Funding and Financing Infrastructure at U.S. Airports

Overview of the 2020 RAND Report Recommendations

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Good afternoon, Chairwoman Sinema, Ranking Member Cruz, and distinguished members of the subcommittee. Thank you for inviting me to testify on the funding and financing of infrastructure at our nation’s airports. Billions of dollars are spent every year on infrastructure at U.S. airports; aviation connects our country by moving millions of people and hundreds of millions of pounds of cargo every day. In the Federal Aviation Administration (FAA) Reauthorization Act of 2018, Congress directed the Secretary of Transportation to engage an independent research organization to consider issues concerning the status of airport infrastructure and issues of funding and finance at commercial service airports.\(^3\) The FAA awarded the contract to RAND to conduct this study. My remarks today are drawn from our study, published in January 2020.\(^4\) I will focus my discussion on highlighting how

\(^1\) The opinions and conclusions expressed in this testimony are the author’s alone and should not be interpreted as representing those of the RAND Corporation or any of the sponsors of its research.

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\(^3\) Per Section 122 of the Federal Aviation Administration Reauthorization Act of 2018 (Pub. L. 115-254).

needs, available resources, and the impacts of the coronavirus pandemic differ across airports of different types and sizes. Our recommendations, which I detail below, include increasing the Passenger Facility Charge (PFC) cap and indexing it to inflation, removing the automatic doubling of Airport Improvement Program (AIP) entitlements, and establishing a rainy day reserve for the Airport and Airway Trust Fund (AATF).

The Nation's Airports

There are more than 19,000 landing areas within the United States of varying size and type, 5,099 of which are considered public-use airports. The FAA includes 3,321 public-use airports in the National Plan of Integrated Airport Systems (NPIAS), which is an FAA-managed plan to develop an integrated system of public-use airports and identify priorities for federal airport infrastructure funding. Notably, an airport must be included in the NPIAS to receive federal grants.

Almost all commercial service airports in the United States are publicly owned. Large-, medium-, and small-hub airports served 96 percent of commercial passenger traffic in 2018. However, the vast majority of airports in the NPIAS are general aviation (GA) airports, which do not focus on commercial transportation of passengers. GA airports serve a wide variety of users (typically, small noncommercial transport of people, cargo, or mail); support emergency preparedness and response, local economic activity, and access for local or remote areas; and provide a safety net for the National Airspace System.

Types of Airport-Related Infrastructure

Airport infrastructure is typically distinguished by the categories of airside and landside. **Airside** infrastructure includes runways, taxiways, aprons, aircraft gates, barriers, lighting, and other facilities necessary for aircraft operation. **Landside** infrastructure includes airport terminals, parking lots and garages, transportation access roads and rails, rental car facilities, baggage facilities, and other facilities for processing passengers, cargo, and ground transportation. Airports reported spending $12.8 billion on capital projects for these sorts of infrastructure in 2017 alone. Although not a focus of our study, air traffic control (ATC) infrastructure includes towers and other vital facilities, which are not owned and operated by airports, and not all of which are located on airport property.

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5 FAA, *National Plan of Integrated Airport Systems (NPIAS): 2019–2023*, Washington, D.C., 2018. A public-use airport is defined as publicly owned, privately owned but designated by the FAA as a “reliever” for congestion at commercial service airports, or privately owned but having scheduled service and at least 2,500 annual enplanements. Enplanements is the industry’s term for the number of passengers boarding aircraft at an airport.


7 Congressional staff made clear to RAND that the Section 122 study was not intended to address the infrastructure needs of the more than 300 ATC facilities operated by the FAA and for that reason was not included within the scope of the study.
**Areas Where Infrastructure Investment Is Needed**

Airport runways are generally in good repair. This reflects the priority given to airside infrastructure in federal grants provided under the AIP and the effectiveness of funding from all sources to meet airside needs. However, terminals and control towers are widely viewed as needing modernization, repair, or replacement. The growth in the number of enplanements led to crowded terminals at some airports prior to the pandemic, and many aging control towers and other ATC facilities require rehabilitation and upgrading. Smaller airports, which are reliant on federal grants, struggle to generate sufficient revenues for spending on landside infrastructure for ground transportation vehicles, the processing of passengers, and other purposes.

