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Major Management Challenges and Program Risks

Department of Transportation

GAO

Accountability * Integrity * Reliability

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Comptroller General
of the United States

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

January 2001

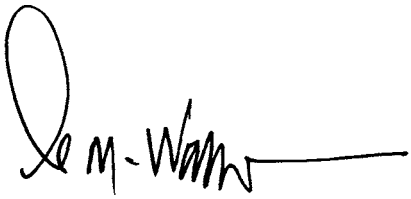
The President of the Senate
The Speaker of the House of Representatives

This report addresses the major performance and accountability challenges facing the Department of Transportation (DOT) as it seeks to ensure the safe and efficient movement of people and goods and the cost-effective investment of resources in the nation's transportation infrastructure. It includes a summary of actions that DOT has taken and that are under way to address these challenges. It also outlines further actions that GAO believes are needed. This analysis should help the new Congress and administration carry out their responsibilities and improve government for the benefit of the American people.

This report is part of a special series, first issued in January 1999, entitled the *Performance and Accountability Series: Major Management Challenges and Program Risks*. In that series, GAO advised the Congress that it planned to reassess the methodologies and criteria used to determine which federal government operations and functions should be highlighted and which should be designated as "high risk." GAO completed the assessment, considered comments provided on a publicly available exposure draft, and published its guidance document, *Determining Performance and Accountability Challenges and High Risks* (GAO-01-159SP), in November 2000.

This 2001 *Performance and Accountability Series* contains separate reports on 21 agencies—covering each cabinet department, most major independent agencies, and the U.S. Postal Service. The series also

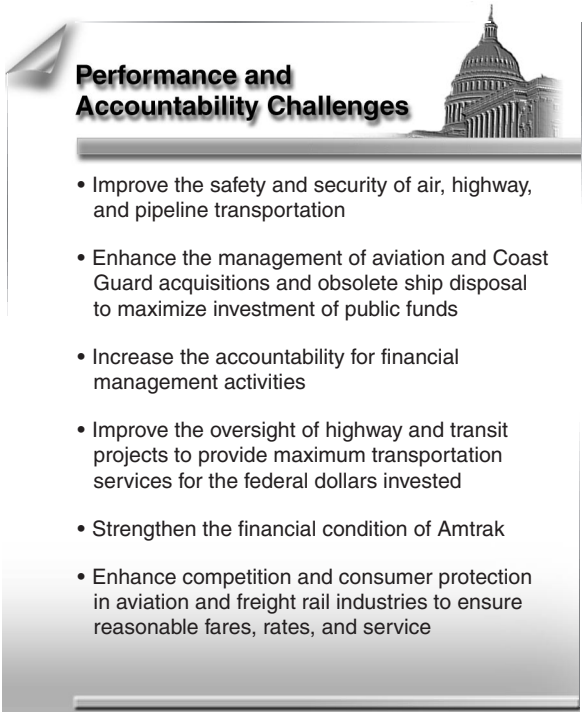
includes a governmentwide perspective on performance and management challenges across the federal government. As a companion volume to this series, GAO is issuing an update on those government operations and programs that its work identified as "high risk" because of either their greater vulnerabilities to waste, fraud, abuse, and mismanagement or major challenges associated with their economy, efficiency, or effectiveness.



David M. Walker
Comptroller General
of the United States

Overview

With $58.5 billion in funding for fiscal year 2001, the Department of Transportation (DOT) is responsible for ensuring the safe and efficient movement of people and goods and the cost-effective investment of resources in the nation's transportation infrastructure, including its highways and transit systems, airports, airways, railroads, ports, and waterways. The Department has achieved many successes in accomplishing its objectives and improving its operations. For example, DOT successfully addressed the Year 2000 computer challenge and the Congress has resolved some of the uncertainties about long-term financing for the Department's aviation programs and the nation's airports. In addition, DOT has improved the management of its transit grant programs so that they no longer are at high risk of fraud, waste, abuse, or mismanagement. However, we, DOT's Inspector General (IG), and the Department itself have documented shortcomings that still remain with the performance and management of the Department and unique challenges facing passenger rail travel and aviation and freight rail competition. Although some actions have been taken to address these problems, in many cases, addressing them will require a sustained effort by DOT, working with other federal, state, local, and private sector stakeholders and the Congress.



Safety and Security

Ensuring the safe and secure movement of people and goods on the nation's transportation infrastructure is a top priority for DOT. Although the Department has made improvements, there are still opportunities to reduce deaths and injuries and enhance the safety and security of the traveling public. For example, the Federal Aviation Administration (FAA) has announced a joint government and industry initiative to identify the root causes of aviation accidents and to design interventions that address them. This initiative should help improve aviation safety; however, we recommended that its effectiveness could be enhanced by developing better evaluation procedures. Further improvements are needed in hiring and training personnel who operate

checkpoints at airports to screen passengers and carry-on baggage for dangerous objects and in securing FAA's air traffic control (ATC) computer systems to reduce the possibility of intrusions or attacks. We recommended, for example, that FAA tighten controls over contract employees by ensuring that appropriate background investigations are performed. While DOT appears to be making progress on some initiatives to reduce truck crashes, we have advocated that it obtain needed high-quality, timely data on the causes of these crashes. Finally, DOT has not assessed the effectiveness of its revised approach to regulating pipelines that transport natural gas and hazardous liquids. Accordingly, we recommended that DOT determine whether its approach of working constructively with pipeline companies and reducing the use of fines has improved compliance with pipeline safety regulations.

Management of Acquisitions and Assets

DOT's management of its major acquisitions and assets needs improvement in several areas. FAA and the U.S. Coast Guard are undertaking costly, long-term programs to modernize and replace aging equipment. Over the past 19 years, FAA's multibillion-dollar ATC modernization program has experienced cost overruns, delays, and performance shortfalls of large proportions. FAA is making progress in addressing some of the causes of these problems, but its reform efforts are not complete, and major projects continue to face cost, schedule, and performance problems. Because of its size, complexity, cost, and problem-plagued past, we designated FAA's ATC modernization program as a high-risk information technology initiative in 1995. In addition, the Coast Guard is planning a 20-year, $10 billion project to replace or modernize its fleet of deepwater ships and aircraft. Although the agency has addressed many of our earlier recommendations about the project's justification and affordability, attention needs to be focused on the adequacy of the management controls to oversee the project. Finally, the growing

backlog of the Maritime Administration's (MARAD) surplus ships awaiting disposal poses environmental threats and leads to continuing costs for storage, maintenance, and security. DOT's IG recommended that the Department seek congressional action to revise the contracting process for ship scrapping.

Financial Management

Major improvements are still needed in DOT's financial management systems. The Department received an unqualified opinion on its fiscal year 1999 financial statements and DOT's IG reported that significant progress was made in improving its financial reports. However, the IG also reported that systems deficiencies affected DOT's ability to prepare its financial statements and account for liabilities and that the Department lacked a managerial cost accounting system. DOT's financial management weaknesses have been particularly troublesome at FAA because of their long-standing nature and the agency's slow progress in resolving them. In January 1999, we designated FAA's financial management as a high-risk area because of serious and long-standing accounting and financial management weaknesses. Until FAA has financial management systems and related procedures and controls that provide reliable information, the agency will continue to be at high risk of waste, fraud, abuse, and mismanagement.

Highway and Transit Grants

Over the years, many large-dollar highway and transit projects have incurred cost increases and schedule delays. From 1998 through 2003, DOT is expected to provide at least $198 billion for highway and transit projects through programs financed largely from the Highway Trust Fund. Although the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) have improved their oversight of large highway and transit projects, additional opportunities exist to improve the oversight of these

projects and the approach to funding them. For example, FTA may not have the resources it needs after fiscal year 2001 to adequately oversee the significant number of new transit projects requiring oversight and we recommended that the Department identify any funding shortfalls and take steps to address them. We also recommended that DOT prioritize eligible transit projects so that funds can be directed to the most deserving projects.

Intercity Passenger Rail

Despite efforts to improve its overall financial condition, the National Railroad Passenger Corporation (Amtrak) has made relatively little progress in reducing its need for federal operating subsidies. Since 1971, the federal government has provided Amtrak with over $23 billion in operating and capital assistance. In 1994, at the request of the administration and later at the direction of the Congress, Amtrak pledged to eliminate the need for federal operating subsidies by the end of 2002. To reach this goal, Amtrak has reduced its need for operating subsidies by only $83 million in 6 years (1995-2000) and must make $282 million in further reductions in 2001 and 2002. While revenues have increased, it will be difficult for Amtrak to eliminate the need for federal operating subsidies by the deadline, given Amtrak's lack of overall progress in reducing costs. If Amtrak does not meet the goal, plans for restructuring intercity passenger rail service and liquidating Amtrak are to be submitted to the Congress. Even if Amtrak does attain operational self-sufficiency, it could require substantially more federal funds to meet its capital needs. We estimate that Amtrak will need at least $9 billion (in constant 1999 dollars) to meet its identified capital needs through 2015.

