

June 2005

AIR TRAFFIC OPERATIONS

The Federal Aviation Administration Needs to Address Major Air Traffic Operating Cost Control Challenges



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Highlights of [GAO-05-724](#), a report to congressional requesters

AIR TRAFFIC OPERATIONS

The Federal Aviation Administration Needs to Address Major Air Traffic Operating Cost Control Challenges

Why GAO Did This Study

Dating back to 1997, numerous reports have highlighted the need for the Federal Aviation Administration (FAA) to better control the growth in its Air Traffic Services operating costs, which account for about \$6.5 billion or over 80 percent of FAA's total annual operating costs. In February 2004, FAA established the Air Traffic Organization (ATO) to take over its entire Air Traffic operations and established cost control as a major focus. GAO was asked to determine: (1) What is ATO's financial outlook for its operations? (2) To what extent is ATO taking actions to control its operating costs? (3) What are some options ATO should consider in developing its cost control strategy?

What GAO Recommends

GAO recommends that the FAA and ATO develop a cost control and savings strategy based on rigorous cost benefit analyses. Such analyses should determine the optimal structure for providing ATO services to different user groups while ensuring against adverse impacts on safety. Results of these analyses should be documented in a publicly available business plan that the ATO and its key stakeholders can use to build a sound business case for making the difficult but unavoidable structural changes needed to streamline its operations. FAA and ATO officials agreed to consider our recommendation and said they are currently preparing such analyses.

www.gao.gov/cgi-bin/getrpt?GAO-05-724.

To view the full product, including the scope and methodology, click on the link above. For more information, contact JayEtta Z. Hecker at (202) 512-2834 or heckerj@gao.gov.

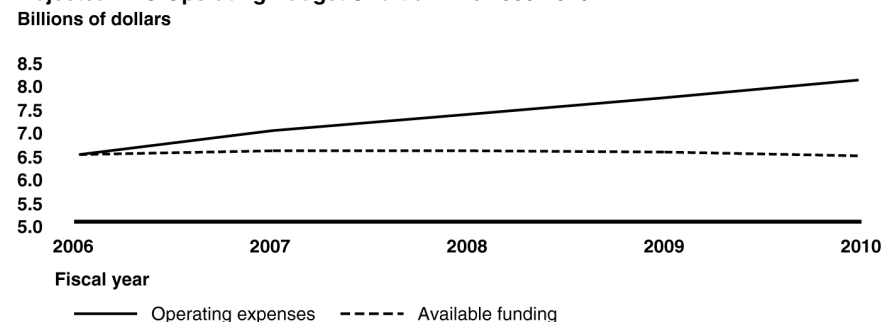
What GAO Found

Unless revenue projections improve significantly or ATO implements significant cost reduction and control measures, the projected financial outlook for its operations is bleak. Air Traffic Services operating expenses experienced real growth of \$1.8 billion (43 percent) between fiscal years 1996 and 2004, and ATO expects its operating expenses to significantly outpace available funding through fiscal year 2010. As a result, it projects a cumulative operating budget deficit of nearly \$4 billion. Further, the historical growth in operating expenses has contributed to an increasing reliance on the Airport and Airways Trust Fund to cover operating costs, and the Trust Fund's balance is expected to fall to \$1.2 billion by the end of fiscal year 2006.

FAA and ATO are currently implementing cost control and savings initiatives that address about 12 percent of ATO's projected 5-year, \$4 billion operating budget shortfall. These initiatives range from instituting sound business practices, such as improved budgeting and cost management, to structural changes, such as contracting out operation of part of the air traffic control system. ATO has been working on a 5-year business outlook to identify alternatives for closing the funding shortfall, but the plan has been delayed and its issuance date is uncertain.

In order to enhance its current cost control efforts, ATO will need to consider long-standing, cost-saving recommendations including consolidating facilities for greater efficiencies, replacing outdated costly equipment, and investing in new technology to enhance workforce productivity. However, implementing these options will be challenging because doing so will require that ATO produce a sound business case for its actions, backed by organizational and political support for actions needed to control costs. Furthermore, ATO needs to balance its financial objectives against another goal—implementing new automation concepts in air traffic control in order to keep up with substantial traffic growth over the next 20 years.

Projected ATO Operating Budget Shortfall FYs 2006-2010



Source: ATO.

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Abbreviations

ADS-B	Automatic Dependent Surveillance-Broadcast
ATO	Air Traffic Organization
CPDLC	Controller/Pilot Data Link Communications
EXCDS	Extended Computer Display System
FAA	Federal Aviation Administration
JPDO	Joint Planning and Development Office
MAC	Management Advisory Council
NATCA	National Air Traffic Controllers Association
NCARC	National Civil Aviation Review Commission
OMB	Office of Management and Budget
TRACON	Terminal Radar Approach Control
URET	User Request Evaluation Tool

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United States Government Accountability Office
Washington, D.C. 20548

June 23, 2005

The Honorable Ted Stevens
Chairman
The Honorable Daniel Inouye
Co-Chairman
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Conrad Burns
Chairman
The Honorable John D. Rockefeller IV
Ranking Minority Member
Subcommittee on Aviation
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable John McCain
United States Senate

Dating back to 1997, numerous reports have highlighted the need for the Federal Aviation Administration (FAA) to better control the growth in its operating costs. A focus of many of these reports has been on controlling the costs of FAA's Air Traffic Services operations, which account for about \$6.5 billion or over 80 percent of FAA's total annual operating costs. Since the issuance of the initial reports, the aviation industry has experienced a severe economic downturn, and aviation tax receipts into the Airport and Airways Trust Fund (the Trust Fund) fell nearly 20 percent between 1999 and 2003. Because the Trust Fund is the source of most of FAA's funding, and due to the overall condition of the federal budget, FAA faces an increasingly constrained pool of available funding, which further emphasizes the need to control its operating costs. Recognizing this challenge, in February 2004, FAA established the Air Traffic Organization (ATO) to take over its entire Air Traffic operations¹ and established cost control as a major focus. The committee asked us to review actions FAA is

¹In April 2000, Public Law 106-181, known as Air-21, authorized a Chief Operating Officer for FAA who would be responsible for, among other things, overseeing day-to-day air traffic control operations, modernizing the air traffic control system, increasing productivity, and implementing cost-saving measures. The following December Executive Order 13180 authorized establishment of the Air Traffic Organization, headed by this Chief Operating Officer.

taking to control its operating costs and identify other measures FAA should consider to further control or reduce its operating costs. We focused on three research questions: (1) What is ATO's financial outlook for its operations? (2) To what extent is ATO taking actions to control its operating costs? (3) What are some options the ATO should consider in developing its cost control strategy?

