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Resources, Community, and
Economic Development Division

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James L. Sensenbrenner
Chairman, Committee on Science
House of Representatives

Subject: Government Performance and Results Act: Information on FAA's Science Activities in DOT's Performance Report for Fiscal Year 1999, Performance Plan for Fiscal Year 2001, and July 2000 Draft Strategic Plan

Under the Government Performance and Results Act (GPRA) of 1993, the Department of Transportation (DOT) issued its first 5-year strategic plan in 1997. That plan established five strategic goals related to safety, mobility, economic growth and trade, the environment, and national security. Since fiscal year 1999, DOT has also issued annual performance plans that set annual performance goals and are intended to provide a direct link between its long-term strategic goals and day-to-day activities. GPRA further requires annual performance reports to report subsequently on the degree to which those annual goals were met. In March 2000, DOT issued its fiscal year 1999 performance report and fiscal year 2001 performance plan as a single document, to which we refer hereafter as the performance report/plan. In addition, DOT is revising its 5-year strategic plan and has made drafts of that plan available to the Congress and other stakeholders for comment and consultation. The revised plan is due to be issued on September 30, 2000, and would cover fiscal years 2000 through 2005. These documents include information on the Federal Aviation Administration's (FAA) science activities, such as the research and development of landing and navigational aids and research concerning aviation medicine. To facilitate your review of these documents and oversight of these activities, you asked us to provide information on

- how DOT's fiscal year 1999 performance report/fiscal year 2001 performance plan addresses FAA's science activities;
- the extent to which FAA's science activities in the President's fiscal year 2001 budget request are linked to DOT's fiscal year 2001 performance plan; and
- for FAA's science activities, the extent to which DOT's fiscal year 2001 performance plan addresses weaknesses that we identified in previous performance plans.

In addition, you asked us to determine the extent to which DOT's July 17, 2000, draft strategic plan complies with GPRA.

DOT's Performance Report/Plan Includes Goals and Strategies That Address FAA's Science Activities

DOT's performance report/plan addresses FAA's science activities by including information on these activities as explicit goals and as strategies for achieving other goals. However, not all of FAA's science activities are explicitly included as goals or strategies in the document, and as a result, readers may have difficulty identifying these activities.

First, DOT has specific goals for some of FAA's science activities. For example, DOT's fiscal year 2001 performance plan sets goals for the Wide Area Augmentation System (WAAS), which is part of a new aviation navigational system being developed by FAA.[1] To ensure that WAAS has the necessary reliability for use as a precision navigational aid, FAA will establish a panel of satellite navigation experts, termed the WAAS Integrity Performance Panel (WIPP), to identify the changes needed to improve the navigation system's reliability. The performance plan identifies the following goals concerning WAAS: (1) complete the WIPP efforts by December 2000, (2) meet with aviation associations by February 2001 to discuss the results of the WIPP effort, and (3) develop an updated project schedule for WAAS by April 2001.

Since fiscal year 1999, DOT's performance plans have contained a goal related to another one of FAA's science activities—developing aviation security technology—to improve the detection rate for explosives and weapons that may be carried through metal detectors and concealed in carry-on baggage. DOT acknowledged that it did not meet its fiscal year 1999 goal for detecting these dangerous objects carried through metal detectors, but it believed that it had nearly met its goal for improving their detection in carry-on baggage. However, we found flaws in FAA's methodology for computing detection rates and determined that the goal was not met.[2] The fiscal year 2001 performance plan also contains a goal to install 120 explosive-detection systems for screening checked baggage at U.S. airports by September 30, 2000.

Second, DOT's performance report/plan addresses some of FAA's science activities as strategies to achieve broader goals. For example, DOT plans to reduce the rate of fatal aviation accidents for commercial air carriers through, among other things, (1) FAA's research program on aviation medicine, which works to enhance cabin safety, and (2) FAA's research on safety technology, which supports its regulatory program by studying such areas as fire detection equipment and the prevention of engine failures. In addition, the performance report/plan discusses how FAA is coordinating its aviation safety research efforts with the National Aeronautics and Space Administration (NASA) through the development of an FAA/NASA integrated research plan.

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[1]WAAS consists primarily of a network of ground stations that receive, process, and validate data from satellite-based global positioning systems before transmitting these data to pilots.

[2]*Aviation Security: Long-Standing Problems Impair Airport Screeners' Performance* (GAO/RCED-00-75, June 28, 2000).

