

September 2006

# AVIATION FINANCE

## Observations on Potential FAA Funding Options





Highlights of [GAO-06-973](#), a report to Congressional Committees

## Why GAO Did This Study

The Federal Aviation Administration (FAA), the Airport and Airway Trust Fund (Trust Fund), and the excise taxes that support the Trust Fund are scheduled for reauthorization at the end of fiscal year 2007. FAA is primarily supported by the Trust Fund, which receives revenues from a series of excise taxes paid by users of the national airspace system (NAS). The Trust Fund's uncommitted balance decreased by more than 70 percent from the end of fiscal year 2001 through the end of fiscal year 2005. The remaining funding is derived from the General Fund. This report focuses on the portion of revenues generated from users of the NAS and addresses the following key questions: (1) What advantages and concerns have been raised about the current approach to collecting revenues from NAS users to fund FAA, and to what extent does available evidence support the concerns? (2) What are the implications of adopting alternative funding options to collect the revenues contributed by users that fund FAA's budget? (3) What are the advantages and disadvantages of authorizing FAA to use debt financing for capital projects?

This report is based on interviews with relevant federal agencies, including FAA, the Office of Management and Budget, and the Congressional Budget Office. GAO also obtained relevant documents from these agencies, other key stakeholders, and academic and financial experts.

[www.gao.gov/cgi-bin/getrpt?GAO-06-973](http://www.gao.gov/cgi-bin/getrpt?GAO-06-973).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gerald Dillingham at (202) 512-4830 or [dillinghamg@gao.gov](mailto:dillinghamg@gao.gov).

## AVIATION FINANCE

# Observations on Potential FAA Funding Options

## What GAO Found

Some stakeholders support the current excise tax system, stating that it has been successful in funding FAA, has low administrative costs, and distributes the tax burden in a reasonable manner. Other stakeholders, including FAA, state that under the current system there is a disconnect between revenues contributed by users and the costs they impose on the NAS that raises revenue adequacy, equity, and efficiency concerns. Trends and FAA projections in both inflation-adjusted fares and average plane size suggest that the revenue collected under the current funding system has fallen and will continue to fall relative to FAA's workload and costs, supporting revenue adequacy concerns. Comparisons of revenue contributed and costs imposed by different flights provide support for equity and efficiency concerns. The extent to which revenues and costs are linked, however, depends critically on how costs are allocated. Thus, to assess the extent to which the current approach or other approaches aligns costs with revenues would require completing an analysis of costs, using either a cost accounting system or cost finding techniques to assign costs to NAS users.

The implications of adopting alternative funding options to collect revenue from NAS users and address concerns about the current excise tax system vary depending on the extent to which users' revenue contributions reflect the costs those users impose on FAA. This report considers six selected funding options, including two that modify the current excise tax structure and four that adopt more direct charges to users. Given the diverse nature of FAA's activities, a combination of alternative options may offer the most promise for linking revenues and costs. Switching to any alternative funding option would raise administrative and transition issues. Some stakeholders who support the adoption of direct user charges also support a change in FAA's governance structure, but GAO found no evidence adoption of direct charges requires this.

Authorizing FAA to use debt financing for capital projects would have advantages and disadvantages. Some stakeholders identify debt financing as attractive because it could provide FAA with a stable source of revenue to fund capital developments, while at the same time spreading the costs out over the life of a capital project as its benefits are realized. Debt financing raises significant concerns, however, because it encumbers future resources, and expenditures from debt proceeds may not be subject to the congressional oversight that appropriations receive. Concerns regarding borrowing costs, oversight, and encumbering future resources are particularly important in light of the federal government's long-term structural fiscal imbalance.

The Departments of Transportation and Treasury provided comments and technical clarifications on a draft of this report which we have incorporated or responded to as appropriate. DOT's comments focused on governance reforms required to adopt a user fee approach, and whether we accurately described the status of FAA's accounting system. Treasury's raised concerns about the level of analytical development for the options and associated issues. Data was not available to conduct the analysis Treasury suggested, and we agree necessary. However, we believe the report provides useful information to facilitate debate on the options.

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## Abbreviations

AIP	Airport Improvement Program
AOPA	Aircraft Owners and Pilots Association
ARTCC	air route traffic control center
ATC	air traffic control
BPA	Bonneville Power Administration
CBO	Congressional Budget Office
DOT	Department of Transportation
FAA	Federal Aviation Administration
GA	general aviation
GO	general obligation bond
GR	general revenue bond
GAO	Government Accountability Office
GARVEE	Grant Anticipation Revenue Vehicle
IRS	Internal Revenue Service
NAS	National Airspace System
OMB	Office of Management and Budget
SARS	Severe Acute Respiratory Syndrome
TRACON	terminal radar approach control center
TVA	Tennessee Valley Authority

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United States Government Accountability Office  
Washington, DC 20548

September 29, 2006

Congressional Committees

The Federal Aviation Administration (FAA), the Airport and Airway Trust Fund (Trust Fund), and the excise taxes that support the Trust Fund are scheduled for reauthorization at the end of fiscal year 2007. Although there have been fluctuations in its funding sources, FAA is primarily supported by the Trust Fund (82 percent),<sup>1</sup> which receives revenues from a series of excise taxes paid by users of the National Airspace System (NAS). The Trust Fund's uncommitted balance decreased by more than 70 percent from the end of fiscal year 2001 through the end of fiscal year 2005. These excise taxes apply to purchases of airline tickets and aviation fuel, as well as the shipment of cargo. FAA's remaining funding comes from the General Fund of the U.S. Treasury (General Fund) (18 percent). The policy debate over the reauthorization of FAA, the Trust Fund, and the excise taxes that fund it encompasses a host of critical and complex issues, including the modernization of the nation's air traffic control (ATC) infrastructure and FAA's efforts to improve cost control and internal management practices. The agency's reliance on revenues from both users and the General Fund recognizes that FAA produces direct benefits for NAS users and substantial public benefits, including safety, security, and economic benefits. Stakeholders we talked with all agreed that these public benefits justify a continued General Fund contribution to FAA's budget. However, a key issue raised in the debate over FAA funding, and the focus of this report, is how the revenues generated from users of the NAS might be collected.<sup>2</sup> Stakeholders are divided over whether Congress should continue to rely on the current excise tax structure or adopt an alternative structure to collect the funding contributed by users.

You requested that we examine FAA's current funding system and alternative funding options. Accordingly, we addressed the following key

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<sup>1</sup>These percentages reflect FAA's revenue composition in fiscal year 2006; from fiscal year 1997, the year the current tax structure became effective, through fiscal year 2006, the Trust Fund has contributed an average of 80 percent of FAA's budget, while General Fund contributions have averaged 20 percent.

<sup>2</sup>This report does not address the question of what proportion of FAA's budget should be derived from the General Fund because of the public benefits created by FAA activities.

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questions: (1) What advantages and concerns have been raised about the current approach to collecting revenues from NAS users to fund FAA, and to what extent does the available evidence support the concerns? (2) What are the implications of adopting alternative funding options to collect the revenues contributed by users that fund FAA's budget? (3) What are the advantages and disadvantages of authorizing FAA to use debt financing for capital projects?

To answer these questions, we reviewed relevant economic literature, policy analysis, congressional testimony, industry group publications, and stakeholders' responses to questions FAA asked them about its funding and alternative options.<sup>3</sup> We also interviewed key stakeholders, including officials from FAA, the Office of Management and Budget (OMB), the Congressional Budget Office (CBO), and the Department of the Treasury (Treasury); representatives of aviation industry groups; and academic and financial experts. In addition, we examined FAA budget data, Trust Fund revenue data, FAA forecasts, and aviation activity data. We reviewed the reliability of these data and concluded that they were sufficiently reliable for our purposes. We conducted our work from May 2005 through August of 2006 in accordance with generally accepted government auditing standards. Details of our scope and methodology are provided in appendix 1.

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## Results in Brief

Some stakeholders<sup>4</sup> support the current excise tax system, stating that it has been successful in funding FAA, has low administrative costs, and distributes the tax burden in a reasonable manner. Other stakeholders,<sup>5</sup> including FAA, state that under the current system there is a disconnect between the revenues contributed by users and the costs they impose on the NAS. In their view, this disconnect raises revenue adequacy, equity, and efficiency concerns. Trends over the past 25 years in, and FAA projections of, both inflation-adjusted fares and average plane size suggest that the revenue collected under the current funding system has fallen and will continue to fall relative to FAA's workload and costs, supporting

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<sup>3</sup>In September 2005, FAA provided stakeholders with information on its operations and costs and asked for responses to questions about how to fund the agency.

<sup>4</sup>Stakeholders that support the current funding system include the Aircraft Owners and Pilots Association and the National Business Aviation Association.

<sup>5</sup>Stakeholders that have expressed concerns about current funding system include the Air Transport Association and the FAA.

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revenue adequacy concerns. Comparisons of revenue contributed and costs imposed by different flights provide support for equity and efficiency concerns. However, the extent to which revenues and costs are linked depends critically on how costs are assigned to NAS users. Thus, to assess the extent to which the current approach or any other approach aligns costs with revenues would require completing an analysis of costs, using either a cost accounting system or cost finding techniques<sup>6</sup> to assign costs to the various NAS users.

Adopting alternative funding options to collect revenues from NAS users would have advantages and disadvantages. The degree to which alternative funding options could address concerns about the current excise tax system ultimately depends on the extent to which the contributions required from users actually reflect the costs they impose on the system. This report reviews both modifications to the current excise tax system and more direct charges based on the use of FAA's services. Given the diverse nature of FAA's activities, a combination of alternative options may offer the most promise for linking revenues and costs. Switching to any alternative funding option would raise administrative and transition issues, such as developing the administrative capacity to implement new charges. Some stakeholders who support the adoption of direct user charges also support a change in FAA's governance structure—for example, commercializing air navigation services—but we found no evidence that the adoption of direct charges would require a governance change.

Authorizing FAA to use debt financing for capital projects would have advantages and disadvantages. The use of debt financing—such as bonds—has been identified by some stakeholders as a means of funding FAA capital projects, such as components of the Next Generation Air Transportation System (NGATS) or existing ATC facilities and equipment.<sup>7</sup> Some stakeholders believe debt financing is attractive because it could provide FAA with a stable source of revenue to fund capital development and, at the same time, spread the costs out over the life of a capital project

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<sup>6</sup>Cost finding techniques produce cost data by analytical or sampling methods and typically involve analyses of available cost data using spreadsheet applications or manual calculations.

<sup>7</sup>In addition, to debt financing, some stakeholders have identified other methods of funding capital investments, such as leasing or contracting out services (e.g., flight service stations). An analysis of these other methods was beyond the scope of this report.

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as its benefits are realized. Debt-financing raises significant concerns, however, because it encumbers future resources and expenditures from debt proceeds may not be subject to the congressional oversight that appropriations receive. In addition, debt financing is subject to federal budget scoring rules and raises issues regarding borrowing costs that are particularly important in light of the federal government's long-term structural fiscal imbalance.

We provided a draft of this report to the Departments of Transportation (DOT) and the Treasury for review and received comments from both agencies. Neither DOT nor Treasury explicitly agreed or disagreed with our observations, and both departments raised a number of concerns and provided technical clarifications. We incorporated these comments and technical clarifications throughout the report as appropriate, or responded to them in the agency comments section at the end of the report.

