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DOT'S BUDGET

Management and Performance Issues Facing the Department in Fiscal Year 1999

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the challenges facing the Department of Transportation (DOT) as it attempts to ensure the safe and efficient movement of people and goods and a cost-effective investment in the nation's transportation infrastructure. The administration has proposed a fiscal year 1999 budget of $43.3 billion to fund transportation programs. This is the first year that federal agencies are required to directly link their budgets to performance outcomes in order to better manage their resources. My testimony today, which is based on our recently completed and ongoing work, will discuss key resource management issues and performance challenges facing the Department in 1999 and beyond. In summary, we have found the following:

- There is a need for increased management attention to highway, transit, and rail programs—which account for 67 percent of DOT's fiscal year 1999 budget request—in several areas. The improved oversight of large dollar highway and transit projects costing hundreds of millions to billions of dollars could help to ensure that they are well managed and can be successfully financed and that costs are controlled. Additional areas needing increased attention include resolving issues, such as the lack of technical knowledge at the state and local level, before accelerating federal funding for Intelligent Transportation Systems—a major initiative in DOT's research budget for highway programs—and reorganizing DOT's extensive field office structure to achieve a more cost-effective delivery of services. Additional challenges face the Department as it tries to achieve improvements in rail and highway safety. For example, 10 rail accidents and collisions in the summer of 1997 have raised questions about the effectiveness of the Department's new rail safety program. Also, to address a recent increase in the number of fatal accidents involving commercial vehicles, the Department has begun using performance-based data to better target problem carriers for safety reviews. However, the lack of complete and timely data from the states hampers this effort.
- Important management challenges face the Federal Aviation Administration, which accounts for about 23 percent of DOT's budget request. For example, the agency has been too slow in making its computer systems ready for the year 2000, and at its current pace, it will not make it in time. As a result, hundreds of computer systems that are critical to the agency's operations—such as monitoring and controlling air traffic—could fail to perform as needed. In addition, despite a number of assessments over the past year, a consensus does not exist regarding the Federal Aviation Administration's future funding needs or an appropriate

finance mechanism. However, any estimate of those needs will likely increase as the agency confronts the challenge of making its computer systems ready for the year 2000, addresses cost growth associated with projects to modernize its aging air traffic control system, and implements security initiatives in response to the changing threat of terrorist activities. Additional challenges face the agency in improving the safety and efficiency of our aviation system. For example, the agency needs to improve its oversight of aircraft repair stations, enhance its guidance and oversight of pilot training in crew resource management, and resolve data protection issues to enhance the usefulness of recorded flight data to improve safety.

- With a relatively flat budget in recent years, the Coast Guard may need to continue cost-cutting efforts and achieve savings beyond its accomplishments from recent streamlining actions. Streamlining efforts are particularly important as the agency embarks on a costly capital improvement program to replace or modernize its aging fleet of cutters and aircraft. We have urged the Coast Guard to develop a more comprehensive strategy to achieve additional cost savings, which may necessitate a fundamental reassessment of the agency's missions, goals, services, and customer needs. Such a reassessment could point to other cost-cutting measures—such as closing facilities and, perhaps, scaling back activities—that will involve difficult choices and are likely to face intense opposition.
- Amtrak is in a very precarious financial position and remains heavily dependent on federal assistance. DOT's budget proposes $621 million for Amtrak's capital expenses but no funding for operating expenses in fiscal year 1999. Amtrak's fiscal year 1997 net loss was $762 million and would have been higher without the one-time sale of certain assets. The corporation's goal is to eliminate the need for federal operating support by 2002. Amtrak's capital requirements, however, go well beyond the $2.2 billion that will be made available in fiscal years 1998 and 1999. Furthermore, if Amtrak uses a significant portion of these capital funds to cover expenses historically funded with operating subsidies, as proposed in the budget, the corporation's long-term financial problems will only be exacerbated. In any case, Amtrak is likely to continue to require federal financial support—both operating and capital—well into the future.
- DOT faces additional Department-wide issues that affect its ability to effectively manage programs and address performance concerns. We have repeatedly pointed out serious problems with the Department's information resources and database management. These problems, which affect financial and other program information, will be aggravated by challenges facing the Department in addressing the Year 2000 problem. In

addition, DOT needs to address the issue of unreliable financial management information because of problems with its financial reports, accounting systems, and internal controls. For example, improved cost information is needed for making decisions about financing the Federal Aviation Administration. Finally, if properly implemented, the Government Performance and Results Act could be a useful tool for addressing many of the issues we have identified. DOT made a promising start in September 1997 by issuing a strategic plan that outlines its mission and strategic goals. The Results Act should provide DOT with an incentive to develop quality data for managing its programs and for congressional oversight.

Surface Transportation

DOT's surface transportation programs, which support building and maintaining the nation's highways and transit systems, researching advanced technologies and new safety techniques, and overseeing safety for roads and rail, account for about $27.8 billion in DOT's fiscal year 1998 budget. The administration's budget for fiscal year 1999 proposes about the same level of funding.

Key Resource Management Issues

Our work has identified the need for increased management attention in several surface transportation areas. Improving DOT's oversight of transit and highway projects could help to ensure that they are well managed and can be successfully financed and that costs are controlled. Large-dollar projects each costing hundreds of millions of dollars or more create special oversight concerns. Such issues as the lack of technical knowledge at the state and local levels need to be addressed before accelerating federal funding for Intelligent Transportation Systems (ITS). Examining DOT's extensive field office structure is needed to ensure that the Department is efficiently organized to deliver services cost-effectively.

An overriding funding issue for fiscal year 1999 and beyond is the lack of authorizing legislation for highway and transit programs. The Intermodal Surface Transportation Efficiency Act of 1991, which authorized over $155 billion in federal funds for highway and transit programs for fiscal years 1992 through 1997, expired on September 30, 1997. Without reauthorization, it will be difficult for states to effectively manage their highway programs, and some states may have to postpone important highway projects. The Congress passed a 6-month extension of funding for highway construction, highway safety, and transit programs in November 1997. If surface transportation programs are not reauthorized

by the time the short-term extension expires, states will again face substantial difficulties in planning and managing highway and transit projects as well as improving highway safety.

Oversight of Transit Projects Improving, but Better Follow-Up on Noncompliance Needed

In fiscal year 1998, the Federal Transit Administration (FTA) was funded at $4.8 billion to help the states and local transit agencies develop, operate, maintain, and improve mass transit systems. In 1992, we designated FTA's management and oversight of its grants as a high-risk area that was especially vulnerable to fraud, waste, abuse, and mismanagement. In 1995, as a result of various initiatives that FTA was undertaking to improve its grants management oversight, we removed the agency from our high-risk list with the understanding that we would continue to monitor the progress of its oversight initiatives.

In ongoing work, we found that FTA has strengthened its oversight of federal transit grants.[1] FTA is continuing to enhance the quality and consistency of its oversight by improving guidance and training for staff and grantees, standardizing oversight procedures, and effectively using contractor staff. In particular, the agency's risk assessment process helps target limited oversight resources and provides a strong foundation for improved oversight.

However, FTA needs to continue to do more to ensure the timely correction of deficiencies found during its oversight reviews. We found that frequently, some grantees still did not meet FTA's time frames for corrective action and that FTA allowed compliance deadlines to be revised, which enabled grantees to delay corrective action. Also, while most FTA regional offices have adequate documentation of follow-up activities, FTA's New York regional office, which oversees the most transit grant dollars, had almost no documentation of its oversight reviews. This situation gave us little confidence that appropriate follow-up on noncompliance issues was being performed in that region. Finally, FTA's existing oversight information system lacks complete, timely data; hence, the information cannot be used effectively by FTA's headquarters officials to manage and monitor grantees' compliance with FTA's requirements. The system is intended to track the resolution of oversight findings and has the potential to be a useful tool in monitoring compliance, identifying problems, and assessing the overall effectiveness of the oversight program in meeting performance standards. Currently, however, the information in the system is not updated as required by regional staff nor is it used by headquarters

[1]FTA is responsible for overseeing grantees' compliance with federal requirements—such as keeping accurate and current records on the use of federal funds and adequately controlling cash flow and inventory—and ensuring the proper use of federal transit funds.

officials to help manage or monitor the oversight activities of regional staff—leaving FTA susceptible to and unable to quickly respond to situations in its regional offices that might compromise good oversight. According to FTA, the system is currently being updated and expanded to address these concerns. We will report on these issues to this Subcommittee later this spring.