In addition, DOT includes "research and development management" as part of its corporate management strategies in the performance report/plan. While discussion of these strategies broadly encompasses aspects of FAA's science activities, it does not specifically mention the activities. For example, according to the performance report, in fiscal year 1999, DOT helped develop the "National Transportation Science and Technology Strategy" and related plans. In fiscal year 2001, DOT will update the "DOT Transportation R&D Plan," which addresses FAA issues, among other things, and have the National Research Council conduct an annual peer review of DOT's research and development program. A DOT official agreed that the corporate management strategies section did not specifically mention FAA's science activities, but noted that this section includes references to other, more specific documents, such as the *DOT Transportation R&D Plan*.

Although the report/plan reasonably addresses FAA's science activities, it does not explicitly include all of FAA's science activities as goals or strategies. For example, the science activity to develop the Local Area Augmentation System, which is a navigational aid system, is not mentioned in the performance report/plan.

DOT's Performance Plan Is Linked to Its Budget Request for Fiscal Year 2001

DOT's fiscal year 2001 performance plan links FAA's science activities—and other DOT activities—in its fiscal year 2001 budget request to the five strategic goals contained in DOT's 1997 strategic plan. Appendix II of the performance plan shows how the budget requested for each activity is distributed among these strategic goals. The budget request for DOT includes science activities in three of FAA's budget accounts. These activities and accounts, along with the distribution of dollars by strategic goal, are shown in table 1.

Table 1: FAA's Science Activities and Estimated Obligations, by Strategic Goal, Fiscal Year 2001

Dollars in millions

Account and program activity	Obligations by strategic goal				
	Safety	Mobility	Economic growth and trade	Environment	National security
Operations • research and acquisitions	[a]	$197	[a]	[a]	[a]
Facilities and equipment • engineering, development, test and evaluation	$38	$571	[a]	[a]	[a]
Research, engineering, and development • system development and infrastructure	[a]	$25	[a]	[a]	[a]
• capacity and air traffic management technology	[a]	[b]	[a]	[a]	[a]
• weather	[a]	$28	[a]	[a]	[a]
• aircraft safety technology	$49	[a]	[a]	[a]	
• system security technology	[a]	[a]	[a]	[a]	$49
• human factors and aviation medicine	$25	[a]	[a]	[a]	[a]
• environment and energy	[a]	[a]	[a]	$8	[a]

[a]Does not apply.

[b]Rounds to less than $1 million.

Source: DOT's *1999 Performance Report 2001 Performance Plan.*

DOT's Fiscal Year 2001 Performance Plan Addresses Weaknesses Previously Identified by GAO

For FAA's science activities, DOT's fiscal year 2001 performance plan addresses weaknesses that we observed in previous annual plans. DOT's performance plans for fiscal years 1999 and 2000 did not consistently explain coordination strategies with outside organizations and include annual performance goals and measures for addressing the management challenges facing the Department. The fiscal year 2001 performance plan, however, explains coordination strategies for annual performance goals related to FAA's science activities. For example, to improve access to airports in all types of weather, DOT's performance goal is to increase the number of published global positioning system (GPS) airport approaches. The performance plan explains that the basic enabling technology for precision approaches is the GPS satellite navigation system developed and maintained by the Department of Defense; the map information will be obtained from the National Oceanic and Atmospheric Administration; and the Office of National Geodetic Survey will survey airports to obtain information for locating airport runways and obstacles near the flight paths for approaching them. In addition, the performance plan addresses the management challenges that are relevant to FAA's science activities—air traffic control

modernization and aviation safety and security—by including fiscal year 2001 performance goals for each issue.

DOT's Draft Strategic Plan Complies With GPRA but Could Be Improved

DOT's July 17, 2000, draft strategic plan complies with GPRA's requirements for (1) a mission statement, (2) long-term strategic goals, (3) strategies for achieving the strategic goals, (4) a linkage between DOT's long-term strategic goals and annual performance goals, (5) an identification of those key external factors that could significantly affect the Department's ability to achieve its strategic goals, and (6) a description of program evaluations used in establishing or revising the strategic goals. In addition, the draft plan contains information on cross-cutting functions with other agencies, as suggested by OMB's guidance to agencies on preparing and revising strategic plans.[3] Each of these seven areas had weaknesses that could be improved by more closely following OMB's guidance. However, some of these weaknesses have been addressed in a revised draft dated August 11, 2000.

