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Report to Congressional Committees

May 1999

PASSENGER FACILITY CHARGES

Program Implementation and the Potential Effects of Proposed Changes

GAO

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Resources, Community, and
Economic Development Division

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Congressional Committees

In response to your request, this report (1) describes how the passenger facility charge program is helping airports fund their capital development, and (2) discusses the potential impact of various proposals to change the program, including the option of making no change.

We are also sending copies of this report to other congressional committees; the Honorable Rodney E. Slater, Secretary of Transportation; and the Honorable Jane F. Garvey, Administrator, Federal Aviation Administration. We will also make copies available to others on request.

If you or your staff have any questions, please contact me at (202) 512-3650 or Randy Williamson, Assistant Director, at (206) 287-4860. Major contributors to this report are listed in appendix III.

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Associate Director, Transportation Issues

List of Committees:

The Honorable John McCain
Chairman
The Honorable Ernest F. Hollings
Ranking Minority Member
Committee on Commerce, Science, and Transportation
United States Senate

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

The Honorable John J. Duncan, Jr.
Chairman
The Honorable William O. Lipinski
Ranking Democratic Member
Subcommittee on Aviation
Committee on Transportation and Infrastructure
House of Representatives

Executive Summary

Purpose

Since the early 1990s, most of the nation's passenger service airports have been able to charge passengers a boarding fee of $1, $2, or $3, called a passenger facility charge, to help pay for their capital development projects. These charges now total about $1.4 billion a year. The program is managed by the Federal Aviation Administration, which approves an airport's application to participate and the specific projects to be funded.

Within the industry, there are different views about whether the passenger facility charge program should be expanded, limited, or left as is. Airport associations support higher charges as a way to finance additional airport development that they view as necessary. By contrast, airlines question the need for some of the proposed development projects and have proposed requiring a more stringent screening process for approving projects. To provide information that would assist congressional deliberations, the Chairmen and Ranking Minority Members of the Senate Committee on Commerce, Science, and Transportation, and its Subcommittee on Aviation, and the Chairman and Ranking Democratic Member of the House Committee on Transportation and Infrastructure's Subcommittee on Aviation asked GAO to review the passenger facility charge program and, in doing so, to address the following questions:

- How are passenger facility charges helping airports fund their capital development, particularly in terms of the extent to which the charges fund development, the rate of airports' participation in the program, and airports' use of the funds collected?
- What are the potential effects of proposals for changing the program—particularly with regard to increasing the fee, changing project eligibility, and providing new project selection criteria—as well as the potential effects of making no change at all?

Background

Since the end of World War II, the federal government has been involved in developing a national airport system for ensuring safe air travel.[1] This system now comprises more than 3,300 airports, 529 of which are "commercial service" airports (that is, airports that enplane at least 2,500 passengers a year and have scheduled airline service). Under the 1990 statute creating the passenger facility charge program, the commercial

[1]Of the more than 18,000 landing facilities in the United States, 3,344 airports are currently part of the national airport system. There are two types of airports in the national system—commercial service airports, which enplane at least 2,500 passengers a year, and general aviation airports. Commercial service airports are divided into primary airports—those that enplane 10,000 or more passengers a year—and other commercial service airports that enplane fewer than 10,000 but at least 2,500 passengers a year. Primary airports are divided into classes of hub airports—large hub, medium hub, small hub, and nonhub—on the basis of the number of passengers enplaning each year.

service airports are the airports that may levy the charges but they must apply to the Federal Aviation Administration for approval to do so. Airports may charge a maximum of $3 per boarding passenger. A passenger may be charged no more than two fees on a one-way trip or four fees on a round trip, thus bringing the maximum charge to $12. Airlines collect the money when tickets are purchased and forward the funds to the airports. It may take several years for an airport to receive enough funds from the fee to pay for the approved projects. The collection of passenger facility charges began in 1992.

The passenger facility charge program sets forth several broad objectives for the use of these funds in furthering airport development including (1) preserving or enhancing airports' safety, security, or capacity; (2) reducing noise; or (3) enhancing airline competition. To meet these objectives, the statute authorizes the use of the funds for a broad array of development projects. Airports have more flexibility in using these funds than they have using some of the other major funding sources available to them—federal grants, state grants, bonds, and airport revenues. For example, passenger facility charges may be used to build aircraft gates or pay interest on bonds issued to pay for eligible projects, while federal grants may not. The Federal Aviation Administration must approve an airport's request to levy the fee, including the total amount to be collected and the projects to be funded.

Results in Brief

Passenger facility charges provided about 18 percent of the funds available to commercial service airports to pay for capital development in 1996, the most recent year for which data for all sources are available. Fifty-two percent of the 529 eligible airports are levying the fee. The larger the airport, however, the more likely it is to participate: 80 percent of the nation's 70 large commercial airports (those categorized as large and medium hub airports) levy the charges, compared with less than half of the 459 small airports eligible to participate (those categorized as small hub, nonhub, and other commercial service airports). As of September 1998, the Federal Aviation Administration had approved the collection of nearly $22 billion in passenger facility charges overall. Because the amount of funds an airport receives is based on the number of passengers, over 90 percent of those collections will go to the large airports. Forty-four percent of the funds have been approved for projects such as the construction of aircraft gates and access roads, while 29 percent have been approved to pay the interest on bonds issued for eligible development projects. Twenty percent of the funds have been

approved for projects related to areas such as runways and aprons, while 7 percent have been approved to reduce airport-related noise.

Proposals to change the passenger facility charge program fall into three main categories: increasing the maximum charge, changing the types of projects eligible for funding, or adding project selection criteria. Airports' current receipts total about $1.4 billion a year, with all but one participating airport charging the maximum $3 fee. GAO's analysis indicates that with a $1 increase, if all airports raise their fee, airports would receive close to one-half billion dollars in additional revenues, even after accounting for estimated passenger reductions that result from raising the fee. GAO developed a model to estimate the potential impact of higher fees on passenger levels, using historical data on the relationship between prices and passenger levels. GAO's model estimates the effect of changing the passenger facility charge independently of other factors that may occur simultaneously. These other factors could enhance or offset the effect of changing the passenger facility charge, making the net effect difficult to determine. For example, data on enplanement levels at individual airports indicate that enplanements have both increased and decreased following the initial imposition of passenger facility charges by airports. GAO's analysis based on its model suggests that raising the fee by $1, if applied by all participating airports, would reduce passenger levels by 0.5 to 1.8 percent, with a midrange estimate of 0.85 percent. Based on the midrange estimate, less than one passenger in one hundred would be affected by a $1 increase in the passenger facility charge. In the short term, forecast growth in passengers would overcome the midrange estimate of losses unless the fee exceeded $7. On the other hand, in the long term, any improvements in passenger safety and comfort that may result from airport improvements could stimulate the demand for air travel.

Increasing the current maximum fee from $3 to $7 at all participating large airports would generate about $1.63 billion more for large airports charging the fee, thereby eliminating an annual $1.5 billion funding difference, on average, that GAO identified between large airports' future planned development costs ($7.1 billion a year on average) and the funding they had available in 1996 ($5.6 billion).[2] While a $12 fee—the largest increase GAO examined—would generate about $376 million more for small airports eligible to levy the charge, that would not eliminate the $655 million difference between their planned development ($1,490.2 million) and funding that was available in 1996 ($835.7 million). Proposals to change the types of projects eligible for funding—whether

[2]Airport Financing: Funding Sources for Airport Development (GAO/RCED-98-71, Mar. 12, 1998).

they expand or narrow the coverage—are likely to produce little change. Changing the types of projects eligible, without increasing the fee, would have little effect on participating airports because their collections—for several years, on average—are earmarked for specific projects. Also, eligibility changes alone would provide little new incentive to entice more airports to participate. Among the last category of proposed changes to the program—those affecting how projects are selected—there are three main proposals: applying a priority system, requiring that projects pass a cost-benefit test, and requiring airline approval. Requiring these kinds of new selection criteria is likely to reduce the flexibility that airports currently have in applying the funds to specific projects. Under more stringent selection criteria, some of the projects currently funded might not have been approved. If the program remains unchanged, the distribution of the funds among project types and the participation rates of airports are unlikely to change very much.

Principal Findings

The Passenger Facility Charge Program Is Making a Significant Contribution to Airport Development

Passenger facility charges provided about 18 percent of the funds available to commercial service airports to pay for capital development in 1996—the most recent year for which data on all funding sources are available. Passenger facility charges provided a greater share of large airports' available funds—18 percent—than they provided for small airports, whose receipts from passenger facility charges accounted for about 13 percent of their available funds.

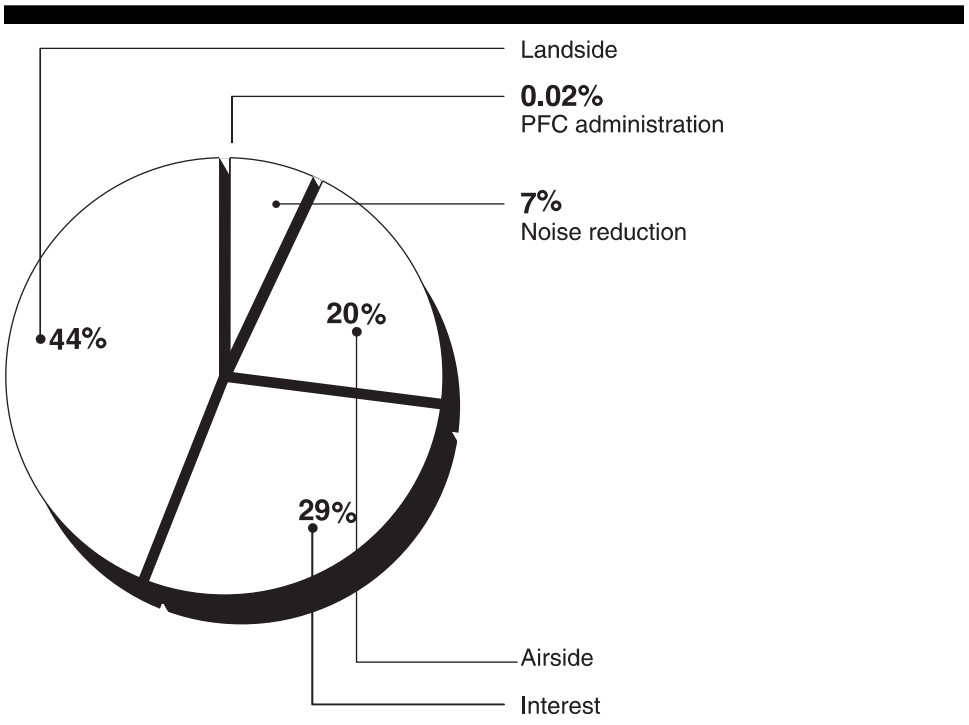
Fifty-two percent of the 529 airports eligible to levy passenger facility charges are participating in the program. The larger the airport, the more likely it is to participate. Local factors, such as high rates of travel within a state, may influence the decisions of the 14 large airports that have not yet chosen to levy the fee;[3] for small airports, the limited earnings may not provide much incentive, given, among other things, the costs associated with preparing the applications and administering the program.

As of September 1998, the Federal Aviation Administration had approved the collection of nearly $22 billion in passenger facility charges. The length of time that the agency has approved for airports to levy the fees ranges from 6 months to more than 40 years, with half of the collection periods

[3]Some are considering and/or preparing their first application.

lasting less than 6.6 years and half longer. From 1992, when collections first started, through 1998, $6.25 billion had actually been collected. As figure 1 shows, the largest share of the $22 billion has been approved for "landside" projects such as terminals and access roads, with less than half as much approved for "airside" projects such as runways and taxiways. Large and small airports differ in the use of their funds, with large airports spending over twice as much on landside projects as on airside projects, while small airports are spending more comparable amounts on the two categories. Nearly one-third of the approved collections will be used to pay interest on bonds issued to pay for development projects that are eligible for funding with passenger facility charges.

Figure 1: Approved Passenger Facility Charges by Major Project Category, Fiscal Years 1992 Through 1998



Note: Amounts do not include $2.3 billion in collections approved for the Denver International Airport over a period of about 33 1/2 years because those funds are not separated by different project categories in the Federal Aviation Administration's information systems. Thus, percentages in the pie chart are based on collections of $21.9 billion which have been approved by the Federal Aviation Administration minus the $2.3 billion approved for the Denver airport.

Under the law, small airports with little or no ability to raise funds through passenger facility charges can indirectly benefit from the program. Large airports that levy the charges must return to the Federal Aviation Administration up to half of the federal funds they receive from the Airport Improvement Program on the basis of their passenger levels. Most of the returned funds—87.5 percent—must be redistributed as project grants under the Airport Improvement Program to small airports including general aviation airports which, under the law, are not authorized to charge the fee. Between fiscal years 1993—the first year that large airports returned some of their federal grant funds—and 1999, this provision has targeted to small airports, including general aviation airports, about $710 million. Under the statute, small airports were not expected to lose other federal grants they receive through the Airport Improvement Program just because these additional funds were being targeted for their use.

The Effects of Program Changes Depend Largely on Accompanying Conditions

Proposed changes to the passenger facility charge program fall into three broad categories—increasing the maximum fee that airports may charge passengers, changing the types of airport projects eligible for funding, and adding new requirements that must be met before eligible projects can be approved. The potential effects of such changes depend largely on the specific conditions that accompany their authorization or implementation.

Increases in the Maximum Passenger Facility Charge

All but one airport levying the fee charges the maximum $3 allowed; their receipts now total about $1.4 billion a year. If passenger levels were unaffected by a higher fee, then each $1 increase would add about $479 million to total collections each year if all participating airports raised their fee. However, according to GAO's model, increasing the charge would reduce passenger levels, thereby reducing the additional revenues generated by a higher fee. GAO estimates that, after accounting for estimated passenger reductions, a $1 increase would generate about $463 million and a $2 increase would generate about $917 million more than the current $3 fee. If large airports lost all of the federal grants they receive on the basis of their passenger levels,[4] as a condition for levying a higher fee, they would have a net gain of about $255 million from the added revenues of a $1 increase and about $666 million from the added revenues of a $2 increase, after accounting for estimated passenger losses that would result from higher fees.

[4]For fiscal year 1998, those funds totaled about $163 million for large airports charging the fee.

Higher fees would provide a greater benefit for large airports than for small airports. GAO found in its 1998 study on funding sources for airport development that all airports in the national system were planning to spend, on average, $10 billion a year in fiscal years 1997 through 2001 for capital development. They had about $7 billion available for capital development expenditures in 1996, leaving a funding difference of about $3 billion a year. Large airports would need to charge a $7 fee to eliminate their $1.5 billion share of that $3 billion difference. By contrast, a $12 fee—the largest potential fee increase that GAO examined—would not eliminate the $655 million shortfall for small airports.[5] Changes in airports' development plans and funding could alter these results.

Increased charges are likely to affect some passengers' decisions about whether to fly. The extent of passenger reductions is difficult to estimate, however, because of the need to estimate measures of certain kinds of behavior, such as passengers' sensitivity to changes in ticket prices and the extent to which airlines may choose to absorb the cost of the increase. Using a model that GAO developed, GAO examined three scenarios that were based on different combinations of assumptions about these behaviors to produce high, midrange, and low estimates of the reduction in passengers from higher passenger facility charges. (See app. I.) GAO's model estimates the effect of changing the passenger facility charge independently of other factors that may occur simultaneously. These other factors could enhance or offset the effect of changing the passenger facility charge, making the net effect difficult to determine. For example, data on enplanement levels at individual airports indicate that enplanements have both increased and decreased following the initial imposition of passenger facility charges by airports.

On the basis of the model that GAO developed, GAO's analysis suggests that each $1 increase would reduce passenger levels by about 0.5 to 1.8 percent, and that the midrange estimate would be 0.85 percent.[6] On the basis of the midrange estimate, less than one passenger in one hundred would be affected by a $1 increase in the passenger facility charge. GAO's

[5]The funding difference for small airports that are eligible to charge the fee is about $655 million; when the general aviation airports are included, the funding difference for small airports rises to about $1.4 billion. In either case, the $12 fee would not eliminate the funding difference. Also, while the funding difference may disappear for the large airports as a group, individual airports—especially those not levying the passenger facility charge—may still experience a funding difference. Some individual airports, whether large or small, may not have a funding difference to start with.

[6]GAO's analysis was made on the basis of a database of 338 million one-way passenger trips. The three scenarios GAO examined using that database resulted in a loss of 1.6 million to 6.1 million one-way passenger trips, with the midrange scenario producing an estimated loss of 2.9 million one-way passenger trips.

analysis also suggests that the effects would be proportionally greater for nonbusiness passengers, low-fare airlines, large airports, and passengers on relatively short flights. On the basis of GAO's midrange estimate, forecast growth in passenger enplanements (about 3.4 percent a year from fiscal year 1999 through fiscal year 2010) would overcome losses in passengers resulting from higher fees unless the higher fee exceeds $7. On the other hand, in the long term, any improvements in passenger safety and comfort that may result from airport improvements could stimulate the demand for air travel.