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## Background

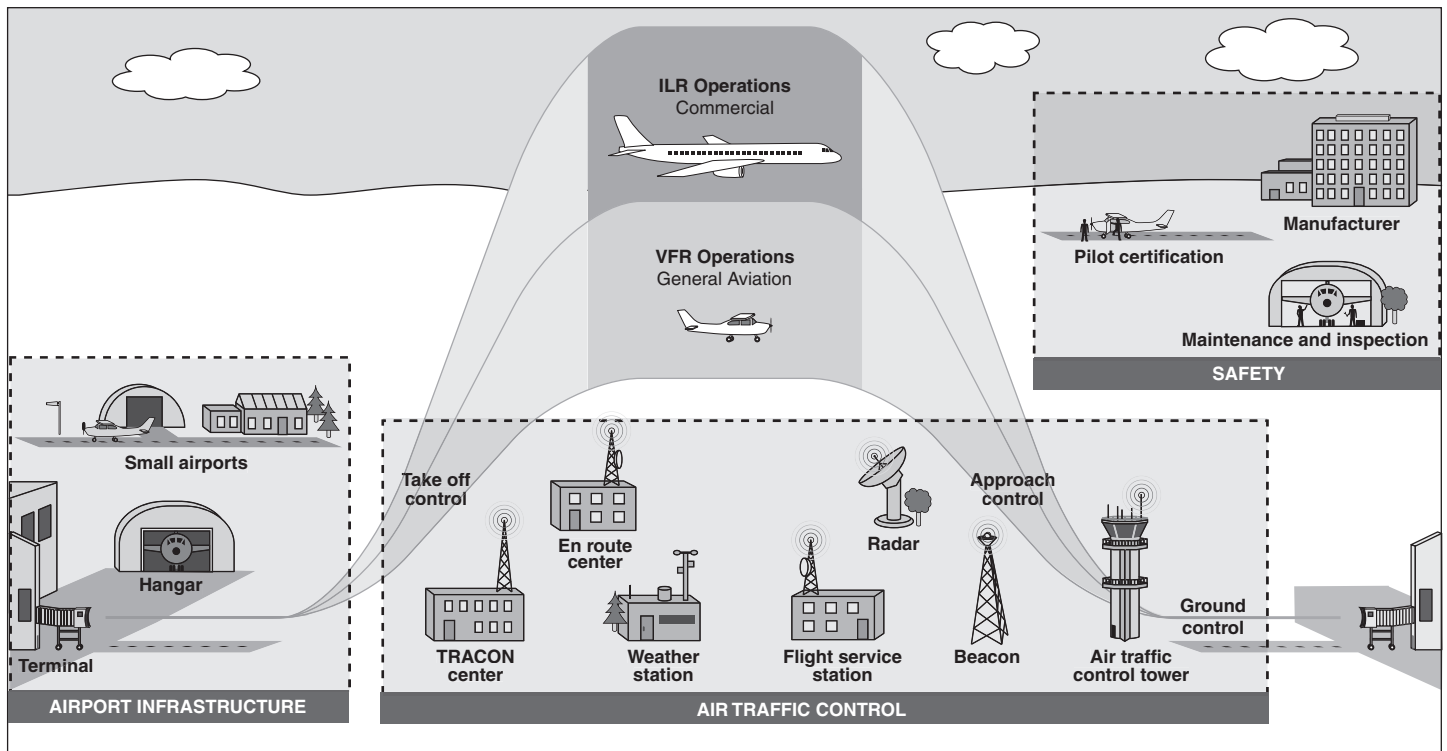
FAA engages in three primary activities: aviation safety oversight, ATC, and airport infrastructure development (see fig. 1).<sup>8</sup> The costs associated with each of these activities generally depend on the nature and usage of the specific service FAA provides. FAA safety activities include the licensing of pilots and mechanics, as well as the inspection of various aspects of the aviation system, such as aircraft and airline operations. According to FAA, the costs associated with these safety activities are primarily driven by the volume of each (e.g., the number of licenses and inspections).

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<sup>8</sup>FAA is also responsible for commercial space licensing and oversight; this line of business is beyond the scope of this report.



**Figure 1: FAA Activities**



Source: GAO.

ATC includes a variety of complex activities that guide and control the flow of aircraft through the NAS. Generally, commercial aircraft fly under instrument flight rules (IFR) that require ATC services throughout a flight. Such flights rely on FAA staff in control towers to guide them from the terminal to the runway, and through takeoff. Once in the air and beyond the immediate vicinity of the airport, they rely on terminal radar approach control centers (TRACONS) to guide them out of the airspace in a broader area surrounding the airport.<sup>9</sup> Services provided by control towers and TRACONS are referred to as terminal services. The TRACONS then pass flights off to air route traffic control centers (ARTCC), which provide en-

<sup>9</sup>Depending on the airport's location, the approach control facilities may be located within the airport's control tower or at separate facilities.

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route control until the flights near their destinations; services provided by ARTCCs are referred to as en-route services. When a flight nears its destination, control is passed back to a TRACON, and then to tower guidance, to land and proceed to an airport gate. General aviation's (GA) use of these services varies greatly. Nearly all business jet flights file flight plans for IFR services, as do roughly half of GA piston flights. Many GA flights operate entirely under visual flight rules (VFR) and may not require any ATC services at all if they do not fly to airports that have towers. These other GA flights may require ground control, or rely on beacons or flight service stations en route. FAA states that the costs imposed by each flight are influenced by the amount and nature of the specific services it uses, and by whether the flight operates at peak periods.

FAA funds airport infrastructure development through the Airport Improvement Program (AIP). AIP is a multibillion-dollar grant program that provides funding for the airports included in FAA's National Plan of Integrated Airport Systems, which includes airports that range from the largest commercial service airports in the United States to small GA airports. Unlike safety and ATC services, AIP expenditures are not the direct result of costs imposed by users of the NAS. FAA distributes AIP funding based on congressional priorities established in authorizing and appropriation legislation. Accordingly, apart from some relatively small administrative expenses, FAA's spending for AIP does not represent a "cost" of providing services to users. Therefore, it is not possible to establish a direct link between AIP expenditures and taxes or charges paid by system users based on their use of FAA services.

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## FAA Funding

The Trust Fund was established by the Airport and Airway Revenue Act of 1970 (P.L. 91-258) to help fund the development of a nationwide airport and airway system. The Trust Fund provides funding for FAA's two capital accounts, AIP and the Facilities and Equipment account, which funds technological improvements to the ATC system. The Trust Fund also provides funding for the Research, Engineering, and Development account, which funds continued research on aviation safety, mobility, and environmental issues. In addition, the Trust Fund supports part of FAA's operations.

To fund these accounts, the Trust Fund is credited with revenues collected from system users through the following dedicated excise taxes:

- 7.5 percent ticket tax on domestic airline tickets

- 
- \$3.30 domestic passenger segment tax (excluding flights to or from rural airports)<sup>10</sup>
  - 6.25 percent tax on the price paid for transportation of domestic cargo or mail<sup>11</sup>
  - \$0.043/gallon tax on domestic commercial aviation fuel
  - \$0.193/gallon tax on domestic GA gasoline
  - \$0.218/gallon tax on domestic GA jet fuel
  - \$14.50<sup>12</sup>/person tax on international arrivals and departures, indexed to inflation
  - 7.5 percent tax on mileage awards (frequent flyer awards tax)
  - \$7.30 per passenger tax on flights between the continental United States and Alaska or Hawaii (or between Alaska and Hawaii), indexed to inflation<sup>13</sup>

Trust Fund revenues totaled \$10.7 billion in fiscal year 2005. The ticket tax was the largest single source of Trust Fund revenue in fiscal year 2005, totaling about \$5.2 billion, or about 48 percent of all Trust Fund receipts. The passenger ticket tax was followed by the passenger segment tax and the international departure/arrival taxes, which each totaled about \$1.9 billion; fuel taxes, which totaled \$870 million; the cargo/mail tax, which totaled \$461 million; and interest income, which totaled \$430 million. Figure 2 shows the shares received from each source in fiscal year 2005.

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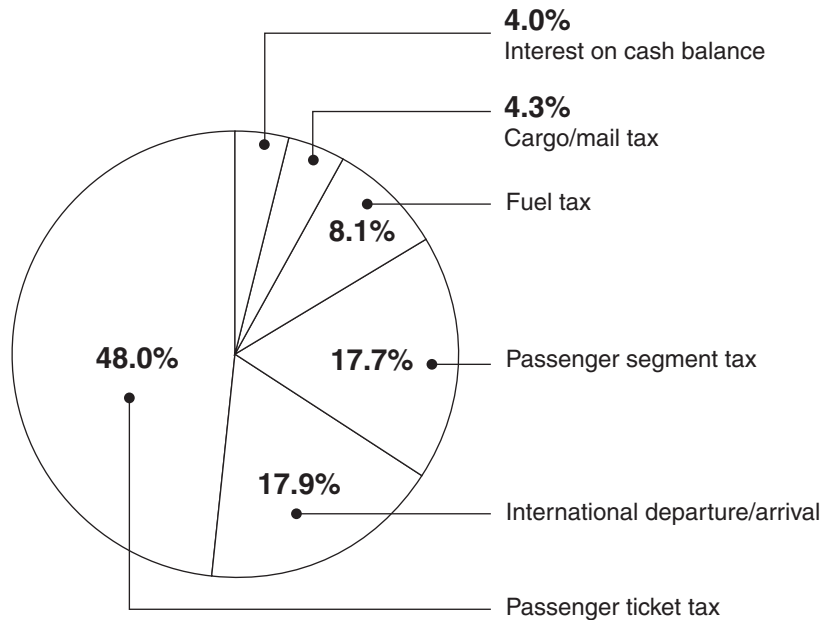
<sup>10</sup>The domestic segment tax is levied on each domestic segment a passenger travels on a flight. For example, a passenger traveling on a flight from New York to Seattle, with a connection in Chicago, travels two segments—one from New York to Chicago, and a second from Chicago to Seattle. The segment tax rate was \$3.30 in 2006; this tax rate changes annually as it is indexed to the Consumer Price Index.

<sup>11</sup>This is also known as the waybill tax.

<sup>12</sup>The international arrival and departure tax rates are \$14.50 in 2006; both rates change annually because they are indexed to the Consumer Price Index.

<sup>13</sup>The per passenger tax on flights between the continental United States and Alaska or Hawaii (or between Alaska and Hawaii) is \$7.30 in 2006; this rate changes annually because it is indexed to the Consumer Price Index.

**Figure 2: Sources of Trust Fund Revenue for Fiscal Year 2005**



Source: GAO analysis of FAA data.

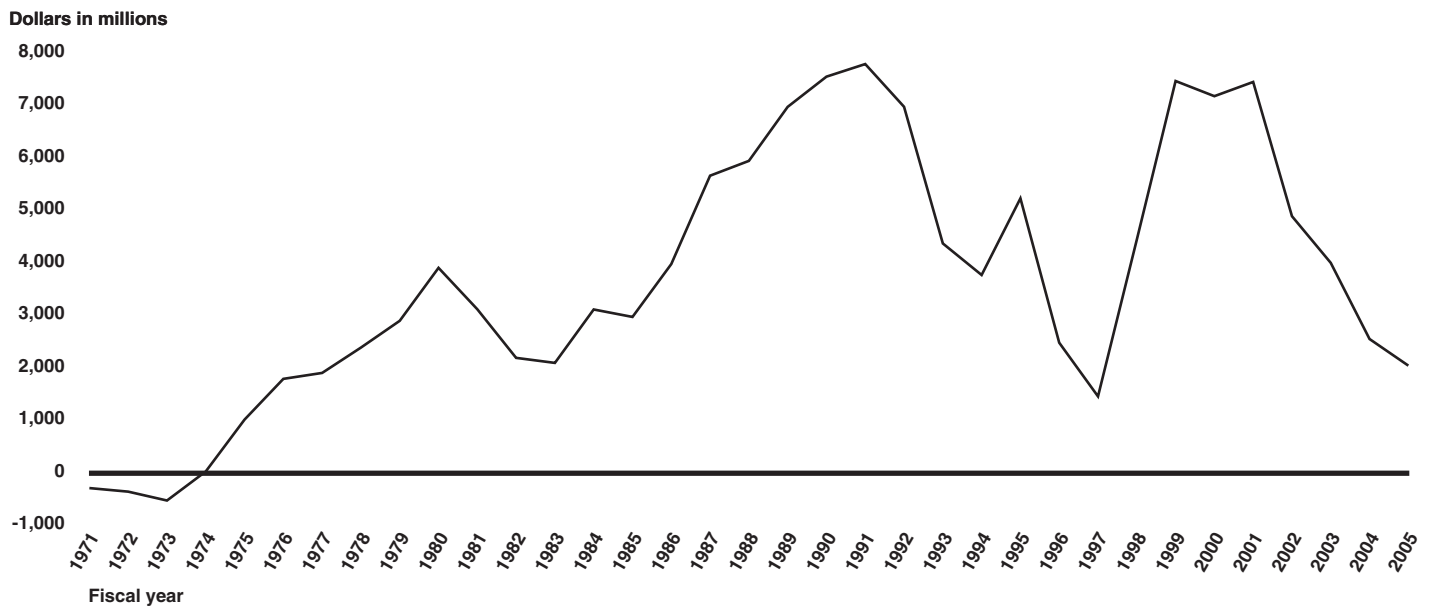
Since the Trust Fund's creation in 1970, revenues have, in aggregate, exceeded spending commitments, resulting in a surplus or an uncommitted balance, although expenditures from the Trust Fund exceeded revenues in 2005.<sup>14</sup> The Trust Fund's uncommitted balance, which was about \$1.9 billion at the end of fiscal year 2005, depends on the revenues flowing into the fund and the appropriations made available from the fund for various spending accounts. Policy choices, structural changes in the aviation industry, and external events have affected revenues flowing into and out of the fund. For example, the uncommitted balance has been declining in recent years because Trust Fund revenues for the last 5 years have been less than FAA's forecasted levels.<sup>15</sup> Figure 3 shows

<sup>14</sup>The Trust Fund's uncommitted balance represents money against which there is no outstanding budget commitment or budget authority to spend.

