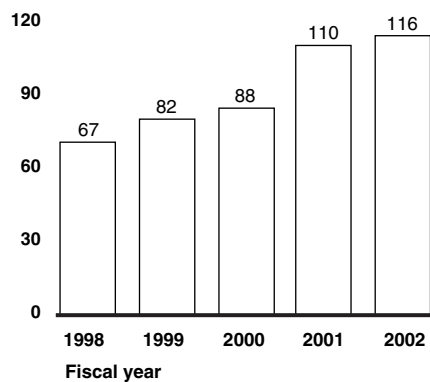
The Department of Transportation implements national transportation policy and administers federal transportation programs. Its responsibilities are considerable and reflect the extraordinary scale, use, and impacts of the nation's transportation system. The department carries out multiple transportation missions, including

- reducing deaths and injuries on our nation's roads, in civil aviation, in the railroad industry, and on waterways;
- improving mobility on and the accessibility of our nation's roads and public transportation systems;
- protecting the nation's passenger and freight transportation systems;
- promoting the development of the railroad industry and the development and maintenance of an adequate, well-balanced merchant marine; and
- providing law enforcement, humanitarian assistance, and emergency response on our nation's waterways.

The Department of Transportation's Budgetary and Staff Resources

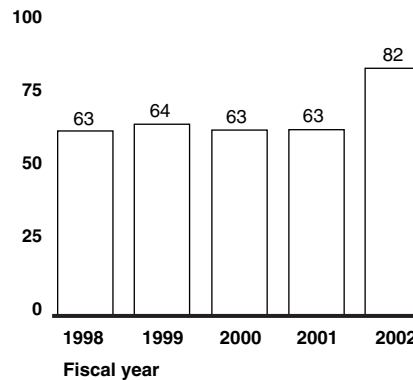
Budgetary Resources ^{a, b}

Dollars in billions



Staff Resources ^b

FTEs in thousands



Source: Budget of the United States Government for fiscal years 2000-2003.

^a Budgetary resources include new budget authority (BA) and unobligated balances of previous BA.

^b Budget and staff resources are actuals for FY 1998-2001. FY 2002 are estimates from the FY 2003 budget, which are the latest publicly available figures on a consistent basis as of January 2003. Actuals for FY 2002 will be contained in the President's FY 2004 budget to be released in February 2003. Does not include the U.S. Coast Guard's uniformed personnel, which was about 36,600 personnel in fiscal year 2002.

This Series

This report is part of a special GAO series, first issued in 1999 and updated in 2001, entitled the *Performance and Accountability Series: Major Management Challenges and Program Risks*. The 2003 Performance and Accountability Series contains separate reports covering each cabinet department, most major independent agencies, and the U.S. Postal Service. The series also includes a governmentwide perspective on transforming the way the government does business in order to meet 21st century challenges and address long-term fiscal needs. The companion 2003 *High-Risk Series: An Update* identifies areas at high risk due to either their greater vulnerabilities to waste, fraud, abuse, and mismanagement or major challenges associated with their economy, efficiency, or effectiveness. A list of all of the reports in this series is included at the end of this report.

Department of Transportation



Highlights of [GAO-03-108](#), a report to Congress included as part of GAO's Performance and Accountability Series

Why GAO Did This Report

In its 2001 performance and accountability report on the Department of Transportation (the department), GAO identified important safety, security, acquisition, financial management, and other issues facing the department.

The information GAO presents in this report is intended to help sustain congressional attention and a departmental focus on continuing to make progress in addressing these challenges—and others that have arisen since 2001—and ultimately overcoming them. This report is part of a special series of reports on governmentwide and agency-specific issues.

What Remains to Be Done

GAO believes the department should

- work with Congress and other transportation stakeholders to develop approaches that improve transportation safety, mobility through intermodal and modal planning and investment approaches, and human capital strategies;
- pursue strategies to address long-term security challenges and ensure a smooth transition to Department of Homeland Security responsibility;
- continue to improve its acquisition and financial management by addressing root causes of problems.

www.gao.gov/cgi-bin/getrpt?GAO-03-108.

To view the full report, click on the link above. For more information, contact John H. Anderson, Jr. at (202) 512-2834 or andersonj@gao.gov.

What GAO Found

The Department of Transportation has implemented a number of actions to improve its mission and management performance. Future improvements will increasingly demand effective partnerships and consensus-building with state, local, and private stakeholders.

- **Improving transportation safety.** Efforts to further reduce 44,000 annual transportation fatalities have reached a plateau. Since the highest pay-off actions have occurred, future improvements will be difficult because they depend on influencing individuals' behaviors and state and local governments' implementation of safety laws.
- **Transforming transportation security.** Security is a crucial and growing responsibility. The department needed to design and implement effective security approaches that did not unduly hinder passenger and freight mobility. It created the Transportation Security Administration and staffed a federalized aviation screening workforce of more than 60,000 people within just a few months. Despite an impressive start, extraordinary challenges remain. It now must accomplish a smooth transfer of security functions to the new Department of Homeland Security and work closely with the new agency on transportation security.
- **Improving mobility and economic growth through intermodal and modal approaches.** As transportation needs change, mobility and economic growth are affected. More travel crosses transportation modes and increasing congestion—particularly for freight—affects productivity. New strategies and policy decisions—especially about Amtrak's role—are required to meet these challenges.
- **Enhancing management of aviation and Coast Guard acquisitions.** The Federal Aviation Administration (FAA) and the Coast Guard face major acquisition issues. Both agencies have improved acquisition management, but multibillion-dollar modernization projects pose risks of significant delays and cost increases. Specifically, FAA's Air Traffic Control modernization efforts continue to be at high risk.
- **Building human capital strategies.** The department faces human capital problems that are mirrored in the nation's transportation sector. A shortfall of people and skills could compromise the transportation workforce and affect the economy, safety, and mobility of our nation.
- **Fostering improved financial management.** The department and FAA have made significant progress in improving the underlying causes of weaknesses in their financial management systems. Until new systems that will soon be deployed are proven in full operation, FAA's financial management systems remain at high risk.

Contents

Transmittal Letter	1
Major Performance and Accountability Challenges	2
GAO Contacts	49
Related GAO Products	50
Performance and Accountability and High-Risk Series	57

This is a work of the U.S. Government and is not subject to copyright protection in the United States. It may be reproduced and distributed in its entirety without further permission from GAO. It may contain copyrighted graphics, images or other materials. Permission from the copyright holder may be necessary should you wish to reproduce copyrighted materials separately from GAO's product.



United States General Accounting Office
Washington, D.C. 20548

January 2003

The President of the Senate
The Speaker of the House of Representatives

This report addresses the major management challenges facing the U.S. Department of Transportation as it carries out its multiple and highly diverse missions. The report discusses the actions that the department has taken and that are under way to address the challenges GAO identified in its Performance and Accountability Series 2 years ago, and major events that have occurred that significantly influence the environment in which the department carries out its mission. Also, GAO summarizes the challenges that remain, new ones that have emerged, and further actions that GAO believes are needed.

This analysis should help the new Congress and the administration carry out their responsibilities and improve government for the benefit of the American people. For additional information about this report, please contact John H. Anderson, Jr., Managing Director, Physical Infrastructure Issues, at (202) 512-2834 or at andersonj@gao.gov.

David M. Walker
Comptroller General
of the United States

Major Performance and Accountability Challenges

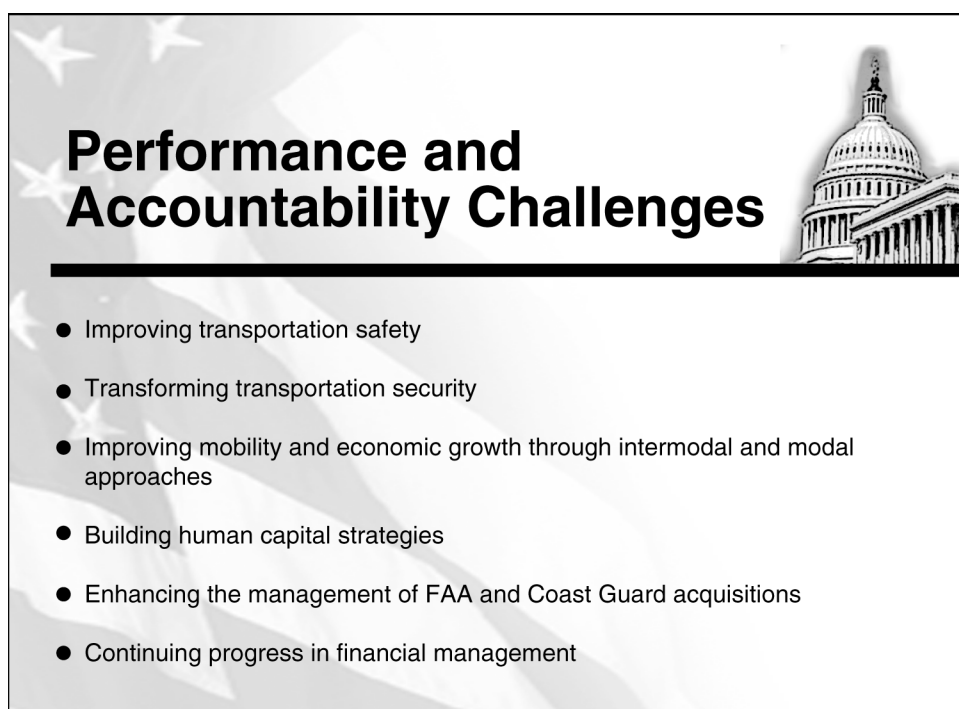
Our 2001 Performance and Accountability Series report described the major challenges facing the Department of Transportation (the department) as follows:

- Improving the safety and security of air, highway, and pipeline transportation;
- Strengthening the financial condition of Amtrak;
- Enhancing competition and consumer protection in the aviation and freight rail industries;
- Enhancing the management of aviation and Coast Guard acquisitions and obsolete ship disposal;
- Increasing the accountability for financial management activities; and
- Improving the oversight of highway and transit projects.

We have reported that the department has made measurable progress in carrying out its diverse missions and improving management of its operations since our 2001 report. For example, the department has made concentrated efforts to improve financial management of its accounting and property management activities. However, we continue to designate both the Federal Aviation Administration's (FAA) acquisition and financial management as high risk areas. Both our reviews and the department's own performance reports indicate that its performance has been uneven. The department's fiscal year 2001 performance report (the most recent data available), for example, indicates that it met only slightly more than half (59 percent) of the performance goals that it set for itself.

In addition, the intervening 2 years have resulted in dramatic changes that have introduced complex new issues with no easy solutions into the department's responsibilities. Newly critical concerns—transportation security and human capital—are affecting the department's priorities and the scope of these concerns is substantial. Security, always a crucial issue, became paramount. An impending shortage of skilled personnel may compromise transportation missions and services in the department and throughout the transportation system. Also of concern is the level of congestion, which is an increasingly pervasive problem in the transportation system. Furthermore, the department's other missions and management goals require continuing attention.

This 2003 Performance and Accountability Series report differs from our 2001 report in two important ways. First, our 2003 report recognizes the need to frame some issues more broadly than we have done before. Second, it provides attention to those issues, such as security, that have arisen in the intervening 2 years and will challenge the department for years to come. This report discusses six mission and management challenges that require the department's sustained attention and innovation.



**Performance and
Accountability Challenges**

- Improving transportation safety
- Transforming transportation security
- Improving mobility and economic growth through intermodal and modal approaches
- Building human capital strategies
- Enhancing the management of FAA and Coast Guard acquisitions
- Continuing progress in financial management

The department's pressing challenges are to:

- ***Improve transportation safety*** to reduce transportation-related fatalities, a leading cause of death. We have framed this issue more broadly than in the past so as to include highway safety. This broader statement of the safety challenge facing the department recognizes that it has not made substantial inroads into reducing transportation-related fatalities in the last 2 years. We focused on safety on the nation's highways because the overwhelming majority of fatalities occur there. We are not focusing on pipeline safety as we did in 2001 because the

department's Office of Pipeline Safety has responded positively to our recommendations aimed at (1) involving state pipeline safety offices in the department's safety inspection of pipelines and (2) using a fuller range of enforcement actions, such as monetary penalties, when it finds safety violations.

- ***Transform transportation security*** to reduce the vulnerability of the nation's surface and air transportation systems to terrorism and other disruptions. While our 2001 report recognized that the department faced aviation security concerns, these concerns have been greatly amplified as a result of the terrorist attacks on the United States in September 2001 and subsequent events. This 2003 report, therefore, presents transportation security as a separate mission challenge. Under the Homeland Security Act of 2002, the department's major homeland security functions, now housed in the Transportation Security Administration (TSA) and the Coast Guard, are to be moved to the newly created Department of Homeland Security by January 2004. Because there will be a continued need for cooperation and communication between the Department of Transportation and TSA to effectively protect borders and ensure security of all modes of transportation and because the department will be a key stakeholder in the future regarding development and implementation of transportation security policy, we continue to consider transportation security functions as challenges for the department to address.
- ***Improve mobility and economic growth*** using intermodal and modal approaches to meet changing passenger and freight travel needs, such as ameliorating congestion. Our 2001 report recognized some aspects of this challenge—addressing the financial condition of Amtrak, aviation industry consolidation and its impacts on small communities, mass transit funding, and oversight of federal highway and bridge investments. However, this 2003 report presents this issue in a broader perspective, recognizing that the challenge to fostering mobility is more than just surmounting problems in individual modes of transportation. Three issues included in our 2001 report are not included in this report. First, the department has responded positively to our recommendations regarding transit project oversight. Second, we have presented Congress with options for determining the amount of highway trust funds for distribution that it may wish to consider during the reauthorization of the Transportation Equity Act for the 21st Century. Finally, regarding freight rail competition, the Surface Transportation Board (the industry

regulator) does not expect additional applications for mergers of major railroads in the near future.

