National Plan of Integrated Airport Systems (NPIAS)

2021-2025

Federal Aviation Administration

Federal Aviation Administration
U.S. Department of Transportation

National Plan of Integrated Airport Systems (NPIAS) 2021–2025

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EXECUTIVE SUMMARY

The National Plan of Integrated Airport Systems (NPIAS) for Fiscal Years (FY) 2021 to 2025 is published as required by title 49 United States Code (U.S.C.), § 47103. The Federal Aviation Administration (FAA) maintains the plan for developing public-use airports in the United States and includes the kind and estimated cost of eligible airport development necessary to provide a safe, efficient, and integrated system of public-use airports.

The FAA collected statistics and started preparing this NPIAS many months prior to the novel coronavirus (COVID-19) public health emergency in March 2020. Airport development cost estimates are based on master plan updates and capital improvement plans that take significant time to update when there are major changes in activity levels.

An immediate consequence of this public health emergency was a sharp decline in air travel, but its full impact (and the longer-term recovery timeframe for both the national economy and aviation industry in particular) was not yet known and could not be assessed in time to be incorporated into this NPIAS, which is required to be published by September 30, 2020. Additionally, airport categories do not reflect the impact of COVID-19 on aviation activity levels. This NPIAS also does not take into account the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) enacted in March 2020 and that included $10 billion in funds awarded as economic relief to eligible U.S. airports affected by the prevention of, preparation for, and response to the COVID-19 public health emergency.

The FAA's responsibility is to work with State and local units of government, as well as other stakeholders, to ensure effective planning of a safe and efficient system of airports to support the needs of the civil aviation industry.

Accordingly, this NPIAS identifies the airports included in the national airport system, the roles they currently serve, and the amounts and types of airport development eligible for Federal funding under the Airport Improvement Program (AIP) over the next 5 years. The FAA has been publishing a Federal airport plan since the 1940s and the NPIAS since 1984.

This edition identifies 3,304 existing public-use and 6 proposed airports and estimates approximately $43.6 billion in AIP-eligible and justified airport projects between 2021 and 2025. This is an increase of $8.5 billion (24 percent) from the NPIAS issued 2 years ago. The estimates reflect the costs at the time each NPIAS was prepared and do not reflect constant dollars. The development of primary and nonprimary airports continues to be based on eligible and justified needs and priorities consistent with the role of the airport in the national airport system. Project cost estimates compiled in the NPIAS are provided by airport sponsors and in many cases are planning estimates. The FAA may adjust these estimates when evaluating the project for a grant award.

The FAA utilizes a variety of data (activity, ownership, federal use, etc.) to determine the appropriate category and hub/role of each NPIAS airport. Airports meeting the commercial service requirements (public airports with more than 2,500 enplanements a year and scheduled

service) are updated every year. All other NPIAS airports are updated every other year and remain as shown in the published NPIAS (see appendix C for further information).

Airport capital development needs are driven by current and forecasted traffic, use and age of facilities, and changing aircraft technology, all of which require airports to update or replace equipment and infrastructure. Based on actual and projected aeronautical activity trends, AIP-eligible development needs are expected to increase at all airport types, except regional airports, which are expected to decrease slightly. Pavement reconstruction costs continue to increase (29 percent), costs for expansion or rehabilitation of terminal buildings increased (62 percent), and capacity-related development costs increased (31 percent) for the first time since 2013.

The FAA considers development included in the NPIAS in the Airports Capital Improvement Planning process. The 5-year capital estimates are AIP-eligible but many projects can be covered by other sources of funding. Some may be funded by other sources, including Passenger Facility Charge (PFC) revenues or other airport revenue or financing. Funds for airport development are derived from a variety of sources, including Federal/State/local grants, bond proceeds, PFCs, airport-generated funds (landing and terminal fees, parking, aviation fuel, and concessions revenues), and tenant and third-party financing. The availability of funding sources (and their adequacy to meet needs) varies with each type of airport and levels of aeronautical activity.

Cost estimates in the NPIAS are obtained primarily from airport sponsors and State aeronautical agencies through locally developed airport planning documents (e.g., master plans, airport layout plan reports, and State system plans) and annual capital improvement plans. The estimates only include development undertaken by airport sponsors (as opposed to nonpublic projects undertaken by airport tenants, such as airlines and air cargo operators). The development reflected in this NPIAS is based on planning documents and information available through the end of 2019.

The NPIAS cost estimates are based upon planning estimates developed prior to design and full environmental evaluation, which may introduce additional costs. These development estimates do not include contingency costs (increases in cost based on changes in design, construction uncertainty, or environmental mitigation) or normal price escalation due to inflation (annual increase in costs).

The content of this NPIAS focuses on the airports included in the national airport system and the AIP-eligible and justified development through 2025.