To answer these questions, we obtained and reviewed historical operating cost data available for fiscal years 1996 through fiscal year 2004 and ATO's projected operating cost and revenue information from fiscal years 2006 through 2010. We also interviewed ATO and FAA finance and program officials to identify a current list of initiatives that ATO and FAA are pursuing and the expected financial benefits of these measures to control operating costs. We further obtained and analyzed supporting documentation, if available, to assess the extent to which ATO and FAA could justify their savings estimates. We identified additional options for cost control that ATO will need to consider and obtained experts' opinions on the feasibility and prospects of these measures to achieve cost savings. These experts included numerous aviation stakeholders—government researchers, industry consultants and analysts, aviation system users, union officials, and officials from foreign air navigation service providers. Several times during the course of our review ATO senior managers stated that they would shortly be issuing a 5-year business outlook for improving its financial performance and for achieving cost savings. The plan was initially scheduled for release in October 2004 but has been delayed numerous times. ATO has still not published this plan. For more information on our scope and methodology and the steps we took to ensure data reliability, see appendix II. We conducted our work from August 2004 through May 2005 in accordance with generally accepted government auditing standards.

On April 13, 2005, we briefed your committee staff on the results of this work. This report summarizes the information presented in that briefing. Appendix I contains the finalized slides from that briefing.

Results in Brief

Unless ATO implements significant cost reduction and control measures or projections of available revenues greatly improve, the projected financial outlook for its operations is bleak. ATO faces the prospects of significant operating budget shortfalls and further declines in the uncommitted balance of the Trust Fund. During the period fiscal years 1996 through 2004, Air Traffic Services operating expenses experienced real growth of \$1.8

billion, or 43 percent.² ATO expects its operating expenses to continue to grow through fiscal year 2010. It also projects that expenses will significantly outpace available funding during the period, resulting in a cumulative operating budget deficit of nearly \$4 billion. Further, the historical growth in operating expenses has contributed to an increasing reliance on the Trust Fund to cover operating costs, and the Trust Fund's balance is expected to fall to \$1.2 billion by the end of fiscal year 2006.

FAA and ATO are currently implementing cost control and savings initiatives that address about 12 percent of ATO's projected 5-year, \$4 billion operating budget shortfall. These initiatives range from instituting sound business practices, such as improved budgeting and cost management, to structural changes, such as contracting out operation of part of the air traffic control system. On the basis of FAA and ATO financial estimates, we determined that together, these initiatives could save about \$450 million through fiscal year 2010, which is far short of the amount needed to substantially close the ATO operations funding gap. ATO has been working on a 5-year business outlook to further address the funding shortfall, but the plan has been delayed and its issuance date is uncertain.

In order to enhance its current cost control efforts, ATO will need to consider a range of long-standing recommendations that offer potentially significant cost reductions and consider initiatives to increase productivity. These options include consolidating facilities for greater efficiencies, replacing outdated costly equipment, and investing in new technology to enhance workforce productivity. However, implementing these options will be challenging because doing so will require that ATO produce a sound business case for its actions, backed by organizational and political support for actions needed to control costs. Furthermore, ATO needs to balance its financial objectives against another goal—implementing new automation concepts in air traffic control in order to keep up with substantial traffic growth over the next 20 years.

We are recommending that the Secretary of Transportation direct the Administrator, Federal Aviation Administration, to develop a comprehensive, strategic long-term cost control and savings strategy. In doing so, ATO should complete rigorous cost benefit analyses to determine the optimal structure for providing its services to different user groups while ensuring against demonstrable adverse impacts on aviation safety. In

²This growth rate reflects growth after the effects of inflation are removed.

commenting on a draft of this report, the Federal Aviation Administration agreed to consider our recommendation and stated that it is currently developing a business outlook to identify and implement both immediate and future cost saving initiatives.

Background

FAA is responsible for managing the national airspace system and ensuring the safe and efficient movement of air traffic. To help accomplish this mission, FAA utilizes thousands of employees such as air traffic controllers and maintenance technicians at various air traffic control facilities around the country. To fund these positions, FAA receives an annual Operations appropriation that covers expenses such as the salaries and benefits of these employees and the administrative and support costs of providing air traffic control services. The Operations appropriation is primarily derived from both the General Fund and receipts into the Airport and Airways Trust Fund. Dating back to 1997, numerous reports have highlighted the need for the FAA to better control the growth in its operating costs.

Prior to creation of ATO, FAA's Air Traffic Services organization managed air traffic operations. Air Traffic Services included about 38,000 employees, such as air traffic controllers and facilities maintenance technicians, within FAA's Air Traffic and Airways Facilities organizations. To improve the provision of air traffic services, in 2000, the Administration issued an executive order that called for a performance-based air traffic organization, and Congress passed legislation that established an oversight body and a chief operating officer. FAA hired a Chief Operating Officer in 2003 and in February 2004, formed the ATO, merging its former Air Traffic Services and Acquisitions³ offices to manage FAA's air traffic control investments and operations. Congress also directed the Secretary of Transportation to establish the multiagency Joint Planning and Development Office (JPDO) to manage work related to a "next generation" air transportation system to meet air traffic demands by 2025.⁴

³These included FAA's Office of Research and Acquisitions and Free Flight Program Office.

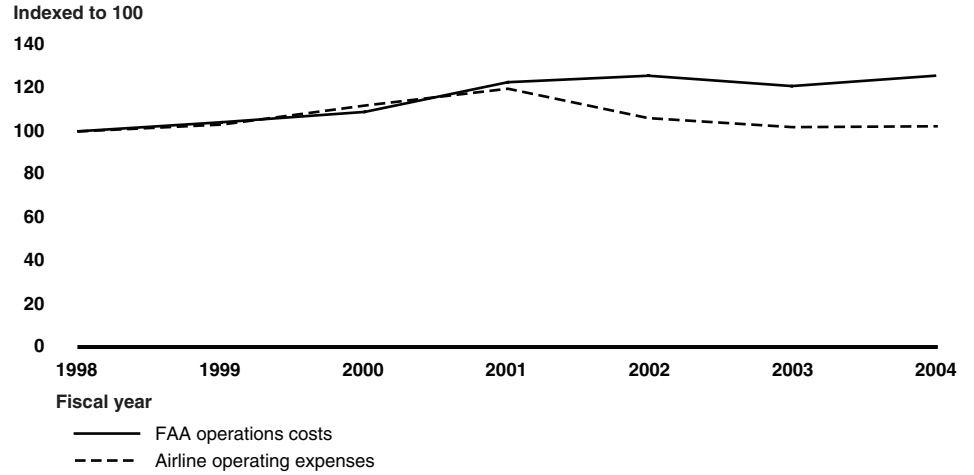
⁴Vision 100—The Century of Aviation Reauthorization Act, P.L. 108-176, sec. 709. The JPDO is to operate in conjunction with relevant programs in the Department of Defense, National Aeronautics and Space Administration, and the Departments of Commerce and Homeland Security.