Improvements Possible in Oversight of Highway Projects

In fiscal year 1998, the Federal Highway Administration (FHWA) was funded at $21.9 billion to assist the states in repairing their aging infrastructure and enhancing the performance of their highways and bridges. In many cases, meeting these needs will take the form of large-dollar projects costing hundreds of millions to billions of dollars. These projects traditionally take longer to build and have a greater potential to experience substantial cost increases and delays; they can overwhelm other projects and erode the already limited funds available to meet transportation investment needs. Program managers must ensure that costs are controlled and that projects are well managed and successfully financed. Several bills introduced in the Congress during 1997 included a requirement that states submit finance plans for highway projects expected to cost $1 billion or more; certain mass transit projects are already required to submit finance plans to FTA. In February 1997, we reported additional options that could improve the management of large-dollar highway projects, depending on the oversight role that the Congress chooses for the federal government.[2]

One option—once DOT or the Congress establishes an appropriate dollar threshold and definition for large-dollar highway projects—would be for states to prepare total cost estimates for such projects. We have found that one reason why costs increase on large-dollar projects over time is that the initial cost estimates are preliminary and not designed to be reliable predictors of a project's total cost. Furthermore, the type of costs included in initial estimates can vary widely between states and projects. Having early, accurate estimates of total costs for large-dollar projects could assist policymakers in understanding the extent of the proposed federal, state, and local investment in these projects and assist program managers in accurately estimating the total financing requirements.

Another option would be to have states track progress against their initial baseline cost estimates. While cost growth has occurred on many large-dollar projects, the amount of and reasons for these increases cannot

[2]Transportation Infrastructure: Managing the Cost of Large-Dollar Highway Projects (GAO/RCED-97-47, Feb. 28, 1997).

be determined because data are not readily available from FHWA or state highway departments. The federal government has been moving in the direction of managing programs by establishing goals and measuring performance through such initiatives as the Government Performance and Results Act of 1993. In fact, for the agencies' own large-dollar capital purchases, the Office of Management and Budget (OMB) requires federal agencies to prepare baseline cost and schedule estimates and to track and report on their performance. Expanding this practice to the federally assisted highway program could enhance public accountability. It could also improve the management of large-dollar projects by providing managers with real-time information for the early identification of problems and for making decisions about project changes that could affect costs. In addition, tracking progress would create a database that would allow for the identification of problems commonly experienced by projects and provide a better basis for estimating costs in the future.

As a large-dollar project moves through its design and construction phases, another option would be to establish performance goals and strategies for controlling costs. Because cost management is not an explicit statutory or regulatory goal of FHWA's oversight, FHWA has few requirements to ensure that cost containment is an integral part of the states' project management. By evaluating the effectiveness of project management practices and requiring or encouraging the use of successful practices in other states, FHWA could improve accountability and make cost containment an integral part of how states manage projects over time. If needed, the Congress could provide statutory direction by making the cost management of large-dollar projects an explicit goal of FHWA's oversight.

Finally, the most far-reaching option would be to establish a process for the federal approval of large-dollar projects. FHWA does not approve projects at their outset; its approval consists of a series of incremental approvals that occur over the years required to plan, design, and build projects. FHWA approves the cost of a large-dollar project in segments when those project segments are ready for construction. However, by that time, a public investment decision may have already been made because substantial funds will already have been spent on designing the project and acquiring property. Requiring federal approval of large-dollar projects at the outset—including the approval of cost estimates and finance plans—could provide greater certainty in state planning and could help ensure successful financing by providing additional assurances to those financial markets where less traditional forms of financing are involved.

Ultimately, adopting any of these options will require the Congress to decide what the appropriate federal role is—balancing the public's need for safe and quality highways with the states' desire for flexibility and more autonomy and the federal government's interest in ensuring that billions of dollars are spent efficiently and effectively.

Large-Dollar Projects Continue to Face Increased Costs, Delays, and Financing Problems

Continued scrutiny and improved oversight are needed to safeguard the substantial federal, state, and local investment in several large-dollar highway and transit projects. At the request of this Subcommittee, we have continued to examine eight large-dollar highway and transit projects that represent a total estimated cost of about $23 billion. We found that cost increases, schedule delays, and/or financing problems continue to be associated with most of these projects.[3] We will discuss four of the most expensive projects.

The Central Artery/Tunnel project in Boston may face added costs and funding needs. Massachusetts plans to complete the 7.5-mile Central Artery/Tunnel highway project by December 2004 at an estimated total net cost of $10.8 billion. As we reported in July 1997, the total funding needs for the project are $11.6 billion—about $800 million more than the state's $10.8 billion total net cost estimate.[4] The funding needs are higher because the project's total net cost estimate includes about $800 million from future insurance proceeds, which, if realized, will not be available until 2017—too late to help pay for the project. About $4.9 billion in federal funds has been obligated for the project, and the finance plan for the project assumes that an additional $2.9 billion in federal funds will be available through fiscal year 2005. The remainder of the funding would come from state sources. Massachusetts has continued to take steps in the past year to control the costs of the project and to secure additional state funding to address expected funding shortfalls. However, unless further savings can be found, increases in construction costs seem likely to push the project's total net cost higher than the $10.8 billion estimate. Funding needs could also be greater because federal funding could be nearly $1 billion less than projected on the basis of proposed reauthorization legislation for highway programs. In addition, while the financial markets will ultimately decide the feasibility of one funding strategy—using grant

[3]See Surface Infrastructure: Costs, Financing and Schedules for Large-Dollar Transportation Projects (GAO/RCED-98-64, Feb. 12, 1998) for details on the eight projects—the Alameda Corridor (Los Angeles area), San Francisco's transit extension to the airport, Boston's Central Artery/Tunnel, Los Angeles' Red Line subway, Pittsburgh's airport busway, St. Louis' Metrolink extension, and Salt Lake City's I-15 interstate reconstruction and light-rail line.

[4]Transportation Infrastructure: Progress on and Challenges to Central Artery/Tunnel Project's Costs and Financing (GAO/RCED-97-170, July 17, 1997).

anticipation notes to borrow $1 billion to $1.5 billion and repaying the amount with future federal highway funding—the strategy presents several challenges. For example, it relies on borrowing against federal funds that may not be authorized by the Congress until after the next federal highway authorization expires sometime around 2003.

The Los Angeles Red Line project—a 23.4-mile subway system—continues to face cost increases, schedule delays, and financing uncertainties. As of November 1997, the Los Angeles County Metropolitan Transportation Authority (MTA) estimated the total cost of the project to be $6.14 billion, which would be financed by $3.1 billion in federal funds and the remainder from state and local sources. In January 1998, MTA decided to suspend the construction of two of four remaining extensions of the Red Line for at least 6 months while it addresses severe financial difficulties.[5] A number of factors have contributed to MTA's financial difficulties, including an October 1996 consent decree that forced MTA to shift its funding priority from completing the Red Line to expanding bus service. This revised focus—together with increased costs and shortfalls in federal, state, and local funding for the Red Line—has left MTA with insufficient funds to complete the subway as planned. MTA has already spent about $2 billion in federal funds for the Red Line's design and construction. Whether and to what extent the federal government will continue to support the project will not be known until the project's managers complete a "restructuring" plan that will spell out the federal government's future commitment. MTA has not set dates either for resuming work on the suspended rail projects or for completing the restructuring plan.

Financing issues remain unresolved for the Alameda Corridor project. The project is a 20-mile dedicated freight rail line—half of which will run 30 feet below street level in an open trench—that will connect the ports of Los Angeles and Long Beach and rail yards near downtown Los Angeles. Expected to cost about $2 billion, this project has not yet been fully designed, and only limited construction has begun. The project's preliminary cost estimate may change after contractors submit their construction bids on the complex open trench or as a result of a December 1997 Internal Revenue Service ruling limiting the components of the project that can be financed through tax-exempt revenue bonds. Funding for the project will come primarily from the private sector and will be supplemented by a $400 million federal loan and grants from the two ports and the Los Angeles MTA. As of December 1997, project officials

[5]Construction will continue on the Red Line's North Hollywood extension, which was about 50-percent complete as of November 1997, and on the Vermont extension, which is scheduled to open in December 1998. The Eastside and Mid-City extensions are on hold.

had secured about half of the project's total funding but face challenges in securing the remainder. Specifically, they must demonstrate to financial markets that the project is a good credit risk and obtain all of the funds committed by a financially strapped MTA. According to the project's ambitious schedule, major construction is to begin in 1999 and be completed within 3 years. However, delays in constructing the trench could postpone the start of revenue operations, scheduled for 2001.

Debt financing needs on San Francisco's transit extension may be higher than anticipated. The Bay Area Rapid Transit District (BART) has begun constructing an 8-mile extension of its existing line to provide direct transit service to the San Francisco International Airport and expects to begin service on September 30, 2001. BART estimates that the project will cost $1.167 billion—an amount that FTA approved when it signed a full funding grant agreement with BART in June 1997. Under the grant agreement, FTA will contribute $750 million, or 64 percent of the project's total cost, and the remaining funds will come from state and local agencies. Despite the large federal commitment, BART's finance plan projects that expenses will exceed revenue during construction and produce annual cash shortfalls that will peak at $184 million in 2001. BART will address these shortfalls through short-term borrowing. The financing gap, however, may be larger than the plan's projections, which assume a faster payout of federal contributions than that outlined in the grant agreement. As a result, cash shortfalls could reach almost $290 million by 2001, and BART may need an additional $29 million to finance these shortfalls. BART has established a capital reserve account to meet the added financing requirements. Whether the current funding of the reserve account is sufficient will depend on the actual rate of construction expenditures and the actual revenues flowing into the account.