<sup>15</sup>For a more complete discussion of the Trust Fund, see GAO, *Federal Aviation Administration: An Analysis of the Financial Viability of the Airport and Airway Trust Fund*, GAO-06-562T (Washington, D.C.: Mar. 28, 2006).

the fluctuations in the Trust Fund's uncommitted balance since its inception.

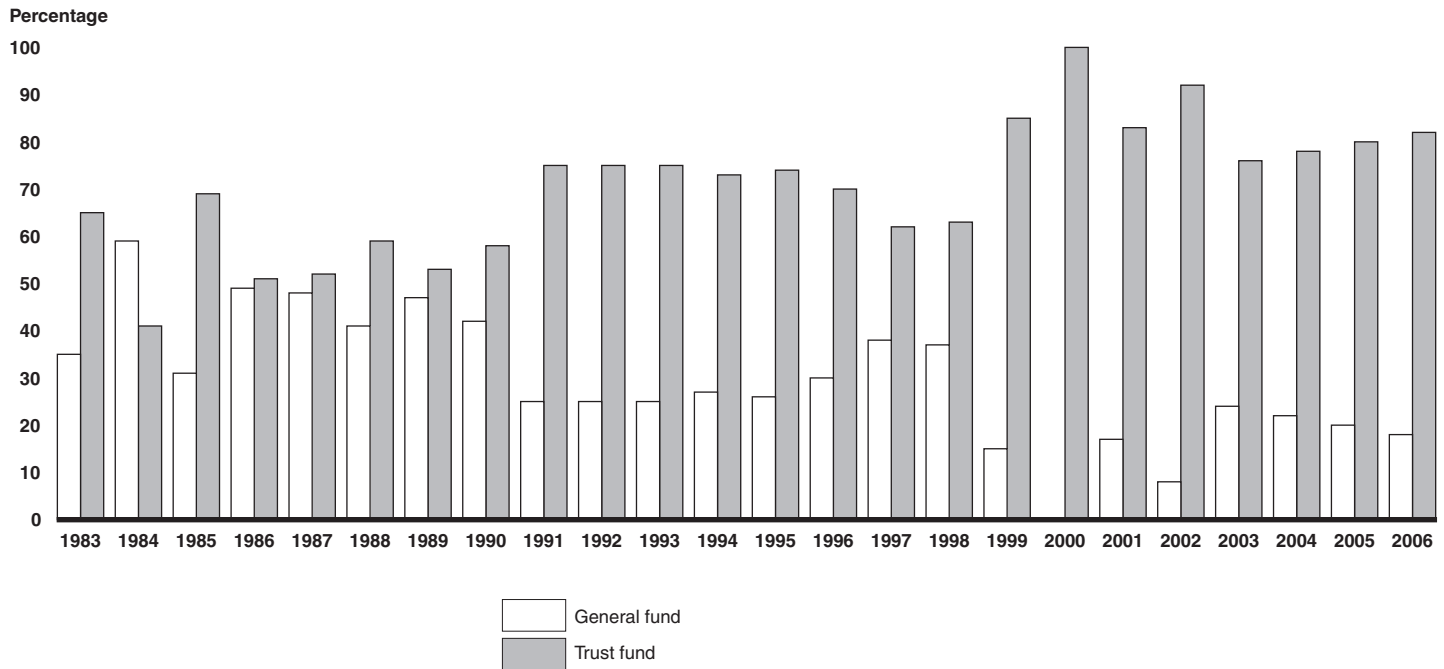
**Figure 3: Trust Fund's End-of-Year Uncommitted Balance, Fiscal Years 1971-2005**



Source: GAO analysis of Congressional Budget Office data and FAA budgets.

In addition to Trust Fund revenues, in most years General Fund revenues have been used to fund FAA. The General Fund contribution has varied greatly, ranging from 0 percent to 59 percent of FAA's budget (see fig. 4). From fiscal year 1997, the year when existing Trust Fund excise taxes were authorized, through fiscal year 2006, the General Fund contribution has averaged 20 percent of FAA's total budget. About \$2.6 billion was appropriated for fiscal year 2006 from the General Fund for FAA's operations. This amount represents about 18 percent of FAA's total appropriation.

**Figure 4: General Fund and Trust Fund Contributions to FAA's Budget**



**Congressionally Authorized Commission Recommended Changes in FAA's Funding Structure**

The National Civil Aviation Review Commission (Commission) issued a Congressional report in 1997 analyzing several issues, including alternative funding means to meet the needs of the nation's aviation system. The Commission's report<sup>16</sup> identified a number of concerns with FAA's funding structure as it existed at the time the Commission began its work.<sup>17</sup> To address these concerns, the Commission made several unanimous recommendations, including that FAA's revenues be more closely linked to the costs of services provided to support ATC activities, including capital investments. The Commission also recommended that General Fund revenues be used to fund aviation security and safety activities and

<sup>16</sup>National Civil Aviation Review Commission, *Avoiding Aviation Gridlock and Reducing the Accident Rate: A Consensus for Change* (Washington, D.C.: Dec. 1997).

<sup>17</sup> The following changes were made after the Commission began its work but before it issued its final report: the passenger segment tax was added; the passenger ticket tax was reduced from 10 percent to 7.5 percent; the international departure tax was increased from \$6 to \$12 and was also applied to international arrivals; the frequent flyer tax was added; and the Hawaii/Alaska passenger taxes were added.

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government use of the air traffic system, and that GA operators continue to pay a fuel tax, although perhaps at a higher rate.

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### Some Stakeholders Favor the Current Funding System, but Others Raise Revenue Adequacy, Equity, and Efficiency Concerns

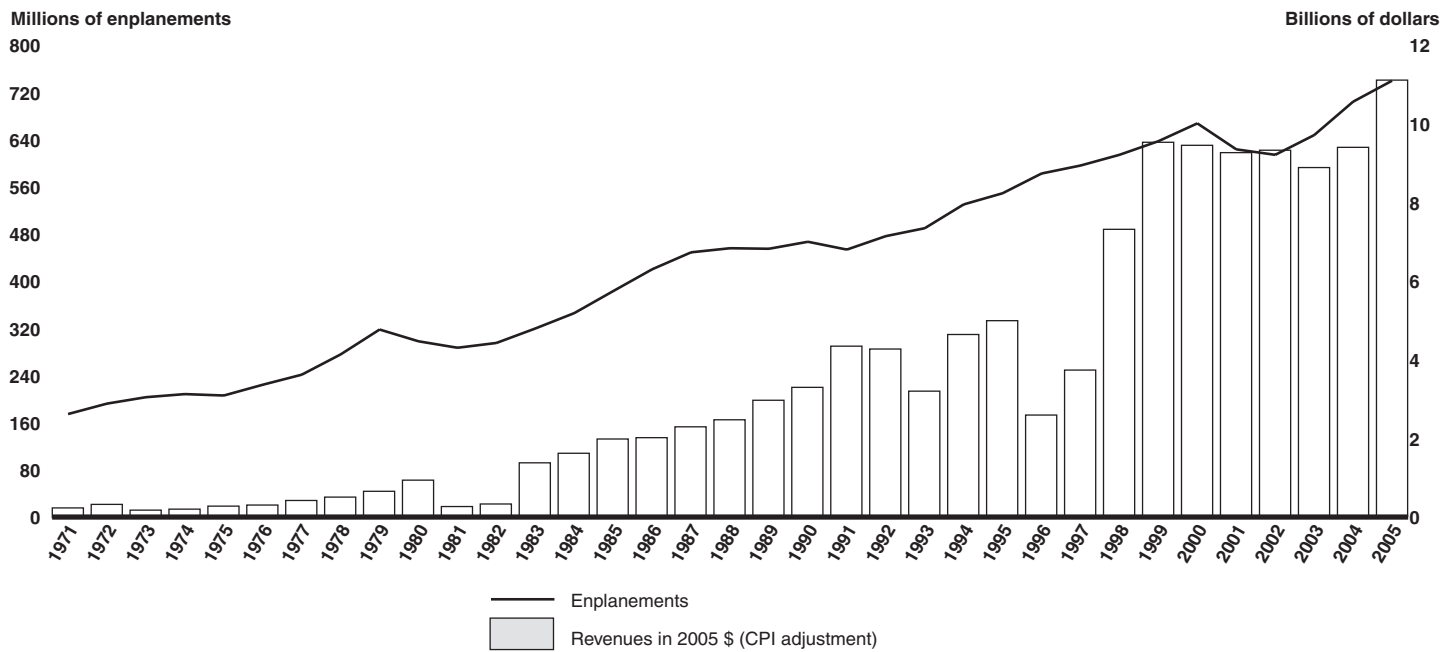
Some stakeholders support the current excise tax system, stating that it has been successful in funding FAA, has low administrative costs, and distributes the tax burden in a reasonable manner. Other stakeholders, including FAA, state that under the current system, the disconnect between the revenues contributed by users and the costs they impose on the NAS raises revenue adequacy, equity, and efficiency concerns. Trends in, and FAA's projections of, both inflation-adjusted fares and average plane size suggest that the revenue collected under the current funding system has fallen and will continue to fall relative to FAA's workload and costs, supporting revenue adequacy concerns. Comparisons of revenue contributed and costs imposed by different flights provide support for equity and efficiency concerns. However, the extent to which revenue and costs are linked depends critically on how the costs of FAA's services are assigned to NAS users. Thus, assessing the extent to which the current approach or any other approach aligns costs with revenues would require completing an analysis of costs, using either a cost accounting system or cost finding techniques to distribute costs to the various NAS users. FAA stated that it has made substantial progress in designing a cost accounting system, implementing it throughout its lines of business, and modifying it to determine costs by user group.

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### Stakeholders Who Favor Maintaining the Current Funding Structure Cite Its Success and Reasonable Allocation of Funding Burden

Some stakeholders believe that maintaining the current funding structure for FAA is appropriate because it has been successful in funding FAA for many years, suggesting that there is no urgent reason to change it. According to these stakeholders, the revenues collected from users under the current funding system, along with General Fund revenues provided by Congress, have been sufficient for the United States to develop a safe and efficient aviation system. As the number of air travelers grew, so did revenues going into the Trust Fund. Even though revenues fell during the early years of this decade as the demand for air travel fell, they began to rise again in fiscal year 2004 (see fig. 5); FAA estimates that revenues will continue to increase. In addition, these stakeholders state that administrative costs of the current system are relatively low.

**Figure 5: Trust Fund Revenues and Passenger Enplanements, 1971 through 2005**



Source: GAO analysis of FAA data.

Notes: Lapses in tax authorizations were the cause of significant revenue decreases in 1981-1982 and 1996-1997. Trust Fund revenue is presented by fiscal year and is adjusted to 2005 constant dollars. Enplanements are presented by calendar year and are total system scheduled enplanements for the United States.

Another argument put forward by some industry stakeholders and analysts for maintaining the current funding structure is that this structure provides a reasonable allocation of the funding burden between commercial aviation and GA. With the current funding structure, system users who are subject to the commercial taxes—including commercial airlines, air taxis, and many fractional ownership operations—contribute about 97 percent of the tax revenue that accrues to the Trust Fund. The remaining GA operators, including those who operate purely private corporate and individual aircraft, contribute about 3 percent. Representatives of the GA segment of the industry contend that collecting the bulk of the user-contributed revenues from the commercial segment is appropriate because the ATC system exists at its current size to accommodate the demands of commercial aviation and GA users should not be asked to contribute more than the incremental costs that result from also providing services to GA aircraft. Although the incremental costs are not precisely known, GA representatives have told us that they believe that the revenues currently collected from fuel taxes are a rough approximation of the



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incremental costs that FAA incurs from providing services to GA aircraft. According to FAA, all cost studies to date concluded that GA users pay less than the costs they impose on the system, while commercial aviation users pay more than the costs they impose on the system.