Aviation and Rail Competition

Lack of effective competition in certain markets has contributed to high fares and rates and poor service in commercial aviation as well as freight rail

transportation. A number of communities have not benefited from increased aviation competition, largely because barriers inhibit the entry of new airlines and, as a result, pockets of high fares and poor service exist. These barriers include limited access to gates at certain airports and "slot" controls that limit the number of takeoffs and landings at certain congested airports. The Congress has begun to address some of these barriers, including requiring the phasing out of "slot" rules. However, the recently proposed merger between United Airlines and US Airways—two of the nation's largest airlines—has raised concerns that it may lead to decreased competition in certain markets. In addition, freight shippers are concerned that recent railroad mergers and consolidations have resulted in poor service and high rates in certain markets. The Surface Transportation Board, which approves rail mergers and consolidations, has taken a number of actions to address rail rate, service, and merger issues. However, the Board's actions may not fully satisfy many shippers' concerns that increased competition in the rail industry is needed to improve service. Because of the divergent views of railroads and shippers, resolving service and competition issues will be difficult and may require congressional action.

Major Performance and Accountability Challenges

Improve the Safety and Security of Air, Highway, and Pipeline Transportation

DOT is responsible for ensuring the safe and secure movement of people and goods on the nation's transportation infrastructure—including its highways, transit systems, airports, airways, railways, ports, and waterways. Transportation safety and security is of paramount importance and a top priority for the Department. DOT has made measurable improvements in many areas, as shown by the performance data it tracks. For example, in fiscal year 1999, the Department met two of its three goals for highway safety and three of its four goals for freight railroad safety. However, there are still opportunities to reduce deaths and enhance the safety and security of the traveling public. Our recent work shows the need for improvements in (1) implementing certain aviation safety programs; (2) screening passengers at airports for dangerous objects, such as guns and explosives; (3) ensuring the security of ATC computer systems and the facilities that house them; (4) improving aspects of DOT's truck safety initiatives, including the quality of safety data; and (5) identifying and integrating state participation in pipeline safety programs.

Aviation Safety

The continued growth that is forecast for air travel in the United States in the coming decade will bring a rise in fatal accidents if the current accident rate is not reduced. Commercial aviation, used by most Americans when they fly, experienced an average of 6 fatal accidents a year in the United States from 1997-99; general aviation experienced an average of 368 accidents a year during the same period.[1] Since fiscal year 1999, DOT has set annual performance goals to

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

improve aviation safety. However, in fiscal year 1999, the Department missed all four annual performance goals for aviation safety. These goals targeted (1) the fatal accident rate in commercial aviation, (2) the number of dangerous incidents on airport runways, (3) the rate of errors in maintaining safe separation between aircraft, and (4) the frequency at which aircraft enter airspace without prior coordination. (See table 1.)

Table 1: DOT's Fiscal Year 1999 Performance Measures and Goals for Aviation Safety

Performance measure	Fiscal year 1999 goal	Fiscal year 1999 performance	Goal achieved?
Number of fatal aviation accidents for U.S. commercial air carriers per 100,000 flight hours	.034 accidents per 100,000 flight hours	.04 accidents per 100,000 flight hours	No
Number of dangerous incidents on airport runways (runway incursions)	270 incidents	322 incidents	No
Number of errors in maintaining safe separation between aircraft per 100,000 activities[a]	.496 errors per 100,000 activities	.57 errors per 100,000 activities	No
Number of deviations—i.e. when an aircraft enters airspace without prior coordination—per 100,000 activities	.099 deviations per 100,000 activities	.18 deviations per 100,000 activities	No

[a]"Activities" are total FAA facility activities, as defined in *Aviation System Indicators 1997 Annual Report*. An example of an activity is an air traffic controller providing guidance to a pilot who needs to make an instrument landing.

Source: DOT.

FAA's annual performance goals to reduce the rate of fatal aviation accidents represent interim steps toward reaching the challenging goal set by the White House and congressional commissions—an 80-percent reduction in the fatal accident rate by 2007. As part of its effort to achieve this long-range goal, FAA announced the Safer Skies initiative in April 1998. Safer Skies is a joint effort by government and the aviation industry to reduce the fatal accident rate by identifying the root

causes of accidents and designing interventions to address them. In June 2000, we reported that the Safer Skies initiative should help reduce the accident rate and enhance the safety of air travelers.

We recommended, however, that the initiative's effectiveness could be enhanced by considering potential new safety threats caused by changes in the aviation environment, developing effective systems to monitor the implementation of interventions, and evaluating the effectiveness of these interventions. Moreover, we found that efforts to evaluate the interventions' effectiveness will be hampered by a lack of (1) good baseline data on the extent of the problem prior to implementing the intervention, (2) explicit goals against which to measure progress, and (3) performance measures that are clearly linked to the safety problem being addressed. We recommended that baseline data, goals, and performance measures be developed for the Safer Skies initiative.

In addition, a key to improving aviation safety is for FAA to have an effective process for inspecting the nation's airline operations. In the past, we and others have expressed concerns about the adequacy of FAA's inspection process to meet this challenge. Concerns about the inspection process focused on unstructured, nonsystematic inspections that produced few reports of safety problems and on the adequacy of inspectors' technical training. These concerns also raised questions about the quality and consistency of the resulting inspection data and their usefulness for conducting analyses and targeting FAA's resources to the greatest safety risks. In response, FAA introduced, in 1998, a redesigned safety inspection system called the Air Transportation Oversight System (ATOS). ATOS was designed to ensure that airlines have operating systems to control risks and prevent accidents and to provide more useful information to help FAA target its limited inspection resources more effectively. We reviewed the

initial implementation of ATOS and, in June 1999, reported that it was responsive in concept to many of our previous concerns and recommendations. However, we concluded that ATOS suffered from a number of severe problems caused by an overly ambitious implementation schedule. We recommended several specific actions to clarify the program's guidance and improve the usefulness of FAA's database for targeting inspection resources to the areas of greatest potential safety risk. FAA recognized the need for improvements and postponed wider implementation of ATOS until the problems are corrected. FAA is continuing to address our concerns with the program and recommendations but has not yet fully implemented them.

Airport Security

Protecting the air transport system from terrorist attacks or other dangerous acts remains an important national issue. FAA has a number of safeguards in place to prevent attacks against commercial aircraft. Among the most important of these are the checkpoints at airports where passengers and their carry-on items are screened for dangerous objects, such as guns and explosives. Historically, however, screeners who operate checkpoints in the United States have had difficulty detecting dangerous objects, missing as many as 20 percent during tests conducted by FAA.

In June 2000, we reported that long-standing problems continue to reduce screeners' effectiveness in detecting dangerous objects, most notably (1) the rapid turnover of screener personnel—often above 100 percent a year at large airports and, in at least one airport, above 400 percent in a year—and (2) the human factors associated with screening that have for years affected screeners' hiring, training, and working environment. (See table 2.) A key factor in the rapid turnover is the low wages screeners receive. Screeners are often paid the minimum wage or close to it and can frequently earn more at airport fast-food restaurants.

Table 2: Turnover Rates for Screeners at 19 Large Airports, May 1998-April 1999

City (airport)	Annual turnover rate (percent)
Atlanta (Hartsfield Atlanta International)	375
Baltimore (Baltimore-Washington International)	155
Boston (Logan International)	207
Chicago (Chicago-O'Hare International)	200
Dallas-Ft. Worth (Dallas/Ft. Worth International)	156
Denver (Denver International)	193
Detroit (Detroit Metro Wayne County)	79
Honolulu (Honolulu International)	37
Houston (Houston Intercontinental)	237
Los Angeles (Los Angeles International)	88
Miami (Miami International)	64
New York (John F. Kennedy International)	53
Orlando (Orlando International)	100
San Francisco (San Francisco International)	110
San Juan (Luis Munoz Marin International)	70
Seattle (Seattle-Tacoma International)	140
St. Louis (Lambert St. Louis International)	416
Washington (Washington-Dulles International)	90
Washington (Ronald Reagan Washington National)	47
Average turnover rate	**126**

Source: FAA.