The Financial Outlook for ATO's Operations Is Bleak

Historical and projected growth in operating costs, combined with constrained operating revenues, create a bleak financial outlook for ATO's operations. ATO inherited an organization with a history of significant growth in operating costs. Between fiscal years 1996 and 2004, Air Traffic Services' operating costs grew by nearly \$1.8 billion in real terms, from just under \$4.2 to just over \$5.9 billion, or 43 percent. Most of this growth was due to increases in the costs of personnel compensation and benefits. These costs, which accounted for nearly 80 percent of the Air Traffic Services' operating costs, grew by \$1.4 billion, or 43 percent in real terms. According to ATO finance officials, a significant factor underlying this growth was a pay raise provided under a collective bargaining agreement signed between FAA and the National Air Traffic Controllers Association (NATCA) in September 1998. Under the agreement, FAA agreed to \$200 million in annual pay raises, to be phased in during the period fiscal years 1999-2001. Data from ATO finance officials also indicated that congressionally approved mandatory pay raises, and increasing benefit costs such as health care and thrift savings plan contributions, accounted for much of the remaining increases in personnel costs. In addition to personnel compensation and benefits cost increases, the remaining \$380 million in real cost increases was primarily due to growth in contract services costs. Costs associated with these contracts—which covered such items as costs for implementing new technologies and systems—grew by about 115 percent over the period. By comparison, when U.S. airlines began confronting the difficult financial times since 2001, the large legacy and low cost airlines cut their operating expenses by over \$13 billion (in constant 2000 dollars).⁵ FAA noted, however, that when legacy airlines shifted some operations to regional affiliates to save costs, FAA's workload increased. Figure 1 compares the diverging trends in operating costs between the large U.S. commercial airlines and the FAA.

⁵The airlines included are those analyzed in GAO's recent reports on the financial condition of the U.S. commercial airline industry. The legacy airlines are American, Alaska, Continental, Delta, Northwest, United, and US Airways. The low-cost airlines are AirTran, America West, ATA, Frontier, JetBlue, Southwest, and Spirit. For more information on the operating cost control efforts undertaken by those airlines, see GAO, *Commercial Aviation: Legacy Airlines Must Further Reduce Costs to Restore Profitability*, [GAO-04-836](#) (Washington, D.C.: Aug. 11, 2004).

Figure 1: Changes in Airline Operating Expenses Compared to Changes in FAA Operating Costs, 1998–2004 (constant 2000 dollars, indexed to 100)



Source: GAO analysis of data from BACK Aviation Solutions and FAA.

With respect to future costs, according to ATO’s estimates, its operating costs are expected to continue to increase significantly through fiscal year 2010, and they are expected to greatly exceed available revenues during the period.⁶ Table 1 shows ATO’s operating expense and revenue forecasts for fiscal years 2006 through 2010.

⁶These are base estimates for ATO’s expenses and revenues, and do not include any adjustments for potential cost savings or cost increases from planned initiatives.

Table 1: ATO Operating Expense and Revenue Forecasts, Fiscal Years 2006 through 2010

Dollars in thousands						
Operations	2006	2007	2008	2009	2010	Growth
Expenses	\$6,566,305	\$7,078,901	\$7,434,061	\$7,787,647	\$8,181,686	24.6%
Revenues	6,566,305	6,647,286	6,657,232	6,640,655	6,538,707	-0.4%
Potential shortfall	0	431,615	776,829	1,146,992	1,642,979	
Cumulative shortfall	0	431,615	1,208,444	2,355,436	3,998,415	

Source: ATO.

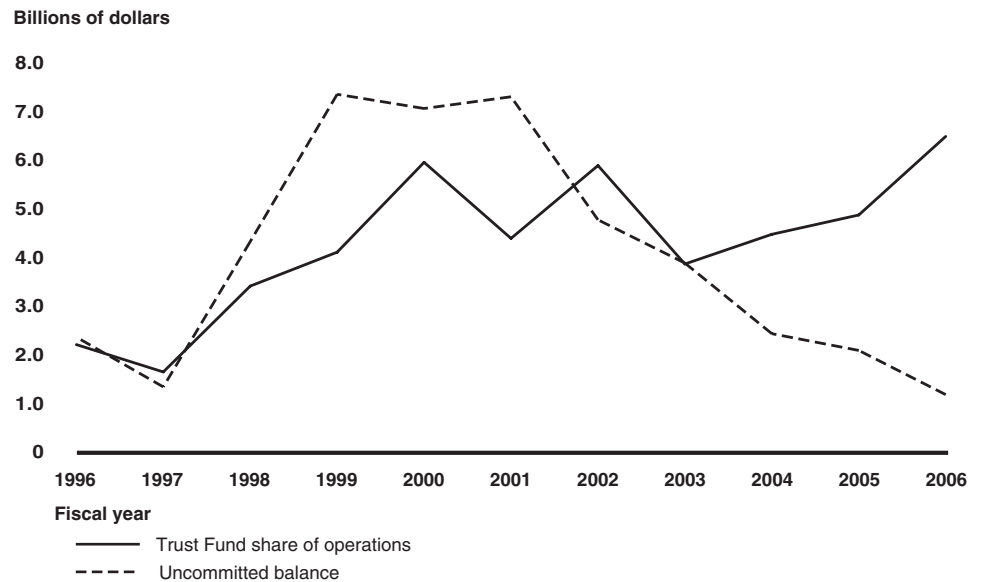
According to the forecast, if left unchecked, operating expenses are expected to grow about 25 percent over this period. In addition, available operating revenues are expected to decrease slightly over the period, and expenses are projected to exceed revenues during each of the final 4 fiscal years.⁷ Therefore, ATO projects a cumulative operating budget deficit of about \$4.0 billion.⁸ Two key assumptions underlying these estimates are that ATO staffing remains essentially constant and that available revenues are based on limits imposed by the Office of Management and Budget (OMB). In December 2004, ATO released its 10-year controller workforce staffing plan. In that plan, ATO estimated it would experience a net increase of over 1,200 controllers through fiscal year 2010, expanding the current controller workforce by over 8 percent to meet projected system growth needs and ensure that a sufficient number of trained controllers are available to accommodate forecasted retirements. This base budget forecast does not account for the operating costs associated with hiring and training these new controllers. In terms of the revenue forecasts, assumptions regarding OMB out-year targets are not necessarily binding, because Congress can choose to appropriate higher levels to meet ATO's operational requirements. Nevertheless, this forecast highlights the significant operations budget challenges that lie ahead for ATO.

⁷Available revenues under the forecast are based on OMB funding targets. According to ATO officials, they were determined by taking the fiscal year 2006 President's proposed budget for ATO operations and multiplying by OMB growth factors for fiscal years 2007 through 2010.

⁸Over the course of our review, ATO's budget deficit forecast changed substantially. Based on an April 2004 budget forecast, the cumulative deficit was estimated to be \$5.2 billion.

In addition to the operating budget challenges, growth in operating expenses, combined with reduced airline ticket tax revenues, has contributed to a precipitous decline in the uncommitted balance of the Trust Fund. Figure 2 shows the amount of operating expenses funded by the Trust Fund and its uncommitted balance for fiscal years 1996 through 2006.

Figure 2: Share of Operating Expenses and Uncommitted Balance, Airport and Airways Trust Fund, Fiscal Years 1996 through 2006



Source: GAO analysis of FAA data.

Note: Amounts for fiscal years 2005 and 2006 are estimates.