Mission Statement

GPRA requires that agencies' strategic plans include a comprehensive mission statement that focuses on the agencies' major function and operations. DOT's draft strategic plan does so. DOT's mission is to "serve the United States by ensuring a safe transportation system that furthers our vital national interests and enhances the quality of life of the American people." OMB's guidance states that the mission statement (1) should focus on the agency's core programs and activities and (2) may include a discussion of enabling or authorizing legislation. However, DOT's mission statement does not follow the language in its enabling legislation, which describes its purpose as developing transportation policies and programs that, among other things, "contribute to providing fast, safe, efficient, and convenient transportation at the lowest cost." The mission statement does not mention, for example, efficiency, speed, or cost.

We made a similar observation concerning DOT's 1997 draft strategic plan. In response to our prior observation, DOT revised its September 1997 strategic plan to include language from its enabling legislation. However, that language has been dropped from the fiscal year 2000 draft strategic plan. According to a DOT official, the language was changed to make the mission statement more concise and understandable to readers of the report, including the public and DOT's employees and stakeholders.

Goals and Objectives

GPRA requires an agency's strategic plan to contain long-term strategic goals and objectives for its major functions and operations. DOT's draft strategic plan meets

[3]OMB, *Circular No. A-11, Part 2: Preparation and Submission of Strategic Plans, Annual Performance Plans and Annual Program Performance Reports* (July 2000).

this requirement—it includes six general goals (safety, mobility, economic growth, human and natural environment, national security, and organizational excellence)[4] and a set of outcomes for each goal. OMB's guidance also calls for an agency's strategic goals and objectives to be sufficiently precise to direct and guide staff toward actions that fulfill that agency's mission. In addition, the guidance states that strategic plans should be complete and include all required plan elements. However, DOT's draft plan does not specify which agencies or programs are expected to contribute to achieving each of these six goals. We made the same observation concerning DOT's 1997 draft strategic plan. In response to our prior observation, the Department included a table in its September 1997 strategic plan that listed the agencies and programs that were expected to contribute significantly to each goal. In response to our observation on the July 2000 draft strategic plan, DOT added a reference in the draft plan to the programs listed in its annual performance plan that are expected to contribute to achieving the strategic goals. A DOT official explained that the Department did not want to duplicate material that is in other GPRA reports.

Strategies to Achieve Goals and Objectives

The draft plan meets GPRA's requirement to describe the operational processes, skills, technology, and resources required to meet the plan's goals and objectives. In addition, OMB's guidance suggests that agencies' strategies for achieving strategic goals and objectives include a brief description of the steps being taken to resolve mission-critical management problems. DOT's draft strategic plan includes the management challenges identified by DOT's Inspector General (IG) and the management challenges we identified that coincided with the IG's challenges. DOT's draft strategic plan discusses the management challenges under each of the strategic goals, unlike the 1997 plan, in which the management challenges were discussed in a separate section and appendix. However, the draft strategic plan does not discuss aviation competition—a management challenge we identified but the IG did not. According to a DOT official, the draft strategic plan did not include this issue because we had not updated the list of management challenges since issuing it in 1999. We consider our challenges valid until they are updated, which is expected to occur in 2001.

OMB's guidance further states that agencies should outline the process for communicating goals and objectives throughout the agency and for assigning accountability to managers and staff for achieving objectives. The draft strategic plan does not mention these issues. By comparison, DOT's September 1997 strategic plan included a section that described the steps to disseminate the strategic goals and objectives throughout DOT. In response to our observation on the July draft strategic plan, DOT revised the draft plan to include this information.

[4]The first five goals were also contained in DOT's 1997 strategic plan; the sixth goal—organizational excellence—is new in the 2000 draft strategic plan.

Relationships Between Long-term Strategic Goals and Annual Performance Goals

GPRA requires that strategic plans describe the relationship between the strategic goals and objectives in the strategic plan and the performance goals and indicators in the annual performance plan. The draft plan accomplishes this by including a table for each strategic goal that lists the outcomes and performance measures that are candidates for the performance plan but not the final selections. For example, one outcome of DOT's national security goal is to reduce the flow of migrants illegally entering the United States. A candidate performance measure for that outcome is the rate at which undocumented migrants succeed in entering the United States over maritime routes.