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### Disconnect between Trust Fund Revenues and FAA Costs Raises Concerns That Revenues Will Not Keep Pace with Workload Increases under the Current System

The disconnect between sources of Trust Fund revenues and FAA costs under the current funding system raises concerns that the current system will not produce adequate revenue in the future to keep pace with FAA's workload increases and, consequently, FAA's costs. The principle of revenue adequacy requires a funding system to produce revenues commensurate with workload changes over time. However, under FAA's current funding system, increases in FAA's workload will not necessarily be accompanied by revenue increases because users are not directly charged for the costs they impose on FAA from their use of the NAS. Rather, Trust Fund revenues are primarily dependent on the prices of tickets (the domestic ticket tax) and the number of passengers on a plane (the domestic ticket tax, the domestic passenger segment tax, and the international passenger tax); neither of these factors are directly related to workload, which is driven by flight control and safety activities. Long-term industry trends and FAA forecasts of declines in air fares and the growing use of smaller aircraft support revenue adequacy concerns.<sup>18</sup>

To illustrate the disconnect between revenues and costs, table 1 provides an example of revenues generated by different aircraft making similar flights. The use of multiple flights by smaller aircraft to carry the same number of travelers as one larger aircraft increases FAA's workload, but will not necessarily be accompanied by increased revenues from system users to fund FAA's additional costs associated with the workload

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<sup>18</sup>In addition to revenue adequacy, a criterion that economists often use to compare funding methods is year-to-year revenue stability, which generally refers to the degree to which both short-term fluctuations in economic activity and other factors not directly linked to the business cycle affect the level of revenue collected from a funding source. Revenue stability has been an important concern for FAA's funding because of the impact of the September 11, 2001, terrorist attacks, the war in Iraq and associated security concerns, the Severe Acute Respiratory Syndrome (SARS) outbreak, and global recessions on the demand for air travel, and, therefore, on the revenues flowing into the Trust Fund (see [GAO-06-562T](#)). However, the revenue stability concern will likely exist in a roughly similar way under each of the options we reviewed because significant decreases in demand are likely to decrease revenues whether they are derived from excise taxes on aviation-related activities or from direct user charges. Thus, in this report, we do not address revenue stability because it is not likely to vary much across options, including the current funding system.

increase. This example shows the taxes that would be generated from transporting 105 passengers from Los Angeles to San Francisco by (1) one flight using a common narrow-body jet (Boeing 737), and (2) three flights using a common regional jet (CRJ-200). In this case, the narrow-body jet has the capacity to carry 132 passengers, while each regional jet has the capacity to carry 48 passengers.

**Table 1: Estimated Excise Tax Contribution of One Narrow-body Jet Flight Compared with Three Regional Jet Flights**

Approximately 300-mile flight from Los Angeles to San Francisco		
Plane type	One 737 flight	Three CRJ-200 flights
Number of seats	132	144
Number of passengers	105	105
Average fare	\$100	\$100
Gallons of fuel consumed	937	1,797
Ticket tax	\$788	\$789
Passenger segment tax	\$348	\$348
Waybill tax	\$2	\$0
Fuel tax	\$40	\$78
<b>Total revenue</b>	<b>\$1,178</b>	<b>\$1,215</b>

Source: GAO analysis of FAA data.

As the table shows, differences in FAA’s workload are not reflected in revenues. FAA states, all other factors being equal (e.g., time of flight), that the total ATC costs of the three regional jet flights would be about three times the cost of one narrow-body flight. Revenues from the three regional jet flights, however, total only about \$37, or 3 percent, more than the revenue generated by the one narrow-body jet flight. Revenue increases are not linked to cost increases because, under the current system, revenues are primarily influenced by the number of passengers, the average price of tickets, and the amount of fuel used—not the costs imposed on FAA through the use of its services.

The disconnect between revenues and workload can work both ways; increases in the number of passengers on planes (e.g., larger planes or higher load factors<sup>19</sup>) or increases in fares can result in higher revenues

<sup>19</sup>A load factor is the percentage of a flight’s total available seat miles actually used to transport passengers.

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relative to workload. In fact, load factors have increased over the past several years, and fares have increased over the past year. However, long-term trends and FAA's projections for both domestic fares and plane size suggest that Trust Fund revenues have declined relative to FAA's workload and will likely continue to do so for the next several years.

Trends in average fares suggest that the Trust Fund is collecting less revenue relative to workload than in the past, and FAA's projections suggest that this decline will continue. Since the passenger ticket tax is a percentage of the ticket price, reductions in the average ticket price result in lower ticket tax revenues relative to FAA's workload. Domestic airfares, adjusted for inflation, have steadily declined over the past 25 years, from an average of \$233 in 1981 to \$148 in 2005 (see fig. 6).<sup>20</sup> This reduction represents an average decline of about 1.9 percent per year.<sup>21</sup> Even though there have been increases in fares over the past year, FAA projects average fares will continue to decline over time. In FAA's most recent forecast, inflation-adjusted domestic yields—a proxy measure for fares—are projected to decline approximately 8.5 percent over the next 10 years.<sup>22</sup>

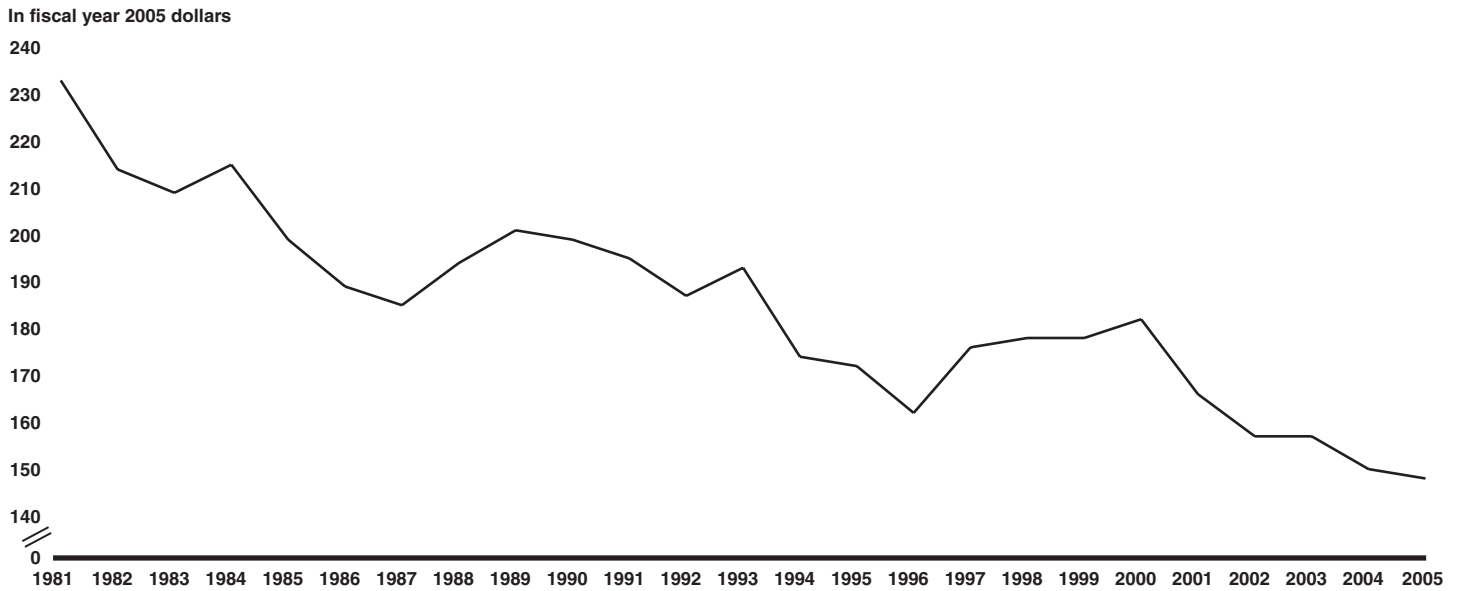
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<sup>20</sup>We have adjusted airfare data to 2005 dollars.

<sup>21</sup>This is the annual compounded rate of decline.

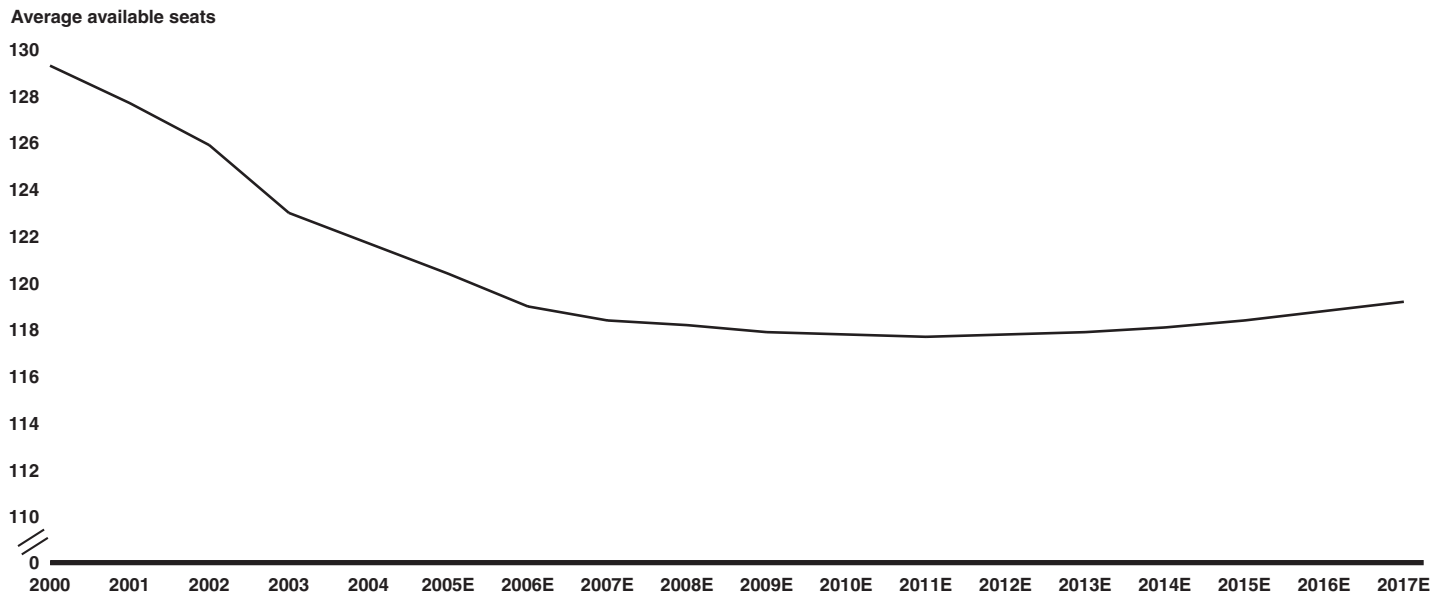
<sup>22</sup>Yield is the amount of revenue airlines collect for every mile a passenger travels.

**Figure 6: Average Domestic Fares, 1981-2005**



Trends in the average size of airplanes also suggest that the Trust Fund is collecting less revenue relative to workload than in the past, and FAA's projections suggest that this decline will continue (see fig. 7). Since smaller planes carry fewer passengers and burn less fuel, reductions in average plane size mean lower ticket tax, segment tax, and fuel tax revenue accrues to the Trust Fund relative to FAA's workload.

**Figure 7: Average Available Seats per Domestic Aircraft**



Source: GAO analysis of FAA data.

This decline in the average number of seats per aircraft is the result of airlines' moving toward a substantially greater reliance on regional and narrow-body jets.<sup>23</sup> Scheduled capacity (available seat miles) increased 29 percent from 1996 through 2005. During this time, wide-body jet capacity fell 42 percent, narrow-body jet capacity grew 35 percent, and regional jet capacity grew over 2900 percent. As a result, regional jets accounted for nearly 10 percent of scheduled capacity in 2005, up from less than 1 percent in 1995. In addition to projecting growth in commercial flights, FAA is projecting substantial growth in GA traffic, which will also add to FAA's workload.

<sup>23</sup> Generally speaking, wide-body jets are the largest jets, with the capacity to transport approximately 200 or more passengers; narrow-body jets are smaller, with the capacity to transport approximately 100 to 200 passengers; regional jets are the smallest of these three plane types, with the capacity to transport approximately 50 to 90 passengers.