- ***Build human capital strategies*** that will ensure that the department and the transportation sector achieve missions and deliver services effectively, efficiently, and economically. We identified the need to revamp federal strategic human capital management as a governmentwide challenge¹ in 2001 and discussed aspects of this issue in our 2001 report on the department. The need to address human capital challenges has grown over the past 2 years and we have identified it as a discrete challenge for the department in 2003.
- ***Enhance FAA and Coast Guard acquisition management*** to maximize returns from investment of public funds in large, complex, high-cost procurements. This is a continuing challenge in which the department has made some progress, but still needs concentrated attention. This is particularly true for aviation acquisition management, which we designated as high risk in 1995. FAA acquisition remains a high risk area in 2003 because critical systems are not yet in place and proven in operation and because the agency has not completed efforts to address root causes of prior modernization problems. As a result, key reforms are not completed and could jeopardize major projects' costs, schedule, and performance. Obsolete ship disposal—included in our 2001 report—is not discussed in this report because the department has made progress in this area.
- ***Continue progress in improving financial management*** to provide accurate, reliable financial information for decisionmakers. FAA's financial management has been a high risk area since 1999 and, despite significant progress made by the department, continues to be high risk this year because critical systems are not yet in place and proven in operation.

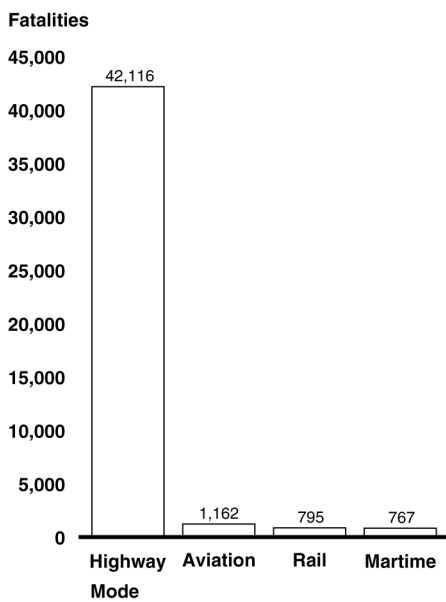
Selected GAO reports that address many of the department's performance and accountability challenges and offer recommendations for improvement are listed at the end of this report.

¹U.S. General Accounting Office, *Major Management Challenges and Program Risks: A Governmentwide Perspective*, GAO-01-241 (Washington, D.C.: January 2001).

Improving Transportation Safety

In the past decade, transportation accidents—particularly motor vehicle accidents—were among the top 10 leading causes of death in the United States and the leading cause of death for people from 6 through 27 years of age. In 2001, over 44,000 people were killed and over 3 million people were injured in highway, aviation, rail, and maritime accidents. (See fig. 1.) To address this problem, improving transportation safety is the department’s highest priority.

Figure 1: Fatalities by Transportation Mode, 2001



Source: DOT.

Notes: GAO analysis of the department’s data.

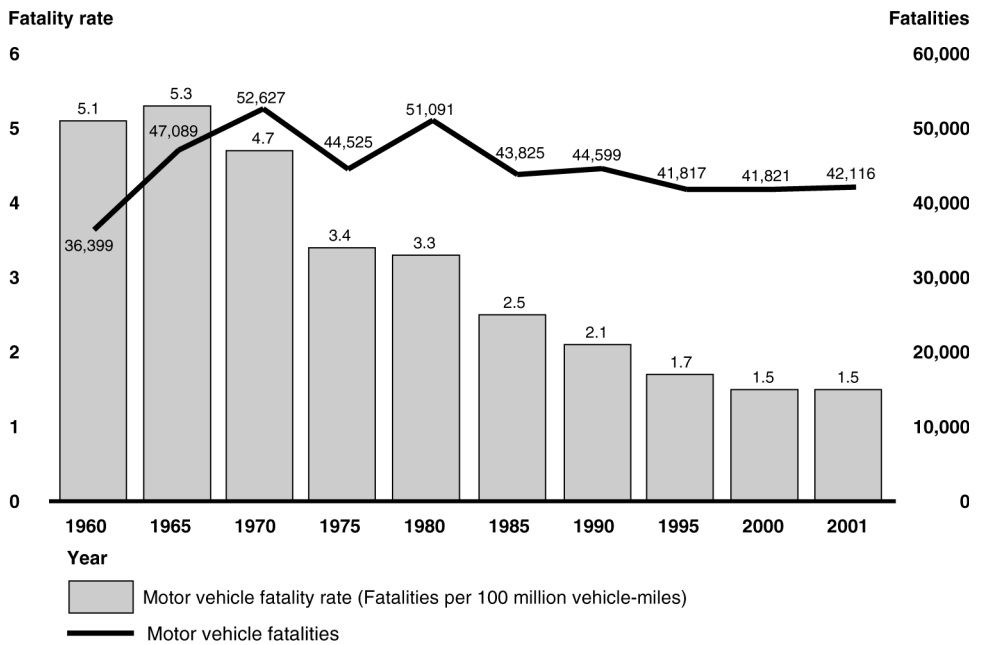
Aviation, rail, and maritime numbers are preliminary. Aviation fatalities include the 265 persons killed in the four aircraft hijacked on September 11, 2001, but do not include the 2,801 persons killed or missing at the World Trade Center or 125 persons killed at the Pentagon.

Over the past 4 decades, transportation safety has improved considerably. However, in recent years, fatalities have plateaued. Of particular concern is the limited progress in recent years in improving safety on our nation’s roads, where 94 percent of all fatalities occur; in general aviation, where 87 percent of all aviation fatalities occur; and in commercial aviation, where accidents have the potential for catastrophic loss of life.

Improved Highway Safety Requires a Renewed Focus on Seat Belts and Truck-related Fatalities

Between 1960 and 1990, motor vehicle transportation fatality rates were reduced by more than half. (See fig. 2.) However, since the mid-1990s, the fatality rate and the number of fatalities from transportation-related accidents on our nation's highways has not declined substantially. Two areas for reducing motor vehicle fatalities—seat belt use and large truck safety—continue to experience less progress than other areas in meeting highway safety goals.

Figure 2: Motor Vehicle Fatality Rate and Number of Fatalities, 1960 through 2001



Source: DOT.

Note: GAO analysis of DOT data.

Seat belts. The department's National Highway Traffic Safety Administration (NHTSA), leading highway organizations, and we have reported that seat belts offer the most effective way to lower highway fatalities.² In 2000, NHTSA estimated that seat belts saved almost 12,000 lives and could have saved an additional 9,200 lives that year if all passenger vehicle occupants aged 4 and older had worn seat belts. As a result of the passage of state seat belt laws and a national effort of highly visible seat belt law enforcement and public education, seat belt use increased considerably in the 1980s and early 1990s from 10 to 15 percent nationwide to 66 to 70 percent nationwide. However, since the early 1990s, seat belt use rates have not increased substantially. In 2001, front seat belt usage increased slightly to 73 percent but remained well below the department's target for the year of 86 percent. In 2002, front seat belt usage increased slightly again to 75 percent, saving an additional 500 lives. Nevertheless, small annual percentage increases in front seat belt use do not put the department on track to meet its goal of having 90 percent of front seat occupants use seat belts by 2005.

One key factor in increasing seat belt use is the enactment of primary enforcement seat belt laws. Primary enforcement allows police officers to stop vehicles and write citations whenever they observe violations of safety belt laws. (In contrast, secondary enforcement permits police officers to write a citation only after a vehicle is stopped for some other traffic violation.) As of September 2002, nearly every state has enacted laws requiring the use of safety belts, but only about 40 percent of all states have primary enforcement laws. NHTSA estimates that states with secondary enforcement laws could increase seat belt use an estimated 14 percentage points from an average of 67 percent if they enacted primary enforcement laws. This increase translates to preventing around 1,750 fatalities, saving the federal government around \$300 million, saving states nearly \$140 million, and saving \$3 billion in total costs to society annually (1998 dollars).

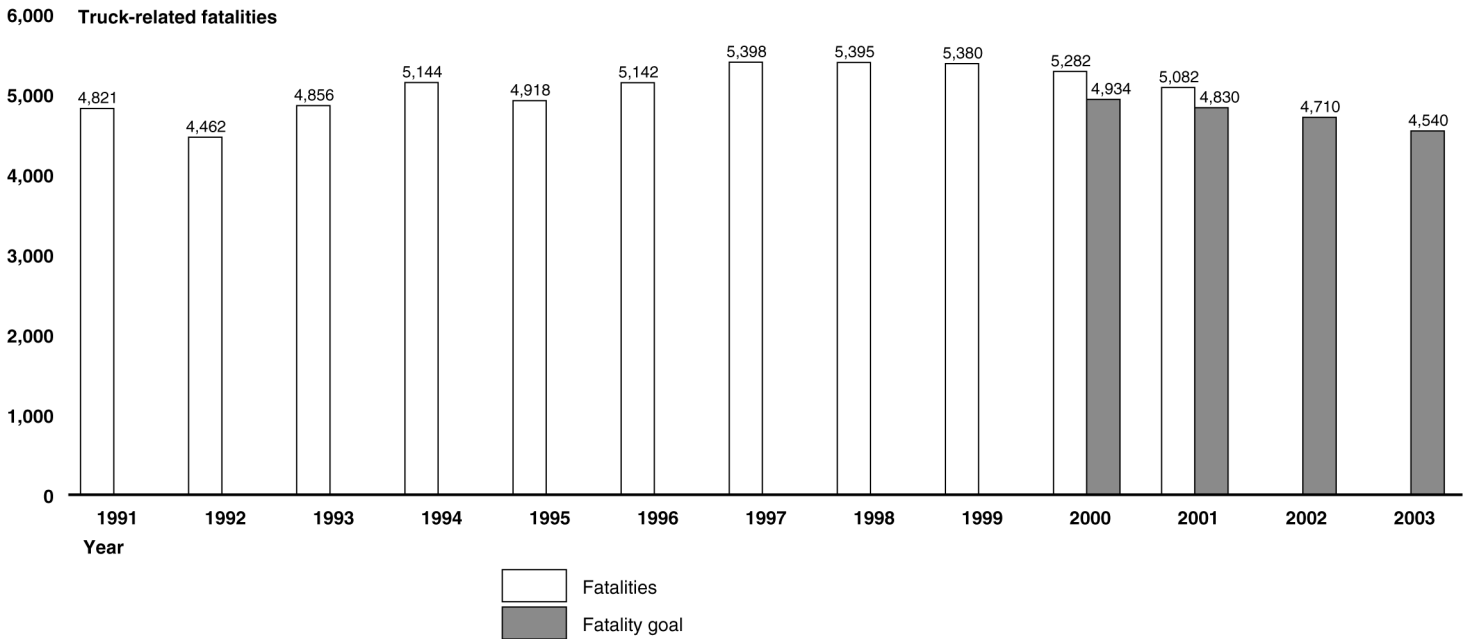
²U.S. Department of Transportation, Office of the Inspector General, *Progress in Implementing Strategies to Increase the Use of Seat Belts*, MH-2002-109 (Washington, D.C.: Sept. 18, 2002) and U.S. General Accounting Office, *Motor Vehicle Safety: Comprehensive State Programs Offer the Best Opportunity for Increasing Use of Safety Belts*, [GAO/RCED-96-24](#) (Washington, D.C.: Jan. 3, 1996).

The department's ability to implement safety-enhancing interventions has been limited because it must rely heavily on individuals to modify their behavior and state governments to implement laws that enhance safety. To increase seat belt use, we have suggested that Congress consider encouraging states to enact primary enforcement laws. The department's recent campaign to encourage states to increase seat belt use, "Click It or Ticket," is designed to resonate with hard-core non-seat-belt-users in high-risk populations that have traditionally lower than average seat belt use rates and higher fatality rates. The department has received preliminary evidence that this campaign is having some success. For example, some of the strongest gains in seat belt use during the Memorial Day holiday in 2002 were in states participating in the "Click It or Ticket" enforcement campaign.