However, the draft plan does follow OMB's guidance to outline consistently the relevance and use of annual performance goals in helping to determine the achievement of certain strategic goals and objectives. The plan does not (1) consistently include candidate performance measures that are clearly relevant to the outcomes and are sufficient to measure the progress in achieving the outcomes or (2) explain how the measures and outcomes are related. For example, DOT expects to know whether it has achieved its mobility outcome to increase access to transportation systems for the individual user by using two candidate performance measures—the percentage of key transit rail stations that are compliant with the Americans with Disability Act (ADA) and the percentage of bus fleets that are ADA-compliant. The draft plan provides no candidate measures that gauge the accessibility of other transportation modes for all travelers. As another example, the draft plan indicates that one outcome for its economic growth goal is to ensure that the Producer Price Index (PPI) for transportation services grows less rapidly than the overall PPI through the year 2005. Two candidate measures clearly gauge this outcome—the percentage increase in the PPI for transportation services and the percentage increase in the overall PPI. Other candidate measures do not seem relevant on a national scale: the miles of Appalachian Development Highway System completed, the percentage of flights that are not subject to air traffic control-preferred routes,[5] and the number of days that critical waterways are closed due to ice.[6] According to a DOT official, the draft strategic plan represents a work in progress, and DOT will continue to develop and improve performance measures for its fiscal year 2002 performance plan and later plans.

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[5]DOT has published air traffic control (ATC)-preferred routes for many of the nation's most heavily traveled air routes to aid air traffic controllers and ensure accuracy in navigation. These routes can differ significantly from the routes that pilots or flight planners would normally propose between two cities. The aim of not assigning ATC-preferred routes is to give increased flexibility to aircraft, which may translate into improved scheduling efficiency and reduced flight miles.

[6]DOT's *1999 Performance Report 2001 Performance Plan* explains that the measure for flight route flexibility has the potential to improve the efficiency of aircraft operations in certain situations and that the closure of waterways during the winter increases transportation costs substantially and potentially overloads other transportation systems. Such explanations help show the relevance of the performance measures to the outcomes.

Key External Factors

GPRA requires strategic plans to identify those key external factors beyond an agency's control that could significantly affect the achievement of its long-term strategic goals. The draft plan meets this requirement by listing the applicable external factors for each strategic goal, but it does not mention DOT's activities to mitigate these factors. Such information was included in the September 1997 strategic plan, and we believed that it was useful. However, OMB's guidance instructs agencies not to include information on mitigating factors in their revised plans and suggests that an agency may need to prepare an updated strategic plan if an external factor begins to significantly affect its achievement of a goal.

OMB's guidance suggests that key external factors that could affect the achievement of goals could include actions by the Congress. DOT's draft plan did not indicate any pending legislation that could affect the achievement of its goals; yet several major programs could be reauthorized during the period covered by the plan. For instance, the Transportation Equity Act for the 21st Century is scheduled to be reauthorized in 2004, and the Federal Railroad Safety Authorization Act, which expired in 1998, could be reauthorized during the period covered by the strategic plan. By comparison, DOT's September 1997 strategic plan listed legislation needed to support its goals. In response to our observation on the July 2000 draft plan, DOT added information on statutory reauthorizations that could occur during the period covered by the strategic plan.

Program Evaluations

GPRA calls for "a description of the program evaluations used in establishing or revising general goals and objectives, with a schedule for future program evaluations." OMB's guidance suggests that completed program evaluations that were used in preparing an updated strategic plan should be briefly described and the effect of these evaluations on defining the strategic goals and objectives in the strategic plan should be highlighted. DOT's draft plan describes the findings from completed evaluations and lists the scheduled evaluations for each strategic goal. The draft plan also explains the relationship of the completed evaluations to specific strategies and outcomes for achieving the strategic goals. For example, the draft plan describes an evaluation of the Coast Guard's method for allocating boats used in fisheries law enforcement. The Coast Guard expects to reallocate its boats as a result of the study. The draft plan explains that this evaluation was considered in developing DOT's strategy to ensure the readiness, availability, and coordination of resources to respond to incidents of environmental degradation. A DOT official said that focusing discussion of the performance evaluations at the strategy and program level is appropriate because individual performance evaluations are unlikely to affect the definition of Department-wide goals and objectives.