As the figure shows, the amount of operating costs covered by the Trust Fund has increased significantly over the period. In fiscal year 1996, the Trust Fund covered \$2.2 billion in operating expenses, and this amount is projected to reach \$6.5 billion for fiscal year 2006. At the same time, the uncommitted balance of the Trust Fund has declined every year since fiscal year 2001, and FAA projects it to fall to \$1.2 billion by the end of fiscal year 2006. As we recently reported, beyond fiscal year 2006 there is considerable

uncertainty regarding the status of the Trust Fund.⁹ For example, we found that over the next 3 years the Trust Fund is projected to have a positive uncommitted balance. However, we also found that this financial outlook depends on key revenue assumptions; if revenue estimates are 10 percent lower than projected, the balance could reach zero in fiscal year 2006. Stakeholders also had varying views on the financial outlook of the Trust Fund. Some project a rebound in air traffic and increased revenues to the Trust Fund; others forecast continued pressure on the airlines and on average ticket prices in particular. Lower average ticket prices generally constrain tax receipts to the trust fund because the main source of revenue to the Trust Fund is a 7.5 percent tax on each ticket.

FAA and ATO Cost-Saving Initiatives Will Address Only a Small Portion of ATO's Funding Gap

FAA and ATO finance officials are currently implementing several cost control and savings initiatives and have identified potential operating cost savings. These savings amount to just over \$450 million and will not substantially close ATO's cumulative \$4.0 billion operations funding gap. These initiatives range from instituting sound business practices, such as improved budgeting and cost management, to structural changes, such as contracting out many of its automated flight service stations.¹⁰ (App. III contains a description for each of these initiatives.) For example, FAA finance officials are implementing initiatives that could produce savings of approximately \$119 million through fiscal year 2010. While these initiatives would benefit FAA as a whole, a large share of the benefits would necessarily help ATO, FAA's largest component. Therefore, for purposes of this analysis, we assume all these savings could be used to offset ATO's funding shortfall. Quantifiable 5-year FAA savings include consolidating the number of accounting offices from 9 to 1 (\$8 million); improving procurement for office supplies, office equipment, mail, printing, and information technology hardware and software (\$58 million); and improving cell phone contracting (\$53 million).¹¹ In addition, FAA has been upgrading its cost accounting system, which will help ATO facility managers to monitor costs on a monthly basis by fiscal year 2006.

⁹GAO, *Airport and Airway Trust Fund: Preliminary Observations on Past, Present, and Future*, [GAO-05-657T](#) (Washington, D.C.: May 4, 2005).

¹⁰The primary role of an automated flight service station is to provide weather briefing and flight planning services to pilots. On February 1, 2005, FAA announced the award of a 10-year contract to Lockheed Martin to take over the operation of 58 of these facilities.

¹¹Estimates from FAA.

ATO is also implementing several initiatives to reduce operating costs and has identified \$333 million in estimated operating cost savings that could be realized through fiscal year 2010. Some initiatives, such as contracting out many of its automated flight service stations, are specifically designed to reduce the overall operating costs of providing ATO's services. Many other initiatives, such as driving budget accountability down to field facilities (bottoms-up budgeting), controlling unit cost of services, and upgrading labor tracking, may eventually help ATO control costs through more business-like management of operations. Currently, ATO officials have been unable to identify the amount and timing of savings from these initiatives. Furthermore, ATO expects the major savings associated with some of these initiatives to be realized only after fiscal year 2010. For example, ATO projects that 80 percent of the estimated \$1.2 billion in total operating cost savings from contracting out flight service operation will not benefit ATO until fiscal year 2011 or later. In addition, ATO expects almost all of the \$790.5 million in savings from a telecommunications upgrade will benefit budgets after fiscal year 2010. Table 2 lists specific ATO initiatives and estimated operating cost savings that could be realized by fiscal year 2010.

Table 2: ATO's Current Operating Cost Saving Initiatives

Initiative	Estimated costs saved through fiscal year 2010
Contract out flight service operations	\$241 million
Telecommunications upgrade	(None until after 2010)
Better sick leave management	\$59 million *
Cut night shift operations at selected towers	\$34 million *
Bottoms-up budgeting	N/A
Control unit cost of services	N/A
Revise air traffic control facility staffing standards	N/A
Activity value analysis of headquarters offices	N/A
Labor tracking system upgrade	N/A
Downgrade selected towers	N/A
Use part-time controllers	N/A

* = GAO estimates; ATO believes they may be high.

Source: GAO analysis of FAA and ATO data.

Notes: N/A = not available or unknown.

The combined FAA and ATO cost saving initiatives discussed above are insufficient to address ATO's 5-year funding gap. Identified savings of about \$450 million could offset about 11 percent of the \$4.0 billion budget shortfall. These initiatives are ATO's first steps toward future cost savings, and ATO officials stated that they are preparing a 5-year business outlook to identify alternatives to close the projected funding gap. However, the plan has been delayed over 6 months while ATO has worked to attain consensus on major cost-cutting initiatives, and its issuance date is uncertain.

ATO Will Need to Consider a Wider Range of Options in Developing Its Cost Control Strategy

Our review of prior studies and our discussions with aviation industry stakeholders identified several cost control options for ATO to consider. These included addressing long-standing structural issues as well as making technology investments in order to enhance productivity. Two 1997 studies recommended cost-cutting measures that FAA could take to address anticipated funding shortfalls. One study was an independent financial assessment¹² of FAA by Coopers & Lybrand. The other was a report¹³ by the National Civil Aviation Review Commission (NCARC). Both studies recommended actions that FAA could take to save hundreds of millions of dollars annually and improve its financial condition. FAA has acted on some recommendations included in those reports, but not on others. Among the recommendations acted on, FAA discontinued support for the long-range radar system, thereby saving \$50 million per year; created a logistics center franchise fund, thereby saving \$20 million per year; and contracted out flight service station operations, as discussed before.

Other cost-saving recommendations from the 1997 studies are still open for ATO to consider. We agree with current stakeholders who say these recommendations should be included in ATO's cost control strategy, although ATO will have to overcome organizational barriers and receive strong political support in order to implement them. Four frequently cited cost control strategies are described below.

¹²Coopers & Lybrand, L.L.P., *Federal Aviation Administration Independent Financial Assessment* (Feb. 28, 1997).

¹³National Civil Aviation Review Commission, *Avoiding Aviation Gridlock and Reducing the Accident Rate* (December 1997).

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- **Consolidate major air traffic control facilities.** ATO maintains 21 air traffic control centers, employing about 6,700 controllers, to serve high-altitude air traffic nationwide. These centers are housed in aging structures that require substantial maintenance. The 1997 Coopers & Lybrand report concluded that the number of these centers could be reduced without a negative impact on air safety. Further, the study found that in light of maintenance and repair requirements, consolidation appears economically justifiable, but that such an initiative was considered unfeasible without strong political support for cost control. It further found that with increasing budget pressure and resource constraints, FAA would be forced to reduce costs and should build a business case to consolidate centers. In our discussions with stakeholders, several commented that the services performed by center air traffic controllers could be provided by controllers at a smaller number of facilities—some experts estimate that six or fewer facilities could be sufficient. Foreign air navigation service providers have achieved significant operational savings by consolidating such centers. For example, in the United Kingdom, the National Air Traffic Services saved the equivalent of nearly \$40 million over 2 years by consolidating two operations into one at a new air navigation services center. ATO officials said they have no plans to consolidate centers because the concept would require strong political support that is not yet evident and they have no current financial estimate of potential savings.