Accelerated Funding for Intelligent Transportation Systems to the States May Be Premature

DOT's fiscal year 1999 budget calls for $250 million for Intelligent Transportation Systems (ITS)—a visionary program whose goal is the use of computer and telecommunications technology to enhance traffic safety and improve mobility. This amount represents half of FHWA's proposed research and technology budget for fiscal year 1999. From fiscal years 1991 through 1997, the ITS program received about $1.3 billion to support the widespread deployment of ITS technology through research, development, testing, and other activities. DOT's fiscal year 1999 budget request includes $100 million for a new program to accelerate the deployment of ITS. We have found that the widespread deployment of ITS faces several significant obstacles. These include a lack of technical knowledge and expertise among the state and local officials who will

deploy the systems, a lack of quantitative data proving the systems' cost-effectiveness in solving transportation problems, and a lack of funds to support these activities, in light of other transportation priorities.[6]

The fiscal year 1999 budget request for ITS includes $29.5 million for the intelligent vehicle initiative, which replaces the Automated Highway System program. Under a $200 million cooperative agreement with a consortium of public and private organizations, DOT had sought to define and develop a fully automated highway system in which vehicles and the road interact to assume full control of routine driving tasks. In August 1997, DOT and the consortium carried out a successful demonstration of this system. Despite this demonstration and objections from some members of the consortium, DOT is changing the program to focus on short-term initiatives that help drivers avoid accidents rather than long-term initiatives to fully automate driving tasks.[7] These short-term initiatives would include developing technologies that alert drivers of dangerous situations such as when a driver is about to steer off a roadway. According to DOT officials, these technologies may be available in about 6-8 years—much sooner than the estimated 20-30 years needed to develop an automated highway system. This change in direction, which takes a more conservative approach to automating driving tasks, creates uncertainty regarding the consortium's status. In addition, it leaves a void in DOT's long-term ITS research activities.

Lack of Progress in Efforts to Reorganize Field Office Structure

For the past several years, we have testified before this Subcommittee that DOT could potentially save millions of dollars by taking advantage of opportunities to consolidate and/or colocate its 161 surface transportation field offices.[8] DOT has begun examining its organizational structure and has prepared two interim reports—a November 1996 report that proposed colocating 160 DOT field offices at 50 sites and a September 1997 report that examined restructuring FHWA's nine regional offices.[9] It is unclear,

[6]See Urban Transportation: Challenges to Widespread Deployment of Intelligent Transportation Systems (GAO/RCED-97-74, Feb. 27, 1997) and Surface Transportation: Prospects for Innovation Through Research, Intelligent Transportation Systems, State Infrastructure Banks, and Design-Build Contracting (GAO/T-RCED-97-83, Mar. 6, 1997).

[7]See Surface Transportation: The Department of Transportation Proposes Significant Changes to Its Automated Highway System Program (GAO/RCED-97-177R, June 9, 1997).

[8]For transcripts of our testimonies, see Surface Transportation: Reorganization, Program Restructuring, and Budget Issues (GAO/T-RCED-95-103, Feb. 13, 1995) and DOT's Budget: Safety, Management, and Other Issues Facing the Department in Fiscal Year 1998 and Beyond (GAO/T-RCED/AIMD-97-86, Mar. 6, 1997).

[9]Department of Transportation Co-location Task Force Interim Report (Nov. 19, 1996) and Federal Highway Administration (FHWA) Organization Structure Evaluation Task Force, Phase I: A Streamlined Field Organization, draft report (Sept. 22, 1997).

however, when any reorganizations will take place and how much, if any, cost savings would result from these efforts.

DOT's November 1996 interim report was issued after a Department-wide review of the existing space inventory of over 530 field offices. The report identified 160 of these field offices as potential candidates to be colocated at 50 sites over a 5-year period. The report estimated that this and other efforts would reduce, by 19,356 square feet, the amount of field office space needed by the Department over a 2-year period. The report did not estimate any budgetary savings resulting from these colocation opportunities, and officials said that the moves could increase costs in the short term as staff are relocated. DOT's review was limited to those field offices that provide customer service or technical assistance, thereby excluding about 70 percent of DOT's more than 1,700 field offices. Moreover, according to DOT officials, implementing colocation opportunities could be hampered by the lack of funds needed for expenses related to the moves, the amount of lead time required to colocate a number of large offices, and incompatible information and telecommunications systems at some offices that may be colocated. Finally, any savings from these moves may be offset by the addition of facilities directed toward improving the delivery of services and customer satisfaction. For example, in fiscal years 1996 and 1997, the Department established three new metropolitan offices to better serve urban customers in Philadelphia, Chicago, and Los Angeles and will establish a fourth office in New York in fiscal year 1998.

The September 1997 interim report followed an FHWA task force review of the agency's field office structure. The interim report recommended that the agency retain all 52 division offices and restructure its nine regional offices by replacing them with four resource centers. The new centers would be located in cities where regional offices were formerly located. The report further recommended transferring some functions currently performed by regional offices to headquarters or specific division offices and relocating most regional staff to the new resource centers, divisions, or headquarters. The report did not identify any long-term savings resulting from this reorganization and projected that costs may actually increase over the short term as staff are relocated. DOT expects to provide more details of these plans by June 1998, including an explanation of how the new resource centers will differ in their roles and responsibilities from the current regional offices. We plan to provide this Subcommittee with additional information on the status of DOT's reorganization efforts later this year.

Key Performance Challenges

The need for improvements in safety and congestion mitigation on the nation's highways and railways are two key challenges facing DOT. Each year, over 40,000 deaths occur in the United States as a result of traffic accidents, 11,000 railroad employees are injured, and thousands of people are evacuated from their homes as a result of the hazardous materials that are released during train accidents. Traffic growth, leading to congestion, is an escalating problem on the nation's roads, particularly in many urban areas. Recent severe rail congestion and delay, particularly in the West, have been the worst in 35 years, according to industry observers.

The infrastructure and research programs that we discussed previously in this testimony are geared toward addressing such problems with the transportation system. For example, when completed, the Alameda Corridor freight rail line is expected to increase rail speeds along the corridor, reduce truck traffic on adjacent highways, decrease shipping time, and accommodate growing cargo volumes. Similarly, a fully automated highway system is expected to expand capacity on the nation's highways as well as improve safety. However, the problems we have noted with these programs and projects could delay or hamper their effectiveness in improving safety and mobility. In recent reports, we have identified several additional challenges facing DOT as it tries to achieve improvements in rail and highway safety.

Effectiveness of New Rail Safety Program Unproven

The Federal Railroad Administration (FRA) instituted changes in its safety program in 1993 to address safety problems in the rail industry. Generally, the changes in FRA's safety program deemphasized site-specific inspections and emphasized cooperative partnerships with railroad management, labor unions, other federal agencies, and the states to obtain improvements in railroad safety. While preliminary data for 1997 show an improvement in key safety statistics, it is too early to determine if FRA's new safety strategy will produce a sustained decline in rail accidents and fatalities. While, overall, accidents and fatalities have decreased, trends over the past 20 years show that periods of noteworthy declines in railroad accidents, injuries, and fatalities were followed by periods of equally noteworthy increases. In addition, accidents involving Union Pacific and CSX trains during 1997 have raised questions about the effectiveness of FRA's new program. Despite FRA's intensive safety reviews of the railroads during 1995 and 1996, the railroads had 10 accidents and collisions in the summer of 1997 that resulted in eight deaths. In response, FRA sent teams of 75 to 80 inspectors to each railroad to document safety problems and ensure that the railroads had addressed problems found in earlier reviews.

Furthermore, we found that FRA's new strategy does not comprehensively address workplace safety for railroad employees or the structural integrity of railroad bridges.[10] Railroad employees accounted for most of the more than 12,500 rail-related injuries and illnesses that occurred in 1996. FRA relies on the Occupational Safety and Health Administration (OSHA) to address many workplace safety issues. However, OSHA inspectors visit railroad property only in response to complaints about working conditions or when investigating workplace accidents. In the absence of bridge safety regulations, FRA relies on the railroads to voluntarily correct bridge safety problems. While FRA inspectors may exercise emergency authority to close a bridge when conditions present an imminent hazard of death or personal injury, they cannot issue violations to railroads when they find less severe bridge safety problems. We have recommended that FRA consider developing regulations to address workplace safety once sufficient data are collected and ensure that findings of potential structural problems on bridges are properly addressed by the bridges' owners. In response, FRA agreed to issue new employee workplace rules when railroad operations are involved if the railroads' voluntary corrective measures are not effective. FRA, however, does not intend to issue new rules for nonoperational safety and health problems that have historically fallen under OSHA's jurisdiction. In addition, FRA concurred with our recommendation regarding structural bridge safety problems, but said it will continue to pursue nonregulatory guidance and monitoring to ensure the safety and integrity of bridges.

