CBO TESTIMONY

Statement of
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Financing Investment in the Air Traffic Control System

before the
Committee on Transportation and Infrastructure
Subcommittee on Aviation
U.S. House of Representatives

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Mr. Chairman, Congressman Costello, and Members of the Subcommittee, I am pleased to appear before you today to discuss financing of the investments necessary to expand the capacity of the air traffic control system to meet future demands as well as the way spending for that purpose would be recorded in the budget.

My testimony today makes three points:

- Developing and putting in place a new air traffic control system are likely to require significant investments by the federal government or by entities acting on its behalf.

- Outlays from appropriations for the costs of a new air traffic control system would be recorded in the budget when the investments were made. The least expensive way of paying for such investments would be through federal spending financed by the U.S. Treasury. Alternative methods of financing would increase the government's costs.

- The Congress will face important decisions in allocating costs among taxpayers and various types of users of the new system. Those decisions will have important consequences for how efficiently the national airspace is used. A strong economic rationale exists for assigning a substantial portion of those costs to users.

The Future of Air Traffic Control

In response to the growing demands on the United States' management of its air traffic—both from increasing air travel and the need for greater security—the Congress established an office, jointly managed by the Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA), to develop and implement a plan for improving the capacity, safety, and security of the nation's air travel. Public Law 108-176 (Vision 100–Century of Aviation Reauthorization Act), enacted in 2003, created the Joint Planning Development Office (JPDO). Its main task is to manage the transition to the Next Generation Air Transportation System (NGATS).

According to the most recent planning materials from the JPDO, the new system is designed to accommodate up to three times the volume of current air traffic by making more efficient use of both the national airspace and airport facilities.[1] The NGATS would be a more decentralized air traffic control system than the system currently in place in the United States. In-plane guidance systems would work in conjunction with satellites of the Global Positioning System (GPS) to supplement direct supervision of individual planes by ground-based controllers and radar

1. See Federal Aviation Administration, Joint Planning and Development Office, "Concept of Operations for the Next Generation Air Transportation System" (draft version 0.2, July 24, 2006), p. 1-7, available after free online user registration at http://techhangar.jpdo.aero/index.php?option=com_content&task=view&id=39&Itemid=112.

stations. As a result, each plane would depend less on instructions from an air traffic controller and more on its own resources for maintaining a safe flight pattern and would be better able to adjust to the particular air traffic conditions in its vicinity.

The new system would be based on more-precise guidance techniques. If those techniques worked as intended, the distance required between aircraft for safe flight would be smaller and the amount of air traffic could increase. In addition, the new system would allow airspace to be used less rigidly than it is today; that is, aircraft might be able to fly more direct routes because of the system's capacity to manage the national airspace more efficiently. Those changes would enable more flights to be airborne safely and could also mean that greater capacity would be required at airports.

Underlying the NGATS generally is more effective use of information about the air traffic in a particular plane's vicinity, the prevailing or impending weather conditions that will affect the plane's flight, and the constraints related to airports that the aircraft faces. The FAA envisions that the information available to each plane will also be available to other aircraft and to ground control units. As a result, the new system should allow ground-based air traffic controllers to establish and maintain contact with planes nationwide, regardless of where a particular aircraft or air traffic control facility is located.

Implementation of the NGATS is likely to require substantial capital investments on the part of both the federal government and private-sector entities. For example, outfitting aircraft with the Automatic Dependent Surveillance–Broadcast (ADS–B) system (which enables a plane to determine its location through GPS satellites and automatically broadcast its position to other aircraft) would be expensive. Allowing seamless connections between individual planes and ground-based air traffic control units nationwide, which the FAA plans to carry out through its systemwide information management technology, would require substantial expenditures for communications hardware and software.

Projections of costs for the new system are still very preliminary. The ultimate costs will depend on a number of factors, including advances in key technologies and the ability of a number of government agencies—such as NASA and the National Oceanic and Atmospheric Administration—to coordinate their efforts.