On the basis of GAO's midrange estimate, airlines would receive about 1.3 percent less in gross revenues if the fee were increased by $1.[7] A little more than half of this loss would come from the estimated decline in passengers, while the rest of the reduction is attributable to estimates of the airlines' absorption of the increase in the fee. A decline in the airlines' gross revenues could be accompanied by a decline in their costs, so that the net effect on the airlines' profits will depend on the extent to which costs decline along with revenues.

Changing Eligibility

Adding or eliminating types of projects that may be funded with passenger facility charges would expand or narrow the scope of the program accordingly. The current scope of project eligibility makes at least 57 percent, and possibly more, of the costs of planned development at commercial service airports eligible for funding with passenger facility charges, on the basis of the most recently available data.[8] For participating airports, changing the scope of eligible projects may have little near-term effect largely because fees being collected are generally committed to specific projects over a number of years. Expanding the eligibility of projects may provide little new incentive to entice nonparticipating airports to start charging the fee. Most of the nonparticipating airports have relatively few passengers so these airports are more likely to be motivated by how much they may charge than by which types of projects are eligible. If the range of eligible projects were narrowed, in the long run airports would need to find other funding sources for excluded projects or forgo some development.

Adding Project Selection Criteria

There are three main types of proposals that would add new selection criteria for projects: prioritizing projects, requiring projects to meet

[7]On the basis of the 338 million one-way passenger trips and the estimated fares used for travelers, GAO's midrange scenario analysis produced a loss of about $614 million out of a possible $45.8 billion in gross revenues that those trips would have generated at the fare estimates used in the analysis.

[8]See Airport Financing: Funding Sources for Airport Development (GAO/RCED-98-71, Mar. 12, 1998).

cost-benefit analysis tests, or requiring that airlines agree that a project should be funded with passenger facility charges. The specific effects of any of these kinds of changes depend largely on how the change is structured. Adding more stringent selection criteria will reduce some of the flexibility that airports currently have under the program. Key issues to consider when reviewing these kinds of proposals include what prioritization criteria to use, whether to require cost-benefit analyses for all projects, and how the approval of airlines serving an airport would be determined.

Making No Program Changes

If the program remains unchanged, there is unlikely to be much change in how many airports are charging the fee or in how they are applying those funds. The extent to which passenger facility charges would continue to contribute to airport development will depend on the changing demands placed on the aviation system and the other resources available to respond to those demands.

Recommendations

GAO is making no recommendations in this report.

Agency Comments and GAO's Evaluation

GAO provided the Department of Transportation, the Federal Aviation Administration, a panel of two experts, the Airports Council International-North America, the Air Transport Association, and the National Association of State Aviation Officials with a copy of the draft report, or portions thereof, for review and comment. GAO spoke with the Deputy Director of the Federal Aviation Administration's Office of Airport Planning and Programming, the Air Transport Association's Director of Airport Planning and Development, and the Vice President of the National Association of State Aviation Officials and received comments from the panel of experts, all of whom generally agreed with the facts presented and thought the report was both thorough and balanced in its discussion of the issues. They provided some suggestions for clarification and additional information that were incorporated in the report as appropriate. GAO met with the President, the Senior Vice President for Economic and Associate Affairs, and the Vice President for Government Affairs of the Airports Council International-North America, who questioned whether a reduction in passengers would actually occur if passenger facility charges were increased. They questioned whether passengers would actually see an increase in ticket fares if passenger facility charges were raised, noting that many factors, not only higher passenger facility charges, affect the pricing decisions of airlines. They also noted that elasticity analysis is

theoretical and suggested that it would be more useful to use historical analysis instead.

GAO believes that it has appropriately applied generally accepted economic analysis methods to estimate how higher passenger facility charges may affect ticket fares and how increases in those fares could affect passenger levels, including acknowledging the uncertainty associated with such an estimate. Although many factors influence air fares simultaneously, in analyzing the impact of one factor, such as higher passenger facility charges, it is necessary to hold constant the effect of all other factors. Furthermore, the elasticities used in GAO's analysis were based on statistically significant historical relationships between prices and passenger levels and have been previously used by the Department of Transportation. Nevertheless, discussion of the uncertainties associated with analysis of the potential effect of higher fees on passenger levels was clarified, particularly in the executive summary, to assure a clear understanding of GAO's methodology.

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Abbreviations

AAAE	American Association of Airport Executives
ACI-NA	Airports Council International - North America
ADO	Airport District Office (FAA)
AIP	Airport Improvement Program
ATA	Air Transport Association
FAA	Federal Aviation Administration
GAO	General Accounting Office
NASAO	National Association of State Aviation Officials
NPIAS	National Plan of Integrated Airport Systems
PFC	passenger facility charge

Introduction

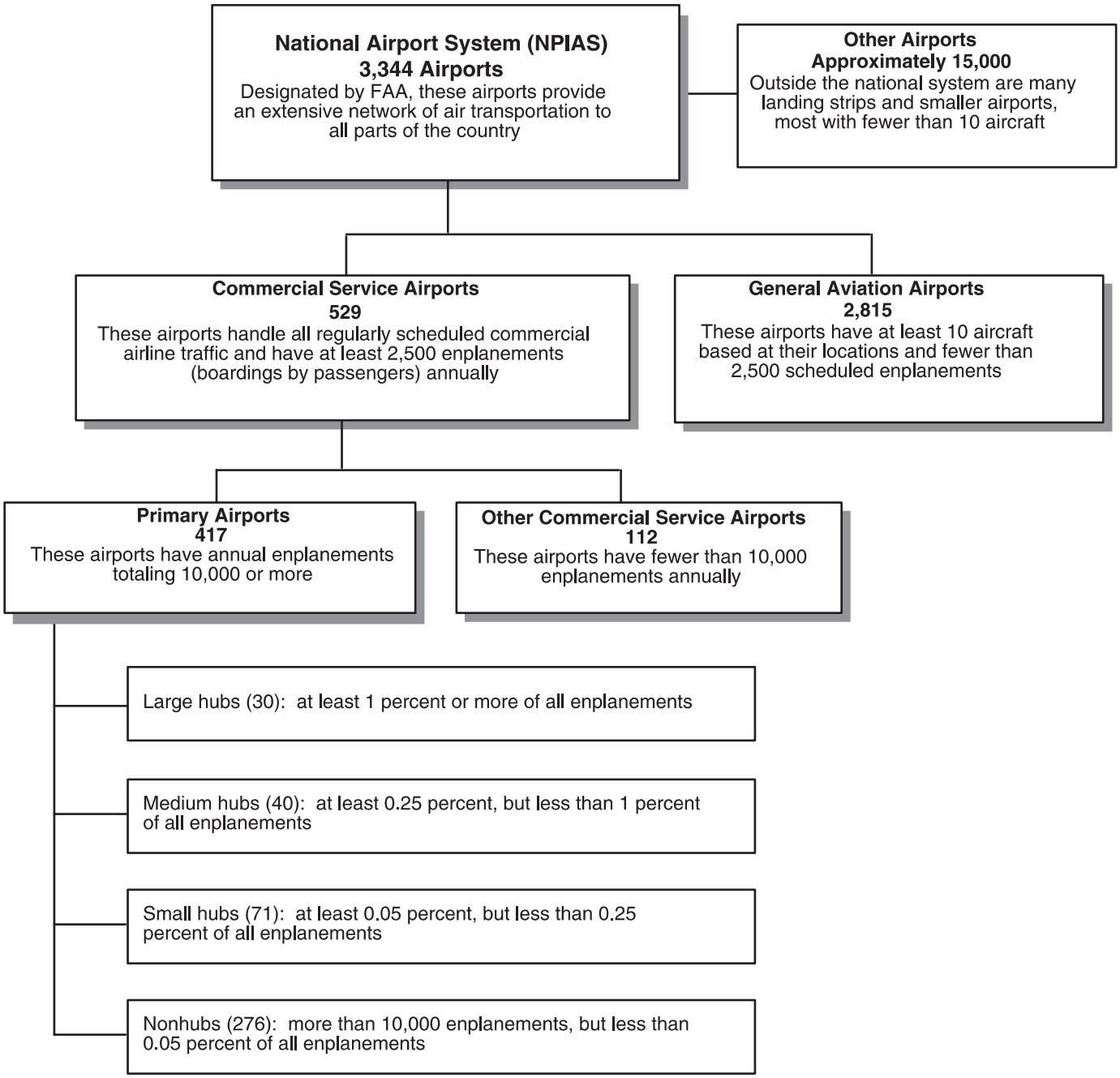
With more than 18,000 aviation landing facilities—including over 13,000 airports—the United States has the most extensive aviation system in the world. U.S. airports range from large commercial transportation centers enplaning more than 30 million passengers a year, such as Chicago's O'Hare International Airport, to small grass strips serving only a few aircraft each year. More than 3,300 of these airports are part of a national system designed to ensure that every part of the country has an effective aviation infrastructure.

The concept of a national airport system was envisioned more than 50 years ago and has been developed and nurtured by close cooperation among federal, state, and local agencies. The federal interest in aviation has focused on several objectives, most notably to ensure the safe operation of an airport and airway system, to preserve and enlarge the nation's aviation capacity, to help small airports, to reduce aviation noise, and to protect the environment.

The federal role in airport development began in 1946 with passage of the Federal Airport Act establishing the first federal airport grant program, which was designed to promote the development of a civil system of airports nationwide. Although it has gone through various revisions over time, a federal grant program supporting airport capital development continues to this day through the Airport Improvement Program (AIP). The AIP provides funding for airport planning and capital development projects at airports that are part of the national system—those airports in the National Plan of Integrated Airport Systems (NPIAS). The funds are appropriated by the Congress from the Airport and Airway Trust Fund, which is financed by taxes on domestic and international travel, domestic cargo transported by air, and noncommercial aviation fuel.

The national airport system is comprised of two types of airports: commercial service airports and general aviation airports. Commercial service airports, which, as of January 1999, number 529, are those that enplane 2,500 or more passengers a year and have scheduled airline service. The Federal Aviation Administration (FAA), which oversees the federal government's involvement in aviation, including airport issues, divides commercial service airports further into various categories on the basis of the number of passengers they enplane. (See fig. 1.1.) General aviation airports, of which there are currently 2,815 in the national system, have at least 10 aircraft based at their locations and fewer than 2,500 scheduled enplanements a year.

Figure 1.1: Categories of U.S. Airports



(Figure notes on next page)

Note: There are 3,344 airports in the 1998 database for the NPIAS, which covers fiscal years 1998 through 2002. These are the airports referred to in this report as the national system of airports. The number of airports in each category of commercial service airports is based on enplanements for calendar year 1997, which totaled 641,561,881.

All airports in the NPIAS are eligible for federal airport development grants, which are provided today through the AIP. For fiscal year 1998, the Congress appropriated $1.7 billion for the AIP. Airports also have other sources of funding that they draw on to help pay for their capital development, including bonds, state grants, and airport revenues.[1]

With the passage of the Aviation Safety and Capacity Expansion Act of 1990,[2] some airports have also benefited from a major federally authorized funding program designed to help pay for airport capital development. The act authorized commercial service airports to seek FAA's approval to impose boarding fees—called a passenger facility charge (PFC)—on passengers boarding aircraft at their facilities. While only commercial service airports are authorized to charge the PFC, no airport is required to impose the fee. Airports wishing to participate in the program must apply to FAA for approval to charge the fee and for approval of the projects that will be funded with the money collected. Because only commercial service airports may charge PFCs, the data in this report covers only those airports unless otherwise stated. Throughout this report, the grouping referred to as "large" airports comprises large and medium hub airports, while the grouping referred to as "small" airports comprises small hub, nonhub, and other commercial service airports.

Under the PFC program, commercial service airports may charge boarding passengers a $1, $2, or $3 fee. No more than two fees, or a maximum of $6, may be charged to a passenger on a one-way trip, and no more than four fees, or a maximum of $12, may be charged to a passenger on a round trip. If an airport decides to levy a PFC, however, not all passengers may have to pay it. For example, passengers using frequent flyer programs to purchase their tickets are exempt. Also, an airport may request that a class of airlines carrying no more than 1 percent of the airport's passengers be exempted from collecting the fee. Thus, total airport collections are based on the number of boarding passengers required to pay the fee.

[1]See Airport Financing: Funding Sources for Airport Development (GAO/RCED-98-71, Mar. 12, 1998) for a discussion of airport funding sources for development.

[2]49 U.S.C. Section 40117.

Objectives, Scope, and Methodology

Within the industry, there are different views about whether the PFC program should be expanded, limited, or left as is. For example, airport associations view expansion of this program as a way to help bridge the difference between the cost of planned development projects and the funds available to pay for that development. As we described in our March 1998 report on funding sources for airport development, about a $3 billion difference existed between the annual average cost of airports' planned capital development for fiscal years 1997 through 2001 and the funds that were available to airports in 1996 to pay for their capital development. Airlines have frequently questioned the need for, or eligibility of, some of the development that airports propose to fund through PFCs and have suggested some changes to the program, such as a more stringent screening process for project selection. Because of interest in changing the program, the Chairmen and Ranking Minority Members of the Senate Committee on Commerce, Science, and Transportation and its Subcommittee on Aviation, and the Chairman and Ranking Democratic Member of the House Committee on Transportation and Infrastructure's Subcommittee on Aviation, asked us to review the program, specifically to address the following questions:

- How are passenger facility charges helping airports fund their capital development, particularly in terms of the extent to which the charges fund development, the rate of airports' participation in the program, and airports' use of the funds collected?
- What are the potential effects of proposals for changing the program—particularly with regard to increasing the fee, changing project eligibility, and providing new project selection criteria—as well as the potential effects of making no change at all?

To address the first question, we (1) reviewed data in our 1998 report on airport funding sources to identify the extent to which PFCs contribute to airport development in the context of the major funding sources available (Airport Financing: Funding Sources for Airport Development [GAO/RCED-98-71, Mar. 12, 1998]); (2) reviewed the original statute for the passenger facility charge program, its legislative history and amendments, and FAA regulations and requirements implementing the statutory directive; (3) obtained FAA data to identify the PFC collections approved by FAA and the distribution of approved PFC collections by airport size and project types; (4) reviewed statutory provisions and related federal grant data to determine if we could identify whether small airports received a net gain in certain federal grant funds targeted for their use from the return of some federal grant funds by large airports under the PFC statute,

and (5) reviewed airports' use of PFCs as sole backing for bonds under new FAA provisions that help ensure the payment of bonds when an airport may face termination of its collections because of program violations. We interviewed officials from FAA headquarters in Washington, D.C.; the Airports Council International-North America (ACI-NA); the Air Transport Association (ATA); the National Association of State Aviation Officials (NASAO); and bond raters and underwriters to obtain their views on these issues. We tested the validity of FAA's database on approved PFC applications by randomly selecting four applications from each year of the program's operation (1992 through 1998) and tracing all of the data entries to their sources. We found FAA's database to have a very high reliability (a 0.3-percent error rate).

To address the second question, we identified a variety of proposals for changes to the PFC program by reviewing (1) testimonies on FAA reauthorization issues before the Senate and the House of Representatives that were presented during 1998 by representatives of FAA, ACI-NA, ATA, the American Association of Airport Executives (AAAE), and NASAO; (2) legislative proposals regarding FAA's reauthorization for fiscal year 1999; and (3) other related documentation, such as analyses presented by experts at conferences. We also discussed the issues with congressional staff and officials from FAA, ACI-NA, ATA, and NASAO, as well as other experts to obtain their ideas on the kinds of proposals that the Congress might be asked to consider in its review of FAA's next reauthorization. As a result of our documentary review and discussions, we focused our review and analysis on the kinds of proposals that generated the most attention during the hearings and that representatives of aviation organizations and other experts thought were the most important for consideration. Those proposals were to (1) increase the maximum PFC that airports could charge passengers, (2) change the eligibility of projects, and (3) add new project selection criteria. Because the Congress may modify the PFC program when it considers the next reauthorization for FAA, we analyzed the potential impacts of these changes on the amount of funds that would be collected, management of the program, passenger traffic, airports, and airlines. However, because analyses of the potential effects of changes to the program are prospective—or "future impact"—analyses, we cannot say with certainty what the outcomes of any changes will, in fact, be. As a result, we can only estimate what the potential outcomes may be.

To review the potential impact of proposals that would raise the fee that passengers may be charged, we reviewed the effect of increases from $1 to $9 to assess the potential gains from higher fees in the range of $4 to $12.

This range was chosen to consider the most common proposals for increasing the charge, which focus on a $1, $2, or $3 increase in the maximum allowable fee, and to consider the potential impact of proposals that would give airports more freedom in setting fee levels. We also interviewed officials and obtained comments on the potential effects of proposals to increase the PFC from FAA, ACI-NA, ATA, and NASAO.