## Some Stakeholders Have Raised Equity Concerns with the Current Funding System

Some aviation stakeholders have expressed concerns that the current approach to collecting funds from users through excise taxes creates inequities because the revenue contributions of different flights are not directly linked to the costs of the services that these flights receive from FAA. As noted, factors that influence the revenue contribution that a commercial flight makes to the Trust Fund are the number of passengers, the average price of tickets, and the amount of fuel used. None of these factors, however, are directly related to the cost of the ATC services that a flight receives from FAA. Table 2 shows FAA’s estimates of the revenue contributions made by various flights. Since FAA estimates that similar flights impose similar costs on the agency, the substantial differences in the revenue contributions of these flights raise issues of fairness. One equity issue is that similar commercial flights may contribute very different amounts of revenue. As shown in this example, a 767 flight contributes more than twice as much as two similar 737 flights. There is also a difference between the contributions for the two similar 737 flights; one flight contributes 14 percent more than the other flight.

**Table 2: Estimated Excise Tax Contribution by Flight Type**

Approximately 300-mile flight from Los Angeles to San Francisco

Plane type	Commercial flights			GA business flights	
	767	737	737	Citation V Fractional	Learjet 35
Number of seats	231	132	132	9	<sup>a</sup>
Number of passengers	180	89	89	5	<sup>a</sup>
Average fare	\$82	\$84	\$67	\$235	<sup>a</sup>
Gallons of fuel	1,646	937	808	442	190
Ticket tax	\$1,100	\$565	\$449	\$86	\$0
Passenger segment tax	\$544	\$270	\$270	\$15	\$0
Cargo/Mail tax	\$27	\$2	\$2	\$0	\$0
Fuel tax	\$71	\$40	\$35	\$19	\$41
<b>Total revenue</b>	<b>\$1,742</b>	<b>\$877</b>	<b>\$756</b>	<b>\$120</b>	<b>\$41</b>

Source: GAO analysis of FAA data.

<sup>a</sup>Not applicable.

Concerns also exist about the fairness of the distribution of the funding burden between commercial airlines and GA operators. Domestic commercial passenger flights, and some flights typically considered GA

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flights that carry commercial passengers,<sup>24</sup> are subject to, among other potential excise taxes, the passenger ticket tax, the passenger segment tax, the cargo/mail tax, and the fuel tax. GA flights (excluding those that carry commercial passengers) are subject only to a fuel tax. As a result, the revenue contributions of similar commercial and GA flights may be substantially different. For example, the taxes that the Trust Fund would receive from two different types of business jet flights would be substantially less than the taxes received from similar commercial flights (see table 2).

Although the commercial and GA flights might receive the same services from FAA, raising equity concerns because of the large difference in revenue contribution, there is debate over whether GA and commercial flights should be assigned the same costs for similar flights because parties disagree on how to assign the fixed costs associated with the ATC system. Representatives of the commercial aviation industry favor assigning those costs to all system users in proportion to their use of the system. Representatives of GA, on the other hand, state that the system exists at its present size to serve the needs of the commercial aviation industry and that GA should be assigned only the incremental costs of serving GA (i.e., those costs that would not otherwise exist). Without a consensus on how to assign ATC costs to users, it is not possible to assess the extent to which the current approach or any other results in a distribution of the funding burden between commercial airlines and GA operators that approximates the distribution of costs attributable to those groups.

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### Current Funding System Lacks Strong Incentives to Encourage Efficient Use of the NAS

Some stakeholders have also raised concerns that the current funding system does not provide aircraft operators with incentives to use FAA services in the most efficient manner. For users to make efficient decisions about their use of the NAS, their price for using the system (the taxes or charges they pay) should accurately reflect the costs their use imposes on the system. These prices, along with other factors influencing supply and demand, will influence users' decisions about the type, size, and number of aircraft to operate, and when and where to operate them.<sup>25</sup>

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<sup>24</sup>This includes some flights typically considered GA flights, such as those by air taxis and some fractional ownership operations.

<sup>25</sup>Supply factors that influence users' decisions include other costs of operating aircraft, such as labor, fuel, and capital costs. Demand factors include the state of the economy and the price and convenience of flying compared with using other modes of transportation.

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Given the importance of some of these other factors to users' decisions about using the NAS, the influence of prices charged for FAA's services on these decisions may be comparatively small for some users.

As discussed previously, FAA states that under the current funding system the taxes collected from users do not accurately reflect the costs those users impose on the system; some flights likely pay more than the costs they impose, while others likely pay less. These price differences suggest that the current funding structure creates incentives for inefficient use of the NAS. Users who pay more in taxes than the costs they impose may make less than optimal use of the system, while those who pay less than the costs they impose may make more than optimal use of the system.

An airline's decision about how many flights to offer in a given market illustrates how the current system does not provide incentives for efficient use of the system. In this example (the same one used for the revenue adequacy discussion), an airline is deciding how many daily flights it should provide for the Los Angeles to San Francisco market (see table 3). It estimates that the market demand at the fare it is charging totals 105 passengers per day, and it faces the choice of providing the market with one daily flight with a narrow-body jet (Boeing 737), or three daily flights with a regional jet (CRJ-200)—all flight choices are assumed to depart during peak periods. In this scenario, the revenue collected from the three regional jet flights—\$1,215—is about 3 percent more than the revenue collected from the one narrow-body jet flight—\$1,178. FAA states however, that each flight would impose similar costs on the agency, so FAA's costs would be roughly 3 times more to handle the three regional jet flights than to handle the one medium jet flight. In this example, however, there is little financial incentive (\$37) for the airline to limit its imposition of additional costs on FAA by using one flight instead of three flights.



**Table 3: Estimated Excise Tax Contribution of One Narrow-body Jet Flight Compared with One Regional Jet Flight**

Approximately 300-mile flight from Los Angeles to San Francisco

<b>Plane type</b>	<b>737-300</b>	<b>CRJ-200</b>
Number of seats	132	48
Number of passengers	105	35
Average fare	\$100	\$100
Gallons of fuel consumed	937	599
Ticket tax	\$788	\$263
Passenger segment tax	\$348	\$116
Waybill tax	\$2	\$0
Fuel tax	\$40	\$26
<b>Total revenue</b>	<b>\$1,178</b>	<b>\$405</b>

Source: GAO analysis of FAA data.

This situation is made worse during times when the NAS is congested. There are two issues associated with congestion. The first is plane size; if all other factors are equal, such as demand for air travel, it is more efficient to serve congested airspace with larger planes because they can move more passengers per flight. Second, when congestion is a factor, efficiency requires consideration of the delay costs imposed on other system users. Charging similar flights equally, regardless of plane size, and incorporating congestion costs, would create financial incentives to improve efficiency.

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## Alternative Funding Options Present Both Advantages and Disadvantages

Alternative funding options for collecting revenues from NAS users present both advantages and disadvantages.<sup>26</sup> The degree to which alternative funding options could address concerns about the current excise system ultimately depends on the extent to which the contributions required from users actually reflect the costs they impose on the system. Given the diverse nature of FAA's activities, a combination of alternative options may offer the most promise for linking revenues and costs. Switching to any alternative funding option would raise administrative and transition issues. For example, any cost-based funding system would require FAA to complete the appropriate cost analysis using either a cost accounting system or cost finding techniques. Some stakeholders who support the adoption of direct user charges also support a change in FAA's governance structure—for example, commercializing air navigation services—but we found no evidence that the adoption of direct charges would require a governance change.

The six funding options considered here include two that would modify the current excise tax structure and four that would adopt more direct charges to users. Without more detailed information and an understanding of the costs different flights impose on the NAS, any assessment of the current system or alternative funding options is only preliminary. The degree to which alternative funding options could address revenue adequacy, equity, and efficiency concerns, relative to the current system, ultimately depends on the extent to which the contributions required from users actually reflect the costs they impose on the system. More precise assessments of the current or alternative funding options are possible only if cost finding techniques are used throughout FAA.

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## Modifications to the Current System

The two options we reviewed that would modify the current excise tax structure are relying solely on a fuel tax and increasing the passenger segment tax to replace the passenger ticket tax.

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<sup>26</sup>As discussed earlier, some elements of FAA's budget cannot be directly linked with taxes or charges that system users pay for their use of FAA's services. One example is money given to airports in grants through the Airport Improvement Program. Another example might be expenditures required to control government planes, both military and civilian, unless other government agencies were treated as system users. As a result, if any of these options are adopted and the tax or charge rates are based on the costs of services to users, then the revenue collected will not cover all of FAA's budget. Contributions from the General Fund or revenues from other taxes that are not linked to costs would also be needed.

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## Fuel Taxes

One possible modification to the current system would be to increase the current aviation fuel taxes—which levy a specific amount per gallon of fuel—to replace the revenue lost by eliminating the remaining excise taxes and charges. Advocates of reliance on a fuel tax funding system state that it is appealing compared to the current system because there is a correlation between the time a plane spends in the system and the amount of fuel a plane uses. To the extent that time in the system is related to cost, this relationship creates at least a partial link between revenues and costs, which could partially address the revenue adequacy, equity, and efficiency concerns about the current system. In addition, advocates of the fuel tax state that a fuel tax is inexpensive and simple to administer. Under the current system the Internal Revenue Service (IRS) is responsible for collecting fuel taxes at the point of sale, and these funds are then deposited to the Treasury, which then credits the Trust Fund. FAA has no responsibility for collecting the revenue. Thus, transitioning to an all-fuel-tax funding system would be relatively easy, since the administrative system is already in place. Furthermore, the tax is easy for consumers to understand, and compliance is simple and inexpensive.

From a revenue adequacy perspective, fuel taxes compare favorably with other existing excise taxes because they are more directly linked to workload. Thus, all things being equal, increases in workload over time would likely result in fuel tax revenue increases. Nonetheless, two factors that lead to lower fuel consumption will erode the ability of a fuel tax to generate revenue over time. First, while the incentive created through the tax to conserve fuel will promote more efficient use of the system, it will lead to lower fuel consumption, which will reduce revenues. Second, technological advances that increase the fuel efficiency of airplanes will reduce fuel consumption relative to FAA's workload, leading to lower revenues relative to FAA's workload; the new 787 aircraft<sup>27</sup> and a recent effort to outfit planes with winglets<sup>28</sup> are examples of these advances. Thus, it is likely that the fuel tax rate would have to be raised from time to time to be adequate in the long run.

The extent to which a fuel tax would address equity issues appears to be limited. Although FAA states that there is a correlation between the time a

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<sup>27</sup>The 787 aircraft is a new plane under development by Boeing that emphasizes fuel efficiency through the use of lightweight composite material and more fuel-efficient engines.

<sup>28</sup>Winglets are attachments to the wings of planes that reduce fuel consumption.

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plane spends in the NAS and fuel consumption, the extent to which fuel consumption correlates with costs imposed on FAA has not been established. First, there may be a relationship between time in the system and en-route control costs, but the relationship between time in the system and the costs of other FAA activities, such as terminal costs, is not obvious. Second, even if the fuel tax were limited to funding en-route costs, the connection between fuel consumption and those costs appears to be incomplete. For example, since heavier planes burn more fuel per mile than lighter planes, they would be required to contribute more for spending the same amount of time in the system.

As with equity issues, the potential for a fuel tax to address efficiency issues appears limited because the connection between revenues and costs is incomplete. A fuel tax can create an incentive for operators to minimize their fuel consumption (e.g., by flying at off-peak times to avoid congestion delays) and, therefore, their time in the NAS. To the extent that time in the system correlates with costs imposed, this incentive can lead to improved efficiency. However, any relationship between time in the system and costs imposed on FAA appears to be limited to en-route control costs.

## Passenger Segment Tax

A second option that represents a modification of the current system is to increase the current passenger segment tax to replace revenues lost by eliminating the current passenger ticket tax. Under this option, all other current excise taxes would remain unchanged, implying no change to revenues collected from cargo carriers and GA operators. This option would likely increase the tax differential between passengers traveling on one-stop (or more than one-stop) flights and those traveling on nonstop flights on the same route. As a result, there might be a shift in travelers' demand toward more nonstop service, which might, in turn, lead airlines to operate more nonstop service. Because there is a partial link between the number of segments an airline operates and the cost of the services FAA provides to that carrier, this option might have some advantages over the present tax structure in terms of revenue adequacy, efficiency and equity. However, because there is no link to the cost of some of the other services that FAA provides, these advantages are limited.