Funding for Activities of the Federal Aviation Administration

The Vision 100–Century of Aviation Reauthorization Act (Vision 100) is the most recent authorization law governing spending for aviation programs. Set to expire at the end of fiscal year 2007, Vision 100 provides contract authority for grants-in-aid to airports and authorizes the appropriation of specific amounts from the Airport and Airway Trust Fund for air transportation research and for facilities and equipment—primarily infrastructure and systems for communication, navigation,

and radar surveillance related to air travel. The law specifies that amounts in the trust fund should be used first to fully fund those activities; it authorizes appropriation of the remaining funds to support the FAA's operations. Vision 100 also authorizes additional appropriations from the general fund of the U.S. Treasury for the balance of the FAA's operating costs.

The FAA receives funding for most activities, including those related to air traffic control, in annual appropriation acts. For 2006, the agency received nearly $14.4 billion in discretionary resources, including appropriated budget authority and obligation limitations on contract authority (see Table 1).[2] That amount included $2.6 billion for air traffic control facilities and equipment, $8.1 billion for the FAA's operations (used primarily to operate the air traffic control system), and $3.7 billion for most of the agency's other programs.

Appropriations for the FAA's facilities and equipment have declined in recent years. From 2002 through 2004, they averaged about $2.9 billion annually. Over the 2005–2006 period, annual appropriations averaged about $2.5 billion—the same amount that the Administration requested for 2007.

The Airport and Airway Trust Fund

Approximately 82 percent of the FAA's funding for 2006 was provided from the Airport and Airway Trust Fund (see Figure 1). (The remaining 18 percent was appropriated from the general fund.) The trust fund is an accounting mechanism in the federal budget that records specific cash inflows from revenues related to air transportation—primarily excise taxes on commercial airline tickets—and cash outflows for programs that receive resources from the fund. Annual spending from the fund is not automatically triggered by the collection of tax revenues but is controlled by budget authority and obligation limitations established in annual appropriation acts.

The status of the trust fund is generally assessed by projecting its uncommitted balances—which represent the amounts credited to the fund that the FAA is not authorized to obligate. The Congressional Budget Office (CBO) has estimated the trust fund's future uncommitted balances under certain assumptions, projecting budgetary resources, revenues, and outlays through 2016 (see Table 1). Outlays and revenues are each estimated separately because they have different bases: outlays depend on the amount of budgetary resources provided in appropriation acts, and revenues depend on the collection of various excise taxes.

CBO's baseline assumptions, which are consistent with the provisions of the Balanced Budget and Emergency Deficit Control Act of 1985, provide one basis for projecting the trust fund's balances. CBO calculates the baseline for discretionary

2. Obligations for grants-in-aid for airports are governed by limitations set in appropriation acts. The outlays are therefore considered discretionary. (The budget authority, in the form of contract authority, was established in Vision 100.)

Table 1.

Discretionary Budgetary Resources for the FAA and Cash Flows and Balances of the Airport and Airway Trust Fund

(Billions of dollars)

	Actual				Baseline Projections[a]			
	2002	2003	2004	2005	2006	2007	Total, 2007-2011	Total, 2007-2016
Discretionary Budgetary Resources for the FAA[b]								
Appropriations from the General Fund for FAA Operations	1.1	3.2	3.0	2.8	2.6	2.7	14.5	31.6
Discretionary Budgetary Resources from the Airport and Airway Trust Fund								
FAA operations (Share from trust fund)	6.0	3.8	4.5	4.9	5.5	5.7	30.5	66.1
Grants-in-aid for airports	3.5	3.4	3.4	3.5	3.5	3.6	18.6	39.1
Facilities and equipment	3.0	2.9	2.9	2.5	2.6	2.6	13.7	28.9
Research, engineering, development, and other	0.3	0.2	0.2	0.2	0.2	0.2	1.1	2.2
Subtotal	12.8	10.3	10.9	11.1	11.8	12.1	63.9	136.2
Total	**13.9**	**13.5**	**13.9**	**13.9**	**14.4**	**14.8**	**78.4**	**167.8**
Cash Flows and Balances of the Airport and Airway Trust Fund								
Trust Fund Deposits (Revenues and interest earnings)	10.1	9.4	9.7	10.8	11.2	11.9	66.7	153.4
Trust Fund Outlays	11.9	9.6	10.4	11.2	12.1	12.3	64.1	136.0
End-of-Year Uncommitted Balances[c]	4.8	3.9	2.5	1.9	1.7	1.2	4.3[d]	18.6[d]