We developed a model that used data on the number of one-way passenger trips and the fares paid during the 12-month period ending June 30, 1998, to estimate the potential impact of increases in the PFC on passenger levels. We took into account differences between business and nonbusiness passengers, long and short trips, regular-fare and low-fare airlines, and trips that involve large versus small airports. We purchased data showing the one-way trips in various trip categories and the fares paid for those trips from a firm that produced these data from a Department of Transportation database of ticket information, and, hence, we did not verify the data provided. The analysis we performed required us to make assumptions about several key parameters. Those assumptions pertain to (1) the degree to which passengers are likely to reduce their travel as ticket prices increase, (2) the extent to which airlines may absorb the increase in the PFC, (3) the split of passengers between business and nonbusiness travel, and (4) the way in which separate average fares for business and nonbusiness passengers are estimated. In our analysis, we used the model to develop three scenarios that are based on different combinations of assumptions for the first two factors that were selected in order to produce high, midrange, and low estimates of the potential reduction in passengers due to increases in the PFC. (See app. I for a detailed discussion of this methodology and the results.)

Statutorily, large and medium hub airports are designated as large primary airports and must contribute a larger share to projects funded under the federal grant program as well as forgo a portion of their federal grant funds if they collect PFCs. This report follows that convention in grouping large and medium hub airports together as “large” airports and grouping the small hub, nonhub, and other commercial service airports eligible to charge a PFC as “small” airports. Except where specifically noted, data for small airports do not include data for general aviation airports.

A panel of two experts reviewed our design and methodology for conducting our work and our draft report. These experts were selected because of their work on aviation and airport issues; they have expertise

over a broad range of airport issues, including airport finance, airport administration, and engineering. (See app. II.)

We provided the Department of Transportation, FAA, ACI-NA, ATA, NASAO, and the two members of our advisory panel of experts with a copy of a draft of this report, or portions thereof, for review and comment. Their comments are discussed at the end of chapter 4.

We conducted our review from August 1998 through April 1999 in accordance with generally accepted government auditing standards.

The PFC Program Gives Airports the Ability to Fund a Broad Array of Airport Development Projects

The PFC program sets forth several broad objectives to further airport development, such as enhancing airport safety, security, and airline competition. The types of projects eligible for funding—within the context of those objectives—is broader than the scope of projects eligible for federal AIP grants. For example, while all projects eligible for AIP grants may be funded with PFCs, PFCs can also fund projects not covered by the federal grant program, such as the construction of gates and the payment of interest on debt for eligible projects. PFC funds are also a less constrained source of money than some of the other major funding sources that support airport development. For example, projects are not prioritized for funding, as is the case with certain AIP grants. While airline agreement is sometimes needed for an airport to issue bonds,[1] it is not required for participation in the PFC program. Moreover, while airports must apply to FAA for approval of both the collection of the fees and the specific projects that the money will pay for, FAA officials note that as long as a project is eligible, meets a program objective, and is adequately justified, they do not have the authority to reject an airport's proposal for the collection or use of PFC funds.

Program Objectives and Project Eligibility Are Broad in Scope

The Congress established broad overall objectives for the PFC program and expanded the specific kinds of projects that federally authorized funding could support. The Congress authorized the PFC program to help airports pay for capital development that would further several main objectives. As provided for in the PFC statute, projects funded with PFCs should

- contribute to the preservation or enhancement of an airport's safety, security, or capacity,
- reduce noise generated by airport activities, or
- enhance competition among the airlines.

Within the context of these objectives, the statute authorizes the use of PFC collections for specific projects, including all of those that are eligible, by statute, for AIP funds, such as projects involving runways, airfield lighting, and aprons.[2] The PFC statute also authorizes the use of PFCs for some activities that are not eligible for AIP grants—such as the construction of new gates and the payment of interest on debt for eligible development projects. Projects ineligible for either PFCs or AIP grants, such as

[1]At some airports, airlines have agreements that give them the opportunity to review and approve capital projects.

[2]Projects eligible for federal AIP grants are designated in the Airport and Airway Improvement Act of 1982 (49 U.S.C. 47102).

revenue-producing parking areas and terminal concession areas, must be paid for with funds from other sources. Table 2.1 shows the eligibility of projects for the various funding sources.

Table 2.1: Funding Options for Different Kinds of Airport Capital Development

Projects eligible for funding with AIP, PFC, and other sources[a]	Projects eligible for funding with PFC and other sources only[a]	Projects eligible for funding with other sources only
Development type •Safety and security •Reconstruction of landing area •Meeting standards •Upgrade •Capacity •New airport •Noise and environment •Planning **Within each development type, projects can be for** •Runway •Taxiway •Apron •Lighting •Approach aids •Terminal, if not leased •Access •Planning •Equipment **Other eligible project categories** •Parking for passengers if at a small hub or nonhub airport and if not revenue-producing •Certain aspects of projects involving restaurants, concessions, and any other revenue-producing public use areas at nonhub airports	•Construction of gates and related areas where passengers en/deplane, if not long-term exclusive use lease •Airline ticketing areas, if not long-term exclusive use lease •Interest payments for debt service •PFC administrative expenses •Certain noise mitigation	**Construction, alteration, or repair of** •Revenue-producing parking •Hangars •Buildings not eligible for AIP or PFC funds **Other costs relating to** •Obtaining liability insurance •Purchasing nonexpendable machinery, tools, and materials already purchased by airport •Raising airport funds •Tuition, travel, and subsistence for airport personnel •Operations and maintenance work •Those aspects of projects involving restaurants, concessions, and any other revenue-producing public use areas, that are not eligible for AIP or PFC funding •Airline ticketing, gate, and/or baggage areas that are long-term exclusive use lease •Advertising •Public convenience amenities •Decorative landscaping and the purchase of art

[a]Projects eligible for PFC funding must also meet at least one of the following statutory objectives: preserve or enhance airport safety, security, or capacity; reduce noise; or enhance competition among airlines.

Another objective of the program is to channel additional federal grant funds to the small airports that do not generate much money from PFCs because of low passenger levels and to airports that are not eligible to collect the fees. Because the large airports will receive the greatest portion of revenues from PFCs (91 percent), the statute includes a provision that requires large airports charging PFCs to forgo part of the money they would normally receive from the AIP grants. Most of this money must be

redistributed to the small commercial service airports and to the general aviation airports within the national system.[3] This provision and the degree that small airports are benefiting from it are discussed in chapter 3.

PFCs Offer Airports Some Funding Flexibility

The PFC program offers airports greater decision-making control over the use of the funds than some of the other major funding sources available for airport development. And, while FAA manages the program, FAA officials consider their authority over the use of PFCs limited to a determination of whether a project is eligible, meets a program objective, and is adequately justified.

PFCs Are Less Constrained Than Some Other Development Funding Sources

The PFC program offers airports more flexibility in some ways than some of the other major funding sources available to pay for airports' development costs. First, the PFC program provides more flexibility in project selection than does the AIP grant program by allowing a broader array of projects to be funded. Also, airports have more control over the types of projects they undertake because under the PFC program, projects are not subject to an FAA priority process to establish a ranking order for selecting projects for funding, as is the case with certain AIP grants. Second, while airports must consult with airlines when considering participation in the PFC program and the selection of projects to be funded, airports do not need airlines' agreement on the use of PFCs or on project selection. In contrast, with general airport revenue bonds, airports that have agreements with airlines that give airlines the right to approve capital projects must obtain airline agreement for the use of the bonds. Third, while airports may have the greatest flexibility when using available airport revenues to pay for capital development, available revenues are an extremely limited funding source—only 2 percent of total funding for development in 1996 (the most recent data available)—thereby contributing little to unconstrained funding opportunities.

FAA Implements the Program but Considers Its Authority Limited

Airports must seek FAA's approval both to levy PFCs and to use PFC revenues for specified projects. When seeking FAA approval, airports specify whether they want to charge a $1, $2, or $3 fee, the projects they want to fund with the collections, how much those projects are going to cost, and how long it will take to collect enough money through PFCs to pay for the proposed projects. Under the statute, airports cannot receive

[3]While general aviation airports are not eligible to collect PFCs, airports that collect PFCs may use the funds on any airports they control, including general aviation airports.

more money in PFC collections than they need to pay for the approved projects. When FAA approves an airport's request, it approves, among other things, the amount of the PFC to be charged to a boarding passenger, the maximum amount of funds that may be collected from PFCs, and how long the airport will be collecting the PFC. Approved collection periods for airports range from as little as 6 months to more than 40 years, with half of the airports collecting for less than 6.6 years and half for longer.

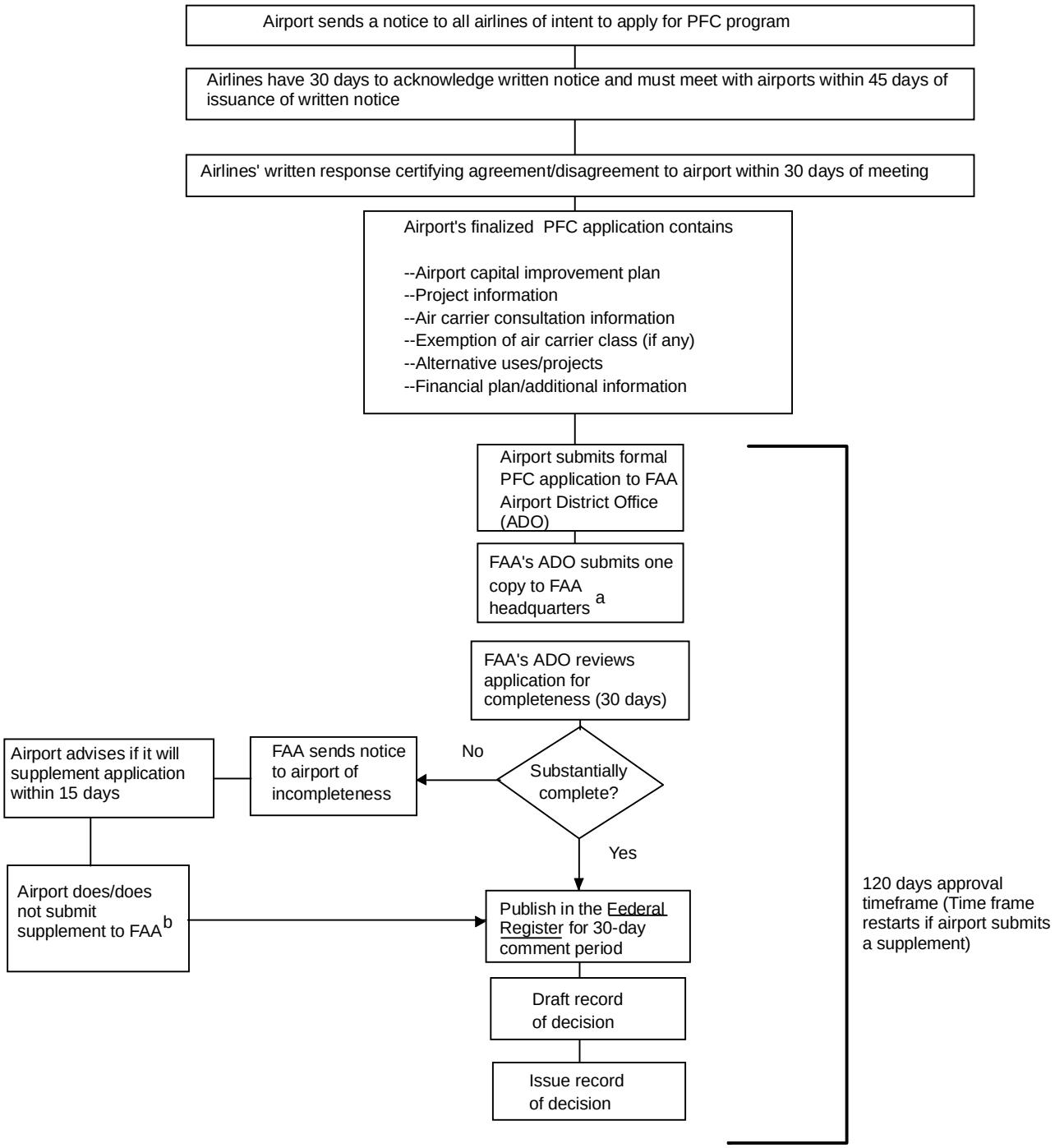
According to FAA officials, FAA considers its authority to control airports' use of PFC funds limited since, under the statute, airports need only demonstrate that projects are eligible, meet at least one of the program's objectives, and are adequately justified. According to FAA officials, while there are no standardized criteria for determining if a project is adequately justified, a project's justification is generally assessed in the context of how well a proposed project meets the program's objectives. FAA officials explained that they use established project review guidance, such as AIP screening criteria, where relevant, when determining whether a project is adequately justified. They also noted that if an airline challenges a project, that challenge will trigger a more in-depth review.

FAA has developed an application and review process to implement its management and oversight responsibilities for the PFC program. According to FAA officials, many airports begin the application process by discussing their proposals with one of FAA's regional Airport District Offices. An airport must notify all airlines that operate at its facility that it plans to submit an application to FAA to charge PFCs so that the airlines may comment on the proposed collection and use of the PFCs. The airport may have a draft application at that time, but one is not required. The airlines have 30 days to acknowledge receipt of the notice from the airport in writing. The airport then has up to 45 days from the day it provided notice to meet and discuss the proposed application with airline officials. At the conclusion of this meeting, the airlines have 30 days to provide a written statement informing airport officials of their agreement or disagreement with the proposal to collect PFCs, in whole or in part. The airport may construe the failure of an airline to provide written comments as certification of agreement, but airlines' agreement is not required. After this consultation process is completed, the airport finalizes the application and submits it to FAA. The application must include airlines' comments, and if any airlines raised objections, the airport must address those objections in its application.

Once an application is formally received, FAA has 120 days to review it and decide whether to approve it. The first 30 days are used to check the application for completeness to ensure that all of the information that FAA needs to evaluate the application is included. For example, an application must include information on the proposed project or projects to be paid for with PFCs and the results of the airport's consultation with the airlines. (See fig. 2.1.) If the information in the application is incomplete for one or more projects, FAA notifies the airport, which then has 15 days to inform FAA of whether it intends to provide a supplement to the application.[4] Once an application is complete, FAA publishes a notice in the Federal Register to solicit comments from the public over a 30-day period. After the 30-day comment period, FAA reviews the comments and prepares a decision paper—called a record of decision. Notice of FAA's decision is published in the Federal Register. Airports may not begin collecting PFCs until the first day of a month that occurs at least 60 days after the application has been approved. The implementation of projects that have been approved for funding with PFCs must be initiated within 2 years. Once FAA has approved the collection of PFCs by an airport, the airlines are required by the statute to collect the fees from passengers and transmit the funds to the airport. FAA sometimes approves the collection of PFCs before giving final approval of the projects that the PFCs will fund. In these cases, an airport must seek authority to use the collected funds on the projects within 3 years. Figure 2.1 illustrates the application and approval process.

[4]FAA's 120-day countdown stops when an airport is working on an application supplement; the count starts over at the beginning once FAA receives the supplement.

Figure 2.1: FAA's Review and Approval Process for Applications to Charge and Use PFCs



[a]FAA headquarters has retained decision-making authority, according to FAA officials, over those PFC applications that are controversial or involve issues such as major policy or legal issues. FAA has delegated decision-making authority over all other applications to FAA's regional Airports Division managers.

[b]The 120-day time frame starts over upon receipt of the supplement.

In practice, according to FAA officials, FAA tries to provide informal technical review and comments on prospective applications to facilitate processing within the required 120-day time frame, particularly since applications can contain as many as 30 to 40 projects or more. FAA's informal review allows many technical issues to be resolved before an application is formally submitted. Partly as a result of this informal technical review, FAA has rejected only one airport application for the collection of PFCs in its entirety; the reason for the rejection was inadequate justification for the proposed projects. Nevertheless, FAA does not necessarily approve all of the projects that may be included in a single application. FAA has formally rejected over 200 projects since 1992 generally because of ineligibility.

Once FAA approves an airport's application, airlines have the responsibility under the statute for collecting the fee, which they do along with the passenger's ticket fare. Airlines must remit the fees to the appropriate airports on a monthly basis. To help cover their costs for the administration of this part of the program, airlines may retain 8 cents of each fee as well as any interest earned on the money prior to its transmission to the airports.

Airports must maintain separate accounting records on the funds received for each of their PFC applications that have been approved. They must submit copies to FAA of quarterly reports on the collection, use, and holdings of their PFC funds as well as report annually to FAA on expected PFC revenues for the ensuing fiscal year. Airports must also contract with a private auditing firm for an annual independent audit of their PFC records.