FAA is pursuing several initiatives to improve the hiring, training, and testing of screeners; to increase their alertness and more closely monitor their performance; and to certify the security companies that airlines retain to staff screening checkpoints. However, most of these efforts are behind schedule. For example, FAA is 2 years behind schedule in issuing its regulation requiring the certification of screening companies. Furthermore, FAA has established performance improvement goals for screeners, but it has not (1) developed an integrated plan to tie its various efforts to improve screeners'

performance to the achievement of its goals or (2) adequately measured its progress in achieving its goals for improving screeners' performance. In June 2000, we recommended that FAA complete and implement such a plan and establish additional performance goals to better ensure the success of FAA's efforts to improve screeners' performance. Additionally, congressional concerns over screeners' training have led to recently enacted legislation that significantly expands their training and testing requirements.

Air Traffic Control Computer Security

Security at our nation's airports alone does not ensure safe air travel. It is also critical to secure FAA's ATC 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 May 1998, we reported that (1) physical security management and controls at facilities that house ATC systems were ineffective; (2) systems security—for both operational and future systems—were ineffective, rendering systems vulnerable; and (3) FAA's management structure for implementing and enforcing computer security policy was ineffective. More recently, in December 1999, we reported that FAA was not following its own personnel security practices and, thus, had increased the risk that inappropriate contractor employees might have gained access to its facilities, information, or resources. For example, we found instances in which required background investigations had not been performed—including on 36 mainland Chinese nationals who reviewed the computer source code of eight mission-critical systems as part of FAA's effort to ensure Year 2000 readiness. By not following its

own policies, FAA increased the exposure of its systems to intrusion and malicious attack.

Between May 1998 and May 2000, we made 22 recommendations to address, among other things, weaknesses in

- physical security—by inspecting all ATC facilities that had not been recently inspected, correcting any identified weaknesses, and accrediting these facilities;[2]
- operational ATC systems security—by assessing, certifying, and accrediting[3] all systems by April 30, 1999, and at least every 3 years thereafter, as required by federal policy;
- future ATC systems security—by including well-formulated security requirements in the specifications for all new ATC systems;
- security management—by developing an effective Chief Information Officer (CIO) management structure for implementing and enforcing computer security policy; and
- personnel security—by tightening controls over contractor employees by ensuring that appropriate background investigations are performed.

FAA is acting to address our recommendations, but its progress in some areas has been slow. In our September 2000 testimony, we updated the status of these issues

[2]At the time of our review, FAA's policy required that ATC facilities be inspected to determine if they met physical security standards. This inspection then served as the basis for accrediting a facility—concluding that it is secure.

[3]System certification is the technical evaluation that is conducted to verify that FAA systems comply with security requirements. Certification results are one factor management considers in deciding whether to accredit systems. Accreditation is the formal declaration that the appropriate security safeguards have been properly implemented and that the residual risk is acceptable.

and found that serious and pervasive problems continue to exist:

- In the area of facilities' physical security, FAA is making progress in assessing its facilities, but the agency has identified significant weaknesses, and numerous ATC facilities have yet to be assessed and accredited as secure, in compliance with FAA's policy.
- FAA does not know how vulnerable most of its operational ATC systems are and cannot adequately protect them until it performs the appropriate risk assessments and addresses identified weaknesses. Furthermore, FAA has not always acted quickly to implement corrective actions for the systems that have undergone risk assessments and to test those system access controls designed to prevent unauthorized access.
- FAA has established an information systems security management structure under the CIO, but does not yet have a comprehensive security program in place.
- In the area of personnel security, FAA appears to perform appropriate background investigations for federal employees, but many Top Secret reinvestigations of senior personnel are past due—some by over 5 years. FAA is working to complete background investigations on thousands of its contractor employees, but much work remains to be done.
- In addition, we found that FAA's efforts to ensure that critical operations continue without interruption are limited and FAA has not yet fully implemented an intrusion detection capability for its computer systems that will enable it to quickly detect and respond to malicious intrusions.

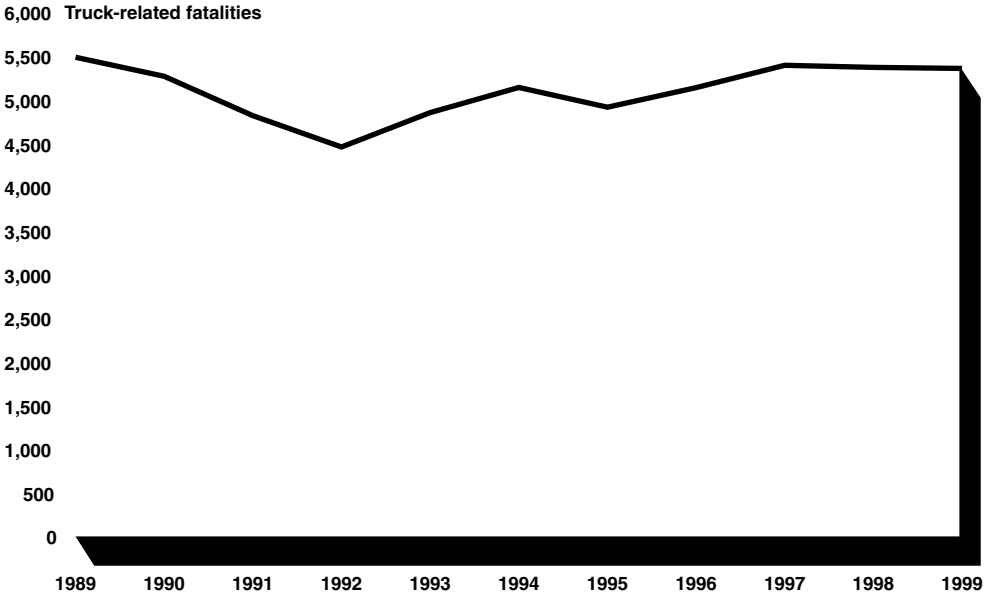
In December 2000, we made an additional 17 recommendations to address these continuing weaknesses. Senior FAA officials have acknowledged weaknesses in the agency's computer security program

and have generally agreed to address our recommendations. Until FAA addresses the pervasive weaknesses in its computer security program, however, its critical information systems will remain at increased risk of intrusion and attack, and its aviation operations will remain at risk.

Truck Safety

In 1999, about 5,400 people died on our nation's roads from crashes involving large trucks (those with a gross weight of more than 10,000 pounds), a figure largely unchanged from a decade ago. (See fig. 1.) To address this problem, the Secretary of Transportation set a goal of reducing truck-related fatalities to about 2,700 by 2009.

Figure 1: Number of Fatalities From Large Truck Crashes, 1989-1999



Source: DOT.

DOT has taken several steps to improve truck safety. First, as required by the Congress, in January 2000, it established a new organization—the Federal Motor Carrier Safety Administration—that is responsible for truck safety and places a greater emphasis on enforcement and compliance. Second, DOT has developed an overall strategy to improve the safety of commercial motor vehicles (trucks and buses). This strategy, called the Safety Action Plan, covers 2000 through 2003 and contains 47 initiatives that are intended to be an initial step in enabling the Department to reduce fatalities to meet its fiscal year 2009 goal. These initiatives fall within several broad categories, including increasing the enforcement of federal safety regulations; increasing safety awareness; improving safety information and technology; and improving performance standards for vehicles, drivers, and motor carriers.