Source: Congressional Budget Office based on data from the Office of Management and Budget.

Notes: Numbers in the table may not add up to totals because of rounding.

FAA = Federal Aviation Administration.

a. Projections for 2007 to 2016 reflect CBO's August 2006 baseline and incorporate the assumption that discretionary budgetary resources from the trust fund total $11.8 billion in 2006 and then grow at the rate of anticipated inflation.

b. Annual appropriation acts provide budget authority as well as obligation limitations on contract authority for grants-in-aid for airports.

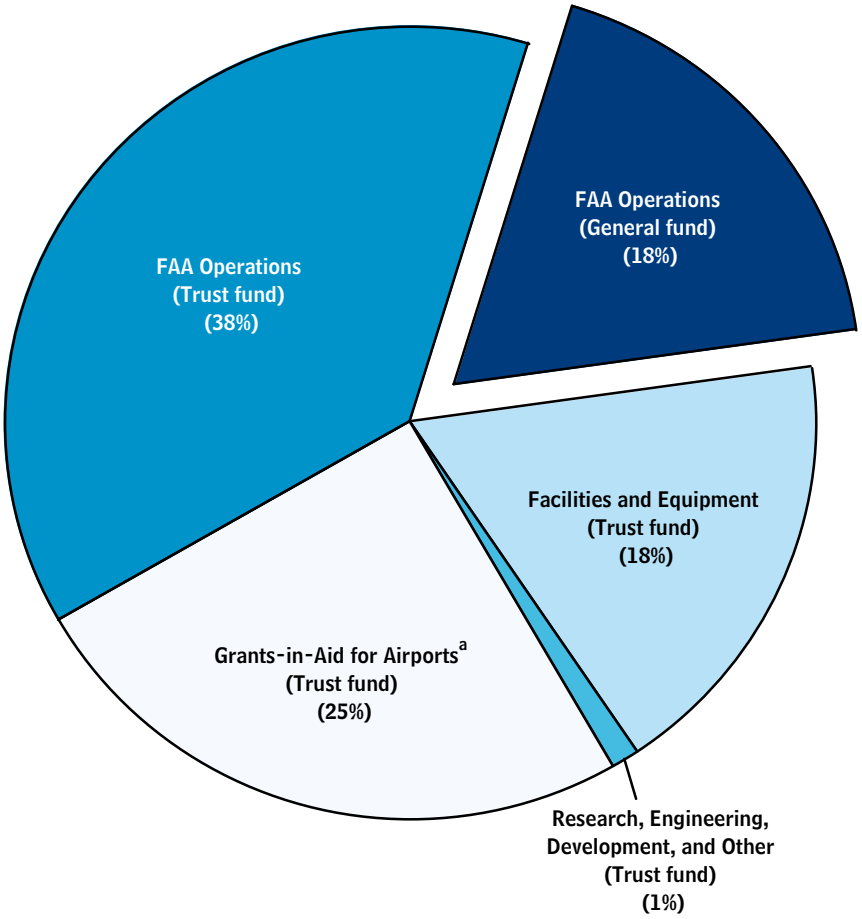
c. Uncommitted balances represent amounts in the trust fund that are unavailable for obligation. Balances at the end of 2006 to 2016 are projections.

d. Balances at the end of 2011 and 2016, respectively.

Figure 1.