In addition, FAA's Management Advisory Council (MAC)¹⁴ recently recommended that FAA develop a plan for reducing the number of Terminal Radar Approach Control (TRACON)¹⁵ facilities from their current level of 150 aging and inefficient facilities to around 50 to 60 newer, upgraded facilities. The MAC concluded that service provided by the current facilities could be provided far more economically through fewer facilities with the use of more capable and efficient automation.

¹⁴In 1996, Congress authorized the Administrator of the FAA to establish the MAC. The MAC reviews, comments and makes recommendations on FAA management, policy, spending, funding, and regulatory matters affecting the aviation industry. On May 12, 2005, the MAC issued a report that included suggestions for reducing FAA's costs.

¹⁵Controllers working at TRACONS use radar screens to track planes and manage the arrival and departure of aircraft within a 5- to 50-nautical mile radius of airports.

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- **Consolidate regional offices.** FAA maintains nine regional offices, although both 1997 reports said FAA could achieve savings from consolidating regional offices, which would eliminate duplication and make the consolidated offices more efficient. Both reports said that FAA had studied the issue numerous times but had never acted on the results of its own studies. According to the NCARC report, consolidating nine FAA regional offices into three could save \$400 million over a 5-year period. Several stakeholders told us this is an issue that FAA should pursue. In Canada, the air traffic control provider closed most of its regional administrative offices and centralized corporate functions to its headquarters, reducing mostly administrative staff by 1,100 (17 percent of the workforce).
 - **Decommission legacy infrastructure.** ATO maintains thousands of navigational aids to help guide aircraft to their destinations. According to the 1997 NCARC and Coopers & Lybrand reports, decommissioning these navigational aids could result in significant annual savings—\$150 million per year, according to the NCARC report. The reports both concluded that FAA should expedite the decommissioning and transition to satellite-based navigation. The reports found that the sooner this transition takes place, the sooner FAA will be able to reduce its cost for maintaining these systems. The Coopers & Lybrand report noted that FAA had historically been reluctant to take this action. ATO officials are just now assessing the potential to retire these systems. Their current plan calls for modest equipment retirements over the next 5 years and more substantial decommissioning over the next 10 to 15 years. According to ATO officials, the long process is required because general aviation users will continue to rely on some of these systems until their aircraft are upgraded to utilize satellite-based navigation. Several stakeholders commented that responding to the general aviation community on this issue has long been a roadblock to decommissioning obsolete equipment, and ATO cannot afford to maintain these systems indefinitely.
 - **Expand the contract tower program.** Although FAA employees staff control towers at most of the nation's busiest airports, FAA contracts for outside staff to work at over 200 airports with lower traffic levels. Both the 1997 NCARC and Coopers & Lybrand studies recommended expanding the contract tower program to achieve savings of \$20 million to \$30 million per year. More recently, the DOT Inspector General reported that each contract tower costs FAA nearly \$900,000 less per year than comparable FAA towers, without compromising flight safety.

Several stakeholders felt that FAA should consider expansion of this program. However, NATCA is opposed to expanding the program and cites potential safety concerns. ATO operates 71 low-activity towers, employing about 900 controllers, that are candidates for inclusion in the program. ATO officials also said that they are currently assessing the potential to expand the program but their analysis was not complete.

In addition to addressing these long-standing structural issues, various experts, including former FAA senior officials and members of FAA's air traffic research advisory committee, also suggested that ATO more quickly implement new technologies to increase future productivity and reduce the unit costs of handling air traffic.

- **Near-term enhancements.** The most frequently mentioned near-term enhancements were the User Request Evaluation Tool (URET), Automatic Dependent Surveillance-Broadcast (ADS-B), Controller/Pilot Data Link Communications (CPDLC), and Extended Computer Display System (EXCDS). ATO is in the process of equipping all of its air traffic control centers with URET, a computer tool that allows controllers to search for flight path conflicts 20 minutes into the future and helps controllers automatically design conflict-free alternative flight paths. Although designed for its safety benefits, ATO officials say this tool may also improve controller productivity, but they could not quantify this benefit. ATO has also used demonstration programs to show the feasibility of ADS-B, a new system designed to provide more accurate and timely surveillance information, and CPDLC, a digital communications tool for voice and data messages. Finally, EXCDS, which automates flight data processing, now done manually using paper strips, was cited as a technology that can reduce the number of controller positions needed. According to ATO officials, they plan to test an automated flight information program in selected facilities. To date, ATO has not been able to identify potential productivity benefits resulting from any of these technologies. Although their immediate impact on productivity may be unknown, experts view these tools as key enabling devices to support future air traffic control automation that will enable controllers to be more productive.
- **Long-term system needs.** Many of the experts we spoke with, along with government air traffic management researchers said that ATO's most important long-term challenge was to transform its current air traffic management system in order to meet projected air traffic

demands. They point to a recent JPDO report,¹⁶ which projects that future air traffic movements (i.e., flights) will double or triple within 20 years, particularly if even a small percentage of commercial airline passengers shift to flying on micro-jets that seat 4 to 6 passengers. According to these stakeholders, air traffic control will need to rely much more on computer-based approaches, because it will not be possible to simply add more human controllers to handle expected traffic volumes. As a result, ATO will have to make significant investments in new air traffic management technologies and systems that will fundamentally change the role of a controller and automate many routine functions of today's controllers. Currently, researchers at the National Aeronautics and Space Administration are developing prototypes of future systems that could eventually allow aircraft to fly with minimal controller involvement. According to experts and JPDO officials, a key challenge for transforming the air traffic management system by 2025 will be ensuring that ATO's capital investment strategy and budgetary resources, as well as those of other key agencies,¹⁷ are sufficient to support JPDO's long-term vision.

Conclusions

ATO, created just over 1 year ago, faces two significant and interrelated challenges: meeting multi-billion dollar projected financial shortfalls over the next few years and laying the necessary financial and strategic foundations for fundamental air traffic management reform needed to meet projected increases in air traffic over the next 20 years.

First, ATO faces declining revenues to the Trust Fund, tight federal budgets, and significant growth in its operating costs. The combination of these factors makes it imperative that ATO pursue an aggressive cost-control and savings strategy. To date, ATO has started to implement business practices and processes fundamental to addressing its cost control issues, and it has implemented one major structural cost savings initiative. However

¹⁶*Next Generation Air Transportation System Integrated Plan* (Dec. 12, 2004). The JPDO is responsible for coordinating the research efforts of several federal agencies to support the goals of the Next Generation Plan.

¹⁷In addition to the Department of Transportation and FAA, JPDO relies on support from the Departments of Defense, Homeland Security, and Commerce, plus the National Aeronautics and Space Administration and the Office of Science and Technology Policy.

necessary, these efforts do little to constrain cost growth and materially improve its operations funding outlook over the next 5 years. To remedy some of the key underlying issues that have contributed to this cost growth, ATO needs to revisit its historic operating structure. In this cost environment, ATO simply can no longer afford to accept the status quo and rule out solutions to these problems that independent commissions and studies have advanced. Obviously, this is a difficult task—one that will have a direct bearing on thousands of employees. Yet, it is a task that cannot be ignored. Without confronting these issues, ATO will be unable to achieve needed cost reductions, ensure long-term cost control effectiveness, or significantly improve the operating efficiency of air traffic services. Tackling these complex issues will require ATO to provide a clear business case for action and to work with stakeholders and the Congress to achieve results.