The Department must overcome significant barriers to make measurable progress in improving truck safety. First, several key leadership positions in the new Federal Motor Carrier Safety Administration—including the Administrator and four Associate Administrators—have never been filled. The longer the Department takes to fill these positions, the more difficult it will be to accomplish the challenging goals to improve truck safety. Second, while the Department appears to be making progress on some of the individual initiatives in its Safety Action Plan, it lacks high-quality, up-to-date information on the causes of large truck crashes. In 1999, we brought to the forefront the problems with DOT's data on truck crashes and, as a result, DOT has begun to improve its data on their causes. Without such data, DOT cannot determine the degree to which its initiatives will reduce truck-related fatalities. Third, the Department is only beginning to determine whether it will have the resources to complete the activities in its plan. Finally, the Federal Motor Carrier Safety Administration's proposed revisions to its rules that

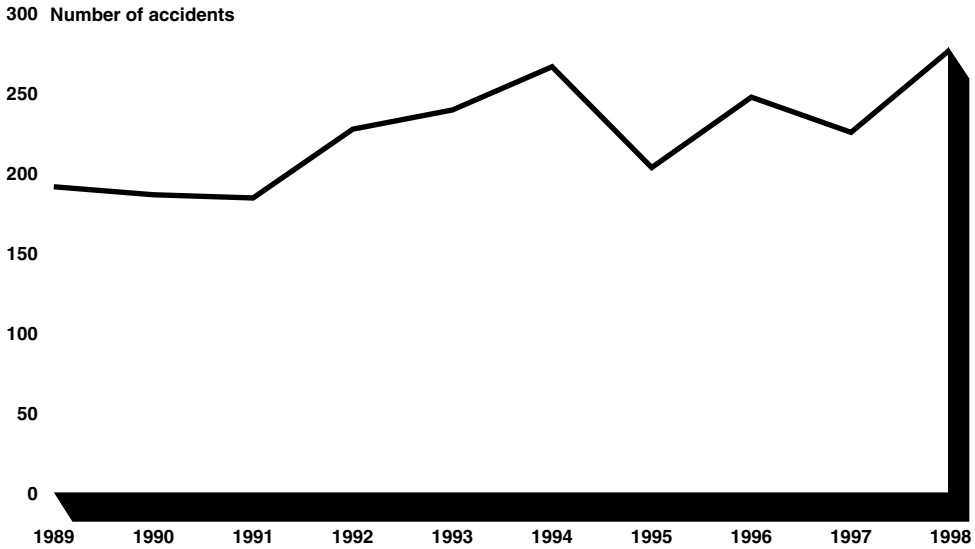
limit the number of hours that truck drivers may operate their vehicles before resting (estimated to save 115 lives a year) have been widely criticized by the trucking industry and safety groups. DOT has received about 20,000 comments on these revisions. The future of the revisions to rules concerning hours of service is uncertain, in part, because DOT's appropriations act for fiscal year 2001 prohibits the Department from spending funds to promulgate a final rule on hours of service. However, it allows the agency to carry out all rulemaking activities short of adopting a final rule.

Pipeline Safety

DOT's Office of Pipeline Safety (OPS) is responsible for ensuring the safe transportation of natural gas and hazardous liquids (such as crude oil and refined gasoline) by pipeline. Although fatalities from pipeline accidents are relatively few in number when compared with those from accidents involving other forms of freight transportation, they have been increasing. From 1989 through 1998, the number of major pipeline accidents increased by about 4 percent annually (see fig. 2) and resulted in an average of about 22 fatalities per year.[4] During this period, 226 people died and 1,030 people were injured in 2,241 major pipeline accidents. More recently, in August 2000, 12 people were killed as the result of a natural gas pipeline accident in Carlsbad, New Mexico.

[4]Major pipeline accidents are those that result in a fatality, an injury, or property damage of $50,000 or more.

Figure 2: Accidents Resulting in Fatalities, Injuries, or $50,000 or More in Property Damage, 1989-1998



Source: GAO's analysis of OPS' data.

OPS has adopted several initiatives to improve pipeline safety, including a risk management demonstration program. It is implementing a risk-based approach to regulation based, in part, on preliminary qualitative results from the demonstration program. It is also moving toward inspecting entire pipelines rather than segments of pipelines to provide a more comprehensive assessment of a pipeline's safety risks. Finally, it has changed its approach to enforcing compliance with its regulations by reducing its use of fines and, instead, working with pipeline operators to identify and correct safety problems.

Although we agree that a risk-based approach offers the potential to improve pipeline safety, we have concerns about OPS' actions. First, the office is implementing this

approach before obtaining quantitative evidence about the results of its risk management demonstration program. OPS has not developed performance measures for the demonstration program nor collected needed data on safety that could help evaluate the program and support the broader implementation of a risk management approach to pipeline safety. Second, in inspecting interstate pipelines, OPS is relying less on states to inspect those portions of the pipelines within their borders. OPS made this change primarily because of the logistical difficulties in scheduling systemwide inspections with the states involved. States' familiarity with the pipeline segments in their jurisdictions could aid in identifying the very risks that OPS is hoping to mitigate through its new approach. In addition, a combined federal and state approach to overseeing pipeline safety could better leverage federal resources. In May 2000, we recommended that the Secretary of Transportation direct OPS to work with state pipeline officials to determine which federal pipeline safety activities would benefit from state participation and, for those states willing to participate, integrate state participation into those activities. DOT agreed with this recommendation.

Finally, OPS' approach of working constructively with pipeline companies and reducing the office's reliance on monetary penalties in enforcing regulations may be reasonable if pipeline companies are achieving greater rates of compliance. The office has already significantly reduced its use of fines—the percentage of enforcement actions that resulted in fines fell from nearly 50 percent in 1990 to about 4 percent in 1998. However, OPS has not assessed whether less punitive actions are effective in achieving the desired results. In May 2000, we recommended that DOT determine whether OPS' reduced use of fines has maintained, improved, or decreased compliance with pipeline safety regulations. DOT agreed to conduct this evaluation.

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Enhance the Management of Aviation and Coast Guard Acquisitions and Obsolete Ship Disposal to Maximize Investment of Public Funds

Several of DOT's major acquisitions and assets face significant challenges that require management attention. FAA and the Coast Guard are undertaking costly, long-term programs to modernize and replace aging equipment. In addition, a growing backlog of MARAD's surplus ships poses environmental threats and leads to continuing costs as these ships await disposal. Our work has shown that these agencies need to improve the management of these acquisitions and assets to ensure that federal funds are effectively and efficiently used.

Federal Aviation Administration's Air Traffic Control Modernization

Faced with rapidly growing traffic volume and aging equipment, FAA initiated an ambitious ATC modernization effort in 1981. This effort involves acquiring new air traffic control facilities, as well as a vast network of radar, automated data processing, navigation, and communications equipment, and is expected to cost a total of $45 billion through fiscal year 2005. To date, the Congress has appropriated over $32 billion, and FAA estimates that it will need $13 billion more.

Over the past 19 years, the modernization effort has experienced cost overruns, schedule delays, and performance shortfalls of large proportions. Because of its size, complexity, cost, and problem-plagued past, we

designated this program as a high-risk information technology initiative in 1995. Many of the issues we reported then remain today, and we continue to believe this program remains at high risk.

Our work over the years has pinpointed the root causes of the modernization program's problems, including (1) immature software acquisition capabilities, (2) the lack of a complete and enforced systems architecture, (3) inadequate cost estimating and cost accounting practices, (4) the lack of an effective CIO management structure, (5) an ineffective investment management process, and (6) an organizational culture that impaired the acquisition process. We also noted that FAA faced many challenges in implementing its new air traffic management concept known as "free flight," which would allow pilots more flexibility in choosing routes and is intended to improve air traffic safety and efficiency. Since 1995, we have made over 30 recommendations to address the root causes of the modernization's problems. For example, we recommended that FAA improve its software acquisition capabilities by institutionalizing mature processes, develop and enforce a complete systems architecture, and implement an effective CIO management structure similar to the department-level CIOs prescribed by the Clinger-Cohen Act of 1996.

FAA initiated numerous activities in response to our recommendations in each of these areas. However, in many areas, more must be done:

- FAA developed an integrated framework for improving its software acquisition, software development, and systems engineering processes. The agency is also tracking several projects' efforts to improve these processes. However, FAA does not yet require all systems to achieve a minimum level of software process maturity before being funded.

- FAA is working to develop a complete systems architecture, or overall blueprint, and expects to issue its draft of a technical architecture in 2001.
- To improve cost estimates, FAA developed a standard work breakdown structure and has established an historical database for tracking systems' costs and other information. However, it has not yet fully instituted rigorous cost-estimating practices. FAA is working to develop a cost accounting capability and expects to have this capability fully in place by September 2002.
- FAA established a CIO management structure consistent with the provisions of the Clinger-Cohen Act, and the CIO is working to manage several complex, agencywide initiatives—which include improving information systems security, developing a complete systems architecture, and improving the agency's software acquisition processes. However, the CIO faces a continuing challenge in ensuring that these initiatives are implemented and enforced.
- To improve its investment management processes, FAA is now overseeing investments' risks and capturing key information from the investment selection process in a management information system. However, the agency has not yet issued guidance for validating investment analysis data or instituted a process for evaluating projects after implementation to identify lessons learned and improve the investment management process.