Discretionary Budgetary Resources Provided to the Federal Aviation Administration for 2006

(Percent)



Source: Congressional Budget Office based on Federal Aviation Administration, *Budget in Brief—Fiscal Year 2007* (February 2006).

a. Annual appropriation acts provide budget authority as well as obligation limitations on contract authority for grants-in-aid for airports.

spending by inflating enacted levels of discretionary budgetary resources for future years and estimating the outlays that would result. It projects revenues under the assumption that current law remains the same but that expiring taxes dedicated to trust funds will be extended at current rates. Thus, in its baseline projections, CBO assumes that the Airport and Airway Trust Fund taxes that are now scheduled to expire after September 30, 2007, will be extended through 2016.

CBO estimates that under the assumptions used in its August 2006 baseline, amounts (including interest) credited to the Airport and Airway Trust Fund over the 2007–2016 period will total $153 billion and outlays will total $136 billion (see Table 1). Spending related to the infrastructure of the air traffic control system

would account for about one-fifth of that amount under the assumption that funding for facilities and equipment totals $2.6 billion in 2007 and grows to $3.2 billion in 2016 to keep pace with anticipated inflation. In CBO's baseline projections, uncommitted balances in the trust fund increase modestly in 2008 and 2009, but annual additions to those balances total more than $1 billion in 2010 and increase to nearly $4 billion by 2016. Assuming that the general fund continues to provide about 19 percent of total funding for the FAA's operations, CBO estimates that during the next 10 years, the trust fund can support about $19 billion in additional spending over baseline levels (the 2006 funding level growing with inflation), provided that most of that spending occurs after 2010.

Financing New Investments in Air Traffic Control

Policymakers face many decisions about capital investment across the budget. Different methods of funding such investments involve varying financing costs and differing levels of Congressional control over agencies' decisions. The annual appropriation process directly funds most of the government's spending for capital acquisitions. Another possible method that minimizes financing costs is direct spending authority (including borrowing authority) provided in authorizing legislation. In contrast, financing approaches that provide agencies with the authority to issue their own debt or to involve nonfederal entities in certain types of arrangements to lease capital assets or finance the acquisition of such assets on behalf of the government would increase overall costs to taxpayers.

Under the accounting principles that govern the federal budget, the authority to acquire capital assets that are used exclusively or predominantly to provide a governmental service—regardless of the exact details of the transactions—should be recorded as budget authority "up front," when the asset is acquired. That budgetary treatment applies regardless of whether the budget authority takes the form of discretionary appropriations or direct spending and regardless of whether third parties will participate in leasing or alternative financing arrangements.

Annual Appropriations

Funding for the air traffic control system is currently provided through the annual appropriation process. Budget authority is recorded when appropriation laws are enacted, and obligations are shown when commitments to spend are made. Outlays are recorded when the government makes actual cash payments. Thus, in the case of a capital good used for air traffic control—computer systems and radars, for example—outlays occur not over the course of a good's useful life but when it is paid for. That budgetary treatment applies whether the ultimate source of funds is government borrowing or taxes and fees and regardless of whether those taxes and fees are credited to a trust fund. Most of the government's capital investments (military hardware, the space station, dams, and prisons, for example) are recorded in the budget in that way. That approach provides the Congress with the most direct ongoing control over spending, but it can contribute to uncertainty about the amount of resources that will be available in the future and requires difficult choices among competing federal programs.

Full Funding and Advance Appropriations

In appropriation acts, policymakers could provide funding for the air traffic control system all at once (full funding) or specify the amount of funding to become available in future years (advance appropriations). Full funding provides more certainty about the availability of funds but reduces Congressional control over annual spending and may be difficult to accommodate in an appropriation bill if constraints on discretionary spending are tight. Budget authority from advance appropriations provides somewhat less certainty than full funding because it is not immediately available for obligation. For example, the Congress recently provided an advance appropriation to develop countermeasures against terrorist attacks involving biological agents (Project BioShield).