Second, in recognition of the doubling or tripling of air traffic that is projected over the next 20 years, ATO needs to lead the development and implementation of a fundamentally different system of air traffic management. Working closely with JPDO, ATO needs to make the strategic technological investments that will lead to transformation of the current air traffic management system. FAA and ATO must take effective action to accommodate the projected growth and provide the United States with a system that will become significantly more efficient by providing clearer economic signals throughout the system and enabling automation of routine air traffic management functions. Experts believe this is the only way ATO can generate the productivity enhancements sufficient to meet increasing demands on the system. Developing and implementing this system will require extremely costly investments. Therefore, it is imperative that ATO succeed in its cost control programs not only to demonstrate that it is capable of managing these critical investments, but also to alleviate the pressure on scarce resources needed for investment in modernization. Most experts agree that this is the only way ATO can ensure a safe, efficient, and cost-effective air traffic management system for the twenty-first century.

Recommendation for Executive Action

To ensure that it is providing air traffic control services in the most cost-effective manner while addressing looming financial shortfalls, we recommend that the Secretary of Transportation direct the Administrator, Federal Aviation Administration, to develop a comprehensive, strategic long-term cost control and savings strategy. In doing so, ATO should complete rigorous cost benefit analyses to determine the optimal structure

for providing its services to different user groups while ensuring against demonstrable adverse impacts on aviation safety. Results of these analyses should be documented in a publicly available business plan that the ATO and its key stakeholders can use to build a sound business case for making the difficult but unavoidable structural changes needed to streamline its operations.

Agency Comments

We provided copies of a draft of this report to the Department of Transportation for its review and comment. In general, FAA and ATO officials agreed with the findings and conclusions, and agreed to consider the recommendation contained in this report. The officials emphasized that ATO has been working to address its cost control challenges and that ATO is continuing its efforts to identify and implement both immediate and future cost savings initiatives. It is working cooperatively with other FAA offices to refine its estimates of the future business environment for both costs and revenues. It is scrutinizing projected operational costs in an effort to ensure that sufficient resources are both requested and available to meet the forecasted demand in the National Airspace System and to continue the safe and efficient operation of the nation's air traffic control system. FAA and ATO also provided technical comments which we incorporated as appropriate.

Unless you publicly announce the contents of this report earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will provide copies to relevant congressional committees and other interested parties; the Secretary of Transportation; and the Administrator of the Federal Aviation Administration. We will make copies available to others upon request. In addition, this report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you have any questions about this report, please contact me at (202) 512-2834 or heckerj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Individuals making key contributions to this report are listed in appendix IV.

A handwritten signature in black ink that reads "JayEtta Z. Hecker". The signature is written in a cursive style with a large, stylized initial "J" and a long horizontal flourish at the end.

JayEtta Z. Hecker
Director, Physical Infrastructure Issues

GAO Review of ATO's Efforts to Control Operating Costs



GAO Review of ATO's Efforts to Control Operating Costs

Briefing For Senate Requesters
April 13, 2005



- Review objectives
- Summary Results
- ATO Background

- Question 1—ATO Financial Condition
- Question 2—ATO Actions to Address Financial Condition
- Question 3—Options ATO Should Consider



Research Questions

- As agreed, this review focuses on three questions:
 - What is the **financial outlook** for ATO's operations
 - To what extent is **ATO taking actions** to control its operating costs and improve its financial condition
 - What are some **options** that ATO should consider in developing its cost control strategy



- ATO's financial condition continues to deteriorate leading to significant shortfalls in its operating budget and declining trust fund balances
 - Operating expenses grew 43 percent in real terms from FY1996 through FY2004
 - Operating expenses are expected to outpace available revenues through FY2010, leading to a \$4 billion operations funding gap
 - The aviation trust fund balance is declining and its future is uncertain



- FAA and ATO have initiated several cost control measures that, under a best case scenario, will reduce costs by an estimated \$0.45 billion over the next 5 years
 - These initiatives cannot fully address ATO's projected \$4 billion funding gap
- ATO is developing a 5-year business plan for improving financial performance
 - Indications from ATO are that the plan will not completely eliminate the funding gap



- Absent increased funding, ATO will need to consider long-standing suggestions that offer potentially significant cost reduction or productivity gains:
 - **Structural changes** could provide more efficient operations
 - **Decommissioning legacy systems** could reduce maintenance costs
 - **Upgrading technology** could achieve short- and long-term productivity gains
- **Foreign examples** show how other countries have already implemented some of these concepts



- In December 2000, the President directed FAA to create a performance-based organization
- In February 2004, FAA created the ATO, and combined the FAA's Research and Acquisitions, Air Traffic Services, and Free Flight offices into one performance-based organization
- The primary service of the ATO is to move air traffic safely and efficiently
- The employees of the ATO are the service providers—the 38,000 controllers, technicians, engineers, and support personnel whose daily efforts keep the airplanes moving

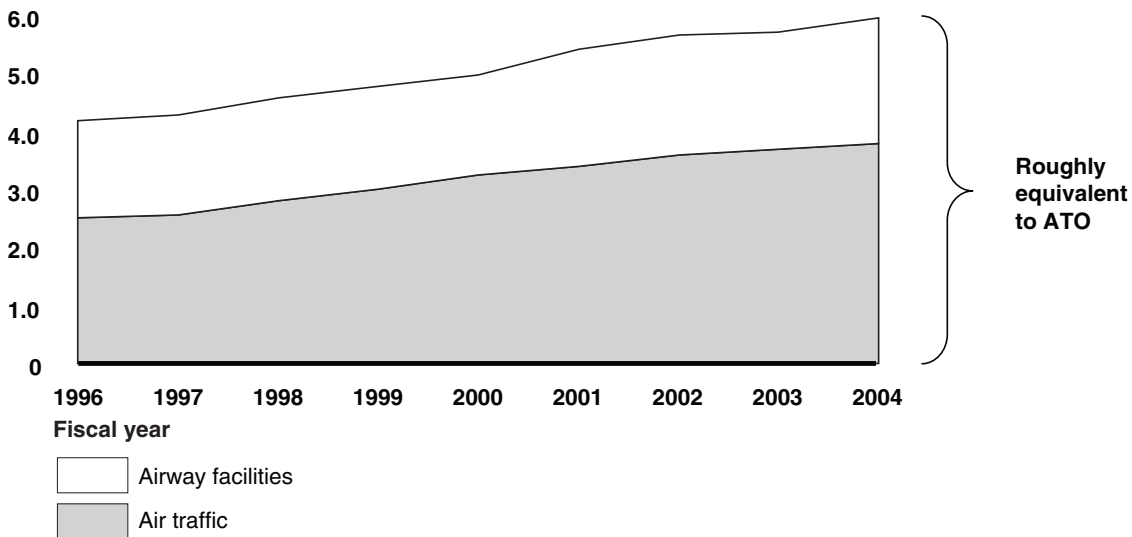


ATO Components Have Experienced Significant
Operating Cost Growth

Question 1

- Two organizations account for nearly all of ATO's operating costs
- Experienced 43% real growth (\$1.8 billion) during 8-year period