Improved Performance Data Needed for Commercial Motor Carriers

About 5,000 people die annually in the United States in traffic accidents involving large trucks and other commercial motor vehicles. The rate of fatal accidents involving large trucks declined steadily from 1983 through 1992 as FHWA's Office of Motor Carriers and the states expanded their commercial vehicle safety programs. However, the fatal accident rate has been fairly level since 1992, while the actual number of fatal accidents has risen. We recently reported that the Office of Motor Carriers has begun using performance-based data through its Safety Status Measurement System to better target problem carriers for safety reviews.[11] Complete and timely data from the states on commercial vehicle accidents and the results of roadside inspections and other vehicle safety programs are key to implementing the new targeting system. While many states have improved the completeness and timeliness of their data submissions in

[10]Rail Transportation: Federal Railroad Administration's New Approach to Railroad Safety (GAO/RCED-97-142, July 23, 1997).

[11]Commercial Motor Carriers: DOT Is Shifting to Performance-Based Standards to Assess Whether Carriers Operate Safely (GAO/RCED-98-8, Nov. 3, 1997).

recent years, the Office of Motor Carriers found that (1) the states, overall, reported only about 74 percent of the recordable accidents in 1995 and (2) during fiscal year 1997, five states submitted accident data more than 6 months, on average, after the accidents occurred. Because the Office of Motor Carriers and the states need these data to effectively target their resources on problem carriers, we recommended that DOT identify the barriers that prevent the states from providing complete and timely data and work with the states to develop a strategy for addressing each barrier. As of this time, the Department has not responded to our recommendation.

Another area that, if not properly overseen, could have significant implications for highway safety is the potential increased commercial truck traffic from Mexico throughout the United States as a result of the North American Free Trade Agreement. Last spring, we reported on the safety inspection of commercial trucks entering the United States from Mexico.[12] During 1996, Arizona, California, and Texas substantially increased their capability to inspect trucks for safety violations at major border crossings. In particular, the number of state and federal inspectors assigned to border crossing locations doubled, enabling federal and state personnel to conduct more than 25,000 inspections during 1996. While state and federal inspectors told us that Mexican trucks have become safer, citing data such as fewer safety violations per truck, these views are anecdotal. To measure the progress by these commercial truck carriers in meeting U.S. safety regulations, we recommended that DOT encourage the border states to develop and implement measurable results-oriented goals for the inspection of these vehicles. Starting in fiscal year 1998, DOT is requiring all states, including the border states, to implement the Department's motor carrier safety program on a performance-based results-oriented basis. However, the Department said that border states would only have to implement measurable results-oriented goals for their inspection of commercial trucks from Mexico if they consider that Mexican trucks are a problem. Later this year, we plan to examine whether the border states have developed results-oriented performance goals and what assistance, if any, DOT has given to help them do so.

Aviation

The Federal Aviation Administration (FAA), which is responsible for providing air traffic control services nationwide, ensuring aviation safety and security, and assisting in airport development, accounted for about

[12]Commercial Trucking: Safety Concerns About Mexican Trucks Remain Even as Inspection Activity Increases (GAO/RCED-97-68, Apr. 9, 1997).

$9.1 billion in DOT's fiscal year 1998 budget. The proposed budget for fiscal year 1999 increases that amount to almost $9.8 billion.

Over the last year, we have reported that the Congress and DOT face a critical issue in determining how to adequately fund FAA to meet its mission over the long term.[13] In its fiscal year 1998 budget request, FAA estimated that its needs would exceed projected funding levels by about $13 billion over the following 5 years. Despite a number of assessments over the past year, a consensus does not exist regarding FAA's future funding needs or how to meet them.[14] However, any estimate of those needs will likely increase as FAA confronts problems associated with making its computer systems ready for the year 2000, cost growth for mission-critical modernization efforts, and improving its aviation safety and security programs. The latest proposal for funding FAA comes from the National Civil Aviation Review Commission, which recommends that the Congress fund FAA through a combination of cost-based user charges, fuel taxes, and general fund revenues.[15] In the past, we and others have noted that many issues surround the allocation of air traffic costs and that FAA lacked sufficiently detailed or reliable cost data. These concerns are still relevant. The Commission's report acknowledges that effective, reliable, and comprehensive cost-accounting data are needed to accurately determine the agency's costs. FAA has begun implementing a cost-accounting system, but program officials estimate that cost data for air traffic services will not be available until October 1998. However, it is important for FAA to move vigorously to address its cost-accounting problems so that the Congress will have adequate and accurate financial and program information for making decisions.

Key Resource Management Issues

Our work has identified the need for increased attention to the management of aviation programs in the following areas: (1) addressing FAA's slow rate of progress in making its computer systems ready for the year 2000, (2) dealing with schedule delays and cost growth facing some

[13]Transportation Financing: Challenges in Meeting Long-Term Funding Needs for FAA, Amtrak, and the Nation's Highways (GAO/T-RCED-97-151, May 7, 1997) and Federal Management: Addressing Management Issues at the Department of Transportation (GAO/T-RCED/AIMD-97-172, May 21, 1997).

[14]See Federal Aviation Administration: Independent Financial Assessment, Coopers & Lybrand (Feb. 28, 1997), Avoiding Aviation Gridlock & Reducing the Accident Rate, National Civil Aviation Review Commission (Dec. 1997), Airport Development Needs: Estimating Future Costs (GAO/RCED-97-99, Apr. 7, 1997), and Air Traffic Control: Issues in Allocating Costs for Air Traffic Services to DOD and Other Users (GAO/RCED-97-106, Apr. 25, 1997).

[15]Avoiding Aviation Gridlock & Reducing the Accident Rate, National Civil Aviation Review Commission (Dec. 1997).

infrastructure acquisitions, (3) more accurately determining future air traffic controllers' staffing needs and cost savings from FAA's revised training program for new controllers, (4) obtaining adequate and predictable funding for the airport improvement program, and (5) resolving deployment issues for some aviation security initiatives.

Limited Progress Being Made on Year 2000 Problem

On January 1, 2000, computer systems worldwide could malfunction or produce inaccurate information simply because the date has changed. Unless corrected, such failures could have a costly, widespread impact. The problem is rooted in how dates are recorded and computed. For the past several decades, systems have typically used two digits to represent the year—such as "97" for 1997—to save electronic storage space and reduce operating costs. In such a format, however, 2000 is indistinguishable from 1900. This ambiguity could cause systems to malfunction in unforeseen ways or to fail completely.

Correcting this problem will not be easy or inexpensive and must be done while such systems continue to operate. Many of the government's computer systems were developed 20 to 25 years ago, use a wide array of computer languages, and lack full documentation. In less than 2 years, hundreds of computer systems that are critical to FAA's operations—such as monitoring and controlling air traffic—could fail to perform as needed unless proper date-related calculations can be assured.

FAA's progress in making its systems ready for the year 2000 has been too slow. We have reported that, at its current pace, FAA will not make it in time.[16] The agency has been severely behind schedule in completing basic awareness and assessment activities—critical first and second phases in an effective Year 2000 program. For example, FAA only last week established a Year 2000 program manager position that reports to the Administrator, and FAA has yet to make final its overall Year 2000 strategy or its assessment of the impact of systems not being Year 2000 date compliant. Until these activities are completed, FAA cannot know the extent to which it can trust its systems to operate after 1999. The potential serious consequences could include degraded safety, grounded or delayed flights, increased airline costs, and customer inconvenience.

Delays in completing awareness and assessment activities also leave FAA little time for critical renovation, validation, and implementation activities—the final three phases in an effective Year 2000 program. With

[16] FAA Computer Systems: Limited Progress on Year 2000 Issue Increases Risk Dramatically (GAO/AIMD-98-45, Jan. 30, 1998).

less than 2 years left, FAA is quickly running out of time, making contingency planning for the continuity of operations even more critical.

On January 23, 1998, FAA's Year 2000 project office estimated that the entire program will cost $162 million, although it reported that refined cost estimates will be issued in February. This cost estimate could increase dramatically if FAA decides to purchase new hardware to replace parts of its Host Computer System. This action is being considered because of concerns that FAA will not be able to ensure that the current hardware is Year 2000 compliant. FAA's preliminary cost estimates for the new hardware range from $125 million to $160 million.