CHAPTER 1: THE AIRPORT SYSTEM

Transportation systems (including air, rail, highways, and waterways) connect communities, business, and people and provide critical support functions. Airports are critical to the national transportation system and contribute to a productive national economy and international competitiveness. This includes the 60 million people living in rural areas where an airport may provide the community with critical access to the national transportation system.

ATTRIBUTES AND STRATEGIC GOALS

The national airport system, envisioned when civil aviation was in its infancy, has been developed and nurtured by close cooperation with airport sponsors and other local agencies, as well as Federal and State agencies. The enduring principles guiding Federal involvement in the national airport system were articulated 30 years ago and were subsequently reaffirmed in 2011 by the FAA and the aviation industry as part of the development of the report entitled, General Aviation Airports: A National Asset.[1] To meet the demand for air transportation, airports and the national airport system should have the following attributes:

- Airports should be safe and efficient, located where people will use them, and developed and maintained to appropriate standards.
- Airports should be affordable to both users and the Government, relying primarily on producing self-sustaining revenue and placing minimal burden on the general revenues of the local, State, and Federal Governments.
- Airports should be flexible and expandable and able to meet increased demand and accommodate new aircraft types.
- Airports should be permanent with assurance that they will remain open for aeronautical use over the long term.
- Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation, the environment, and the requirements of residents.
- Airports should be developed in concert with improvements to the air traffic control system and technological advancement.
- The airport system should support a variety of critical national objectives, such as defense, emergency readiness, law enforcement, and mail and shipping needs.
- The airport system should be extensive, providing as many people as possible with convenient access to air transportation.

The guiding principle for Federal infrastructure investment, as stated in Executive Order 12893, is that Federal investments should be cost beneficial.[2] This Executive Order also included other

[1] The FAA conducted a national review of general aviation airports resulting in two reports available online at: https://www.faa.gov/airports/planning_capacity/ga_study/.

[2] The FAA implements these principles by issuing guidance to ensure the effective use of Federal aid. A national priority system guides the distribution of funds, supplemented when necessary, by specific requirements for additional analysis or justification. All development projects must be justified based on existing or reasonably anticipated civil aeronautical activity levels.

key principles that the FAA supports through its administration of the NPIAS, including support of State and local planning and information management systems; support for private sector participation; and support for effective administration of grant programs like the AIP.

In addition to the above listed principles, the U.S. Department of Transportation's (DOT) Strategic Plan for FY 2018–FY 2022[3] sets the direction for DOT to provide a safe, efficient, convenient, and competitive transportation system. These are reflected in four strategic goals (safety, infrastructure, innovation, and accountability) supported by a wide-ranging management goal to make DOT a high-performance, outcome-driven Agency. The FAA has also adopted these goals, but with a focus on the aviation mode. The NPIAS supports DOT and FAA goals for the air transportation system through six key areas: safety, capacity, environmental performance, runway pavement condition, surface transportation accessibility (including access to the airport system for the population living in rural areas), and airport financial performance. These areas are included in the appropriate sections in chapters 1 and 2.

OVERVIEW OF AIRPORT SYSTEM

The Nation's airports have evolved over the past decades. Some airports are large in size and have multiple runways. Others are relatively small and may only need a short, single runway to serve a critical purpose. The role of an airport is not necessarily limited by its size, location, or facilities. Airports fulfill very diverse roles within the system, including:

- moving people and cargo;
- serving agricultural needs;
- providing critical access to remote communities, such as emergency medical services;
- supporting private transportation using small piston aircraft to sophisticated jets; and
- providing aeronautical access to manufacturers, assemblers, and repair stations that support airlines and operators of all sizes in a global aerospace marketplace.

More than 664,500 pilots, 7,628 commercial aircraft, and 211,749 general aviation aircraft perform about 99 million annual operations at more than 19,600 landing areas in the United States. This includes 14,556 private-use (closed to the public) and 5,080 public-use (open to the public) facilities, such as airports, heliports, and seaplane bases as shown in table 1. Throughout this document, the term "airport" includes landing areas developed for conventional fixed-wing aircraft, helicopters, and seaplanes. The statistics and categories reflected in this document do not reflect the impact of COVID-19 on aviation activity.

[3] DOT's FY 2018–22 Strategic Plan is available at: https://www.transportation.gov/dot-strategic-plan.

Table 1: Numbers and Types of Existing Airports in the United States (February 2020)

Type of Facility	Total U.S. Facilities	Private-Use Facilities	Public-Use Facilities	Existing NPIAS Facilities
Airport	13,065	8,263	4,802	3,258
Heliport	5,901	5,842	59	9
Seaplane Base	510	300	210	37
Ultralight	112	109	3	
Gliderport	35	30	5	
Balloonport	13	12	1	
Total	**19,636**	**14,556**	**5,080**	**3,304**

The FAA works closely with State aviation agencies and local planning organizations to identify public-use airports that are important to the system for inclusion in the NPIAS. About 65 percent of the public-use airports are included in the NPIAS. It includes all commercial service airports[4] and selected general aviation airports that meet requirements.