Billions of 2004 dollars



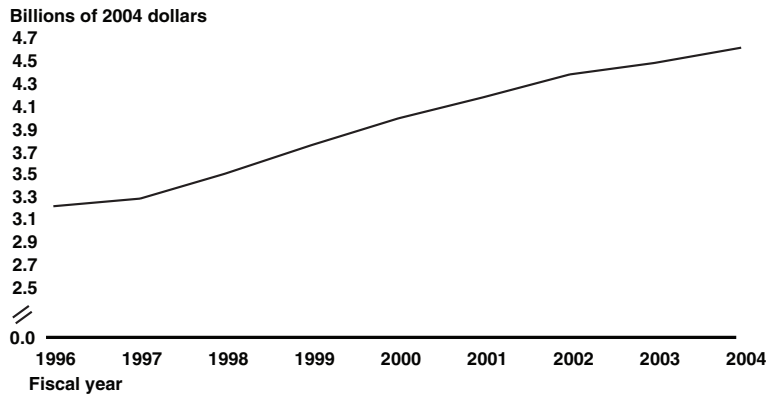
Source: GAO analysis of FAA data.



Factors Accounting for Operating Cost Growth:
Personnel, Compensation, & Benefits Expenses

Question 1

- Personnel, compensation, and benefits (PC&B):
 - 77 percent of Air Traffic/Airway Facility operating costs
 - 43 percent real growth (\$1.4 billion) since FY 96 primarily from pay raises, not new personnel
 - For example, Air Traffic and Airway Facility PC&B real costs increased about \$1 billion between fiscal year 1998 and 2003, but they added only 12 net personnel



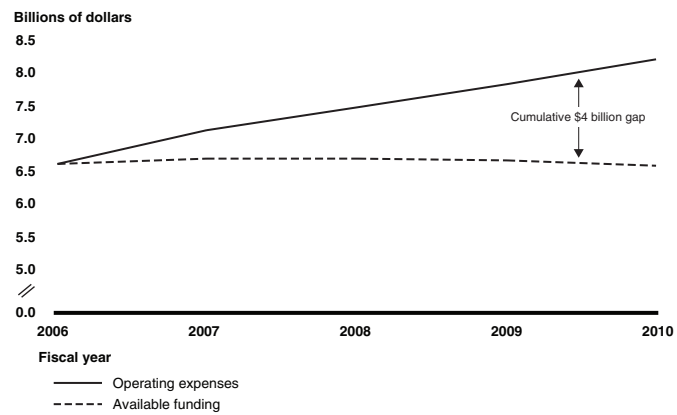
Source: GAO analysis of FAA data.



Continued Growth in Operating Costs Will Lead to Funding Gap

Question 1

- Despite past efforts, ATO operating costs estimated to increase from \$6.6 billion in FY 06 to \$8.2 billion in FY 10 (25%)
- ATO estimates cumulative funding gap = \$4 billion
- Funding numbers based on OMB constraints not actual trust fund receipts

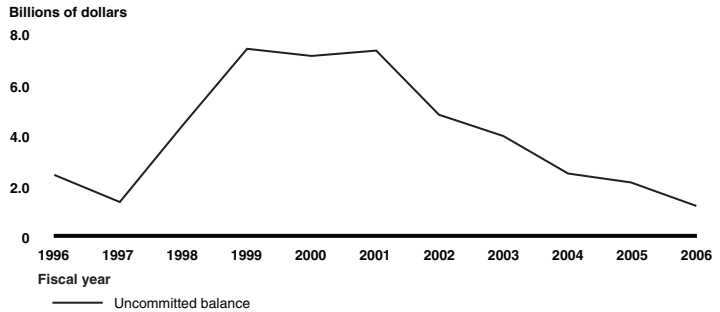




Increased Operating Costs Contributed to
Declining Trust Fund Balance

Question 1

- FY 1996: \$2.2 billion in operating costs covered by the trust fund
- FY 2006: \$6.5 billion in operating costs from the trust fund per budget
- Trust fund balance estimated at \$1.2 billion by the end of FY 2006
- Increased uncertainty about Trust Fund balance after FY 2007



Sources: Air Transport Association and GAO analysis of FAA data.
Note: Amounts for fiscal years 2005 and 2006 are estimates.



Current FAA/ATO Initiatives May Achieve
 Marginal Savings

Question 2

•Under best case scenario, FAA estimates initiatives below could save \$119 million over 5 years, much of which benefits the ATO.

Initiative	Estimated savings	Basis for estimate
Consolidate Accounting Offices	\$3.6 million/yr. most beginning in 2009	Detailed study
Improve Sourcing of Supplies	Up to \$12 million/yr.	Preliminary FAA analysis and estimated saving rates by vendors
Better Manage Cell Phone Contracts	Up to \$10.5 million/yr.	Consultant ball park estimate
Implement Cost Accounting System	Helps identify savings opportunities. No direct savings due to system	



Savings from Most of ATO's Current
 Initiatives Unknown

Question 2

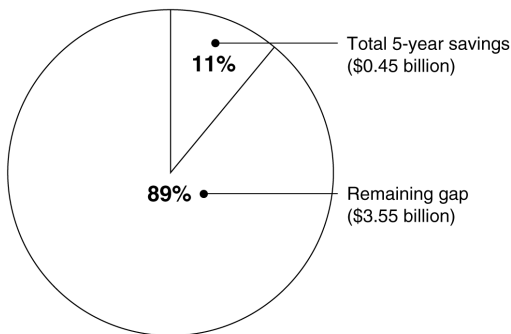
Initiative	Estimated savings	Basis for estimate
Contract out flight service operations	\$241 million through FY 2010 (\$1.2 billion over 10-year contract period)	Contract award
Telecommunications upgrade	None until later years	Life-cycle cost analysis
Better management of sick leave	\$59 million	ATO goal/estimate
Cut night shift operations at selected towers	\$34 million	ATO estimate
Bottoms-up Budgeting	?	
Control Unit Costs of Services	?	
Revise Staffing Standards for ATC Facilities	?	
Activity Value Analysis	?	
Labor Tracking System	?	
Downgrade selected towers	?	
Use part-time controllers	?	



Current FAA/ATO Efforts Appear Insufficient to
Substantially Close Funding Gap

Question 2

- ATO can document limited cost reductions that marginally address 5-year gap



Source: GAO analysis of ATO data.

- Contracting out flight service function is ATO's first major structural action to save costs.