Regardless of the eventual cost estimate, uncertainty surrounds the funding of these activities. For example, while FAA officials estimate that they will spend about $89 million in fiscal year 1998 for Year 2000 activities, only $18 million of the $162 million is currently in the fiscal year 1998 budget. FAA officials stated that FAA will absorb about $33.2 million and has requested a reprogramming of an additional $37.7 million in fiscal year 1998 funding. Additionally, OMB has stated that because of the Department's disappointing progress on the Year 2000 problem, it will not fund any request from DOT for information technology investments in the fiscal year 1999 budget unless they are directly related to fixing the Year 2000 problem. FAA's fiscal year 1999 budget request includes $36 million for the program.

Major Acquisitions Continue to Face Delays and Cost Increases

Since 1981, FAA has had a mission-critical capital investment program under way to modernize its aging air traffic control (ATC) system. This effort, which involves acquiring a vast network of radars and automated data-processing, navigation, and communications equipment, is expected to cost $34 billion through 2003. Over the years, we have reported that ATC modernization projects have experienced substantial cost overruns, lengthy delays, and significant performance shortfalls. During 1997, we continued to review the progress of these projects. Some projects—such as the $2 billion Display System Replacement project to replace aging equipment at en route centers—are on schedule and within budget. We found, however, that two key components of the modernization effort—the Wide Area Augmentation System (WAAS) and the Standard Terminal Automation Replacement System (STARS)—have encountered schedule delays and cost increases. We plan to report in more detail on the status of these and other ATC modernization projects later this year.

FAA's fiscal year 1999 budget request calls for $137.5 million for the WAAS project. The project, which FAA now expects to be fully operational in 2002, was originally intended to replace the current ground-based civil air navigation system with a satellite-based system using signals generated from the Department of Defense's Global Positioning System (GPS). FAA is acquiring WAAS—a network of equipment on the ground and in space—to enhance GPS so that the system can meet civil aviation requirements.

In developing WAAS, FAA has encountered schedule delays and cost increases. In signing the original development contract with Wilcox Electric in August 1995, FAA planned for the initial system to be operational by December 1997. But because of concerns about the contractor's performance, FAA terminated the original contract and signed a development contract with Raytheon (formerly Hughes Aircraft) in October 1996 that calls for the initial system to be operational by April 1999. The 16-month schedule slippage was caused by problems with the original contractor's performance, design changes, and increased software development.

Although FAA knew that its facilities and equipment cost estimate for WAAS could exceed $900 million, the agency's original estimate was $508 million in 1994. FAA increased this estimate to $957 million in April 1997 and to just over $1 billion as of January 1998—roughly double the original figure. Also, FAA's cost estimates for WAAS operations and maintenance have increased by about a third—from about $1.5 billion in September 1997 to about $2 billion in January 1998. The increased costs for facilities and equipment are caused largely by higher than expected development costs and the inclusion of previously omitted costs for updating the technology. The revised cost estimate for operations and maintenance is largely attributable to higher than expected costs to lease satellites.

Over the past year, FAA has focused on a technical issue that could ultimately limit WAAS' capability to operate as originally intended—as a sole navigation system without having another navigation system on board—and could increase FAA's costs for providing navigation services. GPS/WAAS signals are vulnerable to radio frequency interference, which could reduce the signal's availability for air navigation; as a result, flights in affected areas could be delayed. If this vulnerability cannot be resolved, FAA may have to cancel its planned phaseout of all ground-based navigation aids. If FAA retains a backup network of ground-based aids, the cost savings expected by implementing WAAS would be substantially reduced.

FAA's and our analyses have shown that the benefits of acquiring WAAS substantially outweigh the costs.[17] However, because of the interference vulnerability and other issues, we are reanalyzing the project's benefit-cost ratio under various scenarios. For example, we are assessing the potential effects of retaining a backup network of ground-based navigation aids. We intend to provide this Subcommittee with our results next month.

Another recent concern is the feasibility of FAA's plan to lease geostationary communications satellite services—a key component of the WAAS system—rather than make a large upfront investment to purchase the satellites. FAA's plan raises a number of programmatic and budget issues, including the need for additional budget authority for the agency to enter into a long-term lease. DOT is scheduled to report to this Subcommittee by February 15, 1998, on how it intends to provide this satellite communications capability. We intend to comment on this concern in our report to be issued next month to this Subcommittee.

FAA's proposed fiscal year 1999 budget calls for $183.5 million for the STARS project, which entails replacing, from December 1998 through February 2005, old computers, controller workstations, and related equipment at about 170 FAA terminal air traffic control facilities. FAA estimates that the project will cost $2.2 billion. Last year, we reported that STARS' implementation—particularly at the three facilities targeted for operating the system before fiscal year 2000—will likely be delayed if FAA and its contractor experience difficulties in developing the software.[18] These difficulties have materialized.

To meet its goal of installing the system at the first site—Boston—in December 1998, FAA planned to complete its software development by September 1997. As of January 1998, the software development was not complete. FAA's schedule has been delayed, in part, because the contractor's actual software production rates were much lower than projected.

In January 1998, FAA reported that more delays are possible because there could be a further increase in software requirements to resolve air traffic controllers' dissatisfaction with the system's computer-human interface. FAA also reported an unexpected cost growth of $35 million for fiscal year

[17]National Airspace System: Observations on the Wide Area Augmentation System (GAO/T-RCED-98-12, Oct. 1, 1997).

[18]Air Traffic Control: Status of FAA's Standard Terminal Automation Replacement System Project (GAO/RCED-97-51, Mar. 5, 1997).

1998. The agency attributed the growth to such factors as a change in the scope of the software's development, the application of additional resources to maintain the program's schedule, and the impact of new computer-human interface requirements. Program officials told us that they may request a reprogramming of fiscal year 1998 funds to address this cost growth.

Improvements Needed in FAA's Controller Staffing Process

Because of significant hiring in the early 1980s to replace air traffic controllers who had been fired during the 1981 strike, many of FAA's more than 17,000 controllers may become eligible to retire within the next decade, raising concerns about whether there will be enough fully trained controllers to manage the nation's air space. At the request of this Subcommittee, we reported on the process that FAA uses to forecast controllers' retirements and staffing needs and to formulate its annual staffing and budget requests.[19] We found that many controllers may not qualify for retirement as early as FAA estimates. We believe that FAA's method of forecasting controllers' future staffing needs can be improved and recommended that the agency use actual information on the controllers' age, years of service, and retirement eligibility date rather than assumptions about when controllers will be eligible to retire. While FAA's estimate of the number of retirements in fiscal year 1995 was fairly accurate, we believe that basing long-term estimates on the method we suggested will be more accurate than FAA's method of projecting retirements. As of September 1997, DOT had revised its personnel management information system to include the suggested data so that it could determine the number of controllers eligible to retire each year. FAA expects to complete validating these changes to the system by April 1998.

We further reported that there may not be a sufficient number of controller candidates to fill staffing needs in fiscal year 1999 and beyond. The majority of available candidates are former controllers who were fired during the 1981 strike. FAA officials believe that many of these candidates could be eligible to retire within a few years of reemployment. FAA, however, has not conducted any analysis to support this issue. We recommended that the agency collect the information to do so. The September 1997 revisions to DOT's personnel management system will provide this information.

FAA has revised its training program for new controllers with the intent of reducing on-the-job training time and costs. Beginning this fiscal year, all

[19]Aviation Safety: Opportunities Exist for FAA to Refine the Controller Staffing Process (GAO/RCED-97-84, Apr. 9, 1997).

new controllers are required to successfully complete part of their training at the FAA Training Academy in Oklahoma City. Under the old program, some controller candidates—who had no prior experience—received initial training at post-secondary schools, as part of a collegiate training program, before being hired and placed at an air traffic control facility. We believe that the revised program could increase the federal costs of initial controller training because FAA will pay a portion of training expenses that had previously been paid by participants in the collegiate program. Therefore, we recommended that FAA compare the actual training costs under the revised and old programs to determine whether the anticipated savings will be realized. FAA has implemented a computerized system to monitor training costs under the revised program. However, FAA does not plan to monitor the costs to train new controllers hired in 1997 under the old system. As a result, the agency will still not be able to compare the training costs or determine the savings under the revised program.

Adequate and Predictable Funding Needed for Airport Improvement Program

FAA's budget request for fiscal year 1999 includes $1.7 billion for the airport improvement program (AIP), which provides grants for capital improvements to 3,304 airports that comprise the national airport system. Last year, the Congress, following the leadership of this Subcommittee, increased its funding for AIP by $240 million, from $1.46 billion in fiscal year 1997 to $1.7 billion in fiscal year 1998. This increase was the first in the program since fiscal year 1992, when the AIP appropriation totalled $1.9 billion. In addition, last December, the National Civil Aviation Review Commission reported to the Congress that funding for the AIP should be at least $2 billion each year.