The NPIAS identifies the airports included in the national airport system, the roles they serve, and the amount and type of AIP-eligible airport development needed over the next 5 years. An airport must be included in the NPIAS to be eligible to receive a grant under the AIP. Because capital development needs have historically exceeded available AIP resources, airport development needs included in the NPIAS may ultimately be funded by other funding sources, such as PFCs or other airport revenue or financing.

AIRPORTS IN THE NPIAS

The NPIAS, 2021-2025, contains 3,304 existing and 6 new airports that are anticipated to be constructed and open within the 5-year period. The proposed airports are classified in the same categories as existing airports. Approximately 98 percent (3,244) of the NPIAS airports are owned by public entities (generally city, county, or State) and 2 percent (60) are privately owned airports. There are 1,776 existing public-use airports that are not included in the NPIAS, generally because they do not meet the minimum entry criteria,[5] are located at inadequate sites, cannot be expanded or improved to provide a safe and efficient airport, or are located within a 30-mile radius of at least one NPIAS airport.

NPIAS airports are grouped by statute into two major categories: primary and nonprimary as shown in figure 1. Primary airports are defined in the FAA's authorizing statute as public airports receiving scheduled air carrier service with 10,000 or more enplaned passengers per year. There are 396 primary airports based on calendar year (CY) 2018 data. Primary airports

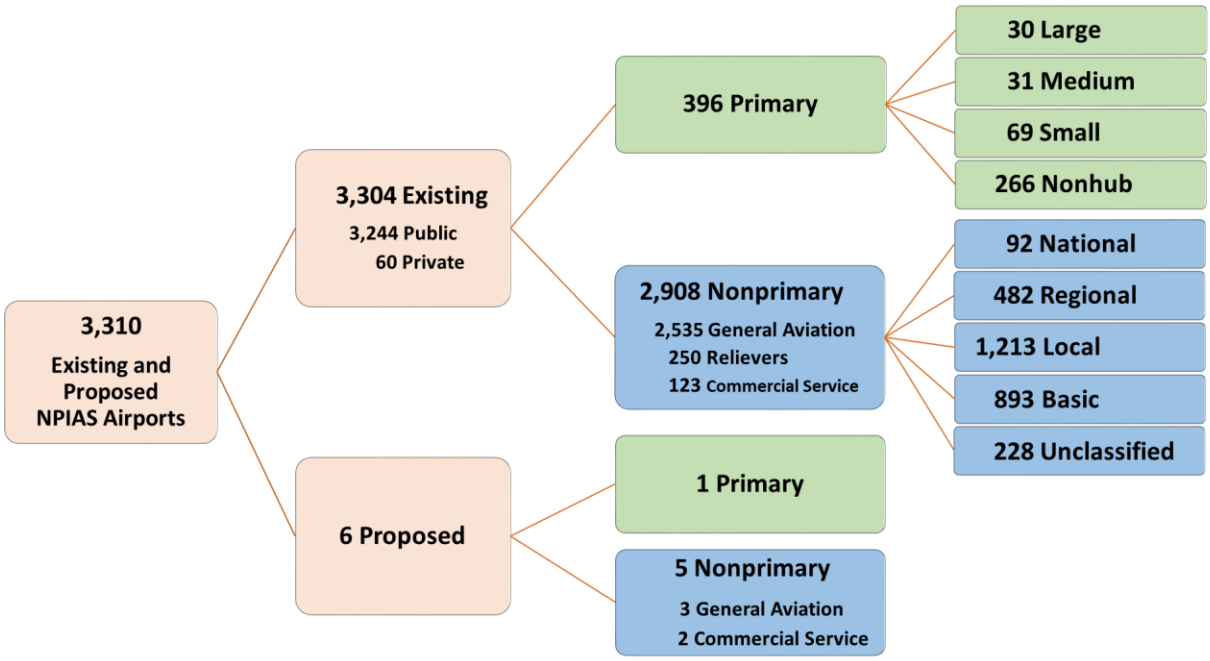
[4] Privately owned airports with scheduled air carrier service are not eligible for designation as a commercial service airport (e.g., Branson Airport in Branson, Missouri) under 49 U.S.C. § 47102(7), which defines "commercial service airport" as "a public airport in a State that the Secretary determines has at least 2,500 passenger boardings each year and is receiving scheduled passenger aircraft service."

[5] The NPIAS entry criteria is contained in FAA Order 5090.5, Formulation of the National Plan of Integrated Airport Systems (NPIAS) and the Airports Capital Improvement Plan (ACIP), available online at: https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentID/1036630.

are further grouped into four categories defined in statute: large hub, medium hub, small hub, and nonhub.