Large commercial trucks. The department has made significantly less progress in reducing commercial truck-related fatalities than it has in improving highway safety overall.³ While commercial trucks represent only 4 percent of all registered vehicles, they are involved in 12 percent of all crashes resulting in fatalities. As a result, around 5,000 people died on our nation's roads in 2001 from crashes involving large trucks, a figure largely unchanged from a decade ago. In 2001, 200 fewer people were killed in large truck-related accidents than in 2000. This reduction was substantially in line with the department's goal. (See fig. 3.) However, the department will have to make significantly greater gains in the coming years to meet its goal for reducing by half the number of large truck-related fatalities, from about 5,300 in 1999 to about 2,600 in 2009.

³Large trucks are those with a gross weight of more than 10,000 pounds.

Figure 3: Number of Fatalities from Crashes Involving Large Trucks, 1991 through 2001



Source: NHTSA.

Note: GAO analysis of NHTSA data.

As we reported in 1999, efforts to determine how its actions will reduce the number of large truck-related fatalities have been limited because the department does not have a good understanding of the causes of large truck crashes. At the direction of Congress, the department is performing a multiyear large-scale study of the causes of large truck crashes and expects to report its findings in 2004.

Improved Aviation Safety Will Require Improved Interventions and Oversight

In 2001, more than 1,100 people died in commercial and general aviation accidents, almost 50 percent more than the nearly 750 people who died in 2000.⁴ Despite the unusually large increase in aviation fatalities in 2001, primarily caused by the September 11, 2001 terrorist events, commercial

⁴Aviation fatalities in 2001 include the 265 persons killed in the four aircraft hijacked on September 11, 2001, but do not include the 2,801 persons killed at the World Trade Center or 125 persons killed at the Pentagon.

and general aviation safety has improved considerably over the past 4 decades. In general and commercial aviation, the fatality rate decreased considerably between 1960 and 1975. Between 1975 and 2000 (the most recent data available), the fatality rate in general aviation has continued to decline substantially (to about 2 fatalities per 100,000 flight hours). The fatality rate in commercial aviation has remained relatively low since 1975, averaging around 2 fatalities per 100,000 aircraft departures. In 2002, there were no commercial aviation fatalities.

However, aviation experts are concerned that if air travel during the next decade were to increase 37 percent over 1999 levels, as was forecast before September 11, 2001, the number of fatalities from aviation accidents would rise if the department did not make a sustained effort to improve aviation safety. To address concerns about safety, FAA and the aviation industry developed the Safer Skies initiative in 1998. The initiative established the broad safety goal of reducing the fatal aviation accident rate for commercial aviation by 80 percent by 2007. As we reported in 2000, to accomplish this, the initiative is designing interventions to respond to key safety problems that accounted for over three-quarters of the fatal accidents from 1988 through 1997, including pilots losing control of their aircraft, pilots flying otherwise controllable aircraft into the ground or water, and accidents during approach and landing.⁵

For general aviation, the Safer Skies initiative did not adopt the 80 percent goal proposed by two aviation safety commissions. Instead, as we reported in 2001, the Safer Skies initiative chose the goal of reducing the number of fatal general aviation accidents to 350 by 2007, which represents a 20-percent reduction (from 440) in the number of fatal accidents that would be expected in 2007 given the expected growth in the industry.⁶ Interim goals for 2000 through 2002 were actually higher than the fatalities seen in 1999 and did not challenge the general aviation industry to continue improvements. General aviation safety initiatives will focus on major

⁵U.S. General Accounting Office, *Aviation Safety: Safer Skies Initiative Has Taken Steps to Reduce Accident Rates by 2007*, [GAO/RCED-00-111](#) (Washington, D.C.: June 28, 2000).

⁶U.S. General Accounting Office, *General Aviation: Status of the Industry, Related Infrastructure, and Safety Issues*, [GAO-01-916](#) (Washington, D.C.: Aug. 31, 2001).

causes of fatal accidents that include weather, loss of control, and runway incursions.⁷

Compounding our concern about improving aviation safety is the impending wave of retirements among aviation professionals—and the FAA's limited progress in addressing this problem, as we reported in June 2002.⁸ In a recent survey of air traffic controllers, about 5,000 of the approximately 20,000 controllers indicated that they might leave in the next 5 years. However, FAA has not yet implemented our recommendations to develop a comprehensive human capital strategy to meet the impending need to hire and train new controllers. Instead, it is hiring new controllers only when current, experienced controllers leave—a strategy that might not provide enough well-qualified new controllers when they are needed. Further, FAA has not addressed the resources that may be needed at its training academy and for on-the-job training at its control facilities in order to handle the large influx of new controllers and to ensure that FAA's controller workforce will continue to have the knowledge, skills, and abilities necessary to perform its critical mission.

⁷Runway incursions are incidents on the runway that create a collision hazard or result in aircraft being closer than allowed by air traffic control requirements.

⁸U.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).

In addition to developing interventions that respond to significant safety problems, a key to improving aviation safety will require that FAA be able to effectively inspect the nation's airline operations. In 1998, FAA introduced a redesigned safety inspection system called the Air Transportation Oversight System (ATOS), which shifted oversight of airline operations beyond simply ensuring compliance to ensuring that airlines have operating systems to control risks and prevent accidents. However, in 1999, we reported that FAA's overly ambitious implementation schedule has impaired its ability to successfully implement several of the system's key elements.⁹ In 2002, the department's Inspector General reported that FAA introduced the system's new inspection system without fully developing several key elements and without thoroughly testing the feasibility of ATOS as a stand-alone surveillance system.¹⁰ Critical actions, such as analyzing the system's inspection data and implementing actions to correct identified weaknesses, are still being developed. Moreover, while FAA has made some progress in addressing recommendations we made in 1999 to improve inspection guidance, it still has not adequately prepared inspectors with adequate training and inspection tools.¹¹ Lastly, ATOS has been inconsistently implemented nationwide at FAA's field offices because FAA has not established strong oversight and accountability procedures.

Transforming Transportation Security

Since September 11, 2001, securing our nation's transportation system from terrorist attacks has assumed great urgency. In response, on November 19, 2001, the Aviation and Transportation Security Act was enacted. This act created TSA within the department and defined its primary responsibility as ensuring security in all modes of transportation. Since then, the department has worked to make security improvements through its modal administrations while simultaneously organizing a new agency to meet the longer-term challenge of implementing security improvements that will not excessively inhibit commerce and travel or interfere with other critical agency missions. With the enactment of the Homeland Security Act on

⁹U.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).

¹⁰U.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).

¹¹[GAO/RCED-99-183](#).

November 25, 2002, the new Department of Homeland Security will assume overall responsibility for transportation security and incorporate TSA and the Coast Guard into its organization. The Department of Transportation will need to forge a close working relationship with the new agency to effectively protect borders and ensure security of all modes of transportation because the department will be a key stakeholder in the future regarding development and implementation of transportation security policy.

Aviation security received most of the department's attention immediately after September 11. More recently, officials have begun to turn their attention to surface transportation security as well. Balancing surface transportation security needs without unduly inhibiting the movement of goods and people is complicated by the nature and the vast scope of surface transportation in the United States. For example, the volume of imported containers that pass through more than 300 public and private U.S. seaports—in 2001, the equivalent of six million containers were imported into the United States—ensures that no one single shipment can be scrutinized too carefully without significantly delaying delivery. (See fig. 4.) About 6,000 agencies provide transit services such as bus, subway, ferry, and light rail to about 14 million Americans each weekday, and the open and accessible nature of these services make it difficult to apply the kinds of security measures that can be applied at airports. Despite an impressive start in which the department simultaneously began to build the infrastructure of a large organization as it focused on meeting the nation's security needs, formidable short- and long-term challenges remain.¹²

¹²U.S. General Accounting Office, *Transportation Security Administration: Actions and Plans to Build a Results-Oriented Culture*, GAO-03-190 (Washington, D.C.: Jan. 17, 2003).

Figure 4: Inspecting Millions of Containers that Arrive at U.S. Ports Remains a Challenge



Source: © 1995 Nova Development Corporation.

Short-Term Challenges in Aviation Security Remain

In response to the September 11 terrorist attacks, the department faced several urgent aviation security challenges, including meeting screening deadlines and addressing security gaps that we and others, including the department's Inspector General, had identified. Prior to September 11, 2001, airlines were responsible for screening passengers and property. In November 2001, the Aviation and Transportation Security Act shifted this responsibility to TSA and established a series of monumental requirements for the new agency, including deadlines for hiring and deploying federal passenger screeners by November 19, 2002, and screening all checked baggage using explosive detection systems by December 31, 2002.¹³ In addition to these screening deadlines, FAA established an April 2003 deadline for designing, approving, and installing reinforced cockpit doors in over 6,000 passenger and cargo aircraft.

The department has made considerable progress in addressing aviation security challenges. According to TSA, it met the November 2002 deadline by hiring and deploying over 40,000 passenger screeners to screen passengers at 429 commercial airports. In addition, TSA reports that it met the December 31, 2002, deadline to screen all checked baggage. TSA reports that it hired and deployed more than 20,000 of an estimated 22,000 baggage screeners as of mid December 2002 to screen all checked baggage and that as of December 31, 2002, about 90 percent of all checked baggage will be screened using explosive detection systems or explosive trace detection equipment.¹⁴ The remaining checked baggage will be screened using alternative means such as canine teams, hand searches, and passenger-bag matching. Nevertheless, significant challenges remain. TSA reports that as of mid December 2002, it has installed only 239 of the

¹³The Homeland Security Act of 2002 amends this requirement. According to the legislation, if, in his discretion or at the request of an airport, the Under Secretary of Transportation for Security determines that TSA is not able to deploy explosive detection systems required in the Aviation and Transportation Security Act by December 31, 2002, then for each airport for which the Under Secretary makes this determination, the Under Secretary shall submit to specific congressional committees a detailed plan for the deployment of the number of explosive detection systems at that airport necessary to meet the requirements as soon as practicable at that airport but no later than December 31, 2003; the Under Secretary shall take all necessary action to ensure that alternative means of screening all checked baggage are implemented until the requirements have been met.

¹⁴Explosive detection machines are used to screen baggage for explosives and work by using CAT scan X-ray to take fundamental measurements of materials in bags to recognize characteristic signatures of threat explosives. Explosive trace detection systems (trace detection machines) are used to screen baggage for explosives and work by detecting vapors and residues of explosives.

estimated 1,100 explosive detection machines and 1,951 of the estimated 6,000 trace detection machines they say they need to screen baggage to meet baggage screening requirements contained in the Aviation and Transportation Security Act. Finally, FAA has approved reinforced flightdeck doors for 5,150 of 6,000 commercial and cargo aircraft requiring newly reinforced doors. However, these doors have been installed in only 19 percent of these planes.

In addition to securing passenger carry-on luggage and checked luggage, TSA faces other immediate challenges in securing cargo aboard commercial passenger and all-cargo aircraft. The Aviation and Transportation Security Act, enacted in November 2001, requires screening all cargo carried aboard commercial passenger aircraft and requires TSA to have a system in place as soon as practicable to screen, inspect, or otherwise ensure the security of cargo on all cargo aircraft. The “known shipper” program—which allows shippers that have established business histories with air carriers or freight forwarders to ship cargo on planes—is TSA’s primary approach to ensuring air cargo security and safety and complying with the cargo screening requirement of the act.¹⁵ However, we and the department’s Inspector General have identified weaknesses in the known shipper program and TSA’s procedures for approving freight forwarders. In December 2002, we reported that TSA lacks a comprehensive plan with long-term goals and performance targets for cargo security, time frames for completing security improvements, and risk-based criteria for prioritizing actions to achieve those goals.¹⁶ We recommended that TSA develop a comprehensive plan for air cargo security that incorporates a risk management approach, includes a list of security priorities, and sets deadlines for completing actions; TSA agreed with this recommendation. With regard to dangerous goods shipped by air, in January 2003, we reported that undeclared air shipments of dangerous goods can have serious consequences, but TSA lacks statistically valid, generalizable data to reliably estimate the nature and frequency of such

¹⁵Freight forwarders consolidate shipments and deliver them to air carriers and cargo facilities of passenger and all-cargo air carriers.

¹⁶U.S. General Accounting Office, *Aviation Security: Vulnerabilities and Potential Improvements for the Air Cargo System*, [GAO-03-344](#) (Washington, D.C.: Dec. 20, 2002).

shipments and assess their risks.¹⁷ We recommended that the Department of Transportation evaluate the need for additional inspection authority to obtain statistically valid data on undeclared air shipments of dangerous goods and document its penalty assessments so that it can demonstrate that it is handling similar cases consistently.

Long-Term Aviation and Surface Transportation Security Challenges

The department and the Department of Homeland Security face long-term transportation security challenges that include: (1) ensuring that transportation security funding needs are identified and prioritized and costs are controlled, (2) establishing effective coordination among the many public and private entities responsible for transportation security, (3) ensuring adequate workforce competence and staffing levels, (4) ensuring information systems security, and (5) implementing national security standards.