We reported last April that capital needs for airports may total as much as $10 billion per year over the next 5 years.[20] Of this total, we estimated that about $1.4 billion per year is planned to meet FAA's highest priorities for development—meeting existing federal safety and security mandates, implementing noise mitigation projects, and maintaining the existing airfield infrastructure. In addition, we estimated that another $4.6 billion per year is planned for other AIP-eligible development, such as adding system capacity and bringing airports up to FAA's design standards. The remaining $4 billion per year is for development not eligible for AIP funds.

Since our April report, we have examined the capacity of airports to finance their projected development. In total, we found that national system airports generated about $7 billion for their capital development in 1996—$3 billion less than their projected total development needs per

[20] Airport Development Needs: Estimating Future Costs (GAO/RCED-97-99, Apr. 7, 1997).

year. Smaller airports are substantially more reliant on AIP funding and face the most severe shortfalls. For example, the smallest 3,163 national system airports (out of 3,304 total) obtained about $1 billion in capital funding in fiscal year 1996—more than half of that from the AIP—and the rest from state grants, airport bonds, and passenger facility charges. However, these airports projected $2.2 billion in future development—more than twice their 1996 funding. Meanwhile, the nation's 141 largest airports, which accounted for 95 percent of the passenger enplanements in 1996 and all 25 of the nation's severely congested airports,[21] obtained far more funding—about $6 billion in fiscal year 1996—however, this amount was also short of the more than $7.8 billion per year that these airports have in planned development.

Deployment Issues Need to Be Addressed for Some Aviation Security Initiatives

Over the last several years, the changing threat of terrorist activities has heightened the need to improve domestic aviation security. To address this threat, FAA is implementing recommendations made in February 1997 by the White House Commission on Aviation Safety and Security (the Gore Commission) and mandates contained in the Federal Aviation Reauthorization Act of 1996. Expeditious implementation of the security initiatives by FAA and the aviation industry is crucial to improving the integrity of domestic aviation.

In September 1996, the Congress appropriated $144.2 million for FAA to purchase and install explosives detection devices at U.S. airports. The Secretary of Transportation directed FAA to have most of these devices in place by September 1997; FAA did not meet this goal. As of January 1998, only 11 of 54 FAA-certified systems to screen checked bags and 125 of the projected 489 devices—called trace detection devices—to screen passengers' carry-on bags had been installed. By the end of fiscal year 1998, FAA plans to have installed all 54 of the FAA-certified screening systems, 400 trace devices, and another 22 noncertified screening devices. For the equipment used to screen checked bags, FAA is almost a year behind schedule because the contractor hired to install the equipment did not have the experience needed for installation. Additionally, FAA said that some airports wanted to delay scheduling the installation of explosives detection systems because their baggage-handling systems are undergoing major reconfiguration/construction. The deployment of trace devices for carry-on baggage also has been delayed partly because FAA and airlines need to evaluate how well different types of equipment are working before

[21]FAA considers an airport to be severely congested if it incurs delays of more than 20,000 hours in a year.

making additional purchases. DOT is requesting $100 million for fiscal year 1999 to continue purchasing explosives detection equipment.

The screening equipment for carry-on and checked bags—such as the X-ray equipment currently in place as well as the newer FAA-certified systems—relies on personnel to interpret images on computer screens to determine whether the baggage may contain a dangerous object or explosive. Therefore, the personnel must be well trained. FAA has begun several pilot programs to improve these personnel's performance and training. First, for the current X-ray equipment used for carry-on bags, FAA has introduced a self-paced computer-based training program for check point personnel called the Screener Proficiency Evaluation and Reporting System, or SPEARS. FAA has implemented this training program at 17 of the nation's largest airports and plans to expand it to other airports. At the airports we visited, the training has generally been well received, although some issues need to be resolved, such as the location of the training equipment within an airport facility for its most effective use, the number of units required at larger airports, and the adequacy of guidelines on how to use the new computer-based program. Second, for the newer FAA-certified screening system for checked bags, the equipment's manufacturer has provided the initial training. Additional computer-based training for this system has been developed by the same firm that developed training for the carry-on X-ray equipment; the training program will be deployed after FAA finishes evaluating it.

Key Performance Challenges

FAA faces challenges in improving the safety, security, and efficiency of our aviation system. In 1996, 380 people died in major airline accidents—the highest number in 11 years. FAA estimates that air carriers' delays cost passengers and airlines a total of about $9.5 billion in 1994. Many diverse factors—such as properly functioning equipment; human factors involving pilots, crew, and air traffic controllers; and the weather—affect the overall performance of the aviation system. Over the past year, we have identified the need for FAA to better address some of these factors by improving its oversight of aircraft repair stations, enhancing its guidance and oversight of pilot training in crew resource management, and resolving data protection issues to enhance the usefulness of recorded flight data to improve safety. In addition, we are examining FAA's management of its weather research program and will be reporting soon on the effectiveness of FAA's enforcement of its safety and security inspection programs.

Improvements Needed in Oversight of Repair Stations

Maintaining, repairing, and renovating the fleet of more than 6,700 U.S. aircraft costs about $6.5 billion a year. Nearly half of the work is done by about 2,800 independent repair stations located worldwide and the remainder by the air carriers themselves. About 600 of FAA's 3,000 inspectors are responsible for inspecting repair stations to ensure that work conducted by these facilities is competently done. In recent years, FAA's oversight of repair stations has become a matter of concern partly because the work performed by repair stations has been identified as a factor in several aircraft accidents.

We found that FAA is meeting its goal of inspecting every repair station at least once a year, relying primarily on reviews by individual inspectors.[22] However, when FAA uses teams rather than individual inspectors to review facilities, the review is more effective, uncovering more systemic and long-standing problems. We could not find sufficient documentation to determine how well FAA followed up to ensure that the deficiencies found during the inspections were corrected. Thus, we were unable to assess how completely or quickly the repair stations were bringing themselves into compliance. FAA does not tell its inspectors what documentation to keep, and the resulting information gaps lessen the agency's ability to determine how well its inspection activities are working or to identify and react to trends. These gaps are particularly important because FAA is spending more than $30 million to develop a reporting system that, among other things, is designed to use the documentation to target inspections to those areas that pose the greatest safety risk.

Following the May 1996 crash of a ValuJet DC-9 in the Florida Everglades, FAA announced new initiatives to upgrade the oversight of repair stations by clarifying air carriers' oversight of repair stations. In addition, FAA has activities under way to improve its oversight of repair stations. One effort would revise the regulations governing repair station operations, and another would revise the regulations governing the qualifications of repair station personnel. Begun in 1989, the revision of repair station regulations has been repeatedly delayed because other rule-making and policy projects received higher priority. The third effort is to add more inspectors, which should mean that more resources can be devoted to inspecting repair stations. As part of its fiscal year 1999 budget proposal, FAA has requested funding for 45 additional inspectors and certification personnel.

[22]Aviation Safety: FAA Oversight of Repair Stations Needs Improvement (GAO/RCED-98-21, Oct. 24, 1997).

To improve its oversight of repair stations, we recommended that FAA expand the use of locally based teams to inspect the facilities, particularly those that are large, complex, have higher rates of noncompliance, or meet predetermined risk indicators. In addition, we recommended that FAA specify what documentation should be kept on inspection results, monitor efforts to improve the quality of data for its new management information system, and expedite efforts to upgrade regulations concerning the oversight of repair stations. FAA agreed with these recommendations but has not yet indicated how or when they would be implemented.

Improved Guidance and Oversight Needed for Pilot Training in Crew Resource Management

About 30 percent of the 169 aviation accidents and about 18 percent of the 3,901 incidents that occurred from 1983 through 1995 were caused at least in part by pilots' performance, according to our analysis of the National Transportation Safety Board's and FAA's data.[23] Furthermore, in about one-third of the accidents involving pilots' performance, we determined that the pilots did not correctly use the principles of crew resource management—an approach that focuses on better coordination among the airplane crew to handle certain routine and emergency situations. For example, according to the National Transportation Safety Board, just before the 1994 crash in Charlotte, North Carolina, which killed 37 people, the aircraft had encountered a sudden change in wind direction, and the captain gave an incorrect order to the first officer, who did not question the order, as crew resource management principles would require.

FAA recognized the importance of crew resource management by requiring all airlines to include training in these principles in one of two ways. A few airlines meet the requirement by participating in FAA's Advanced Qualification Program, which specifies a process for curriculum development that the airlines must follow in order to integrate training in crew resource management with technical flying skills. Most airlines, however, meet this requirement under FAA's regulations for traditional training programs, which spell out the number of hours of training required in particular areas but provide ambiguous guidance on how to develop the curriculum for crew resource management and lack standards to evaluate airlines' training in this area. As a result, FAA cannot be assured that such airlines are developing a curriculum for effectively teaching pilots how to best use all the skills and experience available to them in the cockpit. We recommended that FAA develop a process for its traditional training programs that airlines must follow for creating a crew resource

[23]We analyzed 169 accidents that involved the major airlines and were investigated and reported on by the National Transportation Safety Board from 1983 through 1995. See Human Factors: FAA's Guidance and Oversight of Pilot Crew Resource Management Training Can Be Improved (GAO/RCED-98-7, Nov. 24, 1997).

management curriculum with measurable criteria. We have not yet received FAA's response to this recommendation.