The PFC Program Is Making a Significant Contribution to Airport Development

PFCs provided about 18 percent of the total funds available to commercial service airports to pay for their capital development in 1996, the most recent year for which data could be obtained on all of the major funding sources. With nearly $22 billion in collections approved by FAA at the request of airports, and with about $6.25 billion of that already collected, the PFC program is making a significant contribution to funding airport development, especially for the nation's largest airports. As of October 1, 1998, 273 airports were participating in the program, including most of the nation's 70 large airports, which will receive 91 percent of the collections that FAA has approved. Airports are using PFCs to pay for a broad range of projects that include terminals, new gates, access roads, runways, land acquisition, interest on bonds issued to pay for eligible projects, and noise reduction. Large and small airports participating in the PFC program are using their funds somewhat differently. Large airports are spending twice as much for landside projects, such as terminals and access, as for airside projects, such as runways and taxiways, while small airports are spending comparable amounts on both.

Small airports also benefit indirectly even if they do not collect PFCs. Under the PFC program, large airports that levy PFCs must return some of their federal AIP grants to FAA for redistribution, primarily to the small airports to supplement their other AIP receipts. This provision has targeted about $710 million to small airports from fiscal year 1993, the first year large airports returned AIP funds, through fiscal year 1999. Under the statute, small airports were not expected to lose other federal grants because these additional funds were being targeted for their use. However, we cannot determine whether small airports have gained from these funds as the statute intended because a required minimum level of AIP funding is not clearly established; furthermore, the amount of AIP funds that small airports would have received without this redistribution is unknown. FAA officials note, however, that small airports have always received greater benefits from the AIP overall because their share of total AIP funds has always been greater than the share that large airports have received.

In addition to the benefits provided by the statutory objectives of the PFC program, some airports have used PFC revenues as the sole source of financial backing for bonds issued to pay for eligible projects. But the use of PFCs as the sole financing source for such bonds has been slow to develop because bond raters and underwriters have been concerned about the Department of Transportation's ability to terminate the collection of PFCs if it finds that an airport has violated the program's requirements.

PFCs Are a Major Funding Source for Commercial Service Airports

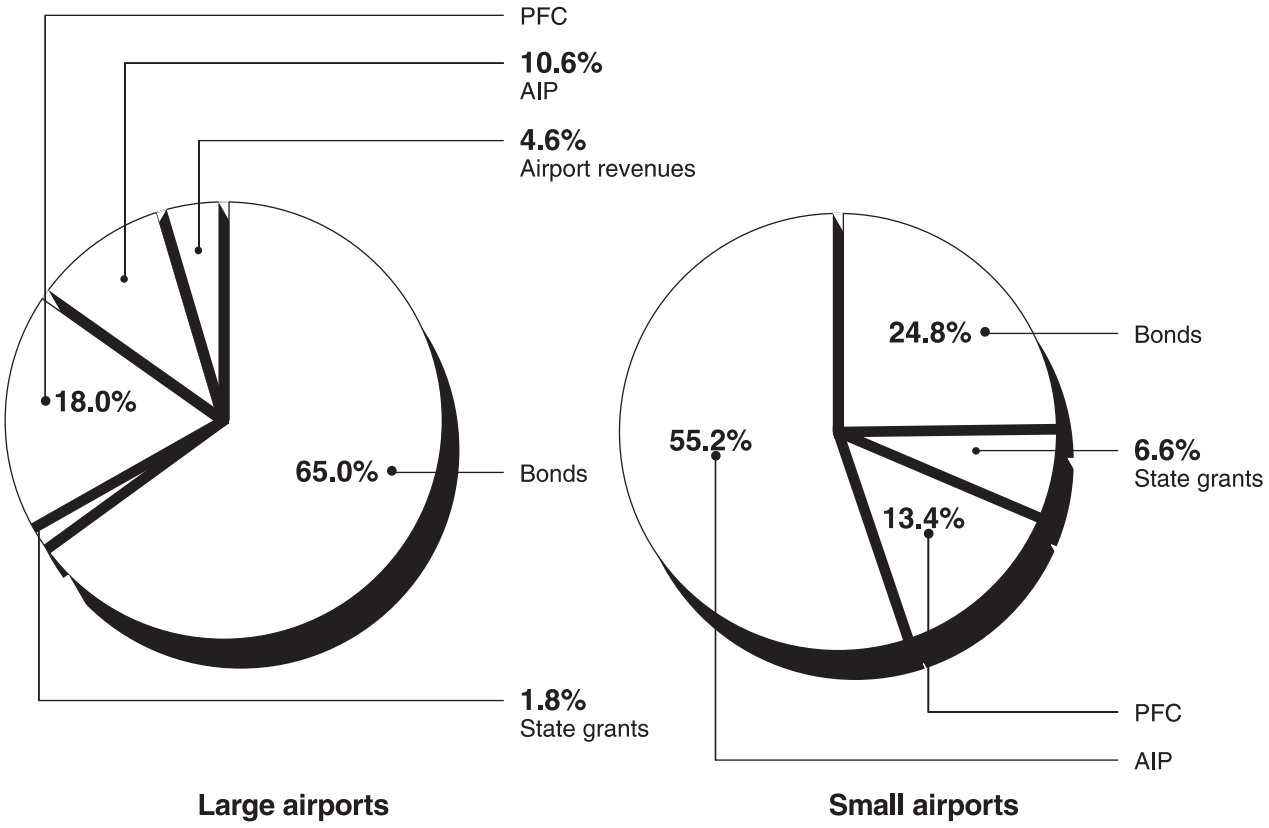
Airports pay for their capital development primarily through five major funding sources: federal grants, PFCs, tax-exempt bonds, state grants, and airport revenues.[1] Tax-exempt bonds are the single largest source of funding (about 61 percent) for airport capital development, providing commercial service airports in the national system with $3.84 billion in 1996—the most recent year for which data for all of the major funding sources are available.[2] PFCs were the second largest funding source for those airports, providing $1.11 billion, or about 18 percent, of their available funds, while AIP provided another $1.05 billion, or about 17 percent, of their funds, and states provided $155 million in grants, or 2.5 percent. Airports also had available to them about $152 million (2.4 percent) in airport revenues in 1996 that could be used to pay for capital development projects.

The availability of the five major funding sources differs for large commercial service airports versus small commercial service airports. As figure 3.1 shows, in 1996 bonds were the largest single source (65 percent) of development funding for the large airports, whereas about 55 percent of the small airports' funds came from AIP funds.

[1]See Airport Financing: Funding Sources for Airport Development (GAO/RCED-98-71, Mar. 12, 1998).

[2]These percentages do not include data for general aviation airports that are not allowed to impose PFCs.

Figure 3.1: Distribution of 1996 Funding Sources for Large and Small Airports



273 Airports Are Collecting Nearly $22 Billion in Approved PFCs

Of the 529 airports eligible to participate in the PFC program, 273 (52 percent) were collecting PFCs as of October 1, 1998. The larger the airport is, the more likely it is to participate. Overall participation for large airports is 80 percent, while among small airports it is 47 percent. For large and medium hub airports separately, the participation rates are 83 and 78 percent, respectively. While small hub airports are participating at a similarly high rate (77 percent), the rate drops to 54 percent for nonhubs and only 12 percent for other commercial service airports. According to FAA officials, there are various reasons why an airport may not participate. Local factors, such as high rates of travel within a state, may influence the decisions of the 14 large airports that have not yet chosen to levy the fee.[3]

[3]Some are considering and/or preparing their first application.

For small airports, for example, revenues from PFCs may be too low to provide them with sufficient incentive to charge the fee.

As table 3.1 shows, large airports will receive most of the PFC collections that FAA has approved. From June 1992, when the collections first began, through September 1998, FAA approved the collection of $21.9 billion in PFCs. Large airports will receive $19.9 billion of this amount (91 percent), reflecting their high participation rate in the PFC program and their passenger traffic (90 percent of all 1997 enplanements were at the large participating airports). Small airports will receive about $2 billion (9 percent). All but one of the participating airports are currently charging the $3 maximum allowed by law.[4] Only about $6.25 billion, or 29 percent of approved PFCs, had actually been collected as of December 31, 1998, because FAA has approved additional applications during each year of the program since 1992, and collection periods approved for airports range from 6 months to over 40 years.[5]

Table 3.1: Use of PFCs at Commercial Service Airports, September 1998

Airport category	Number of airports in category	Number of airports collecting PFCs	PFCs approved	
			Dollars (millions)	Percentage
Large hub	30	25	$16,157.6	73.7
Medium hub	40	31	3,714.2	16.9
Small hub	71	55	1,480.9	6.8
Nonhub	276	149	433.6	2
Other commercial service	112	13	130.5	0.6
Total	**529**	**273**	**$21,916.7**	**100**

[4]The airport at Morgantown, West Virginia, charges a $2 PFC.

[5]As of October 1, 1998, the longest collection period was 40 years and 2 months at the Palm Springs, California, airport for $81.9 million in collections. One of the shortest approved periods was for 6 months at Bradley International Airport in Windsor Locks, Connecticut, for $3.3 million in collections. In anticipation of the commercial service classification of a new airport in Bentonville, Arkansas, FAA has also approved a period of 50 years and 3 months for $125 million in collections.

PFCs Fund Many Types of Projects, With Large and Small Airports Making Different Choices

The $22 billion in approved projects encompasses a wide variety of projects as well as the payment of interest on bonds issued to pay for eligible projects. As figure 3.2 shows, excluding the $2.3 billion in PFCs approved for the Denver International Airport,[6] the funding is distributed into major categories as follows:

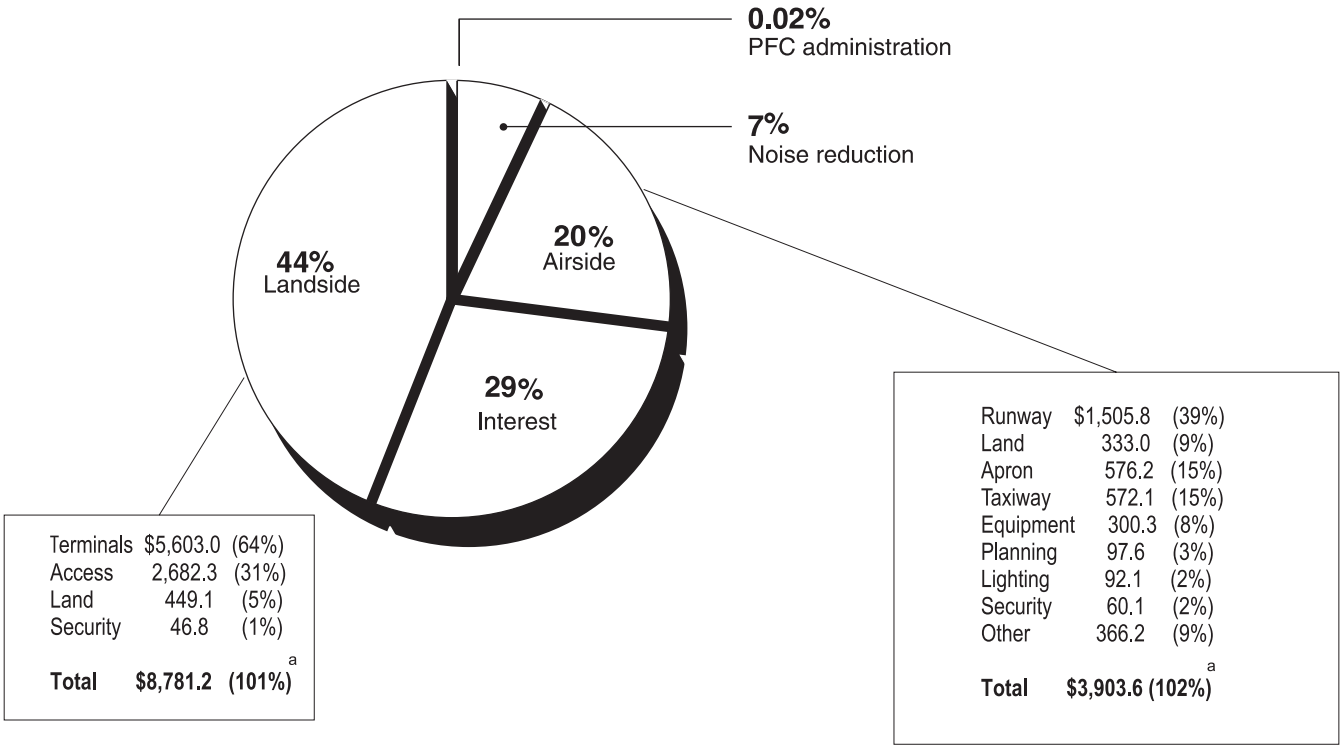
- 44 percent is for landside [7] projects, such as gates and certain access roads;
- 29 percent is being used to pay interest on debt incurred for development eligible for PFCs (FAA's database does not break down this debt in terms of whether it is for airside, landside, or other categories);
- 20 percent is for airside projects, such as runways and taxiways;[8]
- 7 percent is for noise reduction projects; and
- 0.02 percent is for administration of the program.

[6]FAA's information systems do not separate the $2.3 billion in approved PFC collections for the Denver International Airport by project type; instead, it is categorized in FAA's data bank for a period of about 33 1/2 years as a "new airport" project.

[7]The landside portion of an airport encompasses the airport from its boundary, where the general public enters airport property, to the point where passengers leave the terminal to board the aircraft. According to FAA officials, landside projects include projects such as access, security, and terminal projects.

[8]According to FAA officials, the airside portion of an airport encompasses areas such as the runway, taxiway, and apron. In addition, projects such as purchasing land for airfield expansion as well as purchasing equipment to be used in the airfield are considered airside projects. Lastly, projects for airfield lighting, planning, and security are also considered airside.

Figure 3.2: Approved PFC Funds by Major Project Category, Fiscal Years 1992 Through 1998 (Dollars in millions)



Note: Amounts in this figure do not include $2.3 billion in PFC collections approved by FAA for a period of about 33 1/2 years for the Denver International Airport, which is a single "new airport" listing in FAA's information systems. Total approved collections for all participating airports are $21.9 billion.

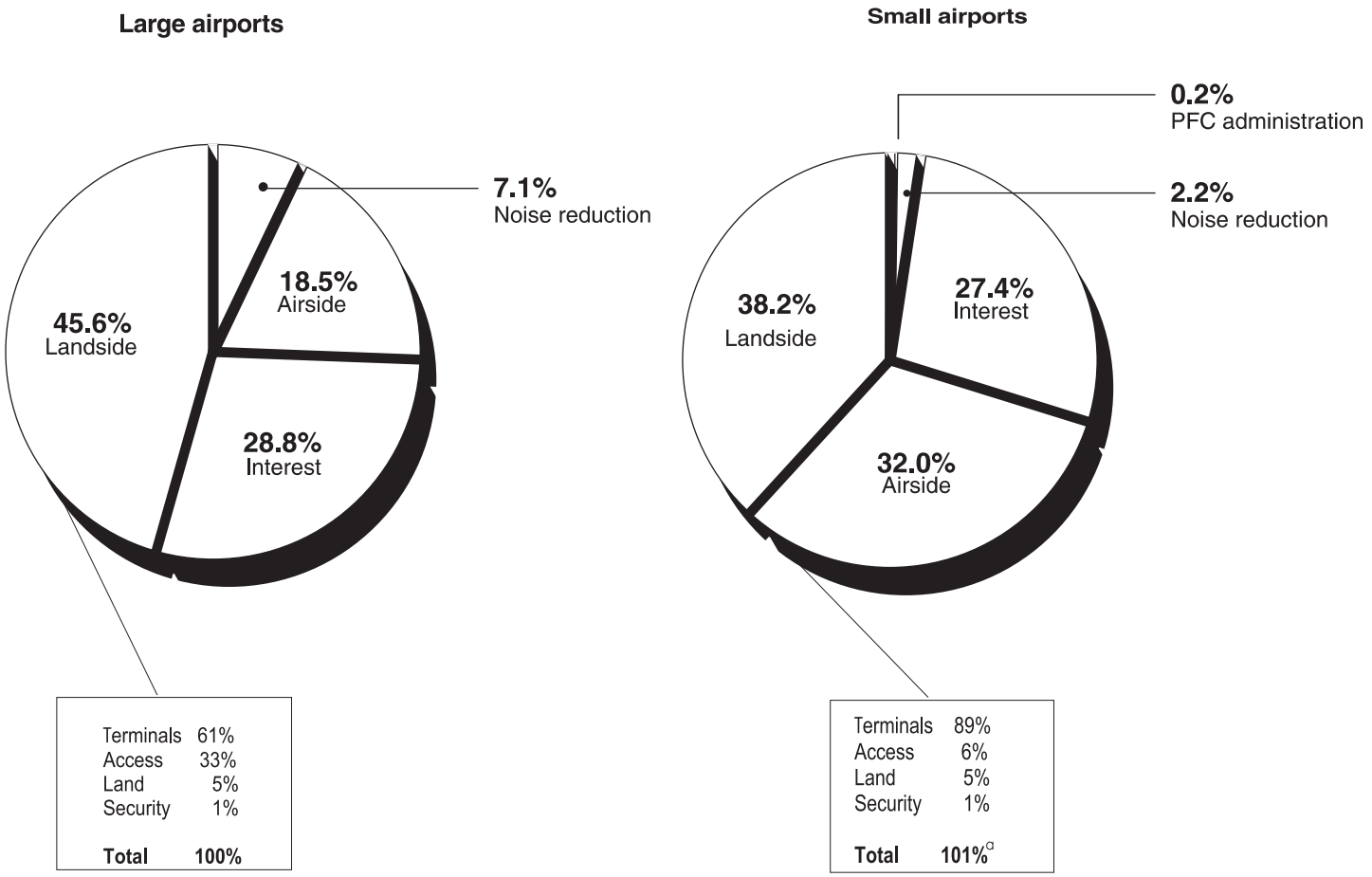
[a]Does not add to 100 because of rounding.