These infrastructure limitations are one of several factors contributing to delays in the National Airspace System that were evident before the pandemic. These infrastructure-related delays are not spread evenly across the system. Rather, a small number of capacity-constrained airports appeared to be responsible for the majority of delays that could be partially (but not fully) addressed by sound infrastructure investment. Twenty airports (19 large hubs and one reliever) accounted for 96 percent of delays measured by the FAA’s Operations Network in 2018.

**Funding Sources Vary with Airport Sizes**

Although airports across the nation face many of the same challenges, the financial capabilities and local context of each airport can vary widely. Airports of all sizes face a broadly similar distribution of operating expenses, nonoperating expenses, and capital expenses. However, the funding sources used to finance these expenses differ depending on the airport’s size, as shown in Figure 1. Further, how financial risks are distributed between airports and airlines depends on the particulars of use-and-lease agreements between individual airports and their tenant airlines. Airports also entered the pandemic with widely varying amounts of cash reserves, airline competition, and infrastructure-related delays.

The difference in the proportion of AIP grants and PFC funds by airport size is particularly noteworthy, as these are the two funding sources most directly affected by federal policy. Larger airports generally choose to forgo a large portion of their AIP entitlements in order to collect additional PFC funds. This is because their larger passenger volumes cause the revenue collected from PFCs to easily exceed the forgone AIP entitlements. In contrast, smaller airports often perceive the potential revenue from PFCs to be too small to justify the administrative costs of applying.
Figure 1. Proportion of Funding Sources, by Airport Size, 2017

362 airports were collecting PFCs as of August 2019, including 98 of the nation’s largest 100 airports. As shown in Table 1, the vast majority of these airports collect the maximum allowable fee of $4.50 per flight segment.

Table 1. PFCs by Airport Category

<table>
<thead>
<tr>
<th>Airport Category</th>
<th>Number of Airports</th>
<th>Airports Currently Collecting PFCs</th>
<th>Airports Collecting PFCs at the Maximum $4.50 Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large hub</td>
<td>30</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td>Medium hub</td>
<td>31</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Small hub</td>
<td>72</td>
<td>68</td>
<td>67</td>
</tr>
<tr>
<td>Non-hub primary</td>
<td>247</td>
<td>193</td>
<td>187</td>
</tr>
<tr>
<td>Nonprimary commercial service</td>
<td>126</td>
<td>40</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>506</td>
<td>362</td>
<td>350</td>
</tr>
</tbody>
</table>

NOTE: Data are as of August 31, 2019; the number of airports in each hub-size category is from FAA, “Voluntary Airport Low Emissions Program (VALE),” webpage, updated November 13, 2018 (https://www.faa.gov/airports/environmental/vale/).
Smaller airports by definition have a smaller user base that offers fewer opportunities for raising revenue and are therefore more reliant on federal (and to a much lesser extent, state) grants than larger airports for paying the high fixed costs related to runways, taxiways, aprons, safety, and security. GA airports are not eligible to collect PFCs, a mechanism that Congress authorized exclusively for use by commercial service airports, nor do GA airports have sufficient passenger volume to support such a user fee. Instead, GA and nonprimary commercial service airports rely on AIP funding, which is redistributive by design; smaller airports receive a larger share of AIP dollars than they generate in excise tax revenues to the Airport and Airway Trust Fund (AATF), which funds the AIP and many other FAA programs.