- FAA issued an organizational culture framework in 1997 and is working to implement it. However, DOT's IG reported in August 2000 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.[5] In fact, our recent report on FAA's Wide Area Augmentation System (WAAS) confirmed that the integrated teams were not working as intended.[6] We found that competing priorities between two key organizations that are part of the WAAS integrated team negated the effectiveness of the team's approach for meeting the agency's goals for WAAS.
- FAA established a program office for its free flight initiative to help reduce technical and financial risk by implementing selected technologies on a limited basis and evaluating them before fully implementing them. However, many challenges remain, including developing software, integrating free flight technologies with other modernization projects, and addressing human factor issues affecting controllers and pilots.

Clearly, FAA has initiated numerous improvements, but its reform efforts are not yet complete. In the meantime, major projects continue to face challenges that could affect their cost, schedule, and performance. For example, in June 2000 we reported that FAA's WAAS project has experienced cost increases of $500 million

[5]DOT Office of Inspector General, *Survey of the Federal Aviation Administration's Integrated Product Development System* (AV-2000-110, Aug. 29, 2000).

[6]WAAS, which will be a ground- and satellite-based navigation system for airspace users, is intended to significantly augment and improve the current ground-based navigation system, which requires pilots to fly less efficient routes to arrive at their destinations.

and a 3-year delay. (See table 3.) However, the cost increases are likely to grow to about $720 million, and the delay is likely to grow to 6 years because of problems associated with meeting a key performance requirement to provide timely warnings when the WAAS signal is providing misleading information and should not be used.

Table 3: Development Costs and Schedules for WAAS, 1994—September 1999

Dollars in millions

WAAS' cost and schedule information	As of 1994	Jan. 1998	Jan. 1999	Sept. 1999
Total development costs	$508	$1,007[a]	$1,007	$2,484[b]
Initial capability schedule	June 1997	July 1999	Sept. 2000	Sept. 2000[c]
Full capability schedule	Dec. 2000	Dec. 2001	To be determined	Dec. 2006

Note: Since 1996, FAA has included life-cycle costs, which include costs for developing, operating, and maintaining projects. In June 2000, we reported that the life-cycle cost estimate for WAAS was $3,187.6 million.

[a]The January 1998 program development costs for WAAS included costs for the prime contractor, development of standards and procedures, technical engineering and program support, and the first year of costs for satellites.

[b]The September 1999 estimate for WAAS development costs included $1.3 billion in satellite service acquisitions through 2020. In earlier estimates, satellite service acquisition costs were included in the cost of operating WAAS.

[c]FAA did not meet this milestone and has not determined when this capability will be available.

Source: FAA.

FAA has acknowledged that it took a risk by agreeing to a design for the system and establishing milestones for its deployment before completing the research and

development needed to demonstrate the system's capabilities. FAA is implementing a new approach in which it plans to reevaluate the system at critical points in its development. The agency has established a panel of internal and external specialists in satellite navigation to identify the technical changes necessary for WAAS to meet its key performance requirements.

We recommended that FAA develop a comprehensive plan that would include established checkpoints at which the agency would determine, among other things, whether users' needs have changed and whether other technologies have matured and could better meet users' needs and the agency's requirements for satellite navigation. Furthermore, we recommended that FAA should have an external organization evaluate its progress at established checkpoints and include the results of this evaluation in its request for future funding of the navigation system. FAA concurred with our recommendations and has, in fact, appointed an independent board—consisting of external experts in satellite navigation, safety certification, and radio spectrum—that reports directly to the FAA Administrator. The board is tasked with reviewing the soundness of the panel's recommendations and with revalidating the future path for WAAS. However, given the past problems in developing this system and the long-term effort that is still required, we believe that continued oversight by an independent group of experts is warranted. It is not clear whether the current independent board will fulfill this role. We will continue to evaluate FAA's progress on this and other system acquisition efforts.

The Coast Guard's Deepwater Project

The Coast Guard is planning what is potentially the largest acquisition project in its history. This effort, the Deepwater Capability Replacement Project, involves replacing or modernizing the Coast Guard's 92 ships and 209 aircraft. The estimated cost could total $10 billion

over 20 years. In October 1998, we recommended that the Coast Guard more thoroughly address the project's justification and affordability. The Coast Guard responded by more thoroughly documenting the justification for the project as the following examples show:

- In December 1999, the Interagency Task Force on the Roles and Missions of the Coast Guard released a report reaffirming the future roles and responsibilities of the Coast Guard and endorsing the importance of the Deepwater Project.
- The Coast Guard contracted with the Center for Naval Analysis and sought our input in revising its justification for the Deepwater Project.
- The Coast Guard has provided more complete information on the condition of ships and aircraft to contractor teams as a basis for determining the Deepwater Project's needs.
- The agency modified its acquisition schedule, adding more time for contractors to adequately consider updated data on current fleets of deepwater ships and aircraft.

Although the Coast Guard is addressing many of our earlier concerns, numerous uncertainties still exist, including the project's affordability and the adequacy of management controls to oversee it. These challenges must be addressed both before and after the agency awards a contract for its Deepwater Project in January 2002. Currently, DOT plans to request $350 million for the Deepwater Project in February 2001, but the Coast Guard will not complete planning the project until July 2001. Asking for funds prior to completing the planning process raises uncertainties about what the overall acquisition strategy will be and how the funds will be used.

A key uncertainty surrounding the Deepwater Project involves the contracting approach the Coast Guard plans to use to procure deepwater ships and aircraft. This approach, which calls for awarding a contract to one system integrator for a period of 20 or more years, has never been used on a procurement of this size or complexity. There are no models in the federal government to guide the Coast Guard in developing its acquisition strategy for this approach. Because of the uniqueness of this approach, the large dollars involved, and the importance of this approach in shaping the future of the Coast Guard, the agency's planned contracting strategy requires a carefully thought-out and well-documented acquisition plan. We are currently reviewing issues related to the Deepwater Project, including the Coast Guard's proposed contracting strategy. As part of our review, we shared our preliminary observations with the Coast Guard's managers, expressing concerns about the lack of documentation and detailed analyses of the risks associated with various contracting alternatives. The Coast Guard's managers agreed to examine the agency's contracting strategy in more detail and to document their plans. We plan to issue a report on our findings in the summer of 2001.

Maritime Administration

The growing backlog of MARAD's surplus ships awaiting disposal poses environmental threats and leads to continuing costs for storage, maintenance, and security. In October 1998, we reported that MARAD had 63 ships awaiting disposal or scrapping. In fiscal year 1999, the number of surplus ships had grown to 112, according to DOT's IG.[7] Ship scrapping is a labor-intensive industry with extremely high risks with respect to environmental and worker safety issues. Ships typically contain

[7]DOT Office of Inspector General, *Top 12 Management Issues Department of Transportation* (CE-2000-026, Dec. 22, 1999).

environmentally hazardous materials, such as asbestos, polychlorinated biphenyls (PCBs), lead, mercury, and cadmium. If done improperly, ship scrapping can pollute the land and water surrounding the scrapping site and jeopardize the health and safety of the people involved in the scrapping process. However, storing and maintaining rather than scrapping the ships is expensive and also poses environmental threats. For fiscal year 1999 alone, the cost to maintain the vessels awaiting disposal amounted to $4.2 million. Figure 3 shows a deteriorating vessel awaiting disposal.

Figure 3: Deteriorating Vessel at MARAD's James River Reserve Fleet

Source: Office of Inspector General, DOT.

From 1983 through 1994, MARAD relied primarily on selling its surplus ships for overseas scrapping. However, in 1994, overseas scrapping was suspended because of legal constraints on the export of PCBs for disposal. As a result, MARAD has been relying on the domestic scrapping market, but there is a shortage of qualified domestic bidders. In the 1970s, when hundreds of ships were scrapped domestically, the industry comprised about 30 firms. Since then, many of the firms left the industry. Furthermore, the difficulties experienced by some domestic scrappers in complying with environmental, worker safety, and other contract performance provisions have led MARAD to consider fewer firms to be technically and financially acceptable.[8] As of December 1999, only four companies had bid on MARAD's scrapping contracts and passed the agency's technical compliance review to scrap vessels.

[8]To be financially acceptable, firms must offer to pay MARAD a purchase price greater than $0 for the ships.

MARAD is required by law to dispose of its surplus ships by September 30, 2006, in a manner that provides the best value to the government. DOT's IG reported that MARAD made very little progress in disposing of its surplus ships during fiscal year 1999. During that year, MARAD sold 15 of the 112 ships for domestic scrapping, but as of December 1999, work had started on only one vessel. The other 14 vessels remained moored in MARAD's fleets, requiring continued maintenance. The IG reported that the requirement to maximize financial returns on the disposal of surplus ships may not work in today's marketplace. To dispose of MARAD's surplus ships in a timely manner, the IG made several recommendations including that the agency seek legislative approval to eliminate the requirement to maximize financial returns and seek authorization and funding for a program to pay for the disposal of surplus ships.[9] In line with this recommendation, the Congress provided $10 million to MARAD and the Department of the Navy for fiscal year 2001 to dispose of and scrap their surplus ships, which should start to reduce the backlog.