Funding. Two key funding and accountability challenges will be (1) paying for increased transportation security and (2) ensuring that these costs are controlled. The costs associated with acquiring equipment and personnel for improving aviation security alone are huge. Although TSA estimates that it will need about \$4.8 billion for aviation security in fiscal year 2003, it estimates that revenues from the new passenger security fee will pay for only around one-third (\$1.7 billion) of that amount. As a result, TSA will need a major cash infusion at a time when federal budget deficits are growing. Similarly, many of the planned security improvements for surface transportation facilities, such as seaports and mass transit, require costly outlays for infrastructure, technology, and personnel at a time when weakening local economies have reduced local transportation agencies' abilities to fund security improvements. For example, even before September 11, the Interagency Commission on Crime and Security in U.S. Seaports estimated that the costs to upgrade the security infrastructure at the nation's 361 ports ranged from \$10 million to \$50 million per port. As we reported in August 2002, although the federal government has already stepped in with additional funding, demand has far outstripped the

¹⁷U.S. General Accounting Office, *Aviation Safety: Undeclared Air Shipments of Dangerous Goods and DOT's Enforcement Approach*, [GAO-03-22](#) (Washington, D.C.: Jan. 10, 2003).

additional amounts made available.¹⁸ While Congress appropriated \$93 million to fund port security improvements in fiscal year 2002, TSA has received applications for as much as \$697 million for these improvements. This puts pressure on the federal government to make the best decisions about how to use the funds that it makes available. As we also reported in August 2002, the Coast Guard's efforts to develop port security standards that define what safeguards a port should have in place will help identify and prioritize needs so that limited funds can be better targeted to the highest risks at each port.

The Maritime Transportation Security Act, enacted in November 2002, requires the Secretary of the department in which the Coast Guard is operating to, among other things, promulgate regulations setting forth standards for newly required vessel and facility security plans, conduct vulnerability assessments for vessels and U.S. port facilities and promulgate regulations to prevent individuals from entering secured areas of vessels and port facilities through the use of a biometric transportation security card. The act does not provide for a dedicated source of funding for these new requirements, but does require that the Secretary of Transportation report to Congress on proposals to fund these new programs within 6 months after passage of the act.

¹⁸U.S. General Accounting Office, *Port Security: Nation Faces Formidable Challenges in Making New Initiatives Successful*, [GAO-02-993T](#) (Washington, D.C.: Aug. 5, 2002).

In July 2002, we reported that long-term attention to cost and accountability controls for acquisition and related business processes will be critical both to ensuring TSA's success and maintaining its integrity and accountability.¹⁹ According to the department's Inspector General, although TSA has made progress in addressing certain cost-related issues, it has not established an infrastructure that provides effective controls to monitor contractors' costs and performance. To ensure control over TSA contracts, the department's Inspector General has recommended that Congress set aside a specific amount of TSA's contracting budget for overseeing contractor performance with respect to cost, schedule, and quality.²⁰

Furthermore, funding challenges have implications for the department's other vital missions, requiring modal administrations to re-prioritize functions. For example, as a result of new mission requirements, the Coast Guard redirected its fiscal year 2002 resources from traditional, nonsecurity missions to security-oriented functions. This doubled projected spending for marine safety and security and reduced spending in areas such as marine environmental protection. While some resources have been redeployed to restore capabilities in key mission areas, other resources, including district patrol boats and small boats, are still being used primarily for security-related functions.

¹⁹U.S. General Accounting Office, *Aviation Security: Transportation Security Administration Faces Immediate and Long-Term Challenges*, [GAO-02-971T](#) (Washington, D.C.: July 25, 2002).

²⁰U.S. Department of Transportation, Office of Inspector General, *Key Challenges Facing the Transportation Security Administration*, [CC-2002-180](#) (Washington, D.C.: June 20, 2002).

In considering the federal government's role in meeting long-term funding challenges, several issues will need to be addressed beyond determining who should pay for the security enhancements and how much agency functions should be funded. An important consideration is establishing appropriate criteria for distributing federal funds—the most common of which have included ridership level, population, identified vulnerabilities, and criticality of assets. Another important consideration, as we reported in September 2002, is selecting the appropriate federal policy instrument such as grants, loan guarantees, tax incentives, and partnerships to motivate or mandate other levels of government or the private sector to help address security concerns.²¹ Finally, it will be important to consider how to allocate funds between competing needs and measure whether we are achieving increased security benefits envisioned.

Coordination. Since September 11, 2001, federal, state, and local surface transportation agencies and the private sector have begun rethinking roles and responsibilities for security. One challenge to achieving national preparedness hinges on the federal government's ability to form effective partnerships among entities that implement security measures at the local level. Effective, well-coordinated partnerships require identifying roles and responsibilities; developing effective collaborative relationships with local and regional transportation, emergency management, and law enforcement agencies; agreeing on performance-based standards that describe desired outcomes; testing procedures that implement roles and responsibilities; and sharing intelligence information. Since its creation in November 2001, TSA has focused primarily on aviation security challenges and is working toward defining the roles and responsibilities for surface transportation security. Specifically, TSA is developing memorandums of agreement with other modal administrations within the department that are expected to delineate the lines of authority between the parties and establish their specific responsibilities for transportation security. TSA plans to complete the agreements by March 1, 2003.

Coordination challenges will continue for the department after TSA is transferred to the new Department of Homeland Security. The department and the new Department of Homeland Security will have to work closely to ensure the development of sound security policies and procedures and effective implementation of those procedures by the many public and

²¹U.S. General Accounting Office, *Mass Transit: Challenges in Securing Transit Systems*, GAO-02-1075T (Washington, D.C.: Sept. 18, 2002).

private transportation system's stakeholders. A key coordination challenge for TSA involves ensuring that terrorist and threat information gathered and maintained by numerous law enforcement and other agencies, including the Federal Bureau of Investigation, the Immigration and Naturalization Service, the Central Intelligence Agency, and the Department of State, is quickly and efficiently communicated among federal agencies and to state and local authorities, as needed. In aviation security, timely information sharing among agencies has been hampered by organizational cultures that make them reluctant to share sensitive information and by outdated computer systems that lack interoperability. In surface transportation, timely information sharing has been hampered by the lack of standard protocols to exchange information among federal, state, and local government agencies and private entities. The department should have a critical role in ensuring that information on best practices is shared with local transportation agencies. Finally, as we reported in September 2002, intelligence sharing can be hampered if personnel in surface transportation agencies have difficulty in obtaining the security clearances necessary to obtain the critical intelligence information that might be exchanged.²²

Human capital. A key challenge to ensuring the success of the Department of Transportation and the Department of Homeland Security in protecting the nation's transportation system is recruiting, training, and retaining a large workforce (currently TSA has more than 60,000 people). TSA is currently addressing some critical success factors in managing human capital by hiring personnel, using a wide range of tools available for hiring, and beginning to link individual performance to organizational goals. However, concerns remain in areas of hiring, training, and retention; developing an approach to compensation; and setting up a performance management system.

²²[GAO-02-1075T](#).

TSA has encountered unexpected difficulty in hiring and training a federal screener workforce. For example, at Baltimore-Washington International Airport—the first of 429 airports to be staffed with federal passenger screeners—TSA’s hiring of screeners was delayed because only about one-third of qualified applicants who were contacted to schedule an assessment reported for the assessment. Of those that reported, only about one-third passed the skills assessment. In addition, while TSA is using a wide range of tools and flexibilities available to meet its workforce needs, the department’s Inspector General has expressed concern about its approach to compensation. TSA is basing its compensation system on FAA’s pay banding approach, which allows the agency to hire employees anywhere within broad pay bands for their positions. In a report issued last summer, the department’s Inspector General has expressed concern about TSA’s salary levels for law enforcement and general and administrative positions, stating that they are higher than for comparable positions in other agencies.²³ Finally, while TSA has made progress in setting up the performance management system, the agency has not approved an interim employee performance management system for 2002. Finalizing a performance management system linked to organizational goals will be critical to motivating and managing staff, ensuring the quality of screeners’ performance, and ultimately, restoring public confidence in air travel.²⁴

Information systems security. Security at our nation’s airports alone does not ensure safe air travel. It is also critical to secure FAA’s air traffic control computer systems, which provide information to air traffic controllers and aircraft flight crews to help ensure the safe and expeditious movement of aircraft. Failure to adequately protect these systems, as well as the facilities that house them, could cause a nationwide disruption of air traffic or even a loss of life due to collisions. In the area of information systems security, we made 39 recommendations to FAA between May 1998 and December 2000 to address pervasive weaknesses in the agency’s facilities’ physical and information systems security—both for currently operational and future air traffic control systems, security management,

²³U.S. Department of Transportation, Office of Inspector General, *Progress in Implementing Provisions of the Aviation and Transportation Security Act*, [CC-2002-203](#) (Washington, D.C.: Aug. 7, 2002).

²⁴To assist agencies in managing their human capital more strategically, we have developed a model of strategic human capital management that identifies cornerstones and related critical success factors that agencies should apply and steps they can take. See U.S. General Accounting Office, *A Model of Human Capital Management*, [GAO-02-373SP](#) (Washington, D.C.: March 2002).

and personnel security. FAA has initiated numerous activities in response to our recommendations. However, in several areas, including ensuring that operational systems and facilities are secure, more must be done.

FAA has established an information systems security management structure under its Chief Information Officer. In recent years, the Chief Information Officer's information systems security office has developed an information systems security strategy, security architecture (i.e., overall blueprint), security policies and directives, and a security awareness training campaign; managed FAA's incident response center; and implemented a certification and accreditation process to ensure that vulnerabilities in current and future air traffic control systems are identified and weaknesses addressed. Despite these improvements, the office faces continued challenges in increasing its intrusion detection capabilities, obtaining accreditation for systems that are already operational, and managing information systems security throughout the agency. In addition, according to senior security officials, FAA has completed assessments of the physical security of its staffed facilities, but has not yet accredited all of these air traffic control facilities as secure in compliance with agency policy. Finally, in the area of personnel security, FAA has worked aggressively over the past 2 years to complete background investigations on numerous contractor employees. However, ensuring that all new contractors are assessed to determine which employees require background checks and that those checks are completed in a timely manner will be a continuing challenge for the agency. While FAA has made progress in each of these areas, more remains to be done to better ensure that critical information systems are not at risk of intrusion and attack.

National security standards for surface transportation. Standards define the level of security that is needed and the safeguards that should be in place to meet identified needs. Adequate standards, consistently applied, are important to ensure that operators improve their security practices in modes where lax security could make surface transportation facilities attractive targets for terrorists. New security standards are being developed in some modes and are being considered in other modes. New port security standards are being developed in areas such as preventing unauthorized persons from accessing sensitive areas, detecting and intercepting intrusions, checking backgrounds of those whose jobs require access to port facilities, and screening travelers and other visitors to port facilities. The Maritime Transportation Security Act of 2002, enacted November 25, 2002, in fact, requires that port security standards for access controls, background checks, and vessel and facility security plans be developed by the Secretary of the department where the Coast Guard is operating. The act also directs the Secretary of the department where the Coast Guard is operating to develop performance standards for seals and locks on shipping containers. In addition, in the last session of Congress, legislation was proposed that would require the department to prescribe standards for pipeline security programs and approve or disapprove each pipeline operator's program on the basis of their adherence to these standards.²⁵ However, industry representatives have told us that they prefer a nonregulatory approach, citing concerns about the need for flexibility in designing security programs suitable for each pipeline facility.

While progress has been made in developing security standards, challenges remain in implementing them. There is little precedent for how to enforce standards because the size, complexity, and diversity of surface transportation facilities do not lend themselves to an enforcement approach similar to the one adopted for airports after September 11. Perhaps most importantly, implementing standards is difficult because it requires consensus and compromises on the part of stakeholders. To the degree that some stakeholders believe that security actions are unnecessary or conflict with other goals and interests, achieving consensus about what to do will be difficult.

²⁵Pipeline Infrastructure Protection to Enhance Security and Safety Act, H.R. 3609, 107th Congress (2001).

Improving Mobility and Economic Growth through Intermodal and Modal Approaches

Ensuring that the nation's transportation system improves mobility and supports economic growth are vital departmental goals that influence our quality of life.²⁶ Today, changing passenger and freight travel needs and expectations are redefining what is needed to meet these goals. Pervasive problems, such as congestion and inadequate capacity in both the air and surface transportation systems, also are making it increasingly difficult to improve mobility and economic growth, as we reported in May 1999, October 2001, and August 2002. (See table 1.) Moreover, budget constraints at all levels of government are expected to reduce the resources that are available for transportation solutions.

Table 1: Changing Transportation Needs

Key change	Elements of change
Increasing travel demand	All modes face surging travel demand by passengers, freight shippers, and the military. Time lost to congestion delays is estimated from \$75 billion to \$100 billion annually. Demand will continue to grow. By calendar year 2020, the U.S. population is projected to grow by 50 million to 60 million people and 60 million to 70 million more vehicles will be using the nation's transportation network.
Increasing expectations	For the \$8 trillion freight industry, efficient connections between modes and efficient travel in each mode are essential to the competitive position of U.S. products in global markets. For the public, better and more reliable transportation services are expected.
Increasing intermodal travel	Passengers and freight have more diverse mobility needs that increasingly involve moving across modes—highways to airports, ports to railroads, transit to highways—and through connections between modes. Trip timeliness, cost, quality, and safety are becoming more relevant than which mode is used.