Nonprimary airports primarily support general aviation aircraft. The nonprimary category includes nonprimary commercial service airports (public airports receiving scheduled passenger service and between 2,500 and 9,999 enplaned passengers per year), general aviation airports, and reliever[6] airports. There are 2,908 nonprimary airports. These airports are further grouped into five categories: national, regional, local, basic, and unclassified. Appendix C contains the airport definitions contained in both statute and policy that are used in this NPIAS.

Figure 1: NPIAS Airports by Category and Role



[6] See appendix C for the statutory definition of reliever (49 U.S.C. § 47102). The term "reliever" is relevant in a small number of instances where commercial service airports still experience significant congestion. However, there are a significant number of airports with reliever designation that no longer meet reliever status since the airports they are relieving are no longer considered congested. Since the term is still defined by statute, the FAA has included the designations in this NPIAS.

Table 2 reflects the number of existing NPIAS airports by category, as well as the percentage of enplanements, runways, based aircraft, total operations, and total development.

Table 2: Activity and Development at NPIAS Airports

Number of Airports	Airport Category	Percentage of Airports	Percentage of Runways	Percentage of 2018 Total Enplanements	Percentage of All Based Aircraft[1]	Percentage of Total Operations	Percentage of NPIAS Cost[2]
30	Large Hub	1	3	71.39	0.7	13.3	29.4
31	Medium Hub	1	2	16.65	1.7	5.1	10.7
69	Small Hub	2	3	8.46	4.4	6.8	11.7
266	Nonhub	8	10	3.43	11	12	14.2
396	**Primary Subtotal**	**12**	**18**	**99.93**	**17.8**	**37.1**	**66**
92	National	3	4		9.7	8.9	4.6
482	Regional	14	16		20.4	23.3	9.6
1,213	Local	37	34		18.7	22.2	12.7
893	Basic	27	22		3.6	6.4	6.6
228	Unclassified	7	6		1	2.1	0
2,908	**Nonprimary Subtotal**	**88**	**82**	**0.07**	**53.4**	**62.9**	**33.5**
3,304	**Total NPIAS Airports**	**100**	**100**	**100**	**71.2**	**100**	**99.4**

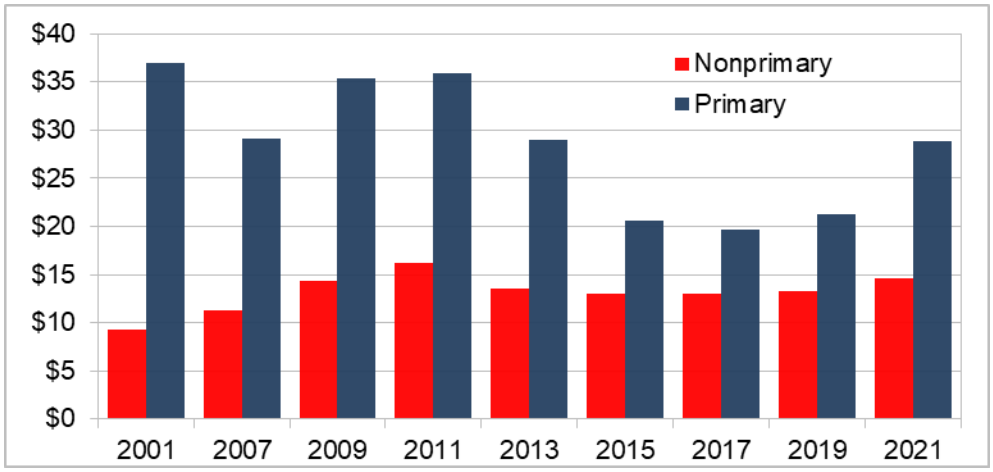
[1]Based on active general aviation fleet of 211,749 aircraft in 2018. The remaining aircraft are based at other, non-NPIAS airports.

[2] These costs are rounded and do not include the cost for new airports (0.6 percent).

Airports are generally located to make air transportation as convenient and accessible as possible. The census data extrapolated to 2020 reveals that 95 percent of the U.S. population of 328 million people live within 30 miles of a primary airport. When general aviation airports are also included, 99.7 percent of the population live within 30 miles of a NPIAS airport. The majority of the 3,304 NPIAS airports are located in metropolitan or micropolitan statistical areas. However, 1,240 NPIAS airports are located outside of these areas, providing rural areas with access to the national airport system. Appendix B contains several national maps and a map for each State indicating the NPIAS airports by role.

Figure 2 identifies the total AIP-eligible development for primary and nonprimary airports over the last 20 years. In 2021, primary airports will account for 66 percent of the 5-year development costs, which is down from 80 percent from 2001. In 2021, nonprimary airports will account for 34 percent of the total 5-year development costs, which is up 20 percent from 2001. From 2000 to 2010, primary airports, especially large hubs, focused on major airfield projects (i.e., new runways and airfield reconfigurations) resulting in 19 new or extended runways. During this same time, nonprimary airports completed master plans and began their short-term development plans focusing on reconstructing airfield pavement and meeting standards.