The Pandemic and Its Impact on Demand for Air Travel

Prior to the coronavirus pandemic, the demand for air travel was steadily increasing, leading to questions about whether the flow of funds supporting airport infrastructure was sufficient to keep pace with the growing demands placed on airport infrastructure. The severity and duration of the reduction in demand for commercial passenger air travel caused by the coronavirus pandemic was unprecedented, even in comparison to past disruptions, such as the September 11 attacks, which were previously considered by the industry to represent a worst-case scenario. The Airports Council International–North America forecasts that U.S. airports will lose $23.3 billion in revenues as a result of the COVID-19 pandemic. At least four regional airlines collapsed, and airports in dozens of small cities lost almost all commercial passenger air service because the remaining demand for passenger air travel was no longer sufficient to support regularly scheduled service.10

Passenger Service

Passenger volumes have been recovering very slowly after bottoming out, with approximately 95 percent fewer passengers in April 2020 than in April 2019, as shown in Figure 2. This decline in passenger traffic was experienced by airports of all sizes. As of mid-June 2021, demand reached approximately 70 percent of 2019 levels. Recent trends appear to point to domestic passenger counts returning to 2019 levels within the next year, although international travel may take longer. As passenger travel resumes its previously forecasted growth, the question of sufficiency of funding will reemerge.

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Figure 2. Daily Total Traveler Throughput, 2020–2021 Versus 2019

![Graph showing daily total traveler throughput from 2019 to 2021 with 7-day rolling averages. The orange line represents the average number of passengers on the corresponding date in 2019.]

SOURCE: Transportation Security Administration, “TSA Checkpoint Travel Numbers (Current Year(S) Versus Prior Year(Same Weekday),” webpage, last updated June 17, 2021 (https://www.tsa.gov/coronavirus/passenger-throughput).

NOTE: Both lines show seven-day rolling averages. The orange line shows the average number of passengers on the corresponding date in 2019.

Cargo

The quantity of cargo being flown across the country reached record highs during the pandemic.\footnote{Our report in response to Section 122 of the FAA Reauthorization Act of 2018, focused on commercial passenger service rather than cargo. However, understanding the pandemic’s impact on cargo is important for understanding how the pandemic’s impact varies across different types of airports.} Demand for air transportation of cargo spiked in May 2020, as shown in Figure 3.
The Impacts of the Pandemic Have Varied Across Airports

The pandemic has been devastating for airports of all sizes, just as it has been for airlines and all industries involved in air travel. The increase in cargo is not a substitute for the revenue lost from the decline in passengers. Because different types of airports may focus on serving different customers, the rate at which the number of flights is returning to prepandemic levels varies across airports of different types. Figure 4 shows that smaller airports, where a larger fraction of flights are cargo, have returned to their prepandemic number of flights more quickly than larger airports, which typically focus on commercial passengers. However, even if an airport were to replace lost passenger flights with cargo flights, that might not fully replace lost revenue from such sources as parking garages and terminal leases.
Recommendations

Since our report was published in January 2020, the pandemic has severely disrupted air travel. Demand for air travel will—eventually—return to previous levels and previous rates of growth. When that happens, the same infrastructure funding issues will reappear. For this testimony, the study team reviewed our recommendations in light of the pandemic’s impacts and considered whether changes were warranted. We concluded that, despite the coronavirus pandemic, our recommendations remain sound and require little modification.

Changes to the PFC Program

The PFC is a federally authorized user fee paid by passengers at the time of ticket purchase and remitted to the airport at which the passenger boards a plane. With the approval of the FAA, an airport can choose to collect up to $4.50 from each passenger boarding a plane, similar to drivers paying a toll to use a highway. Congress determines the maximum allowable fee per passenger boarding; an airport may apply to collect that amount or a lower fee. The vast majority of these airports collect the maximum allowable fee of $4.50 per flight segment. There is an ongoing debate over whether the maximum allowable PFC should be increased above $4.50, the amount it has been since April 2001, when the cap increase included in the 2000 FAA reauthorization took effect.

The PFC does not currently adjust with inflation, so the value per passenger has declined over time. The total amount of PFC funds collected has increased over time due to three factors:
(1) an increase in the number of airports that impose a PFC, (2) an increase in the average PFC charged by these airports, and (3) an increase in enplanements. At the same time, increases in enplanements and operations also increase demands on infrastructure.