Compared to the present funding structure, this option might address concerns about revenue adequacy over time, but many of the concerns associated with the current system would likely remain. One way in which a passenger segment tax might better correlate to FAA's workload is that commercial flights that include a stop require more terminal services from FAA than nonstop flights, and taxes based on the number of passenger

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segments traveled will increase as the number of stops increases. In addition, the current passenger segment tax is indexed to the Consumer Price Index so that it is adjusted each year to account for inflation, which preserves the purchasing power of the revenues collected. However, other services that FAA provides could increase without any increase in passenger segment tax revenues. For example, if the average distance of commercial flights increases, the cost of providing en-route services will rise, but the passenger segment taxes paid will not rise because they are not based on distance traveled or time in controlled airspace. Furthermore, passenger segment taxes apply only to commercial flights, so they have no advantage over ticket taxes in providing revenue adequate to fund cost increases associated with providing services to cargo and GA aircraft. In addition, there would be no improvement in providing adequate revenue for safety and security expenditures.

Compared to ticket taxes, higher flight passenger segment taxes have the potential to increase equity by better aligning revenues with costs, and they create some additional incentives for efficient use of FAA services. However, these effects are likely to be limited because the tax revenues are aligned only to some cost elements and the tax applies only to commercial aircraft. With increased passenger segment taxes, the difference in the amount of taxes commercial airlines would have to pay for one-stop service compared with nonstop service would be greater. This greater difference in taxes might represent an improvement in equity compared to the present funding system because one-stop flights require more terminal and approach services from FAA than nonstop flights. This greater difference in taxes could also create an incentive to provide more nonstop service. Substituting nonstop for one-stop service could reduce the airlines' need for FAA's terminal and approach services. However, this incentive could be quite small relative to other factors that influence airlines' service-offering decisions, so the effect on efficiency could also be quite small. In addition, airlines would have no additional incentive to be efficient in their use of en-route services because the passenger segment tax is not linked to time in controlled airspace, and there would be no change from the current structure in incentives for cargo and GA operators.

Administrative and transition issues would be minimal, since this option would require only a change in the current tax per flight segment and the elimination of the passenger ticket tax.

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## Direct Charges

The four funding options we reviewed that would involve more direct charges to users include weight/distance charges, en-route charges, flight segment charges, and certification charges.

## Weight/Distance Charges

Charges based on weight and distance traveled are used by a number of foreign air navigation service providers and are supported by the International Civil Aviation Organization. As suggested by the name, this option would base charges to users on the weight of the plane and the distance it travels within the NAS. According to their advocates, weight/distance charges are more appealing than the current system because they would establish a more direct relationship between revenues and costs by incorporating distance into the formula, thereby creating an incentive to limit excess use of FAA's ATC en-route services. In addition, advocates say, weight/distance charges would strike a balance between basing charges on the ability-to-pay principle<sup>29</sup> and more directly linking costs and revenues by incorporating both weight and distance in the distribution of costs among users.

A weight/distance charge, relative to the current funding system, would be likely to improve the revenue adequacy of the system. Revenue adequacy is addressed by the incorporation of a cost component into the weight/distance formula. Generally, air navigation service providers that use a weight/distance formula regularly adjust the cost component to ensure that revenues match costs. For example, FAA's counterpart in France—la Direction Générale de l'Aviation Civile—annually adjusts the cost component of its weight/distance formula on the basis of en-route charges. This adjustment ensures that revenues not only cover costs, but also do not exceed costs.

As with the fuel tax, the extent to which a weight/distance charge would address equity issues appears to be limited. While there may be a relationship between the distance a plane travels in the NAS and the costs it imposes, the introduction of the weight component into the formula weakens any such connection. For example, since heavier planes would be charged more than lighter planes, they would be required to contribute more for traveling the same distance in the system, even though they may not impose greater costs on the ATC system. If a relationship between

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<sup>29</sup>The ability-to-pay principle is a concept of tax fairness that states that those individuals with a greater financial capacity—measured by wealth, income, or other levels of well-being—to bear a tax burden should pay more in taxes than those individuals with a lesser financial capacity.

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weight and distance in the system and costs imposed can be established, it is likely to be limited to en-route control costs. There is no obvious relationship between the weight/distance formula and other FAA activities—terminal control services and safety activities.

Since the connection between revenues and costs is incomplete because of the weight component, the potential for a weight/distance charge to address efficiency issues also appears limited. The distance component of a weight/distance charge creates an incentive for operators to minimize their use of the NAS. To the extent that distance in the system correlates with costs imposed, this incentive could improve efficiency. However, the correlation between distance and costs imposed is limited by the introduction of the weight component. Furthermore, the relationship between distance in the system and the costs imposed on FAA is likely to be limited to en-route control costs, excluding consideration of the costs associated with terminal control and safety activities.

Implementing a weight/distance charge would also involve significant administrative and transition issues. FAA would have to determine how to administer a weight/distance charging system for which it does not currently have the organizational capacity. FAA stated that one option would be to contract the billing out to a private party, much as European Union countries such as France contract out their billing to Eurocontrol.<sup>30</sup>

## En-route Charges

En-route charges would be based on the time users spend in the NAS or the distance they travel through the NAS. According to their advocates, en-route charges are more appealing than the current system because they would create a more direct relationship between revenues and costs. Therefore, compared to the current system, advocates say en-route charges would (1) better ensure that revenues are adequate to cover costs over time, (2) address equity issues, and (3) create incentives for efficient use of the current system.

An en-route charge, relative to the current funding system, would be likely to improve the revenue adequacy of the system. As with weight/distance charges, en-route charges could address revenue adequacy concerns by

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<sup>30</sup>Eurocontrol is the European Organisation for the Safety of Air Navigation. Eurocontrol's core activities span the entire range of gate-to-gate air navigation service operations—from strategic and tactical flow management to controller training; from regional control of airspace to development of leading-edge, safety-proofed technologies and procedures, and the collection of air navigation charges.

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incorporating a cost component into the charging formula that could be regularly adjusted to reflect any changes in costs. This approach could ensure, over time, that revenues match costs.

As with other funding options discussed here, the ability of en-route charges to address equity and efficiency issues raised by the current system appears to be limited. According to FAA, there is a strong relationship between time and distance in the system and en-route costs imposed by users. Thus, if en-route charges were limited to funding en-route control costs, they might address equity issues raised by the current system by equating charges to costs imposed, depending on how costs are assigned. Furthermore, en-route charges for en-route control would create clear financial incentives to use the system more efficiently; less use of the system would lead to proportionately lower charges. However, there is no obvious relationship between time or distance in the system and other FAA activities—terminal control services and safety activities. As a result, if en-route charges were used to fund all FAA activities, their ability to address equity and efficiency issues is unclear.

Implementing en-route charges would also involve significant administrative and transition issues. FAA would have to develop the organizational capacity to administer and collect en-route charges, which would include completing the appropriate cost analysis using either a cost accounting system or cost finding techniques.

## Flight Segment Charges

Flight segment charges to users would be based on the departures and landings that aircraft make at various airports throughout the NAS. According to their advocates, flight segment charges are more appealing than the current system because they would establish a more direct relationship between revenues and costs. Therefore, compared to the current system, advocates say that flight segment charges would (1) better ensure that revenues are adequate to cover costs over time, (2) address equity issues, and (3) create incentives for efficient use of the current system by directly connecting charges with costs imposed by users.

A flight segment charge, relative to the current funding system, would be likely to improve the revenue adequacy of the system. As with weight/distance charges, flight segment charges could address revenue adequacy concerns by incorporating a cost component into the charging formula that could be adjusted regularly to reflect any changes in costs. This approach could ensure that, over time, revenues match costs.



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As with other funding options discussed here, the ability of flight segment charges to address equity and efficiency issues raised by the current system appears to be limited. FAA states that there is a strong relationship between departures and landings in the system and costs imposed by flights for terminal control handled by TRACONs. Thus, if flight segment charges were limited to funding terminal control costs, they might address equity issues raised by the current system by equating charges to costs imposed, depending on how costs were assigned. Furthermore, flight segment charges for terminal control would create clear financial incentives to use the system more efficiently: less use of the system would lead to proportionately lower charges. However, there is no obvious relationship between flight segments and other FAA activities—en-route control and safety activities. As a result, if flight segment charges were used to fund all FAA activities, their ability to address equity and efficiency issues would be limited.

Implementing flight segment charges would involve administrative and transition issues similar to those associated with en-route charges. FAA would have to develop the organizational capacity to administer and collect flight segment charges and complete the appropriate cost analysis using either a cost accounting system or cost finding techniques.

## Certification Charges

Certification charges to users would cover specific safety services provided by FAA, such as certificates for air worthiness, air operators, and air agencies; registration for air personnel, aircraft, and medical personnel; designees and delegations; and international training. According to their advocates, certification charges would be more appealing than the current system because they would establish a direct relationship between revenues and costs, which would address the revenue adequacy, equity, and efficiency concerns associated with the current system.

Certification charges have the potential to fulfill revenue adequacy requirements for safety costs over time because they are directly linked to workload; charges would be assessed for each certificate issued. Thus, as workload changed over time (increasing or decreasing), so would the revenue from certification charges. In addition, any certification system would likely have the flexibility to adjust charges as costs changed. Certification charges, however, could not support all of FAA's funding requirements, so this option would have to be used in combination with other revenue sources. According to FAA officials, there is a clear relationship between certification charges and the specific safety activities for which users would be charged. Thus, if certification charges were limited to funding the associated safety costs, they would address equity

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issues raised by the current system by equating charges to costs imposed; this equity improvement, however, would be limited to funding for safety activities. Furthermore, certification charges would likely create financial incentives to use the system efficiently, since charges would increase in proportion to use.

FAA raises the concern that imposing certification charges for safety services would adversely affect safety because such charges would create incentives to avoid the use of safety services and, in some cases, ATC services. Our review of available data from five air navigation service providers in other countries found that since their air traffic control services were commercialized and charges were implemented, the safety of the services remained the same or improved. For example, data from New Zealand and Canada show fewer incidents of loss of separation (the distance required between planes) since commercialization.<sup>31</sup>

Implementing certification charges would involve administrative and transition issues similar to those associated with en-route and flight segment charges. FAA would have to develop the organizational capacity to administer and collect certification charges and complete the appropriate cost analysis using either a cost accounting system or cost finding techniques.<sup>32</sup>

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## Combining Funding Options Might Best Address Concerns

Using a combination of workload-related taxes or charges to fund FAA might best address the revenue adequacy, equity, and efficiency concerns associated with the current funding structure, given that the costs of FAA's ATC and safety activities are driven by different factors. No single option that we reviewed creates a direct link between revenues and all components of FAA's activity costs. Fuel taxes, weight/distance charges, or en-route charges based on time or distance spent in the NAS could be used to create a more direct link with FAA's costs of providing en-route ATC services. A segment tax for passengers or a flight segment charge could be used to create a more direct link with the costs of FAA's terminal services. Certification charges could be used to create a more direct link

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<sup>31</sup>See GAO, *Air Traffic Control: Characteristics and Performance of Selected International Air Navigation Service Providers and Lessons Learned from Their Commercialization*, [GAO-05-769](#) (Washington, D.C.: July 29, 2005).

<sup>32</sup>FAA is currently prohibited from charging certain certification and registration fees under 49 U.S.C. §45302 until several specific regulations have been promulgated.

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with the costs of FAA's various safety-related activities. Thus, some combination of options, such as en-route charges to fund en-route costs, flight segment charges to fund terminal control costs, and certification charges to fund some safety costs, might best address concerns with the current system by providing a better link between revenues and costs than any of these options used separately. According to one stakeholder, however, the administrative expense of using multiple funding options might outweigh the benefits of such an approach. According to FAA, other air navigation service providers, such as those in the European Union, have been able to administer direct charges without incurring excessive administrative costs.

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### Cost-Based Charges Can Be Imposed under FAA's Current Governance System

In discussing alternative funding options, some stakeholders have stated that if user charges are adopted, users should have more input into FAA's operation, citing the "user pays, user says" principle. To many stakeholders, this principle implies that the adoption of direct user charges would require a change in FAA's governance structure that could limit congressional influence on the agency while expanding the influence of airlines and other users. Many stakeholders support such a change, pointing out that many countries that rely on direct charges to fund aviation activities have commercialized their air navigation service providers.

We did not find any evidence that a change in FAA's governance structure would be required if direct charges were adopted. Federal law provides general authority for federal agencies to institute user charges except when otherwise prohibited.<sup>33</sup> In FAA's case, Congress has specifically prohibited the agency from instituting any new user charges under this general authority in every DOT appropriation act since 1998. Furthermore, under the current funding system, users already provide most of the revenue used to fund FAA programs through excise taxes. Adopting direct charges would change the manner in which revenues are collected from users, but would not necessarily change the aggregate contribution from users. Since users pay most of FAA's program costs now, it is unclear what additional role users should play in FAA's decision-making under an alternative system.