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[9]DOT Office of Inspector General, *Report on the Program for Scrapping Obsolete Vessels* (MA-2000-067, Mar. 10, 2000).

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Increase the Accountability for Financial Management Activities

For years, DOT has struggled to improve its financial management activities, but inadequate accounting systems and related procedures and controls have hampered its progress. DOT's IG issued an unqualified opinion on DOT's fiscal year 1999 financial statements and reported that significant progress has been made in improving the Department's financial reports. However, the IG also reported that systems' deficiencies affected the Department's ability to prepare financial statements and to account for liabilities and that the Department lacked a managerial cost accounting system to allocate costs by major program.[10] In addition, in a separate audit report on FAA's fiscal year 1999 financial statements, which also received an unqualified opinion, the IG reported that FAA lacked an adequate system to account for its property, plant, and equipment on an ongoing basis.[11] In January 1999, we designated FAA's financial management as a high-risk area because of serious and long-standing accounting and financial management weaknesses.

DOT's Financial Management Systems

While DOT received an unqualified opinion on its fiscal year 1999 financial statements, this opinion required extraordinary effort by the Department and IG audit staff and will be difficult to repeat. For example,

[10]DOT Office of Inspector General, *Fiscal Year 1999 Consolidated Financial Statements, Department of Transportation* (FE-2000-062, Mar. 8, 2000).

[11]DOT Office of Inspector General, *Fiscal Year 1999 Financial Statements, Federal Aviation Administration* (FE-2000-060, Feb. 29, 2000).

because FAA lacks an adequate system to account for its property, plant, and equipment on an ongoing basis, FAA used alternative procedures and labor-intensive methods to establish a baseline and costs for property, plant, and equipment.

The IG's audit report also cited problems with DOT's accounting systems that prevented the Department from complying with the Federal Financial Management Improvement Act of 1996. The IG reported that, to comply with the act, DOT needed to (1) modify its accounting systems so they would be the primary source of financial information for the consolidated financial statements, (2) properly accrue liabilities, and (3) implement a managerial cost accounting system that can allocate costs by major program.

Because DOT's accounting systems do not provide the data necessary to prepare annual financial statements, the Department relies heavily on year-end adjustments "outside" its systems. The IG reported that DOT required about 800 such outside adjustments totaling $36 billion to prepare its fiscal year 1999 financial statements. The need for this large number of adjustments means that DOT lacked reliable data on a day-to-day basis to make management decisions and maintain accountability to the taxpayers. The IG also reported that DOT did not have systems in place to allocate costs by major programs. As a result, DOT's ability to meaningfully evaluate performance in terms of efficiency and cost-effectiveness is limited.

Because many of DOT's problems stemmed from weaknesses in FAA's financial statements and systems and because of FAA's cost accounting and property issues, discussed below, we designated FAA's financial management as a high-risk area in 1999. Until FAA has financial management systems and related procedures and controls that provide reliable information to (1)

prepare financial statements and reports, (2) meaningfully accumulate and report costs for programs and activities, and (3) account for property, plant, and equipment on an ongoing basis, the agency's financial management will continue to be at high risk of waste, fraud, abuse, and mismanagement.

DOT is progressing in addressing our and the IG's concerns by improving or replacing the capabilities of its accounting systems so they can provide the summary data needed to prepare financial statements and other reports. The Department plans to replace its current systems with a commercial general ledger accounting system that will be able to maintain accounting information at the detailed account level. In addition, DOT is implementing a new financial reporting module that will summarize detailed account information from the general ledger for use in preparing financial statements and other reports. The financial reporting module has been implemented at two DOT agencies: the Federal Railroad Administration and FTA. The Department plans to broaden the use of the module to more agencies during fiscal year 2001, with full implementation expected by September 2001. The replacement system is also being designed to allocate costs by major programs.

FAA's Managerial Cost Accounting Information

FAA lacks a cost accounting system or an alternative means to meaningfully accumulate and report its costs. The objective of a cost accounting system 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 the following areas: (1) budgeting and cost control, (2) determining cost reimbursements and setting fees and prices, (3) performance measurement, (4) program evaluations, and (5) choosing among alternative actions.[12] Deficiencies in these areas limit FAA's and others' ability to make effective decisions about resource needs and to adequately control major projects, such as its multibillion-dollar ATC modernization program.

FAA has made substantial progress in developing its cost accounting capabilities. It is developing a comprehensive cost accounting system that it expects to have fully operational by the end of fiscal year 2002. This system is expected to provide detailed information about the costs of services that FAA provides to the public. As of September 30, 2000, FAA had implemented three of the four Air Traffic Services cost accounting systems applications.[13] In July, these applications began producing reports that FAA's managers are using for analysis and training. The fourth application is scheduled for implementation during the second quarter of fiscal year 2001. These plans address many of our concerns. However, the applications being placed in service are not fully integrated with other systems within DOT and FAA. Integration, which is important to

[12]The 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.

[13]Air Traffic Services is the FAA organization responsible for operating and maintaining the national airspace system.

fully realize the efficiency and effectiveness of modern data processing systems, is dependent on the eventual replacement of those other systems. In addition, FAA's cost systems applications, like DOT's system, presently require some costs to be manually allocated, rather than allocating them automatically. As a result, the systems do not provide the reliable up-to-date data needed for making decisions.

FAA's Property Systems

Since 1994, DOT's IG has reported that FAA lacked the systems and related procedures to accurately and routinely account for its property, plant, and equipment (PP&E)—which, as of September 30, 1999, totaled $10.8 billion. This lack of accurate and current PP&E information may impede the ability of program officials to properly manage and safeguard these assets and to make prudent business decisions. It may also limit their ability to accurately determine the costs of operations on an ongoing basis.

In fiscal year 1999, FAA started an extensive labor-intensive project to reconstruct the detailed records needed to document its PP&E costs. With a significant effort and commitment of resources, FAA made real progress and, for the first time, established a PP&E baseline. This extraordinary effort resulted in corrections to previously reported PP&E amounts, including a $3 billion increase in the reported cost of PP&E and an $806 million increase in accumulated depreciation. While this special effort established a baseline for PP&E costs, without adequate systems and controls, FAA will have difficulty tracking its PP&E activity on a routine basis. In its report on FAA's financial statement for fiscal year 1999, the IG concluded that the manual and labor-intensive efforts could not be sustained in the future and are prone to errors, mistakes, and inaccuracies. As a result, the IG classified the internal controls over FAA's PP&E as a material weakness.

During fiscal year 2000, FAA began implementing a new system to maintain detailed PP&E records that can calculate depreciation. In the past, the depreciation expense, which is an important component of FAA's operating costs, required the preparation of separate electronic spreadsheets. The new system is expected to be fully operational by September 2001. However, the full benefits of the new detailed record system for PP&E will not be realized until it is integrated with systems changes (or replacements) to FAA's existing related property systems that identify and track PP&E activity, such as property acquisitions and disposals. FAA does not expect these related PP&E systems to be fully implemented until fiscal year 2003. We will continue to monitor FAA's progress in implementing these new systems to determine if they are responsive to the concerns that we and the IG raised.

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Improve the Oversight of Highway and Transit Projects to Provide Maximum Transportation Services for the Federal Dollars Invested

For fiscal years 1998 through 2003, DOT is expected to provide a total of at least $198 billion for a variety of transit and highway projects. These funds have and will continue to play an important role in building and expanding the nation's transit and highway systems. DOT has opportunities to improve its oversight of and its approach to funding these projects. For example, FTA has agreements to fund a significant number of ongoing projects to construct new transit systems or extend existing ones and expects to enter into additional agreements in fiscal year 2001. As a result, it may not have sufficient resources in fiscal years 2002 and 2003 to enter into additional agreements to fund these types of projects. Furthermore, FTA may not have the resources it needs after 2001 to adequately oversee the transit

projects requiring oversight. FHWA faces the challenges of completing steps that could help prevent cost overruns and delays on major highway projects and of improving the reliability of the process it uses to estimate the portion of tax receipts contributed by each state to the Highway Trust Fund.