Nearly two-thirds of the funds for landside projects are for terminal projects, while the single largest category of airside projects is for runways (39 percent). Although the largest portion of funds will be spent on landside projects, only 23 percent of the number of approved projects are landside, while 66 percent of the number of approved projects are airside projects.

The overall expenditure patterns vary somewhat for large and small airports. (See fig. 3.3.) Large airports are using about 46 percent of their funds for landside projects, 29 percent for interest payments, and

19 percent for airside projects. Large airports will spend nearly two-thirds of their landside funds on terminal projects and about one-third on access projects. Small airports are using about 38 percent for landside projects, just under one-third for airside projects (32 percent), and about 27 percent for interest payments. About 89 percent of small airports' landside funds will be spent on terminal projects.

Figure 3.3: Approved PFC Funds for Large and Small Airports by Major Project Category, Fiscal Years 1992 Through 1998



Note: Amounts in this figure do not include $2.3 billion in PFC collections approved by FAA for a period of about 33 1/2 years for Denver International Airport because the approved funds are not separated by project type in FAA's information systems. The percentage for PFC administration for large airports is too low to show on the graph. For large airports, PFC administration amounted to about $1.03 million (0.01 percent).

[a]Does not add to 100 because of rounding.

Small Airports Benefit From the PFC Program Even If They Do Not or Cannot Collect PFCs

The 1990 law authorizing PFCs contains a provision designed to benefit small airports that have little or no ability to raise revenue by collecting the fees. Under this provision, large airports that choose to charge PFCs must return part of their AIP funds to FAA for redistribution to small airports. This provision applies to AIP "apportionment" funds—those AIP funds distributed by formula to commercial service airports on the basis of their enplanement levels. Large airports must return 50 cents of AIP apportionment funds for every dollar of projected revenues from PFCs, up to a maximum of 50 percent of each year's AIP apportionment funds. The apportionment funds returned by large airports must be redistributed as AIP discretionary grants to other airports.[9] Of the total amount returned, 87.5 percent is targeted to small airports—50 percent is targeted to nonhub and other commercial service airports, 25 percent to general aviation airports that are not eligible to levy PFCs, and 12.5 percent to small hub airports. The remaining 12.5 percent of the returned funds may be redistributed by FAA to any category of airport in the national system. Table 3.2 shows the amount of funds targeted to each airport category, on the basis of these distribution requirements, for fiscal years 1993 through 1999.[10]

Table 3.2: Amount of Returned AIP Funds Targeted for Redistribution to Small Airports, Fiscal Years 1993 Through 1999

Dollars in millions

	Targeted funds by fiscal year							
Airport category	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**Total**
Small hub	$7.0	$12.9	$12.6	$14.5	$15.6	$18.5	$20.2	$101.4
Nonhub and other commercial service	28.0	51.7	50.3	58.2	62.4	74.2	80.8	405.6
General aviation	14.0	25.9	25.2	29.1	31.2	37.1	40.4	202.8
Total	**$49.0**	**$90.5**	**$88.1**	**$101.8**	**$109.2**	**$129.8**	**$141.4**	**$709.8**

Note: The amount of the returned AIP apportionment funds that is targeted to small airports, including general aviation airports, is 87.5 percent of the total. The remaining 12.5 percent may be distributed to any airport in the national system, regardless of type.

[9]AIP discretionary grants may be awarded for projects at any national system airport, whereas AIP apportionment funds are awarded to primary airports (large hub, medium hub, small hub, and nonhub airports) on the basis of a statutory formula tied to passenger levels.

[10]Although the statute was passed in 1990, returns of AIP funds by large airports did not begin until fiscal year 1993, while actual collections of the PFC began in fiscal year 1992.

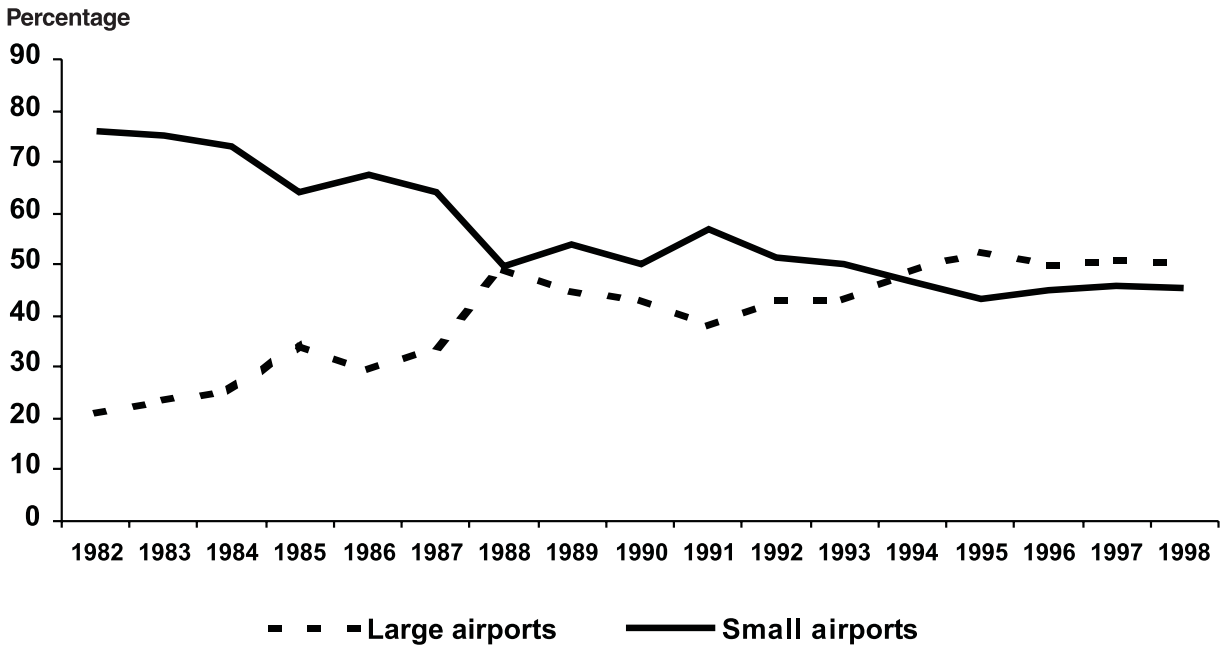
The PFC law passed in 1990 states that it was the sense of the Congress that the Department of Transportation "should not reduce funding under the discretionary fund . . . for small commercial service and general aviation airports as a result of additional funds made available to such airports under this" provision. However, we cannot determine the extent to which this provision has been met for two reasons. First, the sense of the Congress states that funding should not be reduced but does not provide a specific minimum dollar threshold or more specifically define the minimum protected funding level. The implication is that small airports should not receive less discretionary funds than they would have received had there been no requirement for redistribution of AIP funds from large to small airports. However, the level of discretionary funding that small airports would have received without redistribution is unknown.

Second, changes in the distribution formula for AIP funds have altered the amounts of funds targeted to small airports as discretionary versus apportionment funds. Since 1990, some AIP funds targeted to small airports as discretionary funds were deleted from the AIP distribution formula while some apportionment funds targeted to small airports were increased. For example, in fiscal year 1991, 10 percent of total AIP appropriations were targeted to certain general aviation airports as discretionary funds. That portion was reduced to 5 percent for fiscal year 1993 and was completely eliminated for fiscal year 1997. State apportionment funds, however, which are targeted to general aviation airports, increased from 12 percent of total AIP appropriations for fiscal years 1995 and 1996 to 18.5 percent for fiscal years 1997 and 1998.

While actual gains from the redistribution of federal grant funds to small airports cannot be determined, the distribution of discretionary funding between large and small airports shows that the total dollar amount of AIP discretionary funding for small airports has remained above the fiscal year 1990 level (the year the PFC statute became law). However, discretionary funding for small airports declined between fiscal years 1992 and 1995, both in absolute terms and relative to discretionary funding for large airports. Moreover, since fiscal year 1994, small airports have received less discretionary funds than large airports. Various factors can affect the actual distribution of discretionary funds including, for example, the total amount of AIP appropriated, formula changes such as those already discussed, and the array of airports receiving discretionary grants for projects (in contrast to the distribution of apportionment funds which is based on the number of passengers enplaning at an airport). Figure 3.4

illustrates the proportional distribution of AIP discretionary funds between large and small airports.

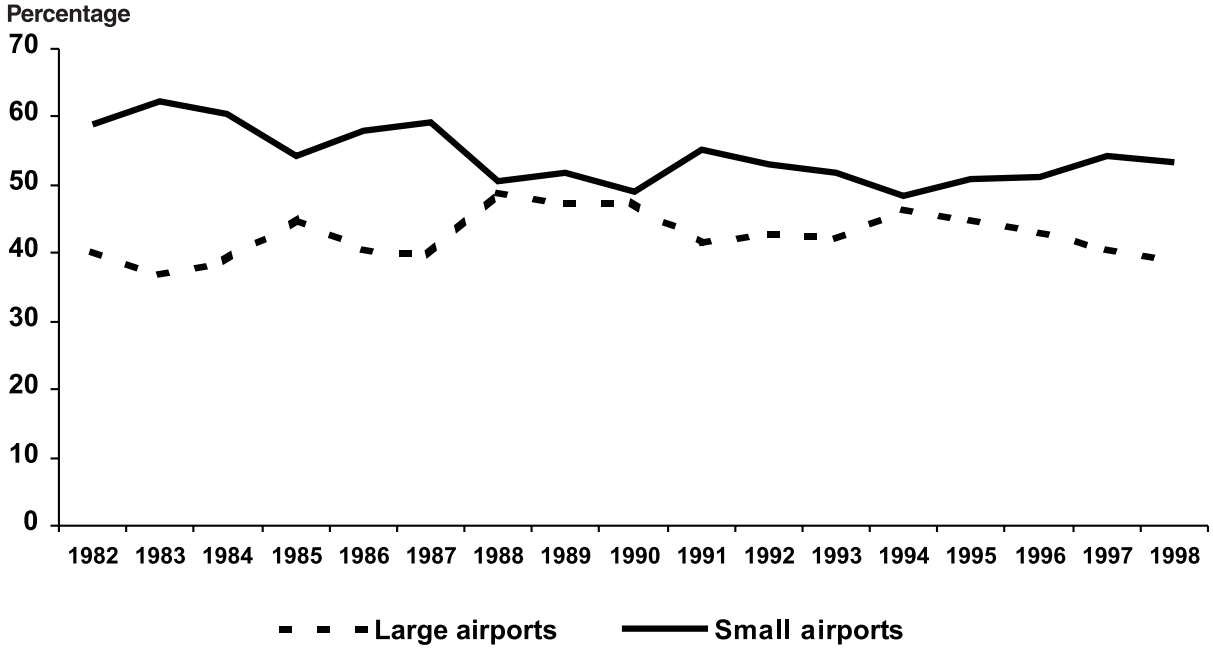
Figure 3.4: Proportional Distribution of AIP Discretionary Funds to Large and Small Airports, Fiscal Years 1982 Through 1998



Note: Large airports consist of large and medium hub airports, while small airports consist of small hub, nonhub, other commercial service, and general aviation airports.

FAA officials note that statutory changes in the AIP distribution formula eliminated some discretionary funds targeted to small airports while increasing some apportionment funds targeted to small airports. Because of that, they stated, an assessment of small airports' benefits must include consideration of the shares of total AIP funds awarded to large and small airports. Figure 3.5 shows that small airports have received a greater proportion of total AIP funds than large airports for fiscal years 1982 through 1998.

Figure 3.5: Proportional Distribution of Total AIP Funds Between Large and Small Airports, Fiscal Years 1982 Through 1998



Note: Large airports consist of large and medium hub airports, while small airports consist of small hub, nonhub, other commercial service, and general aviation airports.

Use of PFCs as Sole Support for New Bonding Authority Has Been Slow to Develop

With the initiation of the PFC program, some airport representatives had hoped that PFCs would indirectly benefit airports by providing additional cash flow that could be used as the sole support for the issuance of new airport bonds used to pay for capital development. Currently, the vast majority of airport bonds are issued using general airport revenues as the payment source because they provide a guaranteed future cash flow. While PFC revenues have been used for debt service payments since the program started, some aviation and airport representatives hoped that PFCs could also provide a continuous source of future cash flow that could be used as the sole revenue source for the issuance of new bonds.

However, until 1996 airports had little success in using PFCs for this purpose. According to bond raters and underwriters, the difficulty was that PFCs were not an assured funding source. Under federal statutes, the Department of Transportation may terminate an approved PFC collection if the airport does not use the funds as agreed or if it violates the Airport

Noise and Capacity Act. If PFC collections were terminated, bond payments supported by those collections would be at risk. For this reason, bond raters and underwriters have been reluctant to support bonds backed solely by PFCs.

FAA has taken steps to facilitate the use of PFCs as the sole funding source to secure debt. In response to the financial community's concern about the potential for early termination of PFC collections, FAA developed an extended resolution process for correcting an airport's possible violations of the terms of its PFC agreement.[11] That process includes provisions for increasing the financial community's confidence that bond payments would be met even if termination eventually occurred. If FAA remains unsatisfied with attempts to resolve possible violations, it could reduce the airport's authority to collect PFCs to the amount necessary to complete payment on the bonds. FAA may include the extended resolution provisions in its approval of applications at the request of the applying airport. FAA officials stated that an airport must meet certain conditions, such as limiting the portion of PFC collections that will be used to back the bonds, in order to obtain these termination protection provisions when FAA approves the application.

As a result of these extended resolution and termination protection provisions, some airports have been able to use PFCs as sole backing for new bonds. Since 1996, FAA has included the extended resolution process in its approval of PFC collections for seven airports (Little Rock, Chicago, Boston, Fort Lauderdale, Palm Springs, Seattle, and Des Moines), and has had requests for the provisions from airports in Portland, Oregon, and Kansas City, Missouri. Six of these approved PFC applications include the language protecting payment of the bonds in cases of termination. According to FAA officials, the Fort Myers airport was apparently able to issue bonds backed solely by PFCs without this extended resolution process because it made a commitment in its bond agreement to meet any FAA requirements for rectification if potential violations are identified.

[11]FAA regulations require that the first step in resolving potential violations consist of an informal resolution process that, in practice, according to FAA officials, involves telephone conversations, correspondence, and informal meetings between FAA officials and airport representatives. If this approach does not resolve all of the violations, the extended resolution provisions create the opportunity for two successive 90-day periods for the airport to resolve any remaining possible violations. During these periods, PFC collections would be held by a trustee directed by FAA to use the collections to continue debt payments. After the second 90-day period, FAA can also start to withhold current and future AIP entitlement funds up to the amount of PFCs that would be collected each year. According to FAA officials, FAA would retain these AIP funds if FAA and the airport could not resolve their differences regarding violations, but FAA would return the funds to the airport if timely and satisfactory resolution occurred.

The Potential Effects of Program Changes Depend Largely on Accompanying Conditions

Proposed changes to the PFC program fall into three broad categories—increasing the fee charged to passengers, tightening or easing restrictions on the types of airport projects eligible for funding, and adding new requirements that must be met before eligible projects can be approved. Proposals for increasing PFCs take two main forms. The first approach involves raising the fee from its current maximum of $3 per flight segment. Our analysis indicates that with a $1 increase over the current $3 maximum, commercial airports would receive close to one-half billion dollars more each year in PFC revenues over what they would receive from the first $3, even after taking into account estimated passenger reductions. The second approach to increasing PFCs would allow airports to increase the fee but at the expense of losing more, or all, of their AIP funding. Large airports are likely to benefit the most under either approach. According to a model we developed, increasing PFC fees would reduce the number of passengers in the short term, but the extent of that reduction is difficult to estimate because of the need to estimate measures of certain kinds of behavior, such as passengers' sensitivity to changes in ticket prices. Also, many factors influence air fares simultaneously, but in order to analyze the impact of one factor, our analysis holds constant the effects of all other factors. These other factors, however, could enhance or offset the effect of increasing the PFC, making the net effect difficult to determine. On the basis of the model we developed, we estimate that for a $1 increase in the PFC, passenger reductions would range from 0.5 to 1.8 percent (and have a midrange estimate of 0.85 percent) and would be proportionally greater for nonbusiness passengers, low-fare airlines, large airports, and passengers taking relatively short flights. In the short term, forecast growth in passengers could overshadow all or some of the passenger reduction, depending on how high the fee is raised. On the other hand, in the long term, any improvements in passenger safety and comfort that may result from airport improvements could stimulate the demand for air travel. According to our model, passenger reductions and the extent to which an airline may choose to absorb the increase in the PFC instead of passing it on to passengers would reduce an airline's gross revenues.