Source: Congressional Research Service, Transportation Board, and others.

Note: GAO's analysis of its reports on mobility and growth topics and reports from the Congressional Research Service, Transportation Research Board, and others.

²⁶The department's performance plan for fiscal year 2003 and performance report for fiscal year 2001 defines mobility as shaping an accessible, affordable, reliable transportation system for all people, goods, and regions and economic growth as supporting a transportation system that sustains America's economic growth.

Congestion has emerged as a prime yardstick of the immense pressure on the nation's transportation system, as we reported in August 2002 and in December 2001.²⁷ Congestion has led to longer, less predictable trips that translate into lost productivity, higher fuel costs, and frustration. (See fig. 5.) Moreover, congestion and capacity problems are expected to worsen in the future. We recommended that the department develop a blueprint for effectively addressing capacity issues in its strategic planning for airspace capacity—a recommendation that remains open.

- The difficulty in moving freight efficiently and safely between the highway system and ports, rail, airports, and truck terminals has long been a major freight problem. Over the next 20 years, freight volumes are expected to increase by about 70 percent. This suggests that freight infrastructure—already straining to accommodate today's volumes—will be pushed to the breaking point and generate more gridlock. However, funds for connectors have been limited and might not be a priority for local governments or for highway capital improvements that tend to be passenger-oriented.
- For passengers, travel on roads is expected to increase by about 25 percent from 2000 through 2010. Furthermore, poor connections also are a significant barrier to moving between cars, buses, trains, and other means of transit. In many areas, infrastructure that could serve as multimodal transfer points—passenger rail terminals, for example—have been abandoned or demolished.

²⁷U.S. General Accounting Office, *Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility—A National Challenge*, [GAO-02-775](#) (Washington, D.C.: Aug. 30, 2002) and *National Airspace System: Long-Term Capacity Planning Needed Despite Recent Reduction in Flight Delays*, [GAO-02-185](#) (Washington, D.C.: Dec. 14, 2001).

Figure 5: Congestion on Our Nation's Highways Reduces Mobility and Results in Lost Productivity and Growth Opportunities



Source: Corbis Images/DigitalStock.

In this increasingly complex environment, it is much less likely that mobility and economic growth can be enhanced if major modes—air, highway, transit, rail, and water—are not connected, no matter how well each mode functions. Yet, intermodal connections, such as multimodal passenger terminals and roads that link freight terminals and major highways, are among the transportation system's weakest links. The department's challenge is to leverage all of its transportation resources—both intermodal and modal—to deal with these problems and their increasingly ominous impacts on mobility and economic growth.

Intermodal Planning and Investments Are Vital to Promoting Mobility and Economic Growth

Whether and how efficiently people and products move between modes has become crucial to mobility and economic growth. (See fig. 6.) Connections between modes now can mean success or failure for a region's transportation network and economy. As we reported in May 1999 and October 2001, aligning transportation with changing needs is vital.²⁸ An intermodal approach can give passengers and freight shippers more choices, greater convenience, and reduced costs by making it possible for them to use whatever mode is best suited to each portion of their trip. To deliver these potential benefits, an intermodal planning and investment approach emphasizes coordinating transportation policy and decisionmaking, connecting transportation modes, and allowing passengers and freight to reach their destinations efficiently through the use of multiple modes of transportation, if necessary. An intermodal approach connotes a transportation system that is more than the sum of its modal parts.

²⁸U.S. General Accounting Office, *Surface Transportation: Moving Into the 21st Century*, GAO/RCED-99-176 (Washington, D.C.: May 1999) and *Physical Infrastructure: Crosscutting Issues Planning Conference Report*, GAO-02-139 (Washington, D.C.: October 2001).

Figure 6: Intermodal Connections Are Crucial for Continued Growth and Competitiveness in a Global Economy



Source: © 1995 Nova Development Corporation.

As early as March 1978, and again in July 1987, November 1988, December 1989, and August 2002, we reported that an intermodal approach was vital to match the nation's modal infrastructure with its diverse transportation needs. The Intermodal Surface Transportation Efficiency Act of 1991 made developing an intermodal transportation system that connects all transportation modes a national policy. This policy goal was reaffirmed in 1998 with the enactment of the Transportation Equity Act for the 21st Century.

The department is in a unique position to advocate an intermodal approach to meet mobility and economic growth needs by encouraging consensus and action by stakeholders inside and outside the department. Yet, the reality is that the department's modally based funding and organization limits its ability to promote intermodalism. Adopting an intermodal approach will require addressing a number of fundamental issues. (See table 2.) A key issue is ensuring that federal policies support intermodal needs. Other issues include dealing with institutional barriers—a critical transportation issue in 2002, according to the Transportation Research

Board—and matching funding to intermodal needs. An intermodal approach also focuses on supporting federal research that improves transportation stakeholders’ ability to plan and make cross-modal investment decisions.

Table 2: Intermodal Issues and Key Considerations

Issues	Key considerations
Policies	Ensuring that federal policies support intermodalism
Strategies	Capturing the strengths of each mode in a national intermodal system
Priorities	Identifying critical actions to promote intermodal passenger and freight transportation, relevant performance measures, and methods for achieving measurable progress
Institutional support	Agreeing on roles and responsibilities for public and private stakeholders at all levels; identifying institutional barriers to intermodal action—including the department’s modal structure—and tactics to minimize their impacts; supporting entities that can promote intermodal planning and investment
Funding	Increasing federal and state funding/flexibility for intermodal connectors—seen as the weakest links in the transportation system—and supporting innovative public and private partnerships and financing
Research	Supporting research that can be applied in making decisions about intermodal passenger and freight policies, planning, investing, and technologies. Research also is needed to explore interactions between passenger and freight travel
Regulations	Streamlining federal requirements for state and local planning and decisionmaking
Safety standards	Identifying safety standards needed for intermodal transportation

Source: Congressional Research Service, Transportation Board, and others.

Note: GAO’s analysis of its reports on mobility and growth topics and reports from the Congressional Research Service, Transportation Research Board, and other sources.

Currently, the department is taking actions to promote intermodalism. It expects to support intermodal financing, connectors, systems management, and new technologies as Congress reauthorizes surface transportation legislation. It also is developing a dialogue with the freight industry, since there is considerable need for better public sector understanding of freight and its needs. The Intelligent Transportation System program is helping to improve intermodal operations by using information and communication technology to expedite shipments and improve safety and security. In addition, modal agencies—such as the Federal Highway Administration (FHWA) and the Federal Transit

Administration (FTA)—have assumed responsibility for advocating intermodal passenger and freight programs with state, regional, and local transportation agencies and with other agencies in the department.

Intercity Passenger Rail Poses Critical Policy Decisions

Amtrak's financial condition and ability to provide quality intercity passenger rail service has been tenuous since it began operations in 1971. It was on the brink of having to shut down in 2002. While Amtrak meets several of the criteria for designation as one of our high risk areas, we have not done so because it is a private corporation, albeit with significant federal funding.²⁹ Amtrak's intractable financial condition makes a congressional decision on intercity passenger rail's future paramount, as we reported in April 2002.³⁰ This decision poses significant mobility issues— if and how intercity passenger rail fits into the nation's transportation system and the appropriate balance between needed federal investments and other competing national priorities.

As we also reported in April 2002, there is considerable agreement that passenger rail's mission, funding, and approach of providing service through Amtrak needs to be changed. Intercity passenger rail has the potential to produce transportation benefits—more in some markets than others—as projected increases in intercity passenger travel occur. Currently, over half of Amtrak's 23 million passengers are in the Washington, D.C., to Boston corridor. Where intercity passenger rail is time and price competitive, it could potentially help reduce highway and air travel congestion, pollution, energy dependence, and improve safety. Nevertheless, federal development and operating support will be needed.

The department has the opportunity to support a congressional decision by providing a framework for determining the appropriate role and level of investment for intercity passenger rail. This framework would help establish clear, nonconflicting goals for federal support, government-

²⁹From fiscal years 1998 through 2002, the federal government has provided \$1 billion per year on average to Amtrak to help meet the railroad's capital and operating needs. The federal government also has an ownership interest of over \$17 billion in preferred stock and cumulative unpaid dividends. See U.S. General Accounting Office, *Intercity Passenger Rail: Potential Financial Issues in the Event That Amtrak Undergoes Liquidation*, [GAO-02-871](#) (Washington, D.C.: Sept. 20, 2002).

³⁰U.S. General Accounting Office, *Intercity Passenger Rail: Congress Faces Critical Decisions in Developing a National Policy*, [GAO-02-522T](#) (Washington, D.C.: Apr. 11, 2002).

private sector roles, funding approaches that reward results and accountability, and strategies that address stakeholders' interests and limit unintended consequences. Although the department has developed five general reform principles as its vision for the future, a more detailed framework will be essential.

Addressing the Effects of
Aviation Industry
Consolidation and Reduced
Service to Small
Communities

Airline industry competition and service have mobility and economic consequences for consumers, as we reported in October 2002.³¹ Airlines' restructuring and consolidation—whether through marketing alliances among or mergers between carriers in the wake of financial pressures—will significantly affect the industry's competitive landscape. Consumers have fewer travel options and generally face higher fares when carriers reduce the number of flights, reduce aircraft size, or drop markets altogether. As we reported in February and March 2001, industry consolidation also raises critical public policy issues, such as greater potential barriers to carriers that want to enter markets, less competition in key markets, and greater risk of travel disruptions as a result of labor disputes.³²

Small communities face higher fares and reduced service as airlines continue to reduce their market presence. These actions will increase pressure on the primary federal program that assists the smallest communities, the Essential Air Service program. The number of communities that qualify for subsidized service under this program has grown over the last year, and there are clear indications that this number and the program's costs will continue to grow. Federal awards under the program have increased from just over \$40 million in 1999 to an estimated \$97 million in fiscal year 2002. As carriers continue to drop service in some markets, more communities will become eligible for Essential Air Service funding, an issue that Congress and the department will have to confront.

³¹U.S. General Accounting Office, *Commercial Aviation: Financial Condition and Industry Responses Affect Competition*, [GAO-03-171T](#) (Washington, D.C.: Oct. 2, 2002).

³²U.S. General Accounting Office, *Aviation Competition: Regional Jet Service Yet to Reach Many Small Communities*, [GAO-01-344](#) (Washington, D.C.: Feb. 14, 2001) and *Aviation Competition: Challenges in Enhancing Competition in Dominated Markets*, [GAO-01-518T](#) (Washington, D.C.: Mar. 13, 2001).

**Current and Planned
Commitments Could
Constrain Future Spending
for New Mass Transit
Projects**

FTA's New Starts program provides a large share of capital investment in urban mass transportation systems, and demand for these funds is extremely high. However, as we reported in June 2002, FTA is likely to end the current authorization period with significantly limited ability to fund future transit projects. This situation could occur if the program is reauthorized at the currently authorized level of \$6.1 billion because FTA (1) needs over \$3 billion after 2003 for projects that it has already approved and (2) will likely need \$2.8 billion in the next 2 years for five projects that it is close to approving for a grant agreement.³³ Limited funding for this program could mean an even more competitive environment for future projects seeking approval and funding. Although the administration has proposed to fund more future projects by limiting federal funds to less than 80 percent of a single project, the effect of such a reduction is unclear. A federal funding limit would, in part, reflect a pattern that has emerged in the program—few projects are asking for the maximum 80 percent federal share and many have already significantly increased the local share to be competitive under the New Starts program. Local transit officials also may modify or even terminate projects, be more aggressive in containing project costs, or search for lower cost transit options. To facilitate a clearer prioritization of projects seeking limited funding, we recommended in March 2000 that the department further prioritize the projects as “highly recommended” and “recommended” for funding purposes. However, this recommendation has not been implemented.

**Oversight of Federal
Highway and Bridge
Investments Could Reduce
Cost Growth**

Federal grants to states and local governments for transportation infrastructure promote mobility and economic growth. FHWA oversees major highway and bridge projects to help ensure that federal funds are spent appropriately and costs are contained to maximize transportation services that are provided by the federal investment. Federal funds often are used to pay for 80 percent of a project's costs that can range from several million to several billion dollars.

³³According to FTA, as of early January 2003, none of these projects have been approved.

FHWA's performance continues to be a concern, although it has taken initiatives to improve its oversight of major projects. FHWA now requires that projects costing over \$1 billion submit annual financial plans and has introduced greater risk-based oversight into its work. Despite these initiatives, the department's Inspector General, state agencies, and we have reported cost growth on large projects. As we reported in May 2002, cost growth on large highway and bridge projects intensifies the problem of limited federal and state funds that are available for transportation.³⁴ While the question of whether more federal or state level oversight is needed to minimize project cost growth ultimately is a policy decision, both federal and state levels need to identify and share strategies to control costs and improve oversight.

Building Human Capital Strategies

The department and other federal agencies face a growing human capital challenge that we have designated as a governmentwide high risk concern. In addition, this challenge ripples throughout the state and local transportation agencies that build, maintain, and operate the vast preponderance of the nation's transportation system. The problem is similar—finding enough people with the appropriate skills.