Federal Transit Administration

We have reported on a number of transit projects funded, in part, by the federal government that have experienced cost and schedule problems and identified areas in which FTA needs to improve its oversight of large transit projects. FTA has taken steps designed to mitigate these problems. In particular, FTA has improved its oversight activities since the early 1990s when FTA's grant management program for transit projects was on our list of high-risk programs. In 1995, as a result of various initiatives FTA was undertaking to improve its grants management oversight, we removed this program from our high-risk list. For example, we reported in April 1998 that FTA improved its guidance and training for staff and grantees, standardized oversight procedures, and effectively used contractor staff in its project management oversight program. In particular, we noted that the agency's risk assessment process helped target limited oversight resources and provided a strong foundation for improved oversight. In September 2000, we reported that FTA's project management oversight program—which is designed to help ensure that grantees constructing major capital projects have qualified staff and procedures to build and operate them—has resulted in benefits for both grantees and FTA. Transit agencies commended the program and cited numerous examples of how FTA's project management contractors have improved quality controls and provided FTA with early warnings of issues and problems that could lead to increased costs and schedule delays.

Nevertheless, we also noted in the September 2000 report that FTA believes that the funds available for the project management oversight program might not be sufficient to allow the necessary level of oversight activity to continue. According to FTA, the growing demand for oversight is largely due to the number of projects in the new starts program, which is used to construct new systems and extend existing systems identified as eligible for funding in the Transportation Equity Act for the 21st Century (TEA-21). This increased number of transit projects needing monitoring will strain FTA's oversight resources. For example, the agency anticipates a $5 million shortfall in its project management oversight program in fiscal year 2002. We recommended that the Secretary of Transportation determine the amount of funds needed, any shortfalls, and the steps needed to cover any shortfalls. The conference report accompanying the Department's fiscal year 2001 appropriations act directed DOT to develop a plan to address any expected shortfalls and to include this information in its fiscal year 2002 budget submission.

FTA is also likely to exhaust its commitment authority for transit projects funded under its new starts program before the end of the funding period for TEA-21. As a result, FTA will be able to enter into few, if any additional agreements to fund new starts projects in fiscal years 2002 and 2003. FTA rates proposed projects according to a variety of criteria and, based on these ratings, expects to enter into agreements to fund 15 additional projects during 2001. These 15 projects, together with 14 ongoing projects already receiving funds under the new starts program, will likely exhaust almost all of FTA's available commitment authority under TEA-21. We recommended that DOT further prioritize the transit projects it rates as "highly recommended" and "recommended" so available funds can be directed to the most deserving projects. FTA

agreed and said it would seek ways to further prioritize eligible projects.

Federal Highway Administration

Projects to improve or expand highways can cost hundreds of millions of dollars and pose significant management and logistical challenges. For example, the Central Artery/Tunnel Project in Boston—the most expensive and complex federally assisted highway project ever undertaken—continues to be troubled by cost increases and management problems, leading to management changes and increased oversight measures.[14] In spite of the increased oversight, in early 2000, the estimated cost of the project increased again by over $1 billion to total about $14 billion (the federal share is about $8.5 billion). The original cost estimate for the project, made in 1985, was $2.6 billion. In prior years, we reported on the likelihood of future cost increases in this project because of several systemic problems affecting it and FHWA. Furthermore, in February 1997, we identified several options that could improve the management of all large-dollar highway projects, including improving the preparation of total cost estimates and requiring states to track a project's progress against its initial baseline cost estimates. Another option we identified was the establishment of a federal approval process for large-dollar projects, including the approval of a project's finance plan.

FHWA has taken some steps in this direction; for example, as required by TEA-21, it now requires the states to submit finance plans for projects that are expected to cost over $1 billion. Furthermore, FHWA

[14]The Central Artery/Tunnel Project will replace a deteriorating elevated section of Interstate 93 through Boston with an underground expressway and extend the Massachusetts Turnpike under Boston Harbor to Logan Airport.

has recently issued guidance concerning the content and format of such plans.

Allocation of Highway Trust Fund Receipts

TEA-21 continued the use of the Highway Trust Fund—which is funded by taxes on highway users—as the mechanism to account for federal highway user tax receipts that fund various surface transportation programs. Furthermore, under TEA-21, the link between highway user tax receipts in the Fund's Highway Account and federal highway program funding levels was enhanced by (1) guaranteeing specific annual funding levels for most highway programs on the basis of the projected receipts in the Fund's Highway Account and (2) providing that the guaranteed spending level for each fiscal year would be adjusted upward or downward according to the receipt levels in the Highway Account. FHWA is responsible, together with the Treasury Department, for estimating the amount of these receipts and the overall portion of the receipts attributable to each state. Under TEA-21, billions of dollars in highway program funds—about $13 billion in fiscal year 2000 alone—are distributed to the states on the basis of information developed by the Treasury and Transportation departments.

In June 2000, we reported that the processes used by Treasury and FHWA to estimate overall receipts and the portion of those receipts attributable to highway users in individual states are highly complex and susceptible to error and that the reliability of the estimates has not been demonstrated. The process for distributing these tax receipts has two separate components: (1) the Treasury Department determines the overall amount of receipts to be distributed to the Highway Account and (2) FHWA estimates the portion of the overall amount that is attributable to each state by using state data on motor fuel usage. Some of the complexity of the first component stems from the fact that business taxpayers make deposits of highway user taxes to the Treasury

Department in combination with other excise taxes but do not report them by tax type at the time the deposits are made. Several offices in the Treasury Department play roles in determining which portion of excise tax collections to allocate to the Highway Trust Fund according to payment data and quarterly tax returns. Regarding the second component, highway user taxes on motor fuels are not paid directly by consumers at the gas pump. Oil companies generally pay the tax on motor fuels—which made up 89 percent of the highway user taxes paid in fiscal year 1999—when the fuel is loaded into a tanker truck or rail car. As a result, FHWA must estimate receipts attributable to highway users in each state, on the basis of data provided by each state, in order to distribute Highway Account funds to all the states.

Our June 2000 report concluded there is little assurance that the actual amounts distributed to the states are accurate, although there is no way of knowing the extent of over- or underpayments, if any, to individual states, given the information currently available from the two agencies. Although the Treasury Department and FHWA are taking actions to review and improve their estimating processes, these actions are not sufficient to correct all the weaknesses. Therefore, our report made recommendations to the Treasury and DOT that are designed to reduce the risk of errors and increase the reliability of the information used to distribute federal highway program funds to the states. FHWA officials agreed with all of our recommendations aimed at improving the reliability of FHWA's attribution process, and they are developing an action plan to implement the recommendations. FHWA has also agreed to prepare an annual report to the Congress summarizing its progress in implementing our recommendations, with the first report to be issued in July 2001.

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Strengthen the Financial Condition of Amtrak

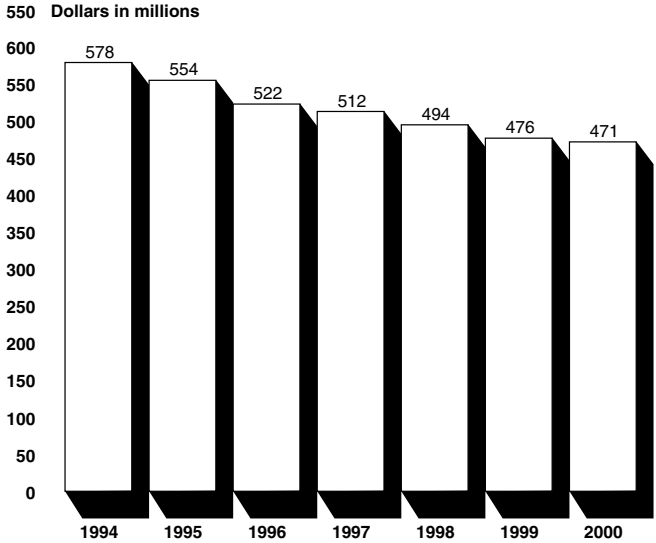
Since 1971, the federal government has provided over $23 billion in operating and capital assistance to Amtrak, a private corporation that provides nationwide intercity passenger rail service. Amtrak operates trains in 45 states, serving more than 20 million riders annually. The Secretary of DOT sits on Amtrak's board of directors, and the Department sets annual performance goals to improve Amtrak's ridership and service. In fiscal year 2000, the railroad lost $943 million.[15] In 1994, at the request of the administration and later at the direction of the Congress, Amtrak pledged to eliminate the need for federal operating subsidies by the end of 2002.[16]

Amtrak has made relatively little progress in reducing its need for federal operating subsidies. In fiscal year 2000, Amtrak's revenues increased substantially, but expenses increased more. As a result, Amtrak's cost increases wiped out the impact of the revenue gains. In fiscal year 2000, Amtrak reduced its need for operating subsidies by $5 million—substantially less than its planned reduction of $114 million. (See fig. 4.) Moreover, for fiscal years 2001 and 2002 combined, Amtrak will need to achieve about $282 million in savings to reach operational self-sufficiency.