Proposals to change the types of projects eligible for PFC funding—whether they expand or narrow the coverage—are likely to produce little change in how airports are using the program. Participating airports can expect to experience little impact, especially in the short term, because most of them have had PFC collections approved that are set to run for a number of years. Collection periods approved for airports range from 6 months to more than 40 years. Among the last category of proposals—those affecting

how airport projects are selected—there are three main types: funding projects on the basis of a priority system, requiring that projects pass a cost-benefit test, or requiring that they be approved by airlines before they can be authorized for funding. Any such change is likely to reduce the flexibility that airports currently have in levying PFCs and applying them to specific projects. Under more stringent eligibility requirements, some of the projects currently funded with PFCs might not have been approved. If the program remains unchanged, there is unlikely to be much change in how many airports are charging the fee or in how they are applying those funds.

Large Airports Would Gain the Most From an Increase in PFCs

Increasing PFCs will benefit both large and small airports but not to the same degree. Receipts from higher PFCs would help both large and small airports reduce the differences between funding and planned development that we identified in our 1998 analysis.[1]

Gains Are Greatest for Large Airports

At the current maximum $3 fee, airports charging the PFC as of October 1, 1998, will collect about $1.4 billion a year in total receipts on the basis of 1997 enplanement levels.[2] If passenger levels were to be unaffected by a higher fee, then each $1 increase in the fee would add about $479 million to annual receipts from PFCs if all of those airports imposed the higher fee.[3] As we will discuss, however, according to a model we developed, an increase in the PFC will reduce enplanements, thereby reducing the revenues that any increase in the fee would generate. When the reduction in enplanements is taken into account, we estimate that the gain from a $1 increase in the fee would be about $463 million a year. We further estimate that a $2 increase would produce about $917 million a year over the receipts of a $3 fee, and a $3 increase would produce about $1.36 billion more a year than the $3 fee. The total revenues from an increase in the PFC would be higher if additional airports choose to participate in the program.

Large airports would gain the most by fee increases because they enplane substantially more passengers than small airports. If all participating large airports raised their fee to $6, for example, that fee would produce an estimated $2.5 billion in total receipts for large airports, compared with

[1]Airport Financing: Funding Sources for Airport Development (GAO/RCED-98-71, Mar. 12, 1998).

[2]Calendar year 1997 enplanements are the most recently available enplanement data.

[3]This calculation is based on the most recently available enplanement levels—those for calendar year 1997—and the median collection rates for airport categories, which are based on calendar year 1997 collections. The calculations include only those airports collecting the fee as of October 1, 1998.

about $268 million for small airports, after adjusting for potential passenger reductions but before adjusting for returned AIP apportionment funds.

To gain a more accurate picture of how airport revenues would be affected overall by higher PFCs, it is also necessary to consider the effects of the law's requirement regarding the redistribution of AIP grants. For large airports, the current requirement to return a portion of their AIP apportionment funds reduces their net gain from the PFC program. Currently, large airports are required to return 50 cents of every AIP apportionment dollar for every dollar of projected revenues from PFCs, up to a maximum of 50 percent of their AIP apportionment funds. Small hub, nonhub, and other commercial service airports, on the other hand, are not required to return any IP apportionment funds and are targeted, as a group, to receive 62.5 percent of the returned funds; even if the small airports collect PFCs they are allowed to receive grants from the apportionment funds returned by the large airports.[4] Table 4.1 shows the gross receipts from PFC collections at higher fees and the net gains after adjusting for returned AIP apportionment funds under the current redistribution formula.

[4]Twenty-five percent of the returned apportionment funds must be redistributed to general aviation airports that are not eligible to collect PFCs. The remaining 12.5 percent may be awarded for projects at any airport in the national system.

Table 4.1: Estimated Annual Total Collections at Different PFC Fees, Based on 1997 Enplanements, and Program Net Gains

	Estimated receipts (in millions)				
	Large airports		Small airports		
PFC fee	Receipts	Net gain[a]	Receipts	Net gain[a]	Total receipts
$3 (current maximum level)	$1,263	$1,101	$136	$237	$1,399
4	1,681	1,519	181	282	1,862
5	2,091	1,930	225	326	2,316
6	2,495	2,333	268	369	2,763
7	2,891	2,729	311	412	3,202
8	3,279	3,118	352	453	3,631
9	3,660	3,499	393	494	4,053
10	4,034	3,873	434	535	4,468
11	4,401	4,239	473	574	4,874
12	4,760	4,598	512	613	5,272

Note: Large airports are large and medium hub airports, and small airports are small hub, nonhub, and other commercial service airports. Calculations are based on airports collecting PFCs as of October 1, 1998, using 1997 median collection rates and 1997 enplanements. Calculations include our midrange estimate of the potential loss of passengers as a result of higher fees. (See discussion in this chapter.)

[a]Net gains for large airports result from deleting apportionment funds that must be returned by large and medium hub airports that choose to charge PFCs, using fiscal year 1999 apportionments returned. Net gains for small airports include 62.5 percent of apportionment funds returned by large airports because that is the percentage required to be redistributed to small hub, nonhub, and other commercial service airports, whether the airports levy PFCs or not; some of the redistributed funds may go to small airports that are not levying a PFC. Twenty-five percent of the returned apportionment funds are required to be redistributed to general aviation airports, which are not eligible to collect PFCs; those funds are not reflected in the net gains for small airports. The remaining 12.5 percent of the returned funds may be distributed to any airport in the national system; those funds are not reflected in the net gains for airports.

Some proposals suggest that additional AIP funds—apportionment funds, discretionary funds, or both—could or should be forfeited if airports are allowed to collect higher PFC fees. Table 4.2 shows how revenues at large airports would be affected under three scenarios related to the forfeiture of AIP funds after taking into consideration the potential loss of passengers: (1) the loss of all remaining AIP apportionment funds, (2) the loss of all discretionary funds, and (3) the loss of all funding in both AIP categories. For example, if large airports were able to collect $4 per enplanement (representing a $1 increase per enplanement) but had to give up their remaining AIP apportionment funds in return, they would still collectively have a net gain from the $1 increase of about $255 million. If the PFC fee rose $2, the net gain could be about $666 million, and with a $3

increase, it could approach $1.1 billion. Even if large airports lost all of their AIP funds (both apportionment and discretionary), they would still benefit from a net gain of about $366 million if the PFC fee were increased by $2.

Table 4.2: Net Gain or Loss for Large Airports From PFC Fee Increases That Are Accompanied by Further Reductions in AIP Funds

	Net gain or loss for large airports after adjusting AIP funding as follows (dollars in millions)		
PFC fee increase	No apportionment funds	No discretionary funds	No apportionment or discretionary funds
$1	$255	$118	–$44
2	666	529	366
3	1,069	932	770
4	1,465	1,328	1,165
5	1,854	1,717	1,554
6	2,235	2,098	1,935
7	2,609	2,472	2,309
8	2,975	2,839	2,676
9	3,335	3,198	3,035

Note: Large airports are large and medium hub airports that currently levy PFCs. These data represent a 100-percent loss of AIP apportionment funds for the large airports, thus removing the remaining AIP apportionment funds (about $163 million in fiscal year 1998) that large airports retain after returning up to 50 percent when they charge PFCs. If the return of only 75 percent of apportionment funds were required instead of 100 percent, then the net gain for large airports would be, for example, about $336.6 million with a $1 increase in the PFC, $747.2 million with a $2 increase, and about $1.15 billion with a $3 increase. The loss of AIP apportionment funds for large airports is based on fiscal year 1998 AIP funding. All AIP data used in the calculations are AIP receipts only for those airports levying PFCs as of October 1, 1998. Net gain or loss data incorporate our midrange estimate of the potential loss of passengers as a result of higher PFCs.

If similar requirements were put in place for small airports, the fee would have to rise considerably more than for large airports before small airports could achieve a net gain. For example, if small airports had to return their apportionment funding, they would have a net loss of funds, as a group, until the fee reached $8. A $7 fee would produce a net gain if small airports lost only their discretionary funds.

Large Airports Could Address Their Capital Needs With a Moderate PFC Increase, While Small Airports Could Not

Our March 1998 report found that the annual average cost of planned development at all national system airports for fiscal years 1997 through 2001 was about $10 billion, while funds available for airport capital development in 1996 totaled about $7 billion at the 3,304 airports included in the NPIAS for fiscal years 1997 through 2001.[5] The funds available to large and medium hub airports in 1996 would have covered about 79 percent of the average annual cost of their planned development for fiscal years 1997 through 2001, leaving a funding difference of about $1.5 billion. For small hub, nonhub, and other commercial service airports, available funds would have covered just 56 percent of their planned development costs, leaving a funding difference of about $655 million.[6]

Increased PFC collections will help large airports more than small ones in eliminating this difference. Our analysis shows that under current AIP redistribution rules, large airports, as a group, may be able to eliminate their shortfall with a $4 increase in the PFC (producing a $7 fee in total).[7] With a $5 increase, large airports could eliminate the difference even with a loss of all of their AIP funds. (See table 4.3.)

[5]Besides the 529 commercial service airports that are the focus of this report, these estimates include the 2,815 general aviation airports in the national airport system. Data in the analysis of the impact of higher PFCs on closing the funding difference for small airports include data only for small hub, nonhub, and other commercial service airports in the national system.

[6]The funding difference for general aviation airports, which benefit only indirectly from the PFC program through the redistribution of some AIP apportionment funds from large and medium hub airports that collect PFCs, and through ownership by a commercial service airport authority, was $754 million.

[7]While the overall funding difference for large and medium hub airports, as a group, may disappear, funding differences for individual airports could continue to exist and would do so for airports not collecting PFCs, assuming all other funding levels remained the same. Some individual airports, of course, may have no funding difference. Receipts from the higher fees are calculated on the basis of those airports charging PFCs, while the funding difference is based on data for all large and medium hub airports in the national system. Calculations of the remaining funding difference include our midrange estimate of the potential loss of passengers as a result of higher PFCs.

Table 4.3: Estimated Impact of Higher PFC Fees on the Funding Difference for Large Airports

	Remaining funding difference[a] (dollars in millions)			
PFC fee	PFC increase only—no loss of AIP funding	Loss of all AIP apportionment funds	Loss of all AIP discretionary funds	Loss of both apportionment and discretionary funds
$4	$819	$982	$1,119	$1,282
5	409	572	708	871
6	5	168	305	468
7	0	0	0	72
8 and above	0	0	0	0

Note: Calculations include our midrange estimate of the potential loss of passengers as a result of higher PFCs.

[a]The funding difference used in the calculations is based on data in our report Airport Financing: Funding Sources for Airport Development (GAO/RCED-98-71, Mar. 12, 1998).

In contrast, small airports, as a group, are unlikely to be able to eliminate their funding shortfall with higher fees, even if the fee is increased to $12 per flight segment—the highest fee level we examined. As table 4.4 shows, with a PFC of $12, the shortfall for these airports would still be over $250 million. If small airports were required to give back part of their AIP funds as a condition of levying PFCs, the shortfall would be larger.

Table 4.4: Estimated Impact of Higher PFC Fees on the Funding Difference for Small Airports

PFC fee	Remaining funding difference[a] (dollars in millions)
$4	$586
5	542
6	499
7	456
8	414
9	373
10	333
11	294
12	255

Note: The funding difference for small airports is about $655 million. When general aviation airports are included in the data, the funding difference rises to about $1.4 billion. The analysis of small airports' funding includes data on PFC collections only for those small airports collecting PFCs as of October 1, 1998. Planned development costs are for all small hub, nonhub, and other commercial service airports in the national system and do not include data for general aviation airports. Calculations of the remaining funding difference include our midrange estimate of the potential loss of passengers as a result of higher PFCs.

[a]The funding difference used is based on data in our report Airport Financing: Funding Sources for Airport Development (GAO/RCED-98- 71, Mar. 12, 1998).

Some Proposals to Increase the PFC Target the Use of the Additional Funds

Some proposals for increasing the PFC would target the use of the additional funds that would be collected (beyond what the current $3 provides) either by specifying more narrowly the types of projects that the additional funds should be spent on or by requiring projects to be screened through new selection criteria. With all but one of the participating airports charging the $3 maximum PFC, it is likely that participating airports will seek permission to collect the additional funds as soon as practicable. While targeting the use of the additional funds would focus that money on the designated projects, the risk involved in targeting is that the additional collections may, over time, become the only funds used on those types of projects. Moreover, this result could occur sooner if airports request amendments to their existing applications in order to shift previously approved eligible projects to the new funding. Under that circumstance, collections already approved at the $3 fee level could be used to complete other approved projects in a shorter time than originally expected, or they could be freed up for use on additional projects not eligible for the increase in collections. With regard to nonparticipating airports, even if the additional funds collected from an increase in the fee are targeted for use more narrowly than the law now

provides, the increase in the PFC could entice more airports to participate in the program.

Authorizing Higher Fee Options Is Unlikely to Affect the Program's Management

We examined the likely effects of PFC increases on FAA's management of the program. We found that adding only new fee levels as options for airports would not add to FAA's review and approval process for individual airport applications. However, allowing a higher fee, whether the additional funds are targeted for specific uses or not, could have a near-term impact on the program's administration to the extent that airports submit new applications or amendments in order to apply the higher fee as soon as possible.[8] FAA's workload could also increase under some specific funding scenarios—for example, increasing the fee on the basis of inflation or giving FAA discretion to authorize higher funding levels by individual airport.

Higher PFCs Would Reduce Air Travel in the Short Term, but the Extent of That Reduction Is Uncertain

On the basis of a model that we developed to analyze the impact of higher PFCs on passengers, increases in PFCs would result in short-term reductions in passenger traffic, but the extent of this reduction is difficult to estimate because of unknowns, such as the extent to which higher prices will cause travelers not to fly. Increasing PFCs is likely to cause some passengers to forgo trips or to use another form of transportation. Measuring the size of the reduction, however, is difficult and imprecise because the analysis requires making critical assumptions. The estimated reductions in air travel are highly dependent on the assumptions underlying the calculations because different assumptions yield different passenger reduction estimates.

The results of our analysis are affected by assumptions about four key variables: (1) the price sensitivity of air travelers—that is, at what price will travelers decide to forgo air travel? (2) the extent, if any, to which airlines absorb the increase in PFCs by not passing the increase on to passengers; (3) the distribution of passengers between business and nonbusiness travel; and (4) the estimates of the different fares paid by business and nonbusiness passengers. A detailed discussion of each of these issues can be found in appendix I. Our model estimates the effect of changing the PFC independently of other factors that may occur

[8]Because the PFC statute prohibits the collection of funds in excess of the cost of approved projects, an increase in PFC collections is likely to reduce the number of years currently required to accumulate sufficient money to pay for the current catalog of approved projects. Thus, with an increase in the fee, airports could fund additional projects within the same time frame now allotted to pay for currently approved projects, and/or retire existing PFC-backed debt earlier.

simultaneously. These other factors could enhance or offset the effect of changing the PFC making the net effect difficult to determine. For example, data on enplanement levels at individual airports that first started levying the fee in 1996 indicate that enplanements have both increased and decreased following the initial imposition of the fee by airports.

In our analysis, we used a model to develop three scenarios that are based on different combinations of assumptions in order to produce high, midrange, and low estimates of the potential reduction in passengers resulting from increases in PFCs. In each scenario, we used different assumptions about the sensitivity of passengers to price changes and the extent to which airlines will adjust their prices in response to an increase in PFCs. (See app. I for a discussion of the assumptions used in each scenario.) On the basis of these scenarios, we estimate that passenger reductions would range from about 0.5 to 1.8 percent for each $1 increase in PFCs; the midrange estimate is 0.85 percent. Based on this midrange estimate, less than one passenger in one hundred would be affected by a $1 increase in the PFC. These estimates represent a reduction of about 1.6 million to about 6.1 million of the 338 million one-way trips used in our analysis for the 12 months ending June 30, 1998. The assumptions in our midrange scenario lead to an estimate of a 2.9 million reduction in those one-way trips. In the short term, FAA's estimated 3.4 percent annual growth in enplanements would overshadow passenger losses identified in our midrange estimate unless the fee increase exceeded $4. On the other hand, in the long term, any improvements in passenger safety and comfort that may result from airport improvements could stimulate the demand for air travel.

Higher PFCs Would Reduce Travel More for Nonbusiness Passengers

Because nonbusiness travel is generally much more sensitive to price changes than business travel, a disproportionately larger share of the decrease in travel comes from nonbusiness passengers. Table 4.5 presents the expected reductions in passengers in the three scenarios we examined.