Data Protection Concerns Limit Airlines' Use of Recorded Flight Data to Enhance Safety

The analysis of aircraft data recorded during flight has played a crucial role in determining the causes of crashes. Recently, however, some airlines also have begun using continuously recorded flight data to detect technical flaws, unsafe practices, or undesirable operating procedures early enough to avert accidents or incidents. Currently, about 33 foreign airlines and 4 U.S. airlines participate in these voluntary Flight Operational Quality Assurance (FOQA) programs and have used the information gained from these flight data to correct problems and enhance aviation safety. Despite the benefits of these programs, we have reported that other airline officials and pilots are reluctant to participate in the programs because of concerns that the data would be (1) used for enforcement or disciplinary purposes, (2) disclosed to the media and the public under the Freedom of Information Act, and (3) disclosed through the civil litigation discovery process.[24] FAA has taken a number of actions to resolve these concerns, such as beginning work on a rule-making procedure to establish what protection from enforcement actions, if any, will apply to information submitted to FAA under a FOQA program. It is unclear, however, whether the aviation community will be satisfied with FAA's response to its concerns.

The National Research Council and Others Cite Need to Improve FAA's Management of Weather Information for Aviation

According to FAA, weather is a contributing factor in more than one-third of all aviation accidents and accounts for almost two-thirds of flight delays. Since 1982, FAA has spent approximately $1.3 billion on facilities and equipment designed to automate the collection, analysis, communication, and display of weather information to better meet users' needs, prepare for improvements to the national airspace system, and move toward a more collaborative system of air traffic management.

In 1995, the National Research Council (NRC)—comprising members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine—issued a report critical of FAA's overall management of its weather program. The report found that there was a lack of coordination between FAA and other agencies—primarily the National Weather Service—involved in providing and using aviation weather information. NRC's primary recommendation called for FAA to provide the leadership, establish the priorities, and ensure the funding needed to improve weather services for aviation users and to strengthen

[24] Aviation Safety: Efforts to Implement Flight Operational Quality Assurance Programs (GAO/RCED-98-10, Dec. 2, 1997).

related research. NRC attributed part of FAA's inadequacies to a lack of capable aviation weather leadership within the agency; the responsibility for weather was dispersed among different organizations headed by key associate administrators with different priorities, interests, and cultures. Similarly, a 1995 report by the Aviation Weather Subcommittee of FAA's Research, Engineering, and Development Advisory Committee recommended that FAA better organize its aviation weather activities and show a greater funding commitment to its ongoing weather research program. In addition, we found that some weather systems used by FAA (such as the Automated Surface Observing System) did not meet users' needs.[25]

In response to these recommendations, FAA began reorganizing its weather programs, creating an Aviation Weather Directorate and establishing an integrated product team for weather programs. Still, indications are that FAA has not fully addressed weather issues. For example, a 1997 report by an FAA advisory committee identified weather projects as an ongoing concern.[26] We are currently examining these issues as part of a review of FAA's aviation weather programs and will report on them later this year.

Coast Guard

For fiscal year 1999, the Coast Guard is asking for over $4 billion to perform its maritime services and responsibilities, such as law enforcement, marine environmental protection, and search and rescue. This amount represents a slight increase from last year's budget of $3.9 billion. The request includes $443 million for the agency's capital budget account, a modest increase over last year.

Key Resource Management Issues

Our work has identified the need for increased attention to the management of Coast Guard programs in the following two areas: developing a comprehensive strategy to identify further cost-cutting measures and pursuing capital investments that are affordable and needed.

Fiscal Constraints Will Require Continued Cost-Cutting Efforts

Last year, we reported on the fiscal challenges the Coast Guard will likely face as it, along with other federal agencies, copes with no-growth budgets to help balance the overall federal budget.[27] We concluded that the current

[25]Weather Forecasting: Unmet Needs and Unknown Costs Warrant Reassessment of Observing System Plans (GAO/AIMD-95-81, Apr. 21, 1995).

[26]Subcommittee Report of the National Airspace System Air Traffic Management Research and Development Panel to Research, Engineering, and Development Advisory Committee (Mar. 25, 1997).

[27]Coast Guard: Challenges for Addressing Budget Constraints (GAO/RCED-97-110, May 14, 1997).

fiscal environment may require the agency to continue cost-cutting efforts and achieve substantial savings beyond the accomplishments of its recently completed streamlining initiatives. We identified and asked agency managers to consider a number of budget-reduction proposals taken from a wide range of past studies on the Coast Guard. Implementing some budget-reduction proposals will likely involve "cultural" changes that may require new ways of operating and thinking about issues. The possible greater use of civilian personnel and changing rotation policies to save transfer costs fall into this category. Other cost-cutting measures—such as closing search and rescue stations, air stations, and training centers—will involve difficult choices that will likely face political and public opposition.

We stopped short of endorsing any specific cost-cutting options without further in-depth study. Rather, we urged the agency to develop a more comprehensive strategy to address impending budget targets, including a reexamination of unimplemented options from past studies and a fundamental reassessment of its missions, strategic goals, services, and customer needs, especially before it embarks on costly capital improvements. Also, in light of the potential opposition that inevitably accompanies consolidation and decisions to close facilities, we asked the Congress to consider establishing an independent panel, much like the Defense Base Closure and Realignment Commission, to review the facility closures that the Coast Guard may consider. While, in recent times, the Coast Guard has prided itself by doing more with less, it may now be more prudent not to overextend itself and instead take steps to "do less with less."

Coast Guard Needs to Ensure the Affordability of Its Deepwater Acquisition Project

In fiscal year 1997, the Coast Guard initiated the Deepwater Acquisition Project to replace or modernize its aging fleet of 92 cutters and 190 aircraft engaged in deepwater missions.[28] The agency's current plan for this project—estimated to cost between $7 billion and $15 billion—calls for building new assets or modernizing existing ones beginning in fiscal year 2001. Starting in fiscal year 2001, the annual cost of the Deepwater Project alone would consume the Coast Guard's entire capital budget at its current level of about $440 million. This condition, coupled with the fiscal constraints that confront the Coast Guard, will challenge its managers to develop an acquisition strategy that is closely linked to the reality of funding levels.

[28]Deepwater missions are conducted beyond the normal operating range of shore-based small boats and include such activities as drug and migrant interdiction and the enforcement of fisheries laws and regulations.

In the near term, the agency plans to award three contracts to develop concepts for potential systems to meet its deepwater mission requirements. The Coast Guard's fiscal year 1999 budget calls for $28 million to help pay for these contracts. At the request of the Subcommittee on Transportation, Senate Committee on Appropriations, we are reviewing the key aspects of this project, including the condition and capabilities of the Coast Guard's current assets and the level of resources the agency says it needs to accomplish its deepwater missions. We plan to report on the results of our study later this year.

Key Performance Challenge

The Coast Guard's drug control efforts represent a key performance challenge. For fiscal year 1998, the Coast Guard requested $354 million for drug interdiction operations—an increase of $34 million from the previous year. For fiscal year 1999, the agency is requesting $369 million for these activities. According to the agency, these funds will be used to help reduce the amount of drugs entering the country via noncommercial maritime means by 25 percent by 2002. However, as of January 1998, the Coast Guard had not published its long-term strategy and funding needs for achieving this goal. Moreover, the Coast Guard's 25-percent reduction goal is much higher than the draft goal set by the Office of National Drug Control Policy, which called for an overall 10-percent reduction in the flow of drugs through certain transit zones by 2002.

As the Congress deliberates the Coast Guard's budget, more information would be useful on the agency's long-term strategy to achieve its drug interdiction goals, the quality and reliability of the data used to measure results, and the total costs and benefits of achieving the goals. Absent this information, the Congress and others must consider a series of annual incremental budget increases to achieve specific performance goals without knowing the total investment required and without weighing in on whether the goals are realistic, are affordable, or represent the best alternative to achieving a specific outcome.

Amtrak

For fiscal year 1999, DOT's budget proposes no funding for Amtrak's operating expenses and $621 million for Amtrak's capital expenses, including at least $200 million for the Northeast Corridor program. DOT's budget request points out that federal funding from the Taxpayer Relief Act of 1997 that may be used to acquire capital improvements in fiscal year 1999 could also be used to cover certain maintenance expenses.