[15]Amtrak's fiscal year 2000 financial results had not been audited as of November 2000.

[16]The Amtrak Reform and Accountability Act of 1997 prohibited Amtrak from using federal funds for operating expenses, except for an amount equal to excess Railroad Retirement Tax Act payments, after 2002. Amtrak participates in the railroad retirement system, under which each participating railroad pays a portion of the total retirement and benefit costs for employees of the industry.

Figure 4: Amtrak's Budget Gap, Fiscal Years 1994-2000



Note: Amtrak must reduce its budget gap to an amount equal to its excess Railroad Retirement Tax Act payments, estimated at $189 million in fiscal year 2002, to achieve operational self-sufficiency.

Source: GAO's analysis of Amtrak's data.

Given Amtrak's lack of overall progress in reducing costs and increasing revenues, it will be difficult for Amtrak to eliminate the need for federal operating subsidies by the end of 2002. Amtrak's costs are expected to increase, and its ability to realize substantial revenue increases and productivity improvements is uncertain. Nearly three quarters of the $1.9 billion in net financial benefits that Amtrak expects to achieve between 2000 and 2004 have either not been identified or are based on initiatives that have yet to be fully implemented.

Key decisions have to be made about the future of Amtrak and the future of intercity passenger rail. If Amtrak does not reach operational self-sufficiency, the

Amtrak Reform and Accountability Act of 1997 requires the Amtrak Reform Council to submit a plan to the Congress for a restructured national intercity passenger rail system and Amtrak to submit a plan for its liquidation. Basic decisions will need to be made about the nation's intercity passenger rail system, including the scope of a national intercity passenger rail network, if any; how it would be operated; and the level of federal funding that would be provided to support this network. Alternatively, if Amtrak does attain operational self-sufficiency, it could require a substantially higher level of financial support than it receives now (about $521 million annually) to meet its capital needs and excess Railroad Retirement Tax Act expenses. In this regard, we estimate that Amtrak will need at least $9 billion (in constant 1999 dollars) to meet its identified capital needs through 2015 and substantial sums (about $200 million in 2004, according to Amtrak) to cover excess Railroad Retirement Tax Act payments.

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Enhance Competition and Consumer Protection in Aviation and Freight Rail Industries to Ensure Reasonable Fares, Rates, and Service

The lack of effective competition in certain markets has contributed to high fares and rates and poor service in commercial aviation and freight rail service. A number of communities have not benefited from increased aviation competition largely because of barriers that inhibit the entry of new airlines, and, as a result, pockets of high fares and poor service exist. Freight shippers are concerned that recent railroad mergers and consolidations have resulted in poor service and high rates in certain markets. Increasing competition and improving aviation and freight rail service will entail a range of solutions by DOT, the Surface Transportation

Board (which approves railroad mergers and consolidations), the Congress, and the private sector.

Aviation

Deregulation of the airline industry in 1978 is generally considered to have been a success, having lowered fares and improved service for most air travelers. These benefits largely resulted from increased competition from the entry of new airlines into the industry and more vigorous competition among established airlines in existing markets. However, airlines' problems with gaining access to certain airports and the success of marketing strategies employed by established airlines have limited competition at certain major U.S. airports. For example, limited access to gates at six major airports in the East and Upper Midwest has made it difficult for new airlines to begin service to those airports.[17] Many gates at those six airports are exclusively leased to just one airline. In addition, at four major airports—Chicago's O'Hare, Reagan Washington National, and New York's Kennedy and LaGuardia—the established airlines control access to most of the takeoff and landing times, known as "slots," that FAA created and distributed. In addition, perimeter rules, which prohibit most flights that exceed certain distances, at LaGuardia and Reagan Washington National limit the ability of airlines based in the West to compete at these airports. Moreover, even where new airlines have managed to enter certain markets, established airline strategies, such as frequent flyer programs and discounts given to large corporate customers, have prevented some new entrant airlines from successfully competing in certain markets.

In addition, the recently proposed merger between two of the nation's largest airlines—United Airlines and US

[17]The six airports are located in Charlotte, Cincinnati, Detroit, Minneapolis, Newark, and Pittsburgh.

Airways—has raised concerns that it might lead to decreased competition in certain markets. The Department of Justice is reviewing the proposed merger to determine if it complies with U.S. antitrust laws. We reported on the implications of this proposed merger in December 2000.

Furthermore, small communities have expressed concerns about poor air service and relatively high fares. As we reported in April 2000, few airlines seek to serve small communities where demand for air service is limited. When service is provided, it is usually provided in less popular turboprop aircraft. However, the introduction of regional jets (small jet aircraft that can carry between 30 and 70 passengers) by the commuter affiliates of major airlines may provide opportunities to replace turboprops and expand service to new markets. In early 2001, we will report on the potential effect of these jets on the airline industry, including their effect on service to smaller communities and on congestion at larger airports.

Actions by the Congress and DOT could increase competition and improve air service. In the Aviation Investment and Reform Act for the 21st Century, the Congress required FAA to phase out slot rules at O'Hare airport by 2002 and at Kennedy and LaGuardia airports by 2007. The act also required FAA to immediately grant a limited number of exemptions to the perimeter and slot rules at Reagan Washington National Airport. In addition, the act directed that, by fiscal year 2001, larger airports submit plans to the Secretary of Transportation that show how they will provide for access to new entrant airlines and expansion by incumbent airlines. Furthermore, in 1998, DOT issued draft guidelines describing what the Department considers to be anticompetitive practices in the airline industry. DOT had not issued final guidelines as of December 2000.

Finally, the quality of air service has also emerged as a public issue. In 1999, we examined the "Customer Service Commitment" that the airlines made to congressional committees and the traveling public and found that it restated and extended some aspects of the airlines' existing agreements with passengers, such as notifying passengers of flight cancellations in a timely manner. By July 2000, the major airlines had begun implementing these commitments and strengthening efforts at customer service. The commitments, however, did not address key underlying aspects of customer dissatisfaction, such as flight delays and long check-in lines, and, as a result, travelers' discontent with the quality of service is likely to continue. We have initiated work examining air traffic congestion and flight delay, along with their effects on competition at the airports most affected by these problems and plan to report on these issues in the near future.

Freight Rail

Continued consolidation of the railroad industry—a condition that has been occurring throughout the past century—has led rail shippers and others to express concerns about the lack of competition in the industry, the extent to which railroads are using their market power to set unreasonably high rates, and the quality of service provided, especially for those shippers with fewer alternatives to rail transportation to move their goods to market. In 1976, there were 30 independent Class I systems (consisting of 63 Class I railroads—the nation's largest railroads). By 2000, there were seven railroad systems (consisting of eight Class I railroads). Concerns have been raised about whether the Surface Transportation Board is adequately protecting shippers against unreasonable rates and poor service quality. The Board approves mergers and consolidations and adjudicates complaints concerning rail rates and service.

Rail rates are sensitive to competition. For example, in April 1999 we found that rates in some markets that are considered to have less effective competition, such as the northern Plains states, were generally higher than rates where there might be more effective competition options, such as barges or other railroads.[18] Shippers have increasingly criticized railroads for providing poor service, such as inconsistent pickup and delivery of railcars and a lack of railcars when and where needed. About 60 percent of the 525 coal, grain, and chemical shippers that responded to a survey question concerning service believed their service was worse than in preceding years and attributed this poor service, at least in part, to railroad mergers and consolidations.

The Surface Transportation Board has taken a number of actions to address rate, service, and merger issues. In response to complaints over unreasonable rates, it has eliminated certain tests related to market dominance, reducing the burden on shippers and railroads in rate relief proceedings. Regarding service quality, the Board adopted new procedures allowing shippers to receive expedited temporary relief from inadequate rail service through service from an alternative carrier. Finally, the Board has proposed changes to its approach to reviewing and approving mergers. However, these actions are not likely to satisfy many shippers' belief that increased competition in the rail industry is needed to improve service. Because of the divergent views of railroads and shippers, resolving service and competition issues will be difficult and may require congressional action.

[18]Our April 1999 report focused on the shipment of coal and grain in markets in the northern and central Plains states.

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