Table 4.5: Estimated Reduction in Passengers Per $1 Increase in PFCs

	Low estimate		Midrange estimate		High estimate	
	Number (thousands)	Percent decline	Number (thousands)	Percent decline	Number (thousands)	Percent decline
Business passengers	497	0.31	884	0.56	1,104	0.70
Nonbusiness passengers	1,127	0.63	2,004	1.12	5,010	2.80
Total	**1,624**	**0.48**	**2,888**	**0.85**	**6,114**	**1.81**

Air Travel Will Be More Affected on Some Trips Than on Others

While these estimates represent the overall reduction in passengers that can be expected from a $1 increase in PFCs, some types of travel are more likely to be affected than others. Because of this, we reviewed the extent to which higher PFCs might affect business and nonbusiness travelers in the context of three basic ways to categorize trips: (1) trips involving passengers traveling on regular-fare versus low-fare airlines,[9] (2) trips between two large airports versus those that include at least one small airport at the beginning or end of a trip, and (3) trips shorter than 500 miles versus longer trips. The results of the midrange scenario are reported here because those estimates are derived from midrange assumptions about price sensitivity and airlines' pricing strategies. The high and low scenarios are reported in appendix I.

Regular-Fare Versus Low-Fare Airlines

Many airlines have been offering low fares as a standard practice. As table 4.6 shows, the rates of reduction in passengers on low-fare airlines is more than one-third greater than the percent decline on regular-fare airlines. Low-fare airlines are likely to be more affected by price increases because a $1 increase in the PFC represents a larger percent change in price (assuming, as our analysis does, that the increase in the PFC is passed on to passengers at the same rate for all airlines and varies only for business versus nonbusiness fares).

Table 4.6: Estimated Reduction in Passengers Using Regular-Fare and Low-Fare Airlines

	Regular-fare		Low-fare	
	Number (thousands)	Percent decline	Number (thousands)	Percent decline
Business passengers	586	0.47	297	0.87
Nonbusiness passengers	1,464	1.04	539	1.40
Total	**2,050**	**0.77**	**836**	**1.15**

Large Versus Small Airports

To determine the impact of raising PFCs on airports, we estimated the impact of higher PFCs on trips to or from small airports separately from those trips with large airports as both the origin and destination. All trips that both began and ended at a large or medium hub airport were included under the heading of large airports. However, when either the origin or destination was a small airport, then the trip was included under the small airports designation. As table 4.7 shows, the rates of decline in the number of passengers for small airports were considerably less than those for large airports. Trips to or from small airports are likely to decline less

[9]See appendix I for a list of airlines designated as low-fare airlines in the analysis.

because a $1 increase in the PFC represents a smaller increase in the total fare since fares are higher, on average, for such trips.

Table 4.7: Estimated Reduction in Passengers on Trips Involving Large or Small Airports

	Large airports		Small airports	
	Number (thousands)	Percent decline	Number (thousands)	Percent decline
Business passengers	625	0.64	259	0.42
Nonbusiness passengers	1,368	1.24	636	0.92
Total	**1,993**	**0.96**	**895**	**0.69**

Long Versus Short Routes

Passengers on short routes are expected to be more sensitive to price changes than those on long routes because switching to driving is a more practical alternative for trips less than 500 miles. This is especially true for less time-sensitive nonbusiness travel. As table 4.8 shows, the rates of decline on short routes were considerably greater than on long routes.

Table 4.8: Estimated Reduction in Passengers Taking Long and Short Trips

	Long routes		Short routes	
	Number (thousands)	Percent decline	Number (thousands)	Percent decline
Business passengers	530	0.49	354	0.71
Nonbusiness passengers	1,156	0.94	848	1.50
Total	**1,685**	**0.73**	**1,202**	**1.13**

Effects of Higher Prices Could Be Offset

In the short term, the projected growth in enplanements—about 3.4 percent a year according to FAA forecasts for fiscal years 1999 through 2010—will mitigate the extent to which higher PFCs reduce passenger levels. On the basis of our midrange estimate of passenger losses, the forecast growth in passenger enplanements would overcome passenger losses resulting from higher fees unless the higher fee exceeded $7. On the other hand, in the long term, the effect of increasing PFCs on the number of passengers traveling is likely to be reduced or eliminated if PFC funds are used to enhance air travel. If PFCs are spent on projects that improve air travel in some way—for example, by enhancing safety, comfort, or convenience—those improvements could stimulate the demand for air travel, thereby offsetting any decrease in passengers resulting from higher fees.

Higher PFCs Could Reduce Airlines' Gross Revenues

Two factors could cause airlines to receive less gross revenues if PFCs are increased: the reduction in ticket sales resulting from fewer passengers flying at the higher prices and the extent, if any, to which airlines choose to absorb the increase in PFCs. On the basis of our midrange scenario, airlines could receive about 1.3 percent less in gross revenues with a $1 increase in PFCs.[10] A little more than half of this loss would come from the estimated decline in passengers. These two factors would cause the larger shares of gross revenue losses to be attributable to the reductions in nonbusiness travelers, trips involving large airports, trips on regular-fare airlines, and trips of 500 miles or longer.

Any decline in passengers because of higher PFCs would mean that airlines' gross revenues from ticket sales would also decline. Given our midrange estimate of passenger losses and a $1 increase in the PFC, airlines could receive about 0.7 percent less of the $45.8 billion they could have expected (from the 338 million one-way trips and estimated fares we used) before PFCs were increased. The percent decline in revenue would be less than the 0.85 percent decline in passengers because nonbusiness travelers are a greater portion of the reduction in passengers and they usually pay less for their tickets, on average, than business travelers. While airlines' gross revenues would decline because of the loss of passengers, costs would also decline; thus, the loss of profits would depend on how much costs decline in conjunction with the decline in gross revenues.

The second way in which airlines could receive less in gross revenues if PFCs were increased is the extent, if any, to which airlines decide to absorb the PFC increase rather than pass it on to passengers. To the extent that airlines absorb some or all of the PFC increase, they can limit or eliminate the reduction of passengers. We assumed that airlines might be willing to absorb some of the higher cost to remain competitive in a given market. In our midrange scenario, airlines pass on the full increase in PFCs to business travelers but only half of the increase to nonbusiness travelers. On the basis of that scenario, airlines could receive about 0.6 percent less of the $45.8 billion they could have expected before the increase in PFCs.

[10]The 1.3 percent figure represents about $614 million out of the $45.8 billion in gross revenues that airlines could have expected from the 338 million one-way trips in the database we used and the estimated fares we used for business and nonbusiness travelers.

Changes in Project Eligibility May Have Little Immediate Effect on Program Results

Some proposals would change the kinds of projects that are authorized for funding with PFCs. On the basis of the most recently available data, at least 57 percent, and possibly more, of the development projects planned at commercial service airports are eligible for PFC funding.[11]

The effects of any changes in the eligibility of projects are difficult to assess without knowing which categories of projects would be added or deleted or whether a change will be accompanied by any other conditions. Also, effects are likely to vary depending on such factors as whether an airport is already charging PFCs, whether it is a large or small airport, or whether the change in eligibility is accompanied by an increase in PFCs. However, some general observations can be drawn about the potential effects of making a change in either direction—expanding or reducing eligibility. Generally, any impact on airports now imposing PFCs is likely to be delayed since approved collections are earmarked for specific projects that are now eligible and will generally be made over a period of years. Collection periods range from as little as 6 months to as many as 40 years or more, with half the airports using collection periods less than 6.6 years, and half with collections periods in excess of that length.[12] Moreover, changes in eligibility can be expected to have minimal impact, if any, on increasing the number of airports participating in the program. In the case of large airports, most large and medium hubs already participate. In the case of small airports, without an increase in PFCs, changing the types of projects eligible for funding would add little new incentive to participate. The potential impacts of either an expansion or narrowing of eligibility are discussed in the next two sections.

Expanding Project Eligibility Will Not Alter Current Funding at Participating Airports

Any expansion in the eligibility of projects will allow airports to use PFCs to pay for additional projects that cannot now be funded through federally authorized programs. As noted, because collections occur over several years and are earmarked for specific projects, expanding the eligibility of projects will not alter current funding patterns very much at participating airports nor is it likely to entice many new airports into the program.

[11]The cost of AIP-eligible projects at commercial service airports comprised 57 percent of the annual average cost of planned development for 1997 through 2001. (See Airport Financing: Funding Sources for Airport Development [GAO/RCED-98-71, Mar. 12, 1998]). As we discuss in chapter 2, all projects eligible for AIP funding are also eligible for PFC funding, and PFCs can also fund some projects that are not eligible for AIP funding. Available data did not identify how much, if any, of the planned development that was not eligible for AIP funds are projects that could be funded with PFCs.

[12]The average collection period is 9 years.

Nevertheless, some factors could prompt new airports to participate. For example, because the PFC program requires only consultation with airlines instead of airline approval, an airport's incentive to participate may increase if the expanded eligibility includes projects that have lacked airline support in the past. The type of newly eligible projects—if they are landside or airside projects—may also affect whether expanded eligibility generates interest in the PFC program among nonparticipating large or small airports. Table 4.9 provides an overview of some potential effects of any expansion in project eligibility.

Table 4.9: Potential Effects of Expanding the Types of Projects Eligible for Funding With PFCs

Impact on	Potential impact
Participating airports	In the short term, participating airports are likely to experience little immediate impact because approved PFC collections are earmarked for projects and the statute prohibits collection of more funds than needed for the approved projects. In the long term, participating airports would have to file new applications to use PFCs for the newly eligible projects.
Nonparticipating airports	Little increase in participation is likely. In the case of large airports, increased participation would be limited because only 14 of the 70 large and medium hub airports are currently not participating. Expanded eligibility alone may not entice many small airports to participate because of the limited funds generated by their lower passenger levels. The impact of expanding eligibility, nevertheless, may provide some incentive for more airports to participate because •newly eligible projects were not previously eligible for federally authorized funding and •PFCs represent a funding source not subject to an airline veto.
Airlines	To the extent airports turn to PFCs to fund the new projects instead of using funding sources that the airlines have more influence over, the airlines' role in development decision-making could be diminished. The impact on the airlines also depends on the extent to which expanded eligibility attracts new airport participants and whether the airlines absorb, usually for competitive reasons, part or all of the new fees or existing fees at other airports.
Passengers	Passengers could benefit if the expanded eligibility hastens development. The impact on passengers depends also on the extent to which their airfares change because of the airlines' decisions concerning absorbing or passing on PFCs at newly or previously participating airports.
Management of the program	Expanding eligibility is likely to have little impact on FAA's management of the program, although a period of increased communication between FAA and aviation groups may be needed to clarify the changes.

Narrowing Project Eligibility Will Not Immediately Affect Participating Airports

Narrowing the eligibility of projects could eliminate projects that remain eligible for AIP funding, or it could eliminate projects that are not eligible under AIP. Narrowing the eligibility of projects is not likely to have an immediate impact on funding patterns at participating airports because of the length of approved collection periods and the earmarking of funds for specific projects, but in the long run, airports will have to find other ways to pay for the eliminated project types. Table 4.10 provides an overview of some potential effects of narrowing the eligibility of projects.

Table 4.10: Potential Effects of Narrowing the Types of Projects Eligible for Funding With PFCs

Impact on	Potential impact
Participating airports	Participating airports are likely to experience little immediate impact because approved PFC collections are generally earmarked for a period of years. In the long term, airports would have to find other funding sources for projects no longer eligible. Their success in doing so could depend on whether the projects are eligible for AIP and whether airlines are supportive of those kinds of projects. Large airports may have an easier time than small airports in accommodating narrowed eligibility because of their greater access to other funding sources such as bonds and available airport revenues.
Nonparticipating airports	Narrowing the eligibility of projects reduces the scope of the program's possible benefits. What effect this will have on an airport's decision to participate is unknown. Narrowing the eligibility of projects may not entice nonparticipants to join the program, but it also does not necessarily discourage participation because an airport could still use PFC funds for the types of projects that remain eligible.
Airlines	The airlines' role in development decision-making could be enhanced if the narrowing of eligibility leads airports to use funding sources over which airlines have more influence than over PFCs.
Passengers	Passengers may be affected by the extent to which reduced eligibility results in delays in airport development.
Management of the program	Narrowing eligibility is likely to have little impact on FAA's management of the program, although a period of increased communication between FAA and aviation groups may be needed to clarify the changes.

Some Proposed Changes Provide New Project Selection Criteria

In addition to changes to the fee level and the eligibility of projects, some proposals to change the PFC program would add new criteria for determining whether an eligible project should be funded. The following are three of those proposals:

- prioritize projects,
- require projects to undergo cost-benefit analysis and meet a specified cost-to-benefit threshold, and
- require airline approval rather than consultation.

Adding new selection criteria will reduce some of the flexibility that airports have under the PFC program in comparison to their ability to use some other funding sources such as bonds. Under more stringent screening requirements, it is possible that some projects that are currently being funded with PFCs would not have been approved. The overall impact of these proposals, however, depends mainly on the specifics of their implementation. In determining how any of these proposals might be implemented, there are a number of issues that would be useful to consider. Table 4.11 discusses some of the issues that are important in connection with the implementation of these proposals.

Table 4.11: Issues to Consider Regarding Proposed Changes to PFC Project Selection Criteria

Proposal	New selection criteria	Issues to consider
Prioritize projects	Projects would be ranked according to selected criteria and would be funded on the basis of their priority. A lower-priority project could not be funded before a higher-priority project.	Currently, project type has no impact on the decision to fund a project with PFCs beyond the consideration of whether it is eligible and meets a program objective. If prioritization is required, key issues for consideration include the following: •What should the prioritization criteria be? •Should project ranking be affected by airport type? •What should be the relative prioritization between airside and landside projects? Should it be the same as for AIP projects? AIP uses a priority system that, if adopted for the PFC program, could cause the distribution of PFC funds among projects to more closely reflect the distribution pattern under AIP. While the AIP priority system is not the sole factor in determining which projects receive grants, it awards a higher priority to airside projects than to landside projects. Currently, a larger portion of PFC funds is spent on landside projects.
Cost-benefit analysis	Only those projects with benefits that meet or exceed their costs would be funded.	Currently, cost-benefit analyses are not required for PFC projects but "adequate justification" is. (See chapter 2.) Cost-benefit analyses would likely replace the adequate justification requirement and could result in more stringent selection criteria. Such analyses could also increase project planning costs and lengthen the time it takes airports to complete their applications. If such analyses are required, important issues for consideration include the following: •Should all projects be required to undergo the analysis? If not, which ones should? •How would the requirement affect statutorily mandated projects that do not meet the cost-benefit threshold? •At what stage of project development or review should such analyses be required? •How will nonfinancial costs and benefits be assessed? •FAA is preparing to issue final guidelines for cost-benefit analysis of capacity projects that will use $5 million or more in AIP discretionary funds. Should the same guidelines apply to analyses of PFC projects? If not, how should guidelines be established?

(continued)

Proposal	New selection criteria	Issues to consider
Airline approval of projects	Projects could not be funded unless designated airlines approved the project.	Currently, consultation with the airlines is required, but not their approval. Requiring airline approval would give airlines a veto over the imposition and use of PFCs. If airline approval is required, important issues for consideration include the following: •How would airline approval or disapproval be determined? For example, would a percentage of the number of airlines serving the airport constitute approval or disapproval, would airlines have weighted votes on the basis of some indicator of their share of the use of the airport or would both requirements apply as under the airport privatization pilot program, where 65 percent of both the number of airlines and the landed weight of airlines is required for decision-making? •Should approval criteria differ for different airports, such as small versus large airports? •Should airline approval be required for all types of projects, including those that enhance competition among airlines? •Would airports have an opportunity to appeal airline disapproval of projects? If so, to whom? •Should the bases for airline disapproval be defined by law or regulation?

The Option of Making No Change to the PFC Program

If the PFC program remains as currently designed and implemented, PFCs will continue to fund airport development as described in chapter 3. Given the high rates of participation among large hub, medium hub, and small hub airports and the lengths of approved collection periods, the array of projects planned for funding with PFCs is unlikely to change very much in the near term. Retaining the program's current profile is unlikely to increase participation noticeably by eligible airports that do not currently levy the PFC because there would be no added incentives to entice new entrants.

The potential effects of retaining the PFC program's current structure on airport development will also depend on the changing demands placed on the aviation system and the resources available to respond to those demands. Demands appear to be increasing, largely from a growth in air traffic. For example, the National Civil Aviation Review Commission reported in December 1997 that airport-related congestion is expected to increase in the future. Also, FAA is forecasting a 3.4 percent annual growth in enplanements for fiscal years 1999 through 2010.