Airport sponsors cannot unilaterally impose a PFC. Rather, they must apply to the FAA to request approval to collect a PFC. The application must identify specific PFC-eligible projects that the collected funds will support, as well as provide other documentation. During the application process, airport sponsors must consult with air carriers and submit formal responses to any formal comments made by air carriers or other members of the public.

PFC revenues are attractive to airports because they can be used for a wider range of projects than can AIP grants, and they can also be used to pay for debt service and financing costs.

Congress Should Increase—but Not Remove—the PFC Cap and Index It to Inflation

This option will improve airports’ ability to make timely and efficient capital investments to meet growing future demand while leaving in place FAA oversight of project justification and costs on passengers.

Specifically, we recommend that Congress

- raise the current PFC cap of $4.50 to approximately $7.50 for origin passengers only
- index the new PFC cap to inflation
- eliminate 100 percent of AIP primary entitlements for medium- and large-hub airports that choose to raise their PFC above $4.50.

We are not aware of compelling evidence or data justifying a particular level for a new cap. Any number could be chosen, but we note that if the $4.50 cap had been indexed to inflation in 2000 using the Producer Price Index for construction materials, it would now be set at $7.44. For this reason, we suggest that the cap in this option be around this value, perhaps rounded up to $7.50, although other levels could be chosen. Although an increase in the PFC cap would likely result in higher ticket prices for passengers traveling through airports that raised their PFC collections, there remains in place a set of guardrails to weigh the public benefits of PFC-funded projects relative to the costs imposed on passengers. Airports will continue to be required to justify the net benefits of projects proposed for PFC funding to the FAA, and the FAA retains its discretion to approve or disapprove applications for these projects. Further, airports will still need to be responsive to comments from airlines and other stakeholders when requesting a PFC increase.

To ensure that airports have sufficient and stable sources of revenue commensurate with present and future capital needs, the PFC cap should be indexed to inflation, regardless of whether the PFC cap is otherwise changed. Indexing the PFC to a construction index, such as the Producer Price Index for construction materials, would stabilize the parity of purchasing power at the current cap or a new cap set by Congress for airports making infrastructure investments. In

12 The application process is detailed in FAA Order 5500.1, and the instructions for preparing a PFC application are available on the FAA’s website. See FAA Order 5500.1, Passenger Facility Charge, Washington, D.C.: Federal Aviation Administration, August 9, 2001; FAA, “Instructions for Preparing Attachments for PFC Application Form: Section 6 of FAA Form 5500-1,” undated.
contrast, indexing to the Consumer Price Index would hold constant the impact of PFC increases on passenger ticket prices.

Not all airports may choose to seek an immediate or longer-term PFC increase. To increase transparency regarding the intentions of airports in maintaining cash reserves beyond those required by bond-rating agencies, we suggest that the FAA consider an airport’s cash reserves and broader financial status when determining whether to approve an airport’s request for an increase in its PFC. Prior to the coronavirus pandemic, there was significant variation in airports’ levels of cash reserves.

We further recommend that large- and medium-hub airports that raise their PFC above $4.50, indexed to inflation, should forgo their AIP primary entitlements, dollar for dollar, for each dollar of PFCs they collect up to 100 percent of these entitlements. Instead, that money could more efficiently achieve the redistributive purpose of the AIP program by either being focused on needs of national significance among smaller airports or directed to other priorities affecting the safety and sustainability of the National Airspace System. Airports that raise their PFC above $4.50 would remain eligible for other categories of AIP funding, including discretionary grants and cargo entitlements.