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<sup>33</sup>31 U.S.C. 9701.

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Recent reforms in France's Direction Générale de l'Aviation Civile illustrate how a government agency has moved toward a cost-based system of charges to fund the air navigation services it provides without changing the underlying governance structure. The French organization's activities fall into two broad divisions—safety and regulation, and ATC.<sup>34</sup> Safety and regulation are funded through a combination of general government support and specific user charges. For example, there are charges for pilots' licenses, medical certificates, inspections, and aircraft registration. ATC activities are split into two categories—en-route control and terminal control. For en-route control, France must abide by the European Union's regulations, which are based on principles established by the International Civil Aviation Organization. This approach incorporates a weight/distance formula that is used to determine charges for specific aircraft based on their activity. Although the formula distributes charges across aircraft differently by incorporating weight as a factor, the amount of the charges is based on cost data that are verified by the European Union. Eurocontrol actually bills users of the system; all European Union countries collect en-route charges through this organization. Terminal control charges are not directly based on cost factors, but are billed along with the en-route control charges through Eurocontrol.

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## Alternative Capital Financing Methods Have Advantages and Disadvantages

Allowing FAA to use debt financing for capital projects have advantages and disadvantages. Many stakeholders have identified the use of debt financing—such as bonds—as a means of funding FAA capital projects, such as components of NGATS or existing ATC facilities and equipment. Some stakeholders believe debt financing is attractive because it could provide FAA with a stable source of revenue to fund capital development and, at the same time, spread the costs out over the life of a capital project as its benefits are realized. If Congress approved the use of debt financing for FAA, the agency could borrow through the Treasury or directly from the private capital market, depending on what authority Congress provided. Debt-financing raises significant concerns, however, because it encumbers future resources and because expenditures from debt proceeds may not be subject to the congressional oversight that appropriations receive. In addition, debt financing is subject to federal

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<sup>34</sup>Most airports in France are independent from the national government, and their infrastructure is funded through charges levied by individual airports.

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budget scoring rules<sup>35</sup> and raises issues associated with borrowing costs that are particularly important in light of the federal government's long-term fiscal imbalance.

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### Some Stakeholders Believe Debt Financing Offers Advantages

According to its supporters, debt financing has a number of advantages, one of which is that it could provide FAA with a stable source of revenue to fund capital development. FAA officials state that the uncertainty associated with the appropriation process makes planning for large, complex, and expensive ATC systems difficult. Another advantage cited is that debt financing would allow the costs of capital projects to be repaid as the benefits are received, better aligning costs and benefits. Finally, supporters of debt financing, including an investment firm, state that the private capital market may offer disciplinary mechanisms that may encourage FAA to manage itself more efficiently. The discipline occurs because, to receive funding for projects, FAA would need to adhere to bond covenants, which are rules that govern how FAA will pay obligations. One investment firm noted, however, that projects could be overcapitalized, or "gold plated," if FAA were given the authority to borrow without caps on the number and costs of projects it funds. For example, a significant amount of debt could be issued for projects with minimal marginal benefits to users. As a result, an investment firm noted, there may need to be a governing board with multiple aviation stakeholders, including airlines, airports, and air traffic controllers, to determine which capital projects are needed and how they will be funded. Treasury officials also question whether the private capital market will provide any market discipline to FAA debt obligations because investors may perceive that the obligations are backed by the federal government, and not just agency revenues. Treasury officials further noted that they could perform credit analyses similar to those done by private investment firms, which, when combined with statutory borrowing caps and other credit terms and conditions, would serve to protect the financial interests of the general taxpayer.

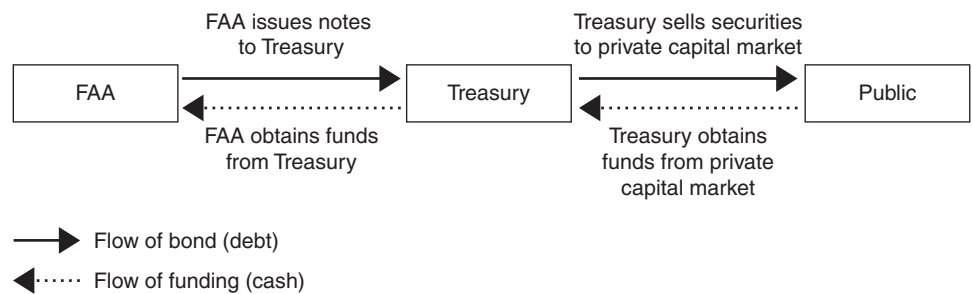
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<sup>35</sup>Budget scorekeeping rules or guidelines are developed by the House and Senate Budget Committees, CBO, and OMB (the scorekeepers). The purpose of the guidelines is to ensure that the scorekeepers measure the effects of legislation on the deficit consistent with established scorekeeping conventions and with the specific requirements of the Congressional Budget Act of 1974 and the Balanced Budget and Emergency Deficit Control Act of 1985. Budget scorekeeping rules are published in OMB Circular A-11.

## FAA Could Borrow from the Treasury or the Private Capital Market

To borrow from the Treasury, FAA would need borrowing authority from Congress. There are various ways Congress can provide borrowing authority, each with different legal, financial, and structural implications. For example, some government entities generate their own revenue to pay for borrowing costs, whereas others pay with appropriations.<sup>36</sup> Some government entities with borrowing authority are federal agencies, such as the Bonneville Power Administration (BPA), while others are independent establishments, such as the U.S. Postal Service.<sup>37</sup> Once borrowing authority is granted, the Treasury sets the terms and conditions for borrowing. FAA could borrow from the Treasury, using revenue options such as taxes, user fees, or appropriations to repay the debt, depending on the type of bond. Figure 8 describes the process for borrowing from the Treasury.

**Figure 8: Potential FAA Process for Borrowing from the Treasury**



Source: GAO analysis of Treasury documents and interviews.

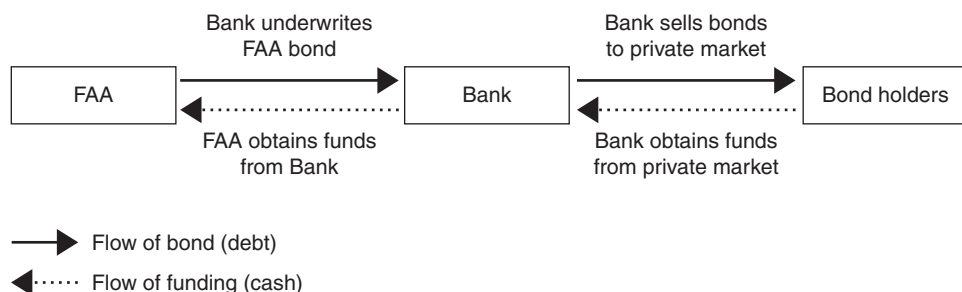
In borrowing from the private capital market, FAA could issue general revenue (GR) or general obligation (GO) bonds. Both types of bonds would require FAA to pay interest and principal to bond holders, but the revenue sources used to make these payments would differ. A GR bond

<sup>36</sup>GAO, *Budget Issues: Agency Authority to Borrow Should Be Granted More Selectively*, GAO/AFMD-89-4 (Washington, D.C.: Sept. 15, 1989).

<sup>37</sup>BPA is a self-supporting agency in the Department of Energy that borrows from the Treasury to finance capital investments such as new transmission facilities that it owns. BPA receives no appropriations and is solely funded by revenues from power sales, which it uses to finance its operations and to make debt payments. BPA received direct borrowing authority from Congress in 1974 and has a borrowing cap of \$4.5 billion. Since BPA is a federal agency that is performing a federal function, it is borrowing for federal purposes, and its assets are federally owned, the interest rate on BPA debt to Treasury is equal to the rate on debt of comparable maturity issued by government corporations.

requires taxes or user fees to pay the interest and principal, while a GO bond uses expected appropriations. Several nonfederal government entities currently borrow from the private capital market using GR and GO bonds. In aviation, most commercial airports issue GR bonds for airport capital improvements that are backed by general revenues from the airport, including aircraft landing fees, concessions, and parking fees, for airport capital improvements. In surface transportation, some states issue grant anticipation revenue vehicle (GARVEE) bonds backed by anticipated federal apportionments to fund highways. However, the eligibility of a GARVEE bond for reimbursement with federal apportionments does not constitute a commitment by the federal government to provide for paying the principal or interest on the bond. The Department of Transportation, which oversees the GARVEE program, reimburses the state for debt service expenses as part of the annual federal-aid obligation authority. Figure 9 describes the process for borrowing from the private capital market.

**Figure 9: Potential FAA Process for Borrowing from the Private Capital Market**



Source: GAO analysis of Treasury documents and interviews.

For FAA to borrow from the private capital market, Congress would need to give the agency statutory authority. Depending on how Congress writes the statute, FAA could use any revenue option—taxes, user fees, or appropriations—to secure the bond. According to some representatives of investment banks and Treasury officials, no organizational changes for FAA, such as a change to a government corporation or corporate entity, would be needed.

Currently, some government corporations borrow from the private capital market, including the Tennessee Valley Authority (TVA). TVA is an independent, wholly owned federal corporation established by the Tennessee Valley Authority Act of 1933 that sells bonds in the private

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capital market to finance its capital improvements for power programs. TVA pays for its operations and debt service with revenues from its energy sales. Since TVA first issued bonds, Moody's Investors Service and Standard & Poor's have assigned TVA's bonds their highest credit rating—Aaa/AAA.<sup>38</sup> TVA does not receive a direct federal guarantee, although the interest rate charged by the private capital market suggests that there is an implied federal guarantee.<sup>39</sup>

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## Debt Financing Raises Budgetary Concerns

Debt financing is subject to federal budget scoring rules and raises issues regarding borrowing costs that are particularly important in light of the federal government's long term structural fiscal imbalance. How the borrowing authority is carried out will affect both budget scoring and costs. When an agency uses borrowing authority to finance a capital project, budget authority and obligations are recorded in the budget when the investments are made. Current budget scoring rules require that budget authority and obligations for the full cost of capital projects be scored upfront in the year that the obligations are made. Over time, the outlays will equal the budget authority and obligations that were scored upfront. As an example, if FAA borrowed \$5 million with a 10 year bond to purchase air traffic control equipment, the \$5 million would be scored as budget authority and obligations in the year or years in which FAA signed the contract or contracts to purchase the equipment, and not distributed annually over 10 years. Since this budget treatment is the same as if appropriations were obtained, there is little scoring incentive for an agency to borrow.

Among the negative consequences of not scoring all government activities in the year in which obligations are made, according to CBO, is that the federal government's obligations are understated.<sup>40</sup> A Treasury official said the Treasury is supportive of budget scoring, noting that if the borrowing is for a purely governmental purpose, then that activity should be scored according to federal budget scoring rules. We have also reported that up-

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<sup>38</sup>Between 1974 and 1988, TVA borrowed exclusively from the Treasury's Federal Financing Bank and the debt was not rated.

<sup>39</sup>GAO, *Tennessee Valley Authority: Bond Ratings Based on Ties to the Federal Government and Other Nonfinancial Factors*, GAO-01-540 (Washington, D.C.: Apr. 30, 2001).

<sup>40</sup>CBO, *Third-Party Financing of Federal Projects* (Washington, D.C.: June 2005).



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front budget scoring for capital projects should be maintained, since the budget should reflect the government's commitments up front.<sup>41</sup>

If FAA was granted borrowing authority, the associated costs would likely be higher if the agency borrowed directly from the private capital market instead of through the Treasury. According to Treasury and representatives of investment firms, the federal government's costs associated with debt financing for FAA's capital projects would likely be lower if FAA borrowed through the Treasury than if FAA borrowed directly from the private capital market because the Treasury would likely be charged a lower interest rate to borrow money. Interest rates charged to FAA would likely be higher because bonds issued by FAA would likely be viewed as a greater credit risk compared to Treasury bonds because Treasury's bonds are backed by the full faith and credit of the U.S. government, whereas FAA debt would not be. In addition, if FAA borrowed directly from the private capital market, the transaction costs of borrowing would likely be higher than if FAA borrowed through the Treasury; investment banks that serve as debt underwriters charge fees for these services, while the Treasury would charge a minimal administrative fee, if any. Treasury officials told us that it is the agency's long-standing policy that all debt issued by federal entities, including FAA, should be issued solely to the Treasury because centralized financing of all such debt through the agency is the least expensive, most efficient means of financing this debt. The costs to the government associated with funding FAA's capital spending through appropriations would be comparable to the costs of borrowing through the Treasury.<sup>42</sup>

The costs of borrowing from the private sector are based, in part, on how risky the revenue is that will be used for bond interest payments. Although all revenue options—taxes, user fees, and appropriations—can be used to repay borrowings, each option has a different risk profile. The Treasury noted that if FAA were to borrow from the private capital market against revenues that were subject to appropriations, there would most likely be a risk premium added to the credit rating to compensate for the risk that

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<sup>41</sup>GAO, *Capital Financing: Partnerships and Energy Savings Performance Contracts Raise Budgeting and Monitoring Concerns*, GAO-05-55 (Washington, D.C.: Dec. 16, 2004).