Both the department and transportation stakeholders face an impending shortage of skilled people that threatens to have serious short- and long-term consequences, according to the department and the Transportation Research Board. As we have reported, the department's air traffic control modernization and airport and coastal security programs face human capital issues that are likely to impair mission performance. All 50 state departments of transportation have singled out recruiting and retaining staff as their greatest human resource issues. The repercussions from these issues are considerable—a compromised departmental and transportation sector workforce could seriously impair the U.S. economy, public safety, and mobility. The Transportation Research Board calls attracting, hiring, and retaining personnel a critical transportation issue.

Public and private transportation entities are finding it difficult to hire enough people with the right skills, according to the department and independent experts. The gap between the skilled workforce and need is

³⁴U.S. General Accounting Office, *Transportation Infrastructure: Cost and Oversight Issues on Major Highway and Bridge Projects*, [GAO-02-702T](#) (Washington, D.C.: May 1, 2002).

expected to surge, as about 50 percent of the people who plan, develop, and manage the nation’s transportation system will become eligible to retire in the next 5 years. As these retirements occur, they will deplete the collective experience, knowledge, and skills of organizations throughout the transportation sector. The growing demand for human capital will collide with the reality of fewer people entering transportation-related fields. Enrollments in such fields as engineering are declining, creating fierce competition for these and other technical graduates needed in transportation.

Other factors further complicate the transportation sector’s human capital challenge. Changes in intergovernmental responsibilities for delivering transportation services, new travel patterns, different business practices, advances in technology, and changed public expectations are redefining the competencies and skills that are needed. Increasingly, transportation will require more diverse, sophisticated management and technical competencies than ever before. (See table 3.)

Table 3: Changing Transportation Workforce Competencies

Competency	Change	New skills needed
Building and sustaining partnerships	Public agencies, private companies, and nonprofit organizations are partnering to deliver transportation services.	Managing these extensive networks and collaborating with diverse stakeholders
Developing intermodal approaches	Transportation agencies at all levels increasingly will be asked to develop intermodal connections and solutions to passenger and freight transportation problems as envisioned by the Intermodal Surface Transportation Efficiency Act of 1991 and the Transportation Equity Act for the 21 st Century (1998) to connect travel modes to promote transportation system integration.	Broad transportation knowledge, financing expertise, and technical competence in applying complex analytic tools--especially in freight planning
Managing contractors	Public agencies are using the private sector to meet their growing workloads. For example, state agencies’ full-time employment has decreased about 5 percent as their budgets increased over 50 percent in the past decade.	Contract management
Incorporating technologies	Information and communications technologies are revolutionizing transportation.	Strategic technology investing and incorporating technology into operations
Responding to public concerns	The public increasingly expects transportation decisions to consider concerns about land use, air and water quality, and historic preservation.	Public participation and communication

Source: DOT and State transportation agencies.

Note: GAO’s analysis of information from the department and state transportation agencies.

The Department's Challenge: A Strategic Approach to Human Capital Issues

A consistent strategic approach to marshaling, managing, and maintaining human capital is essential to deal with the human capital shortfalls that are eroding many federal agencies' ability to perform their missions, as we have reported.³⁵ However, the department faces persistent human capital problems that put its ability to accomplish its own missions and performance at risk throughout the department and key agencies such as FAA, TSA, and the Coast Guard. Its human capital plan, published in September 2002, acknowledges that accomplishing the department's missions depends on a strategic approach to human capital and highlights workforce planning to meet its most formidable organizational and management challenges. Although a number of milestones have been met since workforce planning began in fiscal year 1999, the plan provides limited information about how future milestones will be accomplished. Other human capital initiatives also are under way. For example, FHWA has taken the first steps in creating a senior executive performance management system that holds managers accountable for contributing to organizational results.

The National Challenge: A Collaborative Approach to Workforce Development

A nationwide shortfall in human capital with the requisite skills to meet transportation's changing needs calls for a national response. The department's leadership and active involvement are essential to coordinate a strategic response by promoting

- agreement among high-level stakeholders on successful performance by transportation agencies and the competencies these agencies will need to achieve this performance and
- information sharing on best practices, lessons learned, human capital research, and benchmarking against other industries and countries that face issues related to an aging workforce.

To its credit, the department has taken several steps to address this challenge confronting the transportation sector. For example, FHWA's

³⁵U.S. General Accounting Office, *A Model of Strategic Human Capital Management: Exposure Draft*, GAO-02-373SP (Washington, D.C.: March 15, 2002) and *High-Risk Series: An Update*, GAO-01-263 (Washington, D.C.: January 2001).

Office of Professional Development recently organized the first National Transportation Workforce Summit in Washington, D.C., for representatives of state and local transportation agencies, the transportation industry, and academic experts. The department's Deputy Secretary and administrators of FTA, FHWA, the Research and Special Projects Administration, and the Federal Motor Carrier Safety Administration participated. The summit focused on three critical concerns: making a sustained commitment to attract people to transportation careers, investing in employee skills development, and institutionalizing workforce development initiatives. A committee of attendees is expected to continue addressing these issues. FHWA also is working with major national and state transportation organizations and independent experts to identify human capital needs and innovative ways to meet them.

Enhancing the Management of FAA and Coast Guard Acquisitions

Aging and obsolete equipment has limited FAA's and the Coast Guard's abilities to achieve their safety and security missions. In response, FAA and the Coast Guard are undertaking costly, complex, and long-term programs to modernize and replace aging equipment, putting them at greater risk for significant schedule delays and cost increases. Because of the size, complexity, cost, and problem-plagued past of FAA's program designed to acquire systems needed to modernize air traffic control, we designated it as high risk in 1995. FAA's air traffic control modernization program remains at high risk in 2003. Because of the September 11 terrorist attacks and the subsequent need for a variety of security improvements that were neither planned nor budgeted for, FAA and the Coast Guard have had to re-evaluate their acquisition plans. As greater emphasis is placed on security, important questions exist about how to move forward with acquisition projects and at what pace.

FAA's Air Traffic Control Modernization

Faced with rapidly growing air traffic and aging equipment, FAA initiated an ambitious effort in 1981 to modernize air traffic control. This modernization involved the acquisition of new air traffic control facilities, as well as a vast network of radar, navigation, automated data processing, and communications equipment. However, this modernization effort has experienced cost overruns, schedule delays, and performance shortfalls. Originally, FAA had planned to complete its modernization in 10 years at a cost of \$12 billion. Now, two decades and \$35 billion later, FAA estimates that modernization efforts are still far from complete and that it will need nearly \$16 billion more through fiscal year 2007 to complete key projects,

including the Standard Terminal Automation Replacement System (STARS), the Wide Area Augmentation System (WAAS), and the Next-Generation Air/Ground Communications System (NEXCOM). (All amounts are in nominal dollars.) These projects continue to face challenges that might affect FAA's ability to meet cost, schedule, and/or performance expectations. (See table 4.)

Table 4: Selected Air Traffic Control Modernization Acquisition Projects

Project	Estimated cost		Projected deployment schedule		Status
	Original	Current	Original	Current	
Standard Terminal Automation Replacement System (STARS), designed to replace aging displays and processing systems used by air traffic controllers	\$940 million	\$1.33 billion	Start: 1998; Finish: 2005	Start: 2002; Finish: 2005	FAA's latest cost and schedule for STARS is based on deployment to 74 facilities as opposed to the original 172 facilities. In September 2002, we found that FAA's schedule for deploying STARS to a large facility presents challenges in terms of completing efforts to test the system, resolve problems, and train all employees on the new system. ^a
Wide Area Augmentation System (WAAS), designed to provide satellite-based navigation for airspace users	\$892 million	\$2.9 billion	Start: 1998; Finish: 2001	Start: 2003; Finish: to be determined	Integrity concerns have plagued WAAS' development. While the agency has made progress in resolving these concerns, FAA must decide whether to stop WAAS development in 2003 or continue to refine the technology to provide an approach capability with greater precision.
Next-Generation Air/Ground Communications (NEXCOM), designed to replace existing communications systems and provide additional voice channels	\$986 million (1 st segment only)	\$986 million (1 st segment only)	Finish: 2009	Finish: 2013	FAA is only in the early stages of making a final decision to select the technology for NEXCOM and still needs to address three major issues: (1) whether the preferred technology is technically sound and will operate as intended, (2) if the preferred technology and equipment it requires can be certified as safe for use in the National Airspace System, and (3) whether it is cost effective for users and the agency.

Source: FAA.

Notes: Dollars are nominal.

GAO analysis of the department's data.

^aU.S. General Accounting Office, *National Airspace System: Status of FAA's Standard Terminal Automation Replacement System*, [GAO-02-1071](#) (Washington, D.C.: Sept. 17, 2002).

Since 1995, we have made over 30 recommendations to address the root causes of FAA's modernization problems. Although FAA has made progress in addressing these root causes, more remains to be done. For example:

Improve immature software capabilities. FAA developed an integrated framework for improving its software acquisition, software development, and systems engineering processes. Since our last high-risk update, FAA has continued to expand the number of system development projects that use this integrated framework. However, FAA still does not require all systems to achieve a minimum level of progress within the framework before being funded.

Need for a complete and enforced systems architecture. FAA has developed a systems architecture, or overall blueprint, which clarifies interdependencies and interrelationships among national airspace systems and the technical standards to which systems must comply. In November 2000, the Office of Management and Budget instructed agencies to base investments in information technology on enterprise architectures, which define (in both business and technology terms) how an entity operates today and how it wants to operate in the future, including a roadmap for transitioning to this future operational state. In February 2002, we reported that FAA's enterprise architecture is at a moderate level of maturity—that is, the agency has begun developing architecture products such as policies and concepts, but has not yet completed the architecture products or leveraged the architecture for managing change.³⁶

Improve cost estimating and cost accounting practices. To improve cost estimates, FAA developed a standard work breakdown structure and established an historical database for tracking systems' estimated costs and other information. Further, since our last high-risk update, FAA has made significant progress in implementing its cost accounting system. However, the agency has not yet fully instituted rigorous cost estimating practices. That is, FAA is not yet incorporating actual costs from related system development efforts in its processes for estimating the costs of new projects.

³⁶U.S. General Accounting Office, *Information Technology: Enterprise Architecture Use Across the Federal Government Can Be Improved*, [GAO-02-6](#) (Washington, D.C.: Feb. 19, 2002).

Strengthen investment management processes. To improve its investment management processes, FAA is now overseeing investment risks and capturing key information from the investment selection process in a management information system. Also, since our last high-risk update, FAA has developed guidance for validating costs, benefits, and risks and expects to finalize this guidance by early 2003. However, FAA has not yet implemented processes for evaluating projects after implementation in order to identify lessons learned and improve the investment management process.

Change organizational culture. FAA issued an organizational culture framework in 1997 and is working to implement it. However, in 2000, the department's Inspector General reported that FAA's culture remains a barrier to successful acquisition projects and that integrated teams, a key mechanism to deliver more cost-effective and timely products, are not working well because FAA's culture continues to operate in vertical "stovepipes," which conflict with the horizontal structure of team operations. In fact, our 2000 report on WAAS confirmed that the integrated teams were not working as intended.³⁷ We found that competing priorities between two key organizations that are part of WAAS' integrated team negated the effectiveness of the team's approach for meeting the agency's goals for the system.

Clearly, FAA has undertaken numerous improvements to enhance its ability to manage the air traffic control modernization, but its reform efforts are not yet complete and thus remain at high risk. In the meantime, major projects continue to face challenges that could affect their cost, schedule, and performance. We will continue to evaluate FAA's progress on selected system acquisition efforts.

The Coast Guard's Deepwater Project

The Deepwater Capability Replacement Project involves replacing or modernizing over 90 ships and 200 aircraft that are approaching the end of their useful lives and are critical to missions that occur 50 miles or more offshore ("deepwater"). These missions include search and rescue activities and interdiction of illegal aliens and drugs. The Coast Guard is addressing many of the concerns we reported in our 2001 Performance and

³⁷U.S. General Accounting Office, *National Airspace System: Persistent Problems in FAA's New Navigation System Highlight Need for Periodic Reevaluation*, GAO/RCED/AIMD-00-130 (Washington, D.C.: June 12, 2000).

Accountability Series report, but uncertainties still exist in key areas such as (1) attaining stable, sustained funding; (2) controlling costs, especially in the contract's later years; (3) ensuring that procedures and personnel are in place for managing and overseeing the contractor; and (4) minimizing potential problems using unproven technology.