We recommend that any increase in the PFC cap apply only to passengers who originate at that airport and that the PFC for layover passengers remain capped at $4.50, indexed to inflation. The rationale for restricting future PFC increases to origin passengers only is to ensure that airports that increase their PFCs do so at their own expense, rather than at the expense of other airports. Under current law, passengers with one or more layovers must pay two PFCs, one to the origin airport and one to the first layover airport. If an airport’s PFC increase applies to layover passengers, demand for flights that have layovers at that airport would decrease. This would be particularly problematic for small airports, where almost all routes go through one or two larger “feeder” airports to connect the community to the national and international system. Because origin passengers represent the majority of passengers at most airports, and because layover passengers can still be charged PFCs at currently approved rates, all commercial service airports would still receive a meaningful increase in their ability to raise revenue through PFCs.

Implications of the Pandemic

The need to increase the PFC and index to inflation remains—indeed, the need is greater, if anything. Airports have $16.6 billion in debt service payments to make over the next two years, much of which was to be paid with PFC funds collected over that time. With passenger volumes down, those PFC funds will be far less than anticipated. Because revenue from other funding sources, such as retail and parking, is also down, many airports will need to draw on PFC revenues from future years to pay off debts. However, many airports have already borrowed against PFCs that will be collected decades into the future and hence may have limited ability to obtain additional PFC funds. This will delay airports’ ability to finance future infrastructure projects.

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That said, it is unclear whether airports would make immediate use of a PFC increase in today’s environment. Keeping costs down has been a focus of both industry and policy responses to COVID-19, with the hope of luring back travelers. As explained above, raising the PFC cap does not directly raise PFCs—it simply provides airports the option to apply for permission to raise their PFC at the appropriate time.

Changes to the AIP

AIP grants represent the largest, most direct involvement of the federal government in funding airport infrastructure. AIP grants are funded by the AATF, a federal trust fund that receives excise tax revenues from passenger and cargo travel and fuel purchases and that is used exclusively to fund aviation-related activities. The annual AIP funding appropriation limitation is set by Congress. AIP grants are distributed to public-use airports listed in the NPIAS via a complex set of apportionment formulas and percentage set-asides.

There are two general types of AIP grants: entitlements and discretionary. The FAA uses discretionary grants to target specific projects at individual airports according to need and benefit to the system as a whole. The FAA awards entitlement grants to most airports in the NPIAS, although airports that receive approval for PFC-funded projects forgo a portion of their entitlement. Under current congressionally mandated funding formulas, GA and nonprimary commercial service airports are each eligible to receive entitlement grants of up to $150,000 per year, an amount too small to support airport construction of any consequence. Airports, however, are permitted to defer their annual entitlements over several years to accumulate sufficient funds to undertake a project.

Importantly, large- and medium-hub airports forgo a portion of their primary entitlements if they impose a PFC. Virtually all of them choose to do so because their passenger volumes ensure that revenue collected from PFCs dwarfs forgone AIP entitlements. Large and medium hubs that charge a PFC of $3 or less forgo AIP apportionments equal to 50 percent of their projected PFC revenues for the year, up to 50 percent of their primary apportionment, while those that charge a PFC of more than $3 forgo an amount equal to 75 percent of projected PFC revenues, up to 75 percent of their primary apportionment. By statute, 87.5 percent of these forgone AIP entitlements go to the Small Airport Fund, while the remaining 12.5 percent are available as discretionary funds.

Congress Should Remove the Automatic Doubling of AIP Primary Entitlements

Under current law, whenever Congress appropriates at least $3.2 billion to the AIP, primary entitlements per passenger double (subject to a cap), with those increases resulting in less money available for other AIP funds, including discretionary grants. As a consequence of this policy, annual AIP funding is spread across all primary airports according to their enplanements, and the

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15 Funds in the Small Airport Fund are awarded competitively to specific categories of small airports.
FAA has less discretion to effectively direct funds to current high-priority projects at specific airports.

In our report, we recommend that Congress remove the triggered primary entitlement increase that occurs when Congress appropriates at least at $3.2 billion to the AIP. Those airports not voluntarily forgoing AIP entitlements in return for the ability to collect PFCs could still receive comparable levels of AIP funding over time, but the timing and magnitude of annual grants would be better aligned with the timing and magnitude of needs. Airports could compete to receive more funds in the form of larger grants from the pool of discretionary funding, when needed, but would receive fewer guaranteed funds in the form of annual entitlements.