Figure 2: NPIAS-Reported 5-Year Development Estimates–Primary and Nonprimary Airports over time ($ Billions)



PRIMARY AIRPORTS

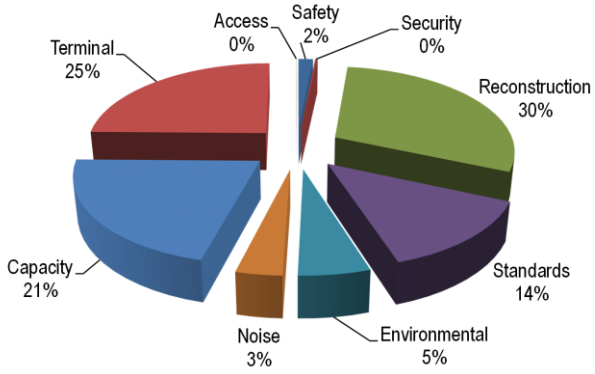
The 396 primary airports are grouped into four categories defined by statute: large hub, medium hub, small hub, and nonhub airports. Primary airports are eligible to receive an annual apportionment based on the number of enplaned passengers in a calendar year. CY 2018 enplanements determine FY 2020 service levels and passenger apportionments.

As shown in table 2, primary airports account for 99 percent of passenger enplanements, 37 percent of aircraft operations, and 66 percent ($28.8 billion) of the total development costs of $43.6 billion contained in the NPIAS with the type of development needed varying by hub category. Specific information on the various types of development is included in chapter 2.

Large Hubs (30)

Large hubs are those airports that each account for 1 percent or more of total U.S. passenger enplanements.[7] Combined, the 30 large hub airports account for 71 percent of all passenger enplanements and 29 percent of the planned development. Some of these passengers originate in the local community, and some are connecting passengers transferring from one flight to another. Nine of the large hub airports primarily serve passengers that originate in the community or who are traveling specifically to those destinations.[8] Many other large hub airports support higher

Figure 3: Development at Large Hubs



[7] The FAA's use of the term "hub" airport is different from that of airlines, which use it to denote an airport with significant connecting traffic. The hub categories used by the FAA are defined in 49 U.S.C. § 40102.
[8] The nine include the major airports in Boston, Fort Lauderdale, Orlando, San Diego, Tampa, Portland (Oregon), and Las Vegas, as well as New York's LaGuardia and Ronald Reagan Washington National.

percentages of passengers who are traveling through the airport to connect to another flight, rather than starting or ending their travel at these airports, such as Charlotte/Douglas International and Hartsfield-Jackson Atlanta International.

Large hub airports tend to concentrate on commercial airline and freight operations and have limited general aviation activity.[9] Two large hub airports have an average of 170 based aircraft (Honolulu's Daniel K. Inouye International and Las Vegas's McCarran International), and Salt Lake City International has more than 330 based aircraft. Twenty-seven large hub airports have between 0 and 88 based aircraft. Thus, locally based general aviation aircraft play a small role at most large hub airports.

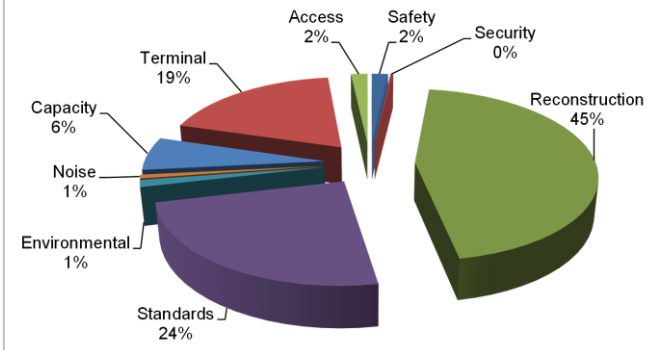
The majority of airports in our national system have adequate airport capacity and little or no delays. However, air traffic delay problems tend to be concentrated at certain large hub airports, particularly in the New York City area. Delays occur primarily during inclement weather conditions (e.g., thunderstorms or clouds that reduce ceiling and visibility) or when runway or airspace capacity is reduced below what is needed to accommodate traffic levels. Gate availability and airline schedules that exceed optimal airport capacity can also result in delays. Because of the number of connecting flights supported by these airports, delays at these airports can quickly ripple throughout the system causing delays at other airports nationwide.