Stable, sustained funding. In 2002, the Coast Guard awarded a \$17 billion contract to a Lockheed-Northrop Grumman team, using projections of sustained funding of \$500 million a year (in 1998 dollars) over the next 2 to 3 decades to develop the Integrated Deepwater System. However, the Office of Management and Budget estimates a possible cumulative funding shortfall of about half a billion dollars for the project's first 5 years. In response to our concerns³⁸ about the Coast Guard's ability to obtain sustained funding of \$500 million a year, the fiscal year 2002 appropriations act for the department prohibited the obligation and expenditure of appropriated funds until the department and the Office of Management and Budget jointly (1) certified that the Coast Guard's deepwater funding was within the Office of Management and Budget's projections and (2) approved a contingency procurement strategy for assets and capabilities envisioned in the deepwater system. The 2002 fiscal year appropriation of \$320 million for the deepwater system was about \$18 million below the planned level. The fiscal year 2003 transportation appropriations have not yet been signed into law; however, the Senate appropriations committee has proposed \$480 million for Deepwater, about \$20 million below the budget request and the House appropriations committee proposed full funding for the \$500 million budget request. The Coast Guard is updating its baseline funding projections for the deepwater project according to these lower funding levels. Reductions in funding from amounts planned could result in reduced operations, increased costs, and/or schedule delays.

Controlling costs. While the Coast Guard's management during the planning phase of the deepwater project was among the best of the federal agencies we have evaluated and provides a solid foundation for the project, the next phase presents considerably tougher management challenges. The next phase concentrates the responsibility for the project's success with one systems integrator and its subcontractors for a period of 20 or more years and starts the Coast Guard on a course that is likely to be difficult and

³⁸U.S. General Accounting Office, *Coast Guard: Progress Being Made on Deepwater Project, but Risks Remain*, [GAO-01-564](#) (Washington, D.C.: May 21, 2001).

potentially expensive to alter once funding has been committed and contracts have been executed. Moreover, this approach has never been used on a procurement of this size or complexity, and, as a result, there are no models in the federal government to guide the Coast Guard in developing its acquisition strategy. We and others have raised concerns about whether the Coast Guard's planned contracting approach of relying on a single contracting team will be able to control costs and still meet performance requirements in later years in the absence of competition, particularly since it was adopted without documentation of risks involved or the degree to which this approach provided better value than other ones. In response, the Coast Guard developed processes and policies to address concerns about costs, including establishing prices for deliverables, negotiating change order terms, and developing incentives. We will continue to assess the department's actions in this area.

Contractor oversight. While the Coast Guard's overall management and day-to-day administration of the deepwater contract during the planning phase has generally been excellent, as the project moves into a procurement phase that has a smaller scope of work and uses a contracting approach that is unique and untried, the challenges in managing and overseeing the contractor will become more difficult. To address these challenges, the Coast Guard plans to require the systems integrator to implement many management processes and procedures according to best practices. Since our May 2001 report, the Coast Guard has identified management processes and procedures based on best practices for governance, peer review inside the federal government, advisory boards outside the federal government, program self-assessment, risk management, and technology readiness. According to the Coast Guard, these best practices are assisting it to build out the 21st century Coast Guard using lessons learned, which it is incorporating in its program management to build partnerships with industry. While these practices are not yet in place, in May 2002, the Coast Guard released its Phase 2 Program Management Plan, which establishes processes to successfully manage, administer, monitor, evaluate, and report contract performance.

Unproven technology. Our reviews of other acquisitions have shown that reliance on unproven technology is a frequent contributor to escalated costs, schedule delays, and compromised performance standards. While the Coast Guard has successfully identified technologies that are sufficiently mature, commercially available, and proven in similar applications for use in the first 7 years of the project, it has had no structured process to assess and monitor the potential risk of technologies

proposed for use in later years. Specifically, the Coast Guard has lacked uniform and systematic criteria, such as those used by the National Aeronautics and Space Administration to judge the level of a technology's readiness, maturity, and risk. Such criteria are important for monitoring continued development of the technologies that will be used later in the project. However, in response to our 2001 recommendation, the Coast Guard is incorporating the technology readiness level assessment in the deepwater program's risk management process. Technology readiness level assessments are to be performed for technologies identified in the design and proposal preparation and procurement stages of the deepwater program.

Continuing Progress in Financial Management

Since our 2001 Performance and Accountability Series report, the department has made significant progress in addressing financial accountability weaknesses. In 2001, as in 1999, we designated FAA's financial management as high risk because of wide-ranging concerns reported by the department's Inspector General and us, about the department's ability to prepare accurate, reliable financial information that its managers could use to make decisions. While the department has begun installing a new departmentwide general accounting system and FAA has installed a new interim property system and expects to complete implementation of its cost accounting system in 2003, it is too early to predict whether the new systems will completely remedy the department's and FAA's financial management weaknesses. As a result, we continue to designate FAA financial management as high risk in 2003.

Eliminating Financial Management Deficiencies Will Require Successfully Implementing a New General Accounting System

The department has continued to expand implementation of its new general accounting system—Delphi—throughout the department.³⁹ This new system is expected to correct many of the financial management deficiencies that have plagued the department.

Problems with the department's current general accounting system have been substantial. In its fiscal year 2001 financial statement audit report, the Inspector General described the current general accounting system as unable to produce auditable financial statements based on the information

³⁹Delphi consists of a number of integrated components, including modules for general accounting and property.

in the system. This meant that the department needed to make about 850 adjustments outside of its general accounting system totaling about \$41 billion in order to prepare its financial statements. The need for extensive adjustments, along with other general financial management weaknesses, also has led to misstatements in the department's financial reporting. For example, its fiscal year 2001 financial statements included net prior period adjustments totaling approximately \$2.1 billion. Prior period adjustments are required when financial statement balances have been materially misstated in previously issued financial statements. They confirm the existence of severe financial management accountability problems. Prior period adjustments totaling \$5.6 billion and \$330 million, respectively, also were reported in the department's 1999 and 2000 financial statements. Large numbers of adjustments also mean that the department lacked reliable day-to-day data to make management decisions and maintain ongoing accountability to the taxpayers.

The new Delphi accounting system will allow the department and its modal administrations to accumulate information at the detailed account level necessary to prepare financial statements and other reports without the extensive manual intervention presently required. It also will accumulate costs by program. This presently is not possible, which prevents the department from linking its costs with performance information. The system was implemented in seven of the department's smaller modal administrations by the end of fiscal year 2001. Full departmentwide and FAA implementation is expected by the end of 2003.

The department also introduced a system module that facilitated the preparation of its financial statements and related reports starting with fiscal year 2001. This module automated many financial statement preparation operations that had been done manually and is designed to utilize the information provided by the Delphi general accounting component. The department will realize additional efficiencies when this component is fully implemented, including the consolidation of modal administrations' financial information at the department level. The system also is designed to receive and exchange financial data with many other systems such as those for FAA's property and cost accounting.

However, the reliability of the data produced and maintained by the new systems will be unproven until they are operated in a fully integrated manner and a subsequent audit of the department's financial statements occurs. As such, it is too early to predict whether or not these new systems will meet the department's financial management information needs.

**FAA Property
Accountability Requires
New Systems to Be Fully
Implemented and
Successfully Operated**

FAA implemented its new property system module as a stand-alone interim system in 2001. This module will be a component of the new Delphi system when it is implemented by FAA. The property system module is designed to account for FAA property from acquisition through disposal. Along with related procedural and control changes, it is expected to remedy FAA's long-standing inability to properly account for the cost of its property.

FAA property accountability has been an issue since the Inspector General's first audit of FAA financial statements in 1994. The Inspector General and we have reported consistently that FAA lacked the systems and related procedures to accurately and routinely account for property that totaled \$11.7 billion as of September 30, 2001. FAA property accountability also has been cited as a material internal control weakness for many years.

Although the Inspector General issued an unqualified audit opinion on FAA's financial statements for fiscal year 1999, special FAA and Inspector General efforts were required to produce this result, since FAA's systems did not provide reliable data. For fiscal year 2000, when these significant extra efforts were not made, the Inspector General qualified its opinion because it was unable to determine the accuracy of FAA's reported property amounts. In fiscal year 2001, FAA centralized its accounting for property and implemented an interim property system. After the Inspector General initially found prior year property errors totaling \$184 million during its audit, FAA hired an independent certified public accounting firm to perform a complete property financial audit. The auditors recommended additional adjustments totaling \$138 million. After those adjustments were made, the Inspector General gave the 2001 FAA financial statements an unqualified opinion, but continued to cite property accountability as a material internal control weakness.

FAA expects to convert to its new Delphi system including the property system and general accounting system modules by the end of 2003. These systems components, which exchange data, will need to be proven in full operation. Subsequently, FAA's financial statement audit will provide a comprehensive test of the ability of these systems to function in the complex FAA environment. That audit will include an assessment about the reliability of reported property amounts and the related internal controls.

More Complete FAA Cost
Accounting Information
Requires Additional
Systems Implementation

FAA continues to make substantial progress in developing its cost accounting information capabilities. It is completing the implementation of its cost accounting system that it expects to have fully operational by the end of 2003. This system is intended to provide reliable information that has been lacking in the past about the full cost of FAA's projects and services.

FAA's progress in this area is important because a cost accounting system's objective is to accurately assign basic financial costs—such as an agency's labor, overhead, and other costs—to program activities and projects. Accurate cost information is essential for managing FAA's programs in areas that include budgeting and cost control, determining cost reimbursements and setting fees and prices, performance measurement, program evaluations, and choosing among alternative actions.⁴⁰ The nature of its activities means that FAA has many cost information needs. For example, labor and other costs are incurred in the design, acquisition, and installation of air traffic control and other systems. Such costs need to be identified and accounted for as a part of systems acquired instead of being charged to current operating costs. FAA also needs information about the cost of services that it provides to the public.

We and others have reported that FAA lacked the systems necessary to provide cost accounting information. This deficiency limits FAA's and others' ability to make effective decisions about resource needs and to adequately control major projects, such as its multibillion-dollar air traffic control modernization program.

FAA began to implement portions of its cost accounting system in fiscal year 1997. By the end of fiscal year 2001, FAA had completed the implementation of its cost accounting system for its Air Traffic Services, began to track labor cost by project in two FAA organizations, and started to develop cost/performance models for its enroute and flight services.⁴¹ During 2002, FAA focused on implementing cost accounting systems in its remaining organizations such as the Aeronautical Center and Civil Aviation

⁴⁰The Statement of Federal Financial Accounting Standards No. 4, *Managerial Cost Accounting Standards*, July 31, 1995, describes these five areas for which cost information is essential in managing government programs.

⁴¹Air Traffic Services is the FAA office responsible for operating and maintaining the national airspace system.

Security and began to use cost data to support fee and pricing activities. It also made progress in developing financial measures that focus on cost trends by service area, analyzing cost anomalies, and using cost per flight as a financial indicator in relation to operational measures. FAA continues to add to and enhance the comprehensiveness of its cost systems. For example, it is integrating additional labor cost data into the system from various FAA activities. Complete implementation of this system is expected by the end of 2003.

As is the case with FAA's property system, the reliability of the data produced and maintained by FAA's new cost accounting system will be unproven until it is fully implemented and is subsequently subjected to a financial statement audit.

GAO Contacts

Subject covered in this report	Contact person
Improving transportation safety	John H. Anderson, Jr., Managing Director Physical Infrastructure Issues (202) 512-2834 andersonj@gao.gov
Transforming transportation security	
Improving mobility and economic growth through intermodal and modal approaches	
Building human capital strategies	J.C. Mihm, Director Strategic Issues (202) 512-3236 mihmj@gao.gov
	Gerald L. Dillingham, Ph.D., Director Physical Infrastructure Issues (202) 512-2834 dillinghamg@gao.gov
Enhancing the management of FAA acquisitions	Gerald L. Dillingham, Ph.D., Director Physical Infrastructure Issues (202) 512-2834 dillinghamg@gao.gov
	David A. Powner, Acting Director Information Technology Issues (202) 512-9286 pownerd@gao.gov
Enhancing the management of Coast Guard acquisitions	JayEtta Z. Hecker, Director Physical Infrastructure Issues (202) 512-2834 heckerj@gao.gov
Continuing progress in financial management	Linda M. Calbom, Director Financial Management and Assurance Issues (202) 512-9508 calboml@gao.gov

Related GAO Products

Performance, Accountability, and High Risk

Performance and Accountability: Reported Agency Actions and Plans to Address 2001 Management Challenges and Program Risks. [GAO-03-225](#). Washington, D.C.: October 31, 2002.

Performance Reporting: Few Agencies Reported on the Correctness and Reliability of Performance Data. [GAO-02-372](#). Washington, D.C.: April 26, 2002.

Department of Transportation: Status of Achieving Key Outcomes and Addressing Major Management Challenges. [GAO-01-834](#). Washington, D.C.: June 22, 2001.

Major Management Challenges and Program Risks: Department of Transportation. [GAO-01-253](#). Washington, D.C.: January 2001.

Major Management Challenges and Program Risks: A Governmentwide Perspective. [GAO-01-241](#). Washington, D.C.: January 2001.

High-Risk Series: An Update. [GAO-01-263](#). Washington, D.C.: January 2001.

Transportation Safety

Aviation Safety: Undeclared Air Shipments of Dangerous Goods and DOT's Enforcement Approach. [GAO-03-22](#). Washington, D.C.: January 10, 2003.

Pipeline Safety and Security: Improved Workforce Planning and Communication. [GAO-02-785](#). Washington, D.C.: August 26, 2002.