Some efforts aimed at instilling more business-like management of operations may eventually help control costs



ATO Is Preparing a Business Outlook
to Improve Its Financial Condition

Question 2

- ATO is preparing a 5-year business outlook to deal with its funding gap
- The adequacy of ATO's business outlook will hinge on the extent to which the plan identifies major cost cutting initiatives that it has been reluctant to pursue
- The outlook has been delayed over 6 months, as ATO has worked to attain internal consensus on major cost cutting initiatives
- The outlook's issuance date is uncertain



Prior Studies, Stakeholders Suggest
Solutions to ATO's Financial Problems

Question 3

- NCARC and Coopers & Lybrand made numerous recommendations with potential to save hundreds of millions dollars annually, such as
 - Consolidate major ATC facilities
 - Consolidate regional offices
 - Decommission legacy infrastructure (long-range radars, nav aids)
 - Expand contract tower program

- ATO has studied or implemented several recommendations, and can document some current or future savings
 - Transferring long-range radars to DOD (\$50 million/yr)
 - Creating Logistics Center franchise fund (\$20 million/yr)
 - Contracting out Flight Service Stations (\$1.2 billion over 10 yrs)



Question 3

- ATO has not implemented other recommendations such as consolidating ATC facilities, expanding contract towers, and decommissioning legacy infrastructure

- Current stakeholders say:
 - These recommendations are still relevant

 - Should be included in ATO's cost control strategy

 - ATO must overcome political and organizational barriers

- The time frame for realizing substantial benefits is probably greater than 5 years



Experts Suggest That ATO Implement New
Technologies to Increase Productivity

Question 3

- Near-term enabling technology enhancements needed:
 - Incrementally add technologies to improve productivity (e.g., URET, ADS-B, CPDLC, and EXCDS)
 - ATO has begun implementing some new equipment, but has not yet determined productivity impacts
 - Experts say individual technologies can only offer marginal improvements, but will help enable future automated system



Experts Believe That Broader Transformation of Air
Traffic Management Needed to Meet Future Demand

Question 3

- Given future traffic projections, experts conclude that ATO must significantly automate ATC functions to increase capacity and reduce unit costs
 - JPDO projects traffic doubling or tripling in 20 years.
 - Traffic at those levels would be impossible to meet by simple, incremental changes to the current air traffic control system.
 - Could allow significant increases in operations with limited increases in the number of controllers
 - While research on different automation concepts is underway, no national consensus yet exists on what to build or how to fund it.
 - JPDO and ATO must coordinate to ensure funding and timely implementation by 2025 target date



Question 3

- Foreign ATC restructuring efforts have included:
 - Administrative consolidation
 - Air traffic center consolidation

Scope and Methodology

To identify the Air Traffic Organization's (ATO) projected financial outlook for its operations, we obtained and assessed historical operating expenditure data to identify trends and causes for operating cost growth.¹ We also reviewed ATO's estimates for operating costs and revenues for the period fiscal years 2006 through 2010 to determine trends in cost and revenue growth. We utilized this time period because it corresponds with forecast periods used by ATO. We also used ATO's cost and revenue estimates to identify whether ATO expects to have sufficient revenues to cover its operating costs. We supplemented our analyses of ATO's data with interviews of ATO finance officials to ensure we have interpreted the data accurately and firmly understood key underlying assumptions. We also performed various tests of reliability for ATO's historical and projected cost and revenue data, including comparing the historical operating cost data with historical operating budget information to see if the trends were consistent. Along with our use of corroborating evidence, we believe the data we used were sufficiently reliable.

To determine the extent to which ATO and the Federal Aviation Administration (FAA) are taking actions to control their operating costs and improve its financial condition, we conducted interviews and reviewed supporting documents. We interviewed FAA and ATO managers to identify a comprehensive list of cost saving initiatives currently under way or planned for the near future. We also obtained and reviewed supporting documentation that was available to quantify the amount of savings that FAA and ATO expect to achieve, and we determined the degree to which ATO has performed sufficient analyses to justify its expected savings.

To identify options that ATO should consider in developing its cost control strategy, we reviewed two key 1997 studies that have previously identified specific cost savings measures that FAA should consider in controlling its air traffic control operating costs. We compared the items listed in these studies with those currently under way or planned by ATO to determine whether there are further opportunities for cost savings. We also interviewed numerous aviation stakeholders—government researchers, industry consultants and analysts, aviation system users, union officials, and officials from foreign air navigation service providers. We also

¹Because FAA did not have comprehensive historical data on actual operating costs, we used historical data on FAA's obligations. An ATO finance official said that obligation data would approximate actual costs because most of the obligations were for salaries and benefits, items which are expensed shortly after FAA incurs the obligation.

interviewed air traffic management stakeholders—aviation system users, industry analysts and consultants, union officials, and government air traffic researchers—to obtain their perspectives on measures they believe ATO should consider in attempting to control its operating costs. Finally, we utilized information that we are currently obtaining for this Committee on cost control actions that selected foreign air navigation service providers have previously implemented.

Description of FAA and ATO Cost-Saving Initiatives

FAA Initiatives

Consolidating accounting operations: FAA is consolidating accounting operations activities from all nine FAA accounting offices into the Office of Financial Operations (Finance Center), located at the Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma.

Strategic sourcing of administrative supplies and equipment: FAA is contracting for more cost-effective procurement of office supplies, office equipment, mail, printing, and information technology hardware and software.

Improving mobile wireless procurement: FAA is contracting to buy cell phones and wireless service contracts more efficiently.

ATO Initiatives

Contract out operation of automated flight service stations: ATO awarded a 10-year contract to Lockheed Martin to take over the services provided by the 58 FAA automated flight service stations in the continental United States, Puerto Rico, and Hawaii.

Telecommunications upgrade: FAA telecommunications infrastructure services will replace most FAA-owned and leased telecommunications systems/services and consolidate their functions under a single service provider. This program is the primary means for the FAA to acquire telecommunication services for critical national airspace system operations and mission support functions through fiscal year 2017.

Better sick leave management: ATO is attempting to reduce sick leave usage by 8 percent by addressing sick leave abuse.

Cut night shift operations at selected towers: ATO is considering a reduction in the hours of operation for 42 terminal air traffic control facilities with low or no midnight to 5:00 a.m. activity.

Bottoms-up budgeting: ATO is developing a new budget process to drive budget accountability down to individual facilities.

Control Unit Cost of Services: ATO has established unit cost metrics for its various air traffic control facilities. For example, an ATO control tower will be responsible for meeting its cost-per-takeoff and landing target, while a facility controlling high-altitude air traffic will need to meet its cost-per-flight-hour target. ATO will hold individual facilities accountable for

meeting their unit cost targets and will also compare facilities to identify causes of cost variance among facilities.

Revise air traffic control facility staffing standards: ATO is reassessing its current air traffic controller staffing standards, which help determine the number of controllers needed at each facility. The objective of the reassessment is to achieve high-confidence staffing estimates at the national and facility levels.

Activity value analysis at ATO headquarters offices: The overall goal of the activity value analysis was to review headquarters operations, identify the different products and services performed by different headquarters organizations, and then determine the costs and values of these products and services. Ultimately, products and services with high costs and low values would be candidates for elimination.

Labor tracking system upgrade: ATO is implementing a computer-based tool to record time, attendance, and labor distribution for operational controllers and supervisors. Use of this tool provides information on controller time and activity distribution that, in turn, can be used to determine more efficient controller utilization.

Downgrade selected towers: To account for new traffic patterns, ATO will reclassify 12 terminal facilities to a lower facility level. ATO expects to save money as a result of reduced salaries at the downgraded facilities.

Use of part-time controllers: ATO is assessing the use of part-time controllers during peak traffic periods.

GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the individual named above, other key contributors to this report were Richard Calhoun, Daniel Concepcion, David Lichtenfeld, and Steven C. Martin.

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