Large hub airports have identified almost $13 billion (29 percent of total NPIAS development) in AIP-eligible development through 2025. As shown in figure 3, large hubs will be focusing on reconstruction of airfield pavement, terminal improvements (constructing, expanding, and modifying), and projects to improve capacity (new or expanded airfield pavement, such as taxiways, aprons, and runways). This is the first time in 7 years that large hubs have indicated an increase in capacity projects.

Medium Hubs (31)

Medium hubs are defined by statute as airports that each account for between 0.25 percent and 1 percent of total U.S. passenger enplanements. The 31 medium hub airports account for 16 percent of all U.S. enplanements and 11 percent of the development needs. Medium hub airports usually have sufficient capacity to accommodate air carrier operations and a substantial amount of general aviation activity. One medium hub airport (John Wayne Airport-Orange County) has 489 based aircraft, and three medium hub airports (Metropolitan Oakland International, Dallas Love Field, and William P. Hobby in Houston) each have an average of 270 based aircraft. The

Figure 4: Development at Medium Hubs



[9] General aviation describes a diverse range of aviation activities and includes all segments of the aviation industry except commercial air carriers (including commuter and regional airlines) and military.

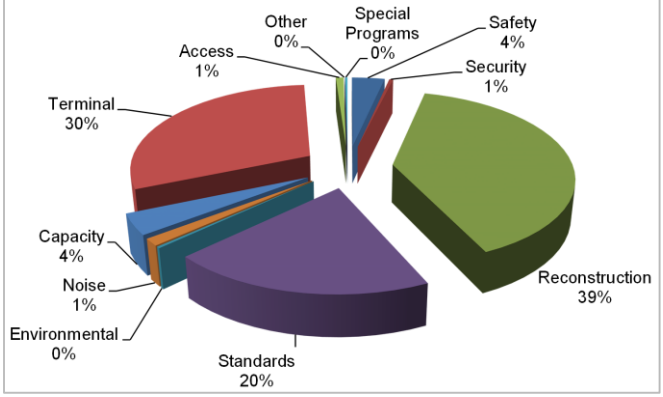
remaining 27 medium hub airports have an average of 81 based aircraft.

The 31 medium hub airports account for almost 11 percent ($4.7 billion) of the development identified in this NPIAS. As shown in figure 4, they have identified projects to reconstruct airfield pavement, bring airports up to design standards, and improve terminals as their main focus through 2025. These have been their top three development categories since 2017.

Small Hubs (69)

Small hubs are defined by statute as airports that account for 0.05 percent to 0.25 percent of total U.S. passengers. There are 69 small hub airports that together account for 8 percent of all enplanements and 12 percent of the planned development. Less than 25 percent of the runway capacity at small hub airports is used by airline operations so these airports can accommodate a great deal of general aviation activity. These airports are typically uncongested and do not have significant air traffic delays. One small hub airport, Fairbanks International, has 569 based aircraft and Punta Gorda in Florida has 396 based aircraft. The remaining 67 small hub airports have an average of 125 based aircraft.

Figure 5: Development at Small Hubs

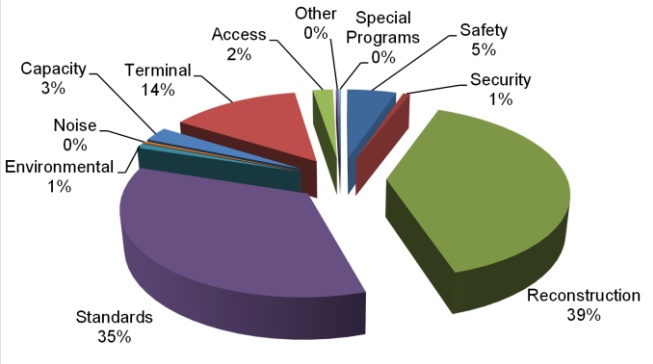


Small hub airports account for $5 billion (12 percent) of the development identified in this NPIAS. They have identified projects that focus on reconstructing airfield pavement, bringing airports up to design standards, and improving terminals as shown in figure 5. Small hubs have been focused on these three types of projects for more than a decade.

Nonhub Primary (266)

Commercial service airports that account for less than 0.05 percent of all commercial passenger enplanements but have more than 10,000 annual enplanements are categorized as nonhub primary airports. There are 266 nonhub primary airports that together account for 3 percent of all enplanements. These airports are also used by general aviation aircraft with an average of 87 based aircraft.

Figure 6: Development at Nonhubs



Nonhubs constitute the largest group of primary airports and account for almost 15 percent ($6.2 billion) of the development needs. As shown in figure 6, airfield reconstruction, bringing the airport up to standards, terminals and safety (e.g., pavement reconstruction, obstruction

removal, acquiring aircraft rescue and fire fighting (ARFF) equipment, and runway safety area improvements) improvements will be the focus of the nonhub airports over the next 5 years.