Direct Spending Authority

Agencies that seek increased funding for capital investments sometimes request direct spending authority (such as borrowing authority), which allows the agency to spend funds outside the normal appropriation process. Direct spending authority can be for specific or indefinite amounts. It does not change the budgetary impact of spending for new capital goods—outlays are recorded when spending occurs—but it does diminish the year-by-year control that the Congress asserts over an agency in the annual appropriation process.

The simplest way to authorize direct spending is to specify levels of budget authority that an agency may spend without a subsequent appropriation. For example, authorizing legislation provides up to $50 million annually for the Department of Transportation's Essential Air Service program to subsidize the cost of providing service to certain rural communities. The department's authority to obligate funds for that program is not subject to the appropriation process.

Alternative Forms of Federal Borrowing

The Department of the Treasury conducts the federal government's conventional borrowing by issuing bonds and other types of debt. Conventional Treasury securities are the "gold standard" of bonds because they are free from the risk of default and highly liquid. Other means of borrowing funds can be expected to cost the government more.

The Tennessee Valley Authority (TVA) is an example of an agency that has direct spending authority in the form of borrowing authority. TVA has the authority to issue bonds up to a specified ceiling (now $30 billion) and a source of income (the sale of electricity) that can be used to service its debt. The costs of its borrowing—which are typically 30 to 40 basis points higher than the costs of comparable Treasury securities—are thus borne by the users of the electricity it generates.[3] TVA's operations are subject to various statutory restrictions and contractual covenants that are designed to ensure it can repay its debt in a timely manner.

3. A basis point is one-hundredth of a percentage point.

Another financing mechanism that has been proposed to fund the government's capital acquisitions is tax-credit bonds (issued either by the federal government or by nonfederal entities). Such bonds allow their purchasers to receive a credit against their federal income tax liability instead of the cash interest that is typically paid on the borrowing that bonds represent.[4] With tax-credit bonds, the federal government bears virtually all of the costs of borrowing—in the form of forgone tax revenues—even if the bonds are issued by a nonfederal entity. Supporters find the idea of the bonds attractive, in part because they provide multiyear funding and can eliminate the need for yearly legislative action. However, if the bonds were issued by a nonfederal entity, the related debt-service costs would be higher than those incurred with federal borrowing and would not be readily apparent in the budget because they would be recorded as a loss of tax revenues. In the case of funding for air traffic control systems, an entity that issued tax-credit bonds would be part of, controlled by, or acting as an agent of the federal government. As a result, such spending should be recorded as budget outlays in the same way it would be if it were being financed by conventional Treasury securities.

Lease-Purchases, Capital Leases, and Other Forms of Third-Party Borrowing

Alternatively, an agency might seek to acquire investment goods through a third party (such as a private firm, special-purpose entity, or state and local government) that would raise funds in private capital markets to purchase an asset and then provide it to the federal government in return for a series of annual payments.[5] Under such arrangements, an agency does not disburse the full cost of the investment when it is acquired but instead makes annual payments over a period of years. In the case of routine operating leases (for example, for commercial office space not constructed specifically for the government), the budget authority and outlays for those payments are recorded year by year, as payments are made. But if the federal government is the sole or dominant user of the capital asset—as would be the case with air traffic control investments—such arrangements are actually a form of purchase by the government. Established budgetary principles require that both budget authority and outlays for such arrangements (for example, lease-purchases and capital leases) be recorded in the budget when the asset is acquired, not as the annual payments are made.[6] Such approaches often require complicated financial arrangements and rely on private financing, which is more expensive than federal borrowing. Thus, they cost taxpayers more than do straightforward appropriations or direct spending authority.

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4. Congressional Budget Office, *Tax-Credit Bonds and the Federal Cost of Financing Public Expenditures* (July 2004).

5. See Congressional Budget Office, *Third-Party Financing of Federal Projects* (June 1, 2005).

6. See Office of Management and Budget, *Preparation and Submission of Budget Estimates,* Circular A-11 (June 2006), Appendix B. For further discussion, see Congressional Budget Office, *The Budgetary Treatment of Leases and Public/Private Ventures* (February 2003).