Deteriorating Financial Condition Presents Management Challenge

Although Amtrak's passenger rail service has never been profitable, its financial condition has substantially deteriorated in recent years, and its federal subsidies have not covered the gap between operating expenses and revenues. Since 1993, Amtrak has borrowed heavily to make up the operating and capital shortfalls. As a result, its debt and capital lease obligations have doubled, and its interest expenses more than tripled from $21 million in fiscal year 1993 to $76 million in fiscal year 1997. Because Amtrak pays interest from federal operating assistance and principal from federal capital grants, the percentage of federal operating subsidies accounted for by interest payments has increased from 6 percent in fiscal year 1993 to 34 percent in fiscal year 1997. Interest payments are likely to increase as Amtrak assumes more debt to acquire equipment. For example, Amtrak expects to incur an additional $820 million in debt beginning in 1999 primarily to acquire 18 high-speed train sets (cars and locomotives) and related maintenance facilities for the Northeast Corridor.

In December 1994, Amtrak established a goal to eliminate its need for federal operating subsidies by the beginning of 2002, except for federal contributions to railroad retirement payments. Amtrak also would continue to need federal funding for capital improvements. Amtrak began using strategic business plans in 1995 to reduce a widening gap between net losses and federal subsidies.[29] The strategic business plans have helped improve Amtrak's financial condition by, for example, eliminating some routes and more efficiently using its locomotive and car fleets while increasing ridership and mail and express services.[30] During fiscal year 1997, Amtrak exceeded its goals for ridership, passenger revenues, and overall revenues; however, it did not meet its goals for controlling expenses. Amtrak met its target of limiting net losses to $762 million because it earned $63 million more in revenues than was budgeted through the one-time sales of real estate and telecommunications right-of-way access in the Northeast Corridor. Amtrak's overall loss for fiscal year 1997 was $70 million, or $26 million more than budgeted.[31] Amtrak is still in a very precarious financial position and will have a difficult path toward eliminating the need for federal operating subsidies by 2002.

[29]Amtrak defines net loss as its total expenses minus total revenues.

[30]The Surface Transportation Board has been asked to rule on whether a freight railroad must make its tracks and facilities available to Amtrak for express service.

[31]Overall loss is net loss plus certain federal subsidies minus noncash items (primarily depreciation).

Eliminating the need for Amtrak's federal operating subsidies is heavily dependent on capital investment. The Taxpayer Relief Act of 1997 made available to Amtrak in fiscal years 1998 and 1999 a total of $2.2 billion that may be used to acquire capital improvements.[32] Amtrak's capital investment needs are great, both to replace and modernize its current physical assets and to complete new projects, such as high-speed rail service in the Northeast Corridor. Such investment will not only help Amtrak to retain revenues by improving its quality of service but will potentially increase revenues by attracting new riders. However, the corporation's needs go beyond the funds made available by the Taxpayer Relief Act. For example, Amtrak has estimated that $1.4 billion will be needed to complete the Northeast Corridor high-speed rail project between New York and Boston. In addition, FRA and Amtrak estimated that up to $6.7 billion, including $2 billion over the next 3 to 5 years, may be needed over the next 20 years to recapitalize the Northeast Corridor to preserve its ability to operate in the near-term at existing service levels and respond to high-priority opportunities for growth. Moreover, the average age of Amtrak's active fleet of 1,600 cars in October 1997 was about 20 years. While Amtrak has nearly completed a multiyear program to retire its oldest cars that required substantial maintenance and repairs, many other cars are approaching the end of their useful lives and will require more maintenance and repairs to keep them operating.

Finally, Amtrak will continue to find it difficult to take those actions necessary to further reduce its operating costs. For example, Amtrak estimates that as a result of its recent agreement with the Brotherhood of Maintenance of Way Employees, it will incur from $3 million to $5 million in higher labor costs than its draft strategic business plan has budgeted for fiscal year 1998. If the terms of this agreement were extended to Amtrak's other unions, Amtrak estimates that labor costs would be about $30 million more than was budgeted for fiscal year 1998.[33]

Amtrak has stated that it will work to eliminate the need for federal operating support by 2002 by increasing revenues, controlling costs, and providing customers with high-quality service. The Amtrak Reform and Accountability Act of 1997, which provides for the Congress to consider

[32]Amtrak is required to pay 1 percent of the $2.3 billion made available under the act to each state that does not have Amtrak service. This leaves about $2.2 billion available to Amtrak for acquiring equipment, rolling stock, and other capital improvements; upgrading maintenance facilities; maintaining existing equipment in intercity passenger rail service; and paying interest and principal on obligations incurred for such acquisitions, upgrades, and maintenance.

[33]This estimate assumes that all such agreements would be negotiated and implemented by July 1, 1998. It does not take into account any productivity savings that might be agreed upon.

either restructuring or liquidating Amtrak if it requires federal operating subsidies after December 2002, reflects this goal. Although Amtrak's strategic plans have helped reduce operating losses to some degree, the corporation continues to face significant challenges in accomplishing this goal. It is likely that Amtrak, as presently constituted, will continue to require federal financial support—both operating and capital—beyond that time frame, raising the possibility of both bankruptcy and liquidation. To assist the Congress in its deliberations on Amtrak's future, we will report next month on the financial and operational issues associated with a possible Amtrak liquidation. Additionally, in May 1998, we will report to this Subcommittee on the financial performance of Amtrak's current routes, the financial implications for Amtrak of multiyear capital requirements and declining federal operating subsidies, and the financial effect of reforms contained in the Amtrak Reform and Accountability Act of 1997.

Department-Wide Issues

DOT faces additional Department-wide issues that affect its ability to effectively manage programs and address performance concerns. First, DOT needs to contend with the challenge of making its computer systems ready for the year 2000. As we mentioned earlier in this testimony, this is particularly important for FAA. Moreover, OMB has stated that because of the Department's disappointing progress on the Year 2000 problem, it will not approve any DOT request for information technology investments in the fiscal year 1999 budget unless they are directly related to fixing the Year 2000 problem. Furthermore, throughout this testimony, we have pointed out serious problems with the Department's information resources and database management. These problems will be exacerbated by the Year 2000 problem.

Second, DOT needs to address the issue of unreliable financial management information because of problems with its financial reports, accounting systems, and internal controls. We testified last year that DOT lacks the reliable financial management information needed to ensure that (1) federal funds are properly managed, (2) its performance is measured, and (3) reliable financial reports are prepared. We identified this lack of reliable information as a critical management issue that has pervasive effects, limiting the ability of DOT's program managers and elected officials to make informed decisions.[34] For example, improved cost information is needed for making decisions about financing FAA. In addition, over the

[34]For a transcript of our testimony, see Federal Management: Addressing Management Issues at the Department of Transportation (GAO/T-RCED/AIMD-97-172, May 21, 1997).

years, the ATC modernization project has experienced significant cost overruns due, in part, to inadequate cost-estimating processes and cost-accounting practices.

DOT faces several important challenges to addressing its financial management problems, including (1) correcting the known weaknesses so that it can produce reliable, auditable financial statements; (2) fully implementing new federal accounting standards to meet federal financial reporting requirements; (3) implementing and maintaining financial management systems that comply substantially with federal requirements for financial management systems, applicable federal accounting standards, and the U.S. Government Standard General Ledger at the transaction level; and (4) submitting fully audited financial statements that cover all accounts and associated activities.

DOT has begun addressing some of these issues. For example, FAA hired a contractor in 1996 to study its policies and procedures for processing and recording equipment purchases. The contractor made over 100 recommendations, and FAA is developing a corrective action plan to implement them. In addition, FAA has begun to implement a cost-accounting system, and the first information is expected to be available from that system in October 1998.

Finally, the Government Performance and Results Act of 1993 is intended to address the basic management and performance challenges that have been typical throughout the federal government. If properly implemented, the act could be a useful tool for addressing many of the issues we have identified at DOT. The act requires agencies to develop mission statements, set strategic goals, and measure performance toward those goals so that the Congress can hold the agencies accountable for results rather than activities or processes. The Department's September 1997 strategic plan, covering fiscal years 1998-2002, is a promising first step in that direction.[35] The plan outlines the Department's long-term goals for improving transportation safety, mobility, and economic growth and trade; protecting and enhancing the natural environment affected by transportation; and advancing national security. However, our work has shown that DOT's ability to produce reliable data to measure its progress in achieving its goals is uncertain. We and others have reported widespread problems with DOT's information resources. These problems adversely affect the Department's ability to monitor and evaluate the performance of U.S.

[35]Results Act: Observations on the Department of Transportation's Draft Strategic Plan (GAO/RCED-97-208R, July 30, 1997).

transportation systems as well as identify and set priorities for the investment needs for the infrastructure. The Results Act should provide DOT with an incentive to develop quality data for managing its programs and for congressional oversight.

Mr. Chairman, this completes our testimony. We will be glad to respond to any questions that you or other Members of the Subcommittee may have.