NONPRIMARY AIRPORTS

Nonprimary airports are mainly used by general aviation aircraft and include 123 nonprimary commercial service, 250 relievers, and 2,535 general aviation airports. Nonprimary airports are also divided into five categories based on existing activity (e.g., the number and types of based aircraft and volume and types of flights), geographic factors, and public interest functions. These categories are national, regional, local, basic, and unclassified.

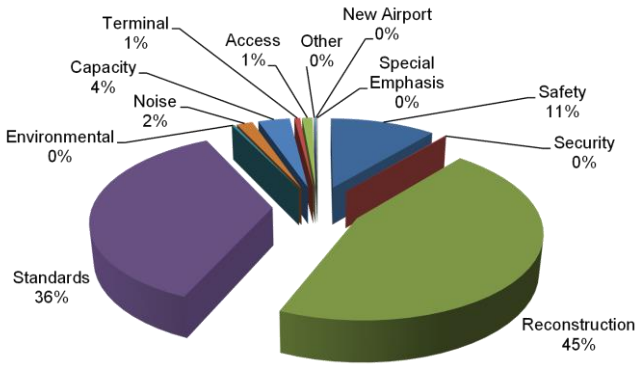
In preparation for the biennial NPIAS, the FAA reexamined the roles of nonprimary airports and coordinated with airport sponsors and State aviation agencies between October 2019 and February 2020. Each airport's category and role is reflected in appendix A. The next review of airport roles will begin in the fall of 2021 in preparation for the next NPIAS (2023 - 2027) due September 30, 2022. Future development of nonprimary airports will continue to be based on eligible and justified needs and priorities consistent with the role of the airport in the national airport system.

The 2,908 nonprimary airports included in the NPIAS account for 53 percent of the active general aviation fleet, 63 percent of aircraft operations, 82 percent of runways, and 33 percent ($14.6 billion) of the total AIP-eligible development costs of $43.6 billion through 2025. Development at nonprimary airports tends to focus on pavement reconstruction (runway, taxiway, and apron) and improvements to meet current airport design standards.

National (92)

National airports are located in metropolitan areas near major business centers and support flying throughout the Nation and the world. These airports provide pilots with attractive alternatives to the busy primary airports. Five of these airports have limited air carrier service, and 64 are identified as relievers for large, medium, and small hubs. National airports have very high levels of activity with many jets and multiengine propeller aircraft. Three national airports—Phoenix Deer Valley, Centennial Airport in Denver, and Addison in Dallas—each have more than 600 aircraft based at their airports. National airports average 203 total based aircraft, including 39 jets. The 92 national airports account for 5 percent of the development identified in this NPIAS.

Figure 7: Development at Nationals

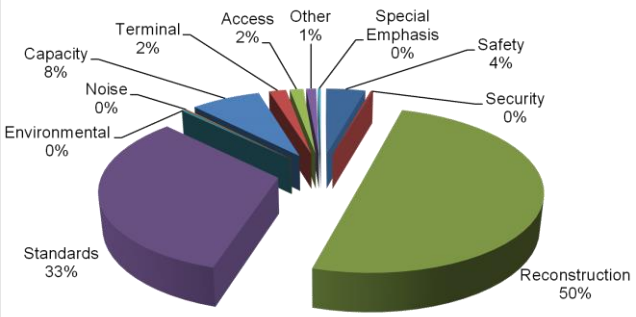


National airports have identified almost $2 billion in AIP-eligible development through 2025. As shown in figure 7, they are focusing on projects to reconstruct airfield pavement, bring airports up to design standards (e.g., improving taxiways, runways, and aprons), and improve safety (e.g., improving runway safety areas).

Regional (482)

Regional airports are also in metropolitan areas and serve relatively large populations. These airports support regional economies with interstate and some long-distance flying and have high levels of activity, including some jets and multiengine propeller aircraft. Forty-five of these airports have limited air carrier service, and 130 are identified as relievers for large, medium, and small hubs. Five regional airports (Falcon Field in Mesa, Arizona; Montgomery-Gibbs Executive in San Diego, California; North Perry Airport in Hollywood, Florida; Livermore Municipal in Livermore, California; and Chandler Municipal in Chandler, Arizona) each have more than 400 based aircraft. Regional airports average about 86 total based aircraft, including 3 jets.

Figure 8: Development at Regionals

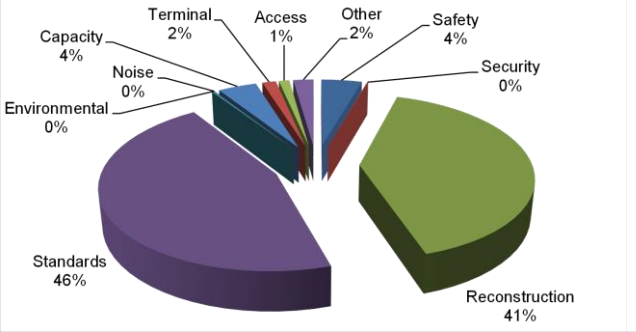


The 482 regional airports account for 10 percent of the development identified in this NPIAS. Figure 8 illustrates that regional airports will focus on reconstructing airfield pavement, bringing airports up to design standards, and improving capacity (e.g., new taxiways and runway extensions) and safety (e.g., obstruction removal and runway safety area improvements).