Who Pays for Air Traffic Control Services?

The question of who will pay for the Next Generation Air Transportation System is distinct from the budgetary treatment of spending for air traffic control services. Broadly speaking, taxpayers or users of such services will pay for the new system. Users include providers that carry passengers or cargo, their customers, general aviation users (business and recreational), and the government.

In general, a desirable approach is to require users of a service to pay for it so that the choices they make will take into account the costs of providing it. Allocating costs efficiently and fairly among different types of users presents challenges. Nonetheless, the effort is important because it will influence how efficiently the system of air traffic control works.

Users of air traffic control services currently pay a substantial portion of the costs of providing those services, mostly through the ticket and other taxes. Although some benefits of the services accrue to the economy as a whole, most accrue to aviation service users. A strong case can thus be made that users of the NGATS should pay for a substantial portion of those costs—whether those payments are structured as they are today or modified to distribute the costs differently.

Forecasts of rapid growth in commercial and general aviation reenforce the importance of an efficiently and fairly priced air traffic control system in the future. In recent years, air carriers have added large numbers of smaller regional jets to their fleets (see Figure 2). Such aircraft allow carriers to provide more-frequent jet service and to serve smaller cities—yet still match capacity with demand. However, the proliferation of smaller jets also puts more pressure on the air traffic control system and adds to congestion at busy airports and in heavily traveled airspace. That trend may continue among commercial carriers, according to the FAA. In addition, the potential introduction in the next several years of relatively inexpensive, very light jets may expand demand for air traffic control services. The growth of each aviation sector and the resulting rise in the amount of air traffic in the United States overall are likely to be affected by the prices that the different types of air carriers and passengers pay for air traffic control services.

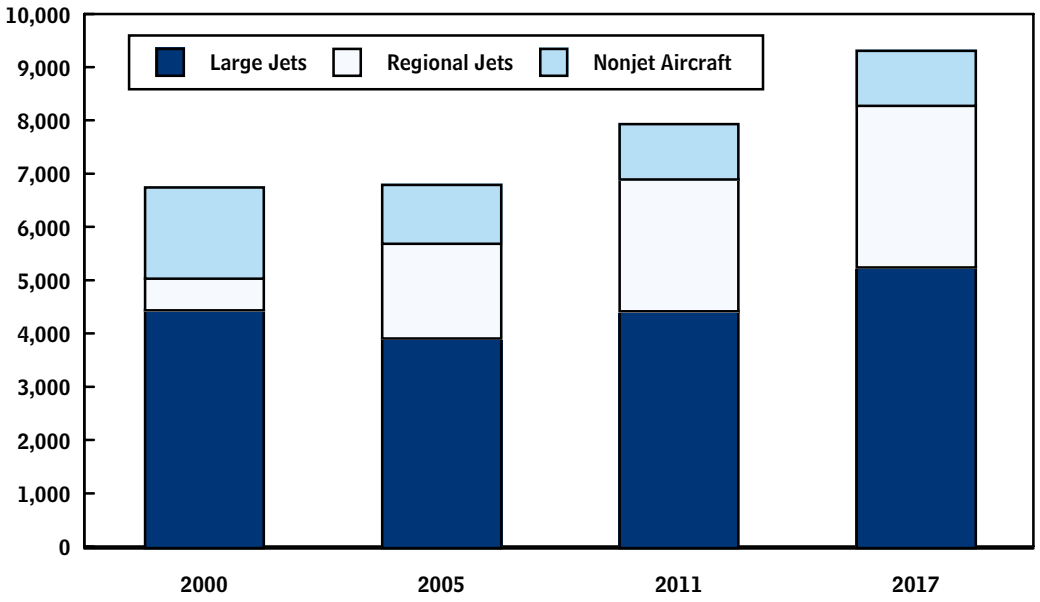
Currently, various taxes on passengers and other users that are credited to the Airport and Airway Trust Fund finance much of the FAA's provision of those services. During 2006, such collections provided about $5.5 billion of the agency's overall operating budget of about $8.1 billion, the bulk of which is used to manage the air traffic control system.[7] About two-thirds of the trust fund's collections comes from taxes imposed on all passengers of commercial airlines (see Figure 3).