Congress Should Consider Removing Nonprimary Entitlements

As with primary entitlements, under current law, whenever Congress appropriates at least $3.2 billion to the AIP, each nonprimary airport in the NPIAS receives an entitlement of up to $150,000 instead of those funds going to more-flexible state apportionments for nonprimary airports. This amount is insufficient for major construction projects, and the existing state apportionment mechanism is better suited to meet nonprimary airports’ needs and has sufficient oversight mechanisms in place. We recommend that Congress eliminate nonprimary entitlements that occur under current law when the AIP appropriation is at least $3.2 billion. As with the previous recommendation, airports could still compete to receive comparable levels of funding over time, but the timing and magnitude of individual distributions would be better aligned with the timing and magnitude of needs.

It is important to emphasize that the purpose of removing nonprimary entitlements is to reconfigure how nonprimary airports are supported and not to reduce overall support for nonprimary airports. These changes—combined with the PFC reforms that would increase the amount of forgone AIP primary entitlements going to the Small Airport Fund—would ensure that nonprimary airports have access to more resources when they are needed.

Changes to the AATF

Congress Should Establish a Rainy Day Reserve Fund to Serve as a Backstop for the AATF

Prior to the pandemic, we had suggested that Congress use what had been a large uncommitted balance in the AATF to establish a rainy day fund to support the air travel industry in the event of unusually low air travel. A few months after we published our report, the pandemic caused an unprecedented decline in demand, and Congress reacted to the decline by temporarily waiving the taxes associated with air travel. This change eliminated the flow of revenues to the AATF, thereby draining the funding source for many FAA programs.

Now that the flow of funds to the AATF has resumed, the AATF will likely replenish, albeit slowly. Establishing a rainy day fund remains a sound idea to ensure that funding levels for FAA programs and activities can remain stable over time as the fund replenishes. Our report had estimated that a rainy day fund containing $4 billion to $6 billion would be sufficient to ensure that AATF outflows would remain stable even in the face of two to three years of severe revenue shortfalls. Although such a rainy day fund would not be sufficient to provide stability during disruptions of the magnitude of the current pandemic, we continue to believe that it would be
sufficient to provide stability in the face of two to three years of severe revenue shortfalls, as might occur in a severe recession. Once the AATF is fully funded and a rainy day fund is in place, any additional AATF revenues should be appropriated to meet clearly identified needs, as determined by the FAA.

Congress Should Include Ancillary Fees in the Domestic Passenger Ticket Tax

Ancillary fees are charges for airline-provided services or products that some airlines sell separately from tickets, such as checked baggage, advance seat assignments, and priority boarding. These fees are excluded from the 7.5 percent Domestic Passenger Ticket Tax that helps fund the AATF. This policy favors airlines that separate ancillary fees from their base ticket price over those that do not. Airlines should be free to separate ancillary fees if they wish, but the Domestic Passenger Ticket Tax should not incentivize one business model over another by taxing ancillary services differently from bundled ticket prices.

Conclusions

In our analysis, we concluded that sufficient guardrails are in place within the PFC program and the marketplace to prevent airports from making inappropriate use of PFC revenues. The PFC program represents a near-ideal example of the user-pays principle of infrastructure funding and has proved to be a valuable source of revenues for medium and large airports. Paired with a healthy market for airport bond issues, PFCs help provide airports with access to the capital they need to keep up with changing and growing demands. Smaller airports could also gain from changes that improve the flexibility and timeliness of AIP grants. Such changes could enable small airports to access funds at the time they are needed to serve their communities. Finally, Congress has an opportunity to make some changes in the AATF to make it even more resilient to future shocks and provide assurances of sustainability to the airport sector for years to come.

Before the pandemic, the airport sector was generally healthy and poised for continued growth. In the coming months and years, airports will regain their passenger volumes. In the meantime, changes in policy could help airports make the investments needed to better position themselves for the future.