General Aviation: Status of the Industry, Related Infrastructure, and Safety Issues. [GAO-01-916](#). Washington, D.C.: August 31, 2001.

Vehicle Safety: Technologies, Challenges, and Research and Development Expenditures for Advanced Air Bags. [GAO-01-596](#). Washington, D.C.: June 12, 2001.

Motor Vehicle Safety: NHTSA's Ability to Detect and Recall Defective Replacement Crash Parts Is Limited. [GAO-01-225](#). Washington, D.C.: January 31, 2001.

Commercial Motor Vehicles: Effectiveness of Actions Being Taken to Improve Motor Carrier Safety Is Unknown. [GAO/RCED-00-189](#). Washington, D.C.: July 17, 2000.

Aviation Safety: Safer Skies Initiative Has Taken Steps to Reduce Accident Rates by 2007. [GAO/RCED-00-111](#). Washington, D.C.: June 28, 2000.

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

Pipeline Safety: The Office of Pipeline Safety Is Changing How It Oversees the Pipeline Industry. [GAO/RCED-00-128](#). Washington, D.C.: May 15, 2000.

Commercial Motor Vehicles: Significant Actions Remain to Improve Truck Safety. [GAO/T-RCED-00-102](#). Washington, D.C.: March 2, 2000.

Truck Safety: Motor Carrier Office Hampered by Limited Information on Causes of Crashes and Other Data Problems. [GAO/RCED-99-182](#). Washington, D.C.: June 29, 1999.

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.

Motor Vehicle Safety: Comprehensive State Programs Offer Best Opportunity for Increasing Use of Safety Belts. [GAO/RCED-96-24](#). Washington, D.C.: January 3, 1996.

Transportation Security

Transportation Security Administration: Actions and Plans to Build a Results-Oriented Culture. [GAO-03-190](#). Washington, D.C.: January 17, 2003.

Aviation Security: Vulnerabilities and Potential Improvements for the Air Cargo System. [GAO-03-344](#). Washington, D.C.: December 20, 2002.

Mass Transit: Federal Action Could Help Transit Agencies Address Security Challenges. [GAO-03-263](#). Washington, D.C.: December 13, 2002.

Mass Transit: Challenges in Securing Transit Systems. [GAO-02-1075T](#). Washington, D.C.: September 18, 2002.

Port Security: Nation Faces Formidable Challenges in Making New Initiatives Successful. [GAO-02-993T](#). Washington, D.C.: August 5, 2002.

Aviation Security: Transportation Security Administration Faces Immediate and Long-Term Challenges. [GAO-02-971T](#). Washington, D.C.: July 25, 2002.

Homeland Security: Progress Made, More Direction and Partnership Sought. [GAO-02-490T](#). Washington, D.C.: March 12, 2002.

Aviation Security: Terrorist Acts Demonstrate Urgent Need to Improve Security at the Nation's Airports. [GAO-01-1162T](#). Washington, D.C.: September 20, 2001.

FAA Computer Security: Recommendations to Improve Continuing Weaknesses. [GAO-01-171](#). Washington, D.C.: December 6, 2000.

Aviation Security: Long-Standing Problems Impair Airport Screeners' Performance. [GAO/RCED-00-74](#). Washington, D.C.: June 28, 2000.

Mobility and Economic Growth

Commercial Aviation: Financial Condition and Industry Responses Affect Competition. [GAO-03-171T](#). Washington, D.C.: October 2, 2002.

Intercity Passenger Rail: Potential Financial Issues in the Event that Amtrak Undergoes Liquidation. [GAO-02-871](#). Washington, D.C.: September 20, 2002.

Highway Infrastructure: Timely Delivery of Highway Construction Projects. [GAO-02-1067T](#). Washington, D.C.: September 19, 2002.

Marine Transportation: Federal Financing and a Framework for Infrastructure Investments. [GAO-02-1033](#). Washington, D.C.: September 9, 2002.

Surface and Maritime Transportation: Developing Strategies for Enhancing Mobility: A National Challenge. [GAO-02-775](#). Washington, D.C.: August 30, 2002.

Mass Transit: Status of New Starts Program and Potential for Bus Rapid Transit Projects. [GAO-02-840T](#). Washington, D.C.: June 20, 2002.

Railroad Regulation: Changes in Freight Railroad Rates from 1997 through 2000. [GAO-02-721](#). Washington, D.C.: June 5, 2002.

Highway Infrastructure: Interstate Physical Conditions Have Improved, but Congestion and Other Pressures Continue. [GAO-02-571](#). Washington, D.C.: May 31, 2002.

Mass Transit: FTA's New Starts Commitments for Fiscal Year 2003. [GAO-02-603](#). Washington, D.C.: April 30, 2002.

Intercity Passenger Rail: Congress Faces Critical Decisions in Developing a National Policy. [GAO-02-522T](#). Washington, D.C.: April 11, 2002.

Physical Infrastructure: Crosscutting Issues Planning Conference Report. [GAO-02-139](#). Washington, D.C.: October, 2001.

Mass Transit: FTA Could Relieve New Starts Funding Program Constraints. [GAO-01-987](#). Washington, D.C.: July 31, 2001.

Aviation Competition: Restricting Airline Ticketing Rules Unlikely to Help Consumers. [GAO-01-831](#). Washington, D.C.: July 31, 2001.

Freight Railroad Regulation: Surface Transportation Board's Oversight Could Benefit from Evidence Better Identifying How Mergers Affect Rates. [GAO-01-689](#). Washington, D.C.: July 5, 2001.

Mass Transit: Many Management Successes at WMATA, but Capital Planning Could Be Enhanced. [GAO-01-744](#). Washington, D.C.: July 3, 2001.

Aviation Competition: Challenges in Enhancing Competition in Dominated Markets. [GAO-01-518T](#). Washington, D.C.: March 13, 2001.

Highway Infrastructure: FHWA's Model for Estimating Highway Needs Has Been Modified for State-Level Planning. [GAO-01-299](#). Washington, D.C.: February 14, 2001.

Aviation Competition: Issues Raised by Consolidation Proposals. [GAO-01-370T](#). Washington, D.C.: February 1, 2001.

Mass Transit: Project Management Oversight Benefits and Future Funding Requirements. [GAO-00-221](#). Washington, D.C.: September 15, 2000.

Transit Grants: Need for Improved Predictability, Data, and Monitoring in Application Processing. [GAO/RCED-00-260](#). Washington, D.C.: August 30, 2000.

Highway Funding: Problems with Highway Trust Fund Information Can Affect State Highway Funds. [GAO/RCED/AIMD-00-148](#). Washington, D.C.: June 29, 2000.

Highway Infrastructure: FHWA's Model for Estimating Highway Needs Is Generally Reasonable, Despite Limitations. [GAO/RCED-00-133](#). Washington, D.C.: June 5, 2000.

Intercity Passenger Rail: Amtrak Will Continue to Have Difficulty Controlling Its Costs and Meeting Capital Needs. [GAO/RCED-00-138](#). Washington, D.C.: May 31, 2000.

Mass Transit: Challenges in Evaluating, Overseeing, and Funding Major Transit Projects. [GAO/T-RCED-00-104](#). Washington, D.C.: March 8, 2000.

Transportation Infrastructure: Better Data Needed to Rate the Nation's Highway Conditions. [GAO/RCED-99-263](#). Washington, D.C.: September 24, 1999.

Mass Transit: Status of New Starts Transit Projects with Full Funding Grant Agreements. [GAO/RCED-99-240](#). Washington, D.C.: August 19, 1999.

Aviation Competition: Information on the Department of Transportation's Proposed Policy. [GAO/RCED-99-225](#). Washington, D.C.: July 29, 1999.

Surface Transportation: Moving Into the 21st Century. [GAO/RCED-99-176](#). Washington, D.C.: May 1999.

Human Capital

A Model of Strategic Human Capital Management. [GAO-02-373SP](#). Washington, D.C.: March 2002.

Coast Guard Workforce Mix: Phased-In Conversion of Some Support Officer Positions Would Produce Savings. [GAO/RCED-00-60](#). Washington, D.C.: March 1, 2000.

Federal Aviation Administration: Challenges in Modernizing the Agency. [GAO/T-RCED/AIMD-00-87](#). Washington, D.C.: February 3, 2000.

Acquisition Management

National Airspace System: Status of FAA's Standard Terminal Automation Replacement System. [GAO-02-1071](#). Washington, D.C.: September 17, 2002.

National Airspace System: FAA's Approach to Its New Communications System Appears Prudent, but Challenges Remain. [GAO-02-710](#). Washington, D.C.: July 15, 2002.

FAA Alaska: Weak Controls Resulted in Improper and Wasteful Purchases. [GAO-00-606](#). Washington, D.C.: May 30, 2002.

Coast Guard: Budget and Management Challenges for 2003 and Beyond. [GAO-02-538T](#). Washington, D.C.: March 19, 2002.

Coast Guard: Progress Being Made on Deepwater Project, but Risks Remain. [GAO-01-564](#). Washington, D.C.: May 21, 2001.

National Airspace System: Persistent Problems in FAA's New Navigation System Highlight Need for Periodic Re-evaluation. [GAO/RCED/AIMD-00-130](#). Washington, D.C.: June 12, 2000.

Financial Management

Transportation Infrastructure: Cost and Oversight Issues on Major Highway and Bridge Projects. [GAO-02-702T](#). Washington, D.C.: May 1, 2002.

Metropolitan Washington Airports Authority: Contracting Practices Do Not Always Comply with Airport Lease Requirements. [GAO-02-36](#). Washington, D.C.: March 1, 2002.

Airport Infrastructure: Unresolved Issues Make It Difficult to Determine the Cost to Serve New Large Aircraft. [GAO-02-251](#). Washington, D.C.: February 4, 2002.

Department of Transportation: Status of Achieving Key Outcomes and Addressing Major Management Challenges. [GAO-01-824](#). Washington, D.C.: June 22, 2001.

Port Infrastructure: Financing of Navigation Projects at Small and Medium-Sized Ports. [GAO/RCED-00-58](#). Washington, D.C.: March 2, 2000.

Results Act: Information on Performance Goals and Measures Contained in the Department of Transportation's Fiscal Year 2000 Performance Plan. [GAO/RCED-00-36](#), Washington, D.C.: November 15, 1999.

Commercial Maritime Industry: Updated Information on Federal Assessments. [GAO/TRCED-00-36](#). Washington, D.C.: November 3, 1999.

Performance and Accountability and High-Risk Series

Major Management Challenges and Program Risks: A Governmentwide Perspective. [GAO-03-95](#).

Major Management Challenges and Program Risks: Department of Agriculture. [GAO-03-96](#).

Major Management Challenges and Program Risks: Department of Commerce. [GAO-03-97](#).

Major Management Challenges and Program Risks: Department of Defense. [GAO-03-98](#).

Major Management Challenges and Program Risks: Department of Education. [GAO-03-99](#).

Major Management Challenges and Program Risks: Department of Energy. [GAO-03-100](#).

Major Management Challenges and Program Risks: Department of Health and Human Services. [GAO-03-101](#).

Major Management Challenges and Program Risks: Department of Homeland Security. [GAO-03-102](#).

Major Management Challenges and Program Risks: Department of Housing and Urban Development. [GAO-03-103](#).

Major Management Challenges and Program Risks: Department of the Interior. [GAO-03-104](#).

Major Management Challenges and Program Risks: Department of Justice. [GAO-03-105](#).

Major Management Challenges and Program Risks: Department of Labor. [GAO-03-106](#).

Major Management Challenges and Program Risks: Department of State. [GAO-03-107](#).

Major Management Challenges and Program Risks: Department of Transportation. [GAO-03-108](#).

Major Management Challenges and Program Risks: Department of the Treasury. [GAO-03-109](#).

Major Management Challenges and Program Risks: Department of Veterans Affairs. [GAO-03-110](#).

Major Management Challenges and Program Risks: U.S. Agency for International Development. [GAO-03-111](#).

Major Management Challenges and Program Risks: Environmental Protection Agency. [GAO-03-112](#).

Major Management Challenges and Program Risks: Federal Emergency Management Agency. [GAO-03-113](#).

Major Management Challenges and Program Risks: National Aeronautics and Space Administration. [GAO-03-114](#).

Major Management Challenges and Program Risks: Office of Personnel Management. [GAO-03-115](#).

Major Management Challenges and Program Risks: Small Business Administration. [GAO-03-116](#).

Major Management Challenges and Program Risks: Social Security Administration. [GAO-03-117](#).

Major Management Challenges and Program Risks: U.S. Postal Service. [GAO-03-118](#).

High-Risk Series: An Update. [GAO-03-119](#).

High-Risk Series: Strategic Human Capital Management. [GAO-03-120](#).

High-Risk Series: Protecting Information Systems Supporting the Federal Government and the Nation's Critical Infrastructures. [GAO-03-121](#).

High-Risk Series: Federal Real Property. [GAO-03-122](#).

**United States
General Accounting Office
Washington, D.C. 20548-0001**

**Official Business
Penalty for Private Use \$300**

Address Service Requested

**Presorted Standard
Postage & Fees Paid
GAO
Permit No. GI00**