7. Other operating costs include those for air safety programs and the activities of various management and administrative offices. Operations of the FAA that are not funded by the Airport and Airway Trust Fund are paid for out of the general fund. In addition to covering some of the FAA's operating costs, the trust fund's income is also currently sufficient to pay for capital investments related to air traffic control, projects to improve infrastructure at airports, and research programs, such as the program carried out by the JPDO.

Figure 2.

The United States' Commercial Passenger Aircraft Fleet

(Number of aircraft)



Source: Congressional Budget Office based on Federal Aviation Administration, Office of Policy and Plans, *FAA Aerospace Forecast—Fiscal Years 2006–2017* (February 28, 2006).

The remaining one-third comes from taxes on specific types of travel, such as international arrivals and departures, and fuel taxes.

Financing much of any new system of air traffic control by charging users will provide incentives to both deploy and operate the system in an economically efficient way. However, a number of issues regarding the allocation of costs among users need to be addressed. For example:

- Quantifying how individual aircraft impose costs on the air traffic control system may be difficult. Such a measurement may be complicated by efforts to gauge the additional costs of congestion in crowded airspace and at certain busy airports—that is, the costs that individual users impose on others by claiming those scarce resources.

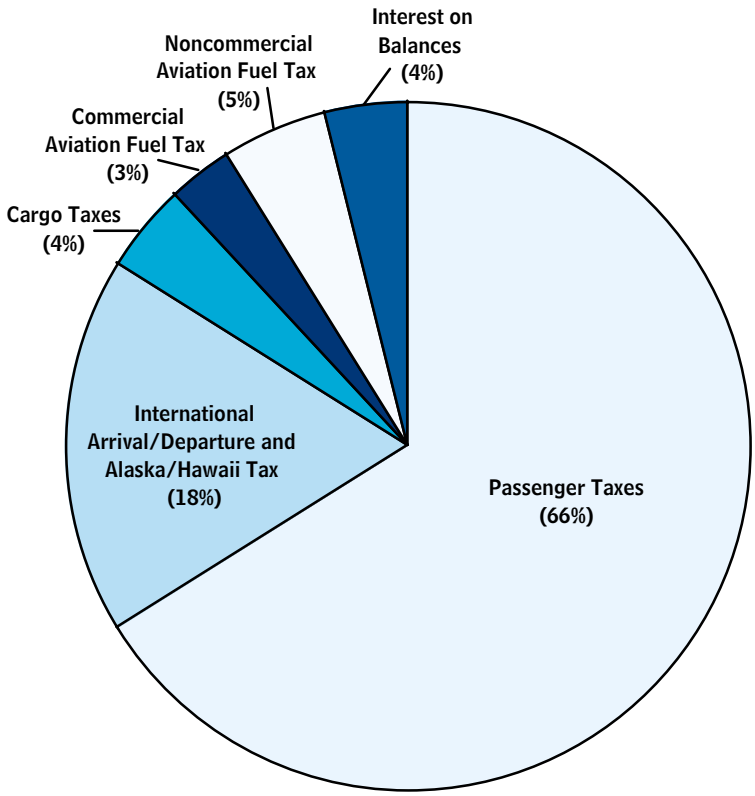
- The provision of air traffic control services may entail substantial costs that cannot readily be allocated to a particular user but that must be incurred to provide the services at all. Those common costs could be allocated by one of several mechanisms.

The resolution of those and related issues will determine how efficiently air traffic control services and the national airspace are used.

Figure 3.

Sources of Receipts Credited to the Airport and Airway Trust Fund in 2005

(Percent)



Source: Congressional Budget Office based on Federal Aviation Administration, *Airport and Airway Trust Fund Receipts* (March 3, 2006).

Note: The total amount credited in 2005 was $10.8 billion.