Cross-cutting Functions

OMB guidance states that the "strategic plans of agencies participating in a cross-cutting program should each describe the interface between their related programs,

and outline how individual agency efforts synergistically support common endeavors." As noted earlier, OMB's guidance also states that strategic plans should be complete and include all required plan elements. For each strategic goal, DOT's draft plan includes a section on cross-cutting programs that lists their subgoals and the agencies involved. In particular, the draft plan includes this information for several science programs, such as aviation safety research. However, the draft plan does not describe the relationships among the programs nor each agency's specific contribution toward the goal. For example, under the safety goal, the draft plan identifies a subgoal to reduce recreational boating fatalities by promoting safe boating practices. In addition, the draft plan lists the agencies involved in accomplishing this goal: DOT's U.S. Coast Guard, the U.S. Army Corps of Engineers, the National Park Service, The Boat U.S. Foundation, the National Safe Boating Council, and the National Association of State Boating Law Administrators. No further details are provided. By comparison, DOT's *1999 Performance Report 2001 Performance Plan* indicates for the same goal that the U.S. Army Corps of Engineers and the National Park Service manage many recreational lakes that are used by boaters and the Coast Guard works with states and local governments and safety organizations such as The Boat U.S. Foundation and the U.S. Power Squadrons to provide boating education and training programs. However, a DOT official explained that to keep the strategic plan concise, the Department has not duplicated material that is in the annual performance plans.

Objectives, Scope, and Methodology

Our objectives were to provide information on (1) how DOT's fiscal year 1999 performance report/fiscal year 2001 performance plan addresses FAA's science activities; (2) the extent to which FAA's science activities in the President's fiscal year 2001 budget request are linked to DOT's fiscal year 2001 performance plan; (3) for FAA's science activities, the extent to which DOT's fiscal year 2001 performance plan addresses weaknesses that we identified in previous performance plans; and (4) the extent to which DOT's July 17, 2000, draft strategic plan complies with GPRA. To address the first three objectives, we reviewed DOT's *1999 Performance Report 2001 Performance Plan* with respect to FAA's science activities. We defined FAA's science activities as those that were included in the following three FAA budget accounts:

- engineering, development, test and evaluation activities, such as landing and navigational aid programs and free flight,[7] which are included in FAA's facilities and equipment account;
- research and acquisitions activities, such as executive oversight and policy direction for research acquisitions activities, which are included in FAA's operations account; and

[7]"Free flight" is an new system of air traffic management that moves from the present highly structured rules and procedures for air traffic operations to a more flexible system, in which decisions for conducting flight operations will be based on collaboration between FAA and pilots.

- FAA's entire account for research, engineering, and development, which includes activities such as human factors and aviation medicine, system security technology, and weather research.

To address the first objective, we identified examples of FAA's science activities that were mentioned and those that were not mentioned in DOT's performance report/plan. To address the second objective, we compared DOT's fiscal year 2001 performance plan to the President's fiscal year 2001 budget request for DOT. To address the third objective, we compared DOT's fiscal year 2001 performance plan to our observations on the Department's previous performance plans.[8] To address the fourth objective, we reviewed GPRA and OMB's guidance on developing strategic plans. We also interviewed an official in DOT's Office of Policy, which prepares the strategic plan. In addition, we relied on our knowledge of DOT's September 1997 strategic plan and its development.[9] It is important to recognize that the final strategic plan is not due to the Congress until September 30, 2000. Thus, our findings reflect a "snapshot" of DOT's draft strategic plan at this time. We recognize that developing a strategic plan is a dynamic process and that DOT is continuing to revise this plan. We conducted our review from July through August 2000 in accordance with generally accepted government auditing standards.

Agency Comments

We provided a draft of this report to the Department of Transportation for review and comment. We met with Department officials, including the Special Assistant to the Deputy Secretary, who agreed with the information presented in this report. They provided technical clarifications, which we incorporated into the report as appropriate.

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[8]*Results Act: Observations on the Department of Transportation's Annual Performance Plan for Fiscal Year 1999* (GAO/RCED-98-180R, May 12, 1998) and *Results Act: Observations on the Department of Transportation's Fiscal Year 2000 Performance Plan* (GAO/RCED-99-153, May 7, 1999).

[9]We assessed the draft strategic plan that DOT provided to the Congress for consultation on July 2, 1997, and reported our findings in *Results Act: Observations on the Department of Transportation's Draft Strategic Plan* (GAO/RCED-97-208R, July 30, 1997). We also assessed DOT's final strategic plan that was submitted to OMB and the Congress on September 30, 1997 (see *Managing for Results: Agencies' Annual Performance Plans Can Help Address Strategic Planning Challenges* (GAO/GGD-98-44, Jan. 30, 1998).

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As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this report. At that time, we will send copies of this report to the Honorable Rodney E. Slater, Secretary of Transportation, and will make copies available to others on request.
If you or your staff have any questions about this report, please call me at (202) 512-2834. Key contributors to this report were Katherine Siggerud and Teresa Spisak.

Sincerely yours,

Phyllis F. Scheinberg
Associate Director, Transportation
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