As we discussed earlier, participating airports can expect to collect about $1.4 billion a year from PFCs on the basis of 1997 enplanement levels. Annual growth in enplanements will increase those revenues somewhat. But as we noted in our March 1998 report, even when the contribution that

PFCs make toward paying for airport development is considered, the annual average cost of planned development exceeded the amount of funding that was available by about $3 billion for the more than 3,300 airports in the national system.[13] In an environment in which demands on the aviation system appear to be increasing, holding the PFC program relatively constant will increase pressure on the need for other funding sources to accommodate any future differences between the costs of planned development and total available funding.

Agency Comments and Our Evaluation

We provided the Department of Transportation, FAA, our advisory panel of two experts, ACI-NA, ATA, and NASAO with a copy of the draft report, or portions thereof, for review and comment. We spoke with the Deputy Director of FAA's Office of Airport Planning and Programming, the ATA's Director of Airport Planning and Development, and the Vice President of NASAO, and we received comments from our advisory panel of experts, all of whom generally agreed with the facts presented and thought the report was both thorough and balanced in its discussion of the issues. They provided some suggestions for clarification and additional information that we have incorporated in the report as appropriate. We met with the President, the Senior Vice President for Economic and Associate Affairs, and the Vice President for Government Affairs of the ACI-NA, who questioned whether a reduction in passengers would actually occur if PFCs were increased. They questioned whether passengers would actually see an increase in ticket fares if passenger facility charges were raised because many factors, not only higher passenger facility charges, affect the pricing decisions of airlines. They also questioned the use of elasticity analysis to assess the potential impact of higher PFCs on passenger levels because it is theoretical; they suggested that a historical analysis might provide more useful information.

We believe that we have appropriately applied generally accepted economic analysis methods to estimate how higher passenger facility charges may affect ticket fares and how increases in those fares could affect passenger levels, including acknowledging the uncertainty associated with such an estimate. Although many factors influence air fares simultaneously, in analyzing the impact of one factor, such as higher passenger facility charges, it is necessary to hold constant the effect of all other factors. Furthermore, the elasticities used in our analysis were based

[13]That gap information is based on 3,304 airports that were in the NPIAS for the fiscal years 1997 through 2001. (See Airport Financing: Funding Sources for Airport Development [GAO/RCED-98-71, Mar. 12, 1998].) The NPIAS for the fiscal years 1998 through 2002 shows an increase of 40 airports. (See fig. 1.1.)

on statistically significant real world relationships between prices and passenger levels and have been previously used by the Department of Transportation. Nevertheless, discussion of the uncertainties associated with analysis of the potential effect of higher fees on passenger levels was clarified, particularly in the executive summary, to assure a clear understanding of our methodology.

Methodology for Analyzing the Potential Impact of Increases in PFC Fees on Passenger Traffic

To estimate the potential impact of increases in the passenger facility charge (PFC) on passenger levels, we used data on the number of passenger trips and the fares paid from July 1, 1997, through June 30, 1998. The general approach of our analysis was to estimate the percent increase in fares that would result from a PFC increase and then to estimate the reduction in passengers likely to result from that fare increase. There is considerable uncertainty associated with this analysis because the estimated reductions in air travel are highly dependent on the assumptions underlying the calculations. As a result, we developed three scenarios to present midrange, high, and low estimates of the reductions in passenger travel.

This appendix describes our analysis. The first two sections discuss the key considerations in estimating the percent change in fares resulting from a PFC increase and the reduction in passengers likely to result from that fee increase. The third section presents the scenarios that we use in developing the estimates of the impact. The fourth section presents detailed estimates of the impacts for different types of trips under each scenario. The last section discusses the data that we used.

Key Considerations in Estimating Fare Changes Resulting From PFC Increases

Estimating the percent change in fares resulting from a PFC increase requires knowing both the fares before the PFC increase and the extent to which the PFC increase results in higher fares. We used fare data (which are discussed later) for different types of trips to estimate the average fare for each trip type and the 25th and 75th percentiles of the fare distribution. On average, fares paid by business travelers are higher than fares paid by nonbusiness travelers on the same trips. However, ticket samples used to provide fare data do not indicate the purpose of the trip. So, to estimate the average fares separately for business and nonbusiness travelers, we needed to make inferences from the distribution of all fares. For each type of trip, we used the 25th and 75th percentiles of the fare distribution as proxies for the average fares paid by nonbusiness and business travelers, respectively.

The percent change in fares due to a PFC increase also depends on the pricing strategies that airlines use in adjusting their fares in response to an increase in the PFC and on the number of PFCs collected per trip. In an attempt to limit passenger losses resulting from higher fares, in some cases, airlines might choose to absorb some portion of the higher fee. The more that they absorb, the smaller the increase in fares. Our scenarios

incorporate different assumptions about the extent to which PFCs are absorbed by airlines.

We used information on which airports charge PFCs to estimate for each trip the number of PFCs paid per trip. We also took into account the limitation that only two PFCs can be collected per one-way trip even when the trip includes more than two enplanements.

Key Considerations in Estimating the Decline in Passenger Levels Because of Fare Increases

Estimating the decline in passenger levels for different types of trips because of a given fare increase requires knowing the number of travelers on each trip type and the sensitivity of travel demand to a price change on each type of trip (a concept known as the price elasticity of demand). Our data on trips from the ticket sample could be readily divided into trips defined by the following characteristics:

- distance—less than 500 miles (short-haul) versus 500 miles or more (long-haul);
- airport size—large and medium hubs (large airports) as the origin and destination versus at least one small airport as the origin or destination; and
- carrier—regular-fare carrier versus low-fare carrier.[1]

To estimate the share of travel attributable to business versus nonbusiness purposes, we relied on an estimate provided to us by an analyst at the Air Transport Association that about 47 percent of trips were for business purposes and about 53 percent were for nonbusiness purposes.

To identify what price elasticity estimates to use in our analysis, we reviewed the literature on price elasticity estimates for travel.[2] We found that existing studies of this sensitivity have produced a variety of estimates. Some of the estimates differ because the studies focus on different groups of travelers, such as business and nonbusiness travelers; but some of the estimates differ because of inherent methodological difficulties in measuring the sensitivity of air travelers to price changes. In general, the more sensitive that travelers are to price changes (that is, the

[1]We classified the following airlines as low-fare carriers: Air South, AirTran Airways, American Trans Air, Carnival, Frontier, Kiwi Air, Morris Air (if prior to acquisition by Southwest), Nation's Air Express, ProAir, Reno Air, Southwest, Spirit, Tower Air, ValuJet (if prior to merger with AirTran), Vanguard, and Western Pacific. All other airlines were considered full-fare carriers.

[2]We relied heavily on the summary of the literature on price elasticity estimates for air travel that is presented in a May 1995 report of the Secretary of Transportation to the Congress on Child Restraint Systems. We also independently reviewed some of the literature described in that report.

more price elastic the demand for air travel), the larger the decrease in passenger trips that will occur for each $1 increase in the PFC. Studies of passengers' sensitivity to price changes show that the degree of price sensitivity is typically greater for nonbusiness than for business travelers and greater on short routes for which auto travel is a feasible alternative than on long routes.

Three Scenarios Incorporate Different Assumptions

We developed three scenarios that incorporate different assumptions about the price elasticity of demand for air travel and the extent to which airlines will adjust their prices in response to an increase in PFCs. In each scenario, we made the same assumptions that 53 percent of the trips represented nonbusiness travel, that 47 percent represented business travel, and that the 25th and 75th percentile fares could be proxies for average nonbusiness and business fares, respectively. In all of the scenarios, we treat the elasticities as constants. That is, if the elasticity is –1.0, a 1 percent increase in fares will lead to a 1-percent decline in the number of passengers, and a 5 percent increase in fares will lead to a 5-percent decline in the number of passengers. These scenarios were designed to yield a range of estimates of the reduction in passengers resulting from an increase in PFCs.

For our midrange scenario, we used estimates of the price elasticity of demand that we determined to be typical of studies that have produced such estimates. In particular, this scenario incorporates assumptions that for business travel, the elasticity was –1.0 for short routes and –0.8 for long routes; for nonbusiness travel, the elasticity was –2.0 for short routes and –1.6 for long routes. For this scenario, we also incorporated the assumption that because business travel is less sensitive to price than nonbusiness travel, airlines would be able to pass on the full increase in PFCs for business travel by raising fares accordingly. However, for nonbusiness travel, they would have to absorb 50 percent of the increase in PFCs to avoid losing too many passengers.

For the high scenario, we raised all of the elasticity estimates by 25 percent and for the low scenario we lowered them all by 25 percent. Also, for the high scenario we incorporated the assumption that the airlines would pass on the full increase in PFCs for all travelers, while for the low scenario we incorporated the assumption that to avoid losing too many passengers, airlines would have to absorb more of the PFC increase. In particular, in the low scenario, airlines would be able to pass through

only 75 percent of the PFC increase to business travelers and only 37.5 percent of the PFC increase to nonbusiness travelers.[3]

In the next section we present results showing the impacts on passenger levels per $1 increase in the PFC. A $2 increase, for example, will result in an estimated decline twice as large as the decline resulting from a $1 increase.

Declines in Passengers Per $1 Increase in the PFC Were Estimated Under Each Scenario

Tables I.1, I.2, and I.3 show the estimated declines in passenger levels per $1 increase in the PFC for various types of routes under our midrange, high, and low scenarios, respectively. The calculation of those results was performed by (1) estimating the number of business and nonbusiness travelers in each trip category by multiplying the percent distribution of business and nonbusiness travelers times the total passengers in each trip category; (2) estimating the percent change in the average business and nonbusiness fare paid in each trip category as a result of a $1 increase by mulitplying the average number of PFCs paid per trip by $1, multiplying the result by the percent of the increase in the PFC that airlines pass on to travelers to calculate the fare increase, and then dividing that number by the average business and nonbusiness fares to calculate the percent change in fares for each trip category; (3) estimating the percent change in one-way business and nonbusiness trips by multiplying the percent change in fares by the price elasticity; and (4) estimating the change in one-way trips for business and nonbusiness travelers in each trip category by multiplying the respective percent changes by the respective number of business and nonbusiness travelers.

[3]In some sense, these combinations of assumptions for the high case and low case scenarios may appear unrealistic when compared to the midrange case. With higher elasticities, as in the high case, one might expect airlines to be less able rather than more able to pass on PFC increases by raising fares than in the midrange case, in which elasticities are lower. However, we do not know the actual ability that airlines would have to pass forward PFC increases. Therefore, in developing the high case and low case scenarios, we have incorporated combinations of assumptions that are designed to yield estimated reductions in passengers substantially different from those in the midrange scenarios to show the wide range of possibilities resulting from the inherent uncertainty of the estimation process.

Table I.1: Estimated Decline in Passengers Per $1 Increase in the PFC - Midrange Case

Passengers in thousands

	Business passengers		Nonbusiness passengers		Total passengers	
Route type	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Short-haul, small airport						
Regular-fare	60.0	0.38	198.6	1.11	258.6	0.77
Low-fare	35.0	0.56	63.8	0.90	98.8	0.74
Total	95.1[a]	0.43	262.3[a]	1.05	357.4	0.76
Short-haul, large airport						
Regular-fare	94.9	0.64	277.9	1.66	372.7[b]	1.18
Low-fare	163.9	1.26	308.0	2.10	471.8[b]	1.71
Total	258.7[a]	0.93	585.8[a]	1.87	844.5	1.43
Long-haul, small airport						
Regular-fare	139.9	0.41	333.6	0.86	473.4[b]	0.65
Low-fare	24.1	0.51	39.9	0.75	63.9[b]	0.64
Total	163.9[a]	0.42	373.4[a]	0.85	537.3	0.64
Long-haul, large airport						
Regular-fare	291.6	0.49	654.5	0.97	946.1	0.75
Low-fare	74.1	0.73	127.8	1.12	202.0[b]	0.94
Total	365.7	0.52	782.3	0.99	1,148.1[b]	0.77
All short-haul	353.8	0.71	848.1	1.50	1,201.9	1.13
All long-haul	529.7	0.49	1,155.7	0.94	1,685.4	0.73
All small airport	259.0	0.42	635.7	0.92	894.7	0.69
All large airport	624.5	0.64	1,368.1	1.24	1,992.6	0.96
All regular-fare	586.4	0.47	1,464.4	1.04	2,050.9	0.77
All low-fare	297.1	0.87	539.4	1.40	836.5	1.15
All routes	883.5[a]	0.56	2,003.9[a]	1.12	2,887.4[a]	0.85

[a]Does not total because of rounding.

[b]Does not cross total because of rounding.

Table I.2: Estimated Decline in Passengers Per $1 Increase in the PFC - High Case

Passengers in thousands

	Business passengers		Nonbusiness passengers		Total passengers	
Route type	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Short-haul, small airports						
Regular-fare	75.1	0.47	496.4	2.78	571.4[b]	1.70
Low-fare	43.8	0.70	159.5	2.25	203.2[b]	1.52
Total	118.8[a]	0.54	655.8[a]	2.63	774.7[a,b]	1.65
Short-haul, large airports						
Regular-fare	118.6	0.80	694.6	4.14	813.2	2.57
Low-fare	204.8	1.58	769.9	5.26	974.7	3.53
Total	323.4	1.16	1,464.5	4.66	1,787.9	3.02
Long-haul, small airports						
Regular-fare	174.8	0.51	833.9	2.14	1,008.7	1.37
Low-fare	30.1	0.64	99.6	1.89	129.7	1.30
Total	204.9	0.52	933.5	2.11	1,138.4	1.37
Long-haul, large airports						
Regular-fare	364.5	0.61	1,636.2	2.43	2,000.8[b]	1.58
Low-fare	92.7	0.92	319.6	2.80	412.2[b]	1.92
Total	457.2	0.66	1,955.8	2.49	2,413.0	1.63
All short-haul	442.3	0.88	2,120.4	3.76	2,562.6[b]	2.41
All long-haul	662.1	0.61	2,889.3	2.35	3,551.4	1.53
All small airports	323.7	0.53	1,589.4	2.30	1,913.1	1.47
All large airports	780.6	0.80	3,420.3	3.11	4,200.9	2.02
All regular-fare	733.0	0.59	3,661.1	2.60	4,394.1	1.65
All low-fare	371.3	1.09	1,348.6	3.51	1,719.9	2.37
All routes	1,104.4[a]	0.70	5,009.7[a]	2.80	6,114.0[b]	1.81

[a]Does not total because of rounding.

[b]Does not cross total because of rounding.

Table I.3: Estimated Decline in Passengers Per $1 Increase in the PFC - Low Case

Passengers in thousands

	Business passengers		Nonbusiness passengers		Total passengers	
Route type	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Short-haul, small airports						
Regular-fare	33.8	0.21	111.7	0.63	145.5	0.43
Low-fare	19.7	0.31	35.9	0.51	55.6	0.42
Total	53.5	0.24	147.6	0.59	201.0[a,b]	0.43
Short-haul, large airports						
Regular-fare	53.4	0.36	156.3	0.93	209.7	0.66
Low-fare	92.2	0.71	173.2	1.18	265.4	0.96
Total	145.5[a]	0.52	329.5	1.05	475.1[b]	0.80
Long-haul, small airports						
Regular-fare	78.7	0.23	187.6	0.48	266.3	0.36
Low-fare	13.5	0.29	22.4	0.42	36.0[b]	0.36
Total	92.2	0.24	210.0	0.48	302.3[b]	0.36
Long-haul, large airports						
Regular-fare	164.0	0.28	368.2	0.55	532.2	0.42
Low-fare	41.7	0.41	71.9	0.63	113.6	0.53
Total	205.7	0.30	440.1	0.56	645.8	0.44
All short-haul	199.0	0.40	477.1	0.85	676.1	0.64
All long-haul	297.9	0.27	650.1	0.53	948.0[a]	0.41
All small airports	145.7	0.24	357.6	0.52	503.3	0.39
All large airports	351.3[a]	0.36	769.6	0.70	1,120.8[a,b]	0.54
All regular-fare	329.9	0.26	823.7	0.59	1,153.6	0.43
All low-fare	167.1	0.49	303.4	0.79	470.5	0.65
All routes	497.0[a]	0.31	1,127.2	0.63	1,624.1[a,b]	0.48

[a]Does not total because of rounding.

[b]Does not cross total because of rounding.

Description of Data

We contracted with GRA, Inc., a consulting firm that does extensive work on aviation issues, to provide us with data for our analysis. Although we were not able to verify the data, GRA, Inc. is very experienced in handling airline data and has worked under contract previously for the Federal Aviation Administration. GRA, Inc. used data on the number of one-way trips made and the fares paid by a sample of passengers from the Department of Transportation's DB1A database for the period July 1, 1997,

through June 30, 1998. To provide us a more reliable database, at our direction, GRA, Inc. applied several screens that excluded data from certain tickets. These screens ruled out the following:

- all routes that average less than one passenger per day,
- trips with more than 3 coupons one-way,
- all tickets with fares of $12 or less (to eliminate frequent flyer tickets),
- tickets with an unreadable fare field, and
- trips that include an airport outside the continental United States.

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