<sup>42</sup>Although funding through appropriations might appear less costly to FAA because borrowing from the Treasury would require FAA to make interest payments to the Treasury, from the broader perspective of the federal government as a whole, there is no difference if the government is running a deficit.

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appropriations may not be provided. This risk premium would make borrowing more expensive. However, representatives from investment firms we interviewed noted that FAA may receive a high credit rating given that ATC services are essential and FAA has a monopoly in providing them.<sup>43</sup> If a capital project has a high degree of “essentiality,” then it is assumed that the government will pay for the project through appropriations if that is the revenue source. Representatives of an investment firm we interviewed also noted that FAA may receive an implied federal guarantee because it is a federal agency. However, representatives of another investment firm we interviewed also said that many of FAA’s assets may have a low degree of marketability. That is, lenders may have difficulty selling an asset in the market in case of a bond default because there may be few willing buyers in the market for it.

Borrowing costs are particularly important in light of the federal government’s long-term fiscal imbalance. As the baby boom generation ages, mandatory federal commitments to health and retirement programs will consume an ever-increasing share of the nation’s gross domestic product and federal budgetary resources, placing severe pressures on all discretionary programs, including those that fund defense, education, and transportation. Our simulations show that by 2040, revenues to the federal government might barely cover interest on the debt—leaving no money for either mandatory or discretionary programs—and that balancing the budget could require cutting federal spending by as much as 60 percent, raising taxes by up to 2½ times their current level, or some combination of the two.<sup>44</sup> Accordingly, any program or policy change that may increase costs requires sound justification and careful consideration before adoption. We previously reported that agencies with authority to borrow were financing a large portion of their programs with debt and were repaying their debt with appropriations or new borrowing, rather than through revenue collections.<sup>45</sup> As a result, we recommended that only

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<sup>43</sup>Representatives of investment firms said that “essentiality” is the importance of a particular government project or service. The representatives of investment firms we spoke with generally agreed that FAA’s core service, which is to provide ATC services, is highly essential because the services are a vital part of the national economy.

<sup>44</sup>GAO, *The Nation’s Long-Term Fiscal Outlook: September 2006 Update*, [GAO-06-1077R](#) (Washington, D.C.: Sept., 15, 2006).

<sup>45</sup>GAO, *Budget Issues: Agency Authority to Borrow Should Be Granted More Selectively*, [GAO/AFMD-89-4](#) (Washington, D.C.: Sept. 15, 1989).

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those agencies that would, in all likelihood, be able to repay their borrowing through revenue collections be granted authority to borrow.

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## Agency Comments

We provided a draft of this report to DOT and Treasury for review and comment. We received comments from DOT through an e-mail from FAA's Director of the Office of Aviation Policy and Plans on September 11, 2006, and from Treasury through an e-mail from the Deputy Assistant Secretary of Government Financial Policy on September 8, 2006. Neither DOT nor Treasury explicitly agreed or disagreed with our observations, and both raised a number of concerns.

DOT stated that, in its opinion, although a change in FAA's governance may not be statutorily required, it may be important as a matter of policy. DOT stated that because air navigation service providers are by nature monopoly providers, users need assurance that their concerns are taken into account in cost control and investment decisions, particularly under a system that more closely ties users' contributions to the costs of the system. DOT stated that an alternative governance mechanism, along with user fees, could give system users a structured advisory role in how moneys are spent, costs are allocated, and charges are set to recover those costs, while still retaining the inherently governmental decision-making authority within FAA and DOT. In addition, DOT maintained that a governance mechanism specifically designed to give users input into investment decisions and cost recovery would add a valuable layer of discipline in optimizing the system to accommodate users' needs most efficiently.

In contrast, according to DOT, a system in which FAA/DOT could charge fees to cover costs with no meaningful stakeholder involvement would be much less attractive to the stakeholders. Finally, DOT stated, such an arrangement is fully consistent with the position of the International Civil Aviation Organization, which calls for user charges to be set in consultation between the service provider and the user community.

DOT may want to encourage Congress to consider the issue of governance structure. However, we did not include an analysis of governance issues in the scope of our review; therefore, we did not provide a more detailed discussion of the issue in this report.

DOT stated that our discussion of the need to analyze FAA's costs implied FAA has not developed any cost accounting or cost allocation systems. Although we agree that FAA has made progress in implementing a cost

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accounting system, its current accounting system is not able to provide the information required for a cost allocation analysis. Therefore, in our view, our report does not mischaracterize the status of FAA's cost accounting system by stating that an analysis of the extent to which the current funding approach, or alternative funding approaches, aligns costs with revenues would require the completion of a cost accounting system or the use of cost finding techniques. Our point is that this capability would be needed to operate under a cost-based user charge system.

DOT stated that it believes user fees would provide greater revenue stability than taxes because user fees could be set up to be adjusted periodically without changes in the law, thus providing greater flexibility in aligning revenues to cover costs. Nonetheless, we continue to believe that revenue stability is not likely to vary much across the funding options. Significant decreases in the demand for air travel would decrease revenue regardless of whether the current funding structure is maintained or any of the options are adopted. Furthermore, increasing direct user charges while air travel demand was falling would increase costs for aircraft operators at the same time as their revenues were declining and might be no easier than increasing excise taxes.

DOT also provided some clarifying and technical comments, which we incorporated where appropriate.

According to Treasury, GAO raised several critical issues, but did not provide any analysis that would help policymakers judge reform options. Specifically, Treasury expressed concern that we did not (1) provide a more comprehensive discussion of FAA costs and cost shares, including any available cost information that provides insight into the issue, (2) evaluate FAA's efforts to implement cost accounting, and (3) state whether FAA's cost accounting program is likely, when completed, to generate cost information that is useful in determining a fair and efficient distribution of costs among users. We agree with Treasury that a more detailed analysis of FAA costs and cost shares should be conducted to inform the FAA reauthorization debate, and that this information would improve the analysis of specific alternative funding options. FAA's current accounting system is not able to provide the information required for a cost allocation analysis. We believe that using partial cost information, as suggested by Treasury, would not be appropriate. Moreover, conducting a comprehensive cost analysis was beyond the scope of this report.

Treasury also said that our report repeats claims made by interest groups without evaluating them, giving the sense that each argument is equally

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valid, even though policymakers need some way to evaluate them. This was not the objective of the report. We provided a basis for evaluating the current and alternative funding options by outlining criteria, including revenue adequacy, equity, and efficiency, and discussing the implications of these criteria with respect to specific funding options.

Treasury raised concerns that a number of statements were attributed to “some stakeholders,” rather than the specific groups or individuals that made the statements, noting that attribution helps the reader evaluate the statements. In response, we added some attribution as appropriate.

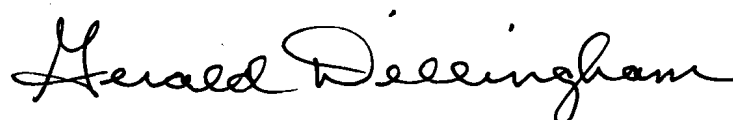
Treasury also noted its long-standing policy that all debt issued by federal entities, including FAA, should be issued solely to the Treasury, because centralized Treasury financing of all such debt is the least expensive, most efficient means of financing this debt. Treasury further maintained that market discipline would not be applied to FAA debt obligations issued directly to the private capital market because investors would perceive the obligations were backed by the federal government. We added language to the report to clarify Treasury’s position on these issues.

Treasury also provided some clarifying and technical comments, which we incorporated where appropriate.

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As agreed with your offices, unless you announce the contents of this report earlier, we plan no further distribution until 30 days from the date of this letter. At that time, we will send copies of this report to interested congressional committees; the Secretary of Transportation; the Administrator, FAA; the Secretary of the Treasury; and the Director, OMB. Copies will also be available to others upon request and at no cost on GAO’s Web site at [www.gao.gov](http://www.gao.gov).

If you or your staff have any questions about this report, please contact me at (202) 512-3834 or [dillingham@gao.gov](mailto:dillingham@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix II.



Gerald L. Dillingham, Ph.D.  
Director, Physical Infrastructure Issues

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The Honorable Daniel K. Inouye  
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The Honorable Conrad Burns  
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Committee on Commerce, Science,  
and Transportation  
United States Senate

The Honorable John L. Mica  
Chairman  
The Honorable Jerry F. Costello  
Ranking Democratic Member  
Subcommittee on Aviation  
Committee on Transportation  
and Infrastructure  
House of Representatives

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# Appendix I: Scope and Methodology

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To accomplish all of our objectives, we reviewed relevant research, including GAO products, academic research, congressional testimony, industry group publications, and stakeholders' responses to questions FAA asked them about its funding.<sup>1</sup> We also interviewed

- officials from government agencies, including the Federal Aviation Administration (FAA), the Office of Management and Budget (OMB), the Congressional Budget Office (CBO), and the Department of the Treasury (Treasury);
- representatives of aviation industry groups, including the Air Transport Association, the Aircraft Owners and Pilots Association (AOPA), and the National Business Aviation Association; and
- academic and financial experts.

In addition, as discussed in the following paragraphs, we performed further work to accomplish each objective.

To assess the advantages and concerns that have been raised about the current approach to collecting revenues from national airspace system (NAS) users to fund FAA and the extent to which the available evidence supports the concerns, we examined FAA budget data, Airport and Airway Trust Fund (Trust Fund) revenue data, FAA forecasts, data reported to the Department of Transportation (DOT) on aircraft size and airfares (DOT Form 41 data), and FAA aviation activity data. We used data on tax revenues associated with different types of flights to assess the link between increases in FAA's workload and increases in Trust Fund revenue. We obtained the FAA budget, Trust Fund, forecast, and aviation activity data from FAA. To assess the reliability of these data, we interviewed knowledgeable officials and reviewed the quality control procedures FAA applies to these data, and subsequently determined that the data were sufficiently reliable for our purposes. We obtained the DOT Form 41 data from BACK Aviation Solutions, a private contractor that provides these data to interested parties. We used these data to examine trends in aircraft size and airfares because of their impact on the relationship between Trust Fund revenues and FAA's workload.

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<sup>1</sup>In September 2005, FAA provided stakeholders with reauthorization packages (packages of data on its operations and costs) and asked for responses to questions about how to fund to agency.

To identify potential alternative funding options for FAA and criteria for comparing these options, we obtained information on the experience of foreign air navigation service providers by reviewing relevant GAO reports and other literature and interviewing officials at Eurocontrol and France's FAA counterpart, la Direction Générale de l'Aviation Civile. We also interviewed representatives of Air France, AOPA-France, the International Air Transport Association, the Association of European Airlines, and Aéroports de Paris. Through our literature review and these interviews, we identified longer-run revenue adequacy, equity, efficiency, and administrative considerations as appropriate criteria for assessing the current and alternative funding options. We considered both modifications to the current excise tax structure and various forms of direct charges for FAA services as possible alternatives to the current tax structure. In selecting options for analysis, we considered whether there was a link between the option and some element of FAA's workload.

To identify the advantages and disadvantages of authorizing FAA to use debt financing for capital projects, we reviewed the borrowing authorities of other U.S. governmental entities, including the Tennessee Valley Authority and the Bonneville Power Administration.

We conducted our work from May 2005 through August of 2006 in accordance with generally accepted government auditing standards.



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# Appendix II: GAO Contact and Staff Acknowledgments

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## GAO Contact

Dr. Gerald L. Dillingham, (202) 512-2834

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## Staff Acknowledgments

In addition to the contact named above, the following individuals made key contributions to this report: Ashley Alley, Christine Bonham, Jay Cherlow, Tammy Conquest, Colin Fallon, Carol Henn, David Hooper, Maureen Luna-Long, Maren McAvoy, Rich Swayze, and Matt Zisman.

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