Local (1,213)

Local airports are a critical component of our general aviation system, providing communities with access to local and regional markets. Typically, local airports are located near larger population centers but not necessarily in metropolitan areas. They also accommodate flight training and emergency services. These airports account for 37 percent of all NPIAS airports and have moderate levels of activity with some multiengine propeller aircraft. About 73 of these airports have limited air carrier service. Two local airports have more than 200 based aircraft (Nampa Municipal in Idaho and Birchwood Airport in Alaska). Local airports average about 32 based propeller-driven aircraft and no jets.

Figure 9: Development at Locals

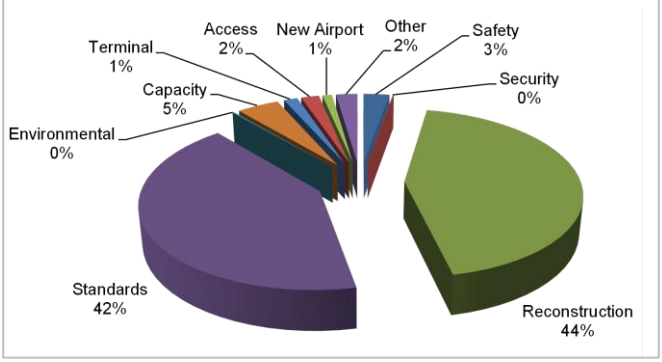


Local airports account for 37 percent of the airports and 13 percent ($5.6 billion) of the development identified in this NPIAS. As shown in figure 9, these airports are focused on bringing airports up to design standards, reconstructing airfield pavement, and improving capacity and safety.

Basic (893)

Basic airports fulfill the principal role of a community airport providing a means for private general aviation flying, linking the community with the national airport system, and making other unique contributions. In some instances, the airport is the only way to access the community and provides emergency response access, such as emergency medical or fire fighting and mail delivery. These airports have moderate levels of activity with an average of nine propeller-driven aircraft and no jets. Many of these airports are located in rural areas.

Figure 10: Development at Basics



Basic airports account for 7 percent ($2.9 billion) of the development identified in this NPIAS. As shown in figure 10, basic airports are focusing on reconstructing airfield pavement and bringing airports up to design standards.

Unclassified (228)

These airports tend to have limited activity and include 182 public-owned and 46 private-owned airports. Sixty-four percent have between 0 and 4 based aircraft (62 with 0 based aircraft and 84 with between 1 and 4). Since the last NPIAS, the activity or circumstances improved for 32 airports, and they went from unclassified to basic (31) or local (1). Conversely, activity declined for 31 airports, and they went from regional (2) or basic (29) to unclassified. There are 46 privately owned unclassified airports. Twenty-two privately owned airports designated as relievers have not met the reliever criteria in more than 20 years. Seventeen of these reliever airports have fewer than 50 based aircraft (compared to the long-established threshold of 100 based aircraft for designation as a reliever). The other 24 privately owned general aviation airports do not meet the criteria for designation as a reliever and have never received an AIP development grant. These airports have been in the NPIAS for more than 20 years, and there is no indication they will ever meet the requirements to become classified. As privately owned general aviation airports, these 24 airports remain ineligible for AIP funding.

Consistent with their role in the national airport system, the 228 unclassified airports have no development needs identified through 2025.

NEW AIRPORTS (6)

The NPIAS identifies six proposed airports that are anticipated to open by 2025. This includes a proposed new primary airport to serve the Chicago area. This new airport continues to be in the planning stage as the airport sponsor is evaluating methods for developing, financing, and operating the proposed airport. Four nonprimary airports are proposed in Alaska (Angoon, Newtok, Noatak, and Sitka) and the fifth new nonprimary airport will be located in Sparta, Kentucky.

The new airports anticipated to open by 2025 are shown separately in appendix A and are also included in the State list of airports. Appendix A does not identify new airports (planning sites) expected to open beyond 2025; however, development needed for those airports is included in table 5. Inclusion of a planning site in the NPIAS does not represent actual approval of the proposed airport (from a planning, environmental, or financial perspective), nor does it mean that the FAA has drawn a final conclusion about the need for (or technical or financial feasibility of) the proposed airport.[10]

Since the last NPIAS, two new replacement airports opened. Sioux County Regional Airport in Maurice, Iowa, opened in November 2018 and the replaced airport (Orange City Municipal Airport) closed along with a non-NPIAS airport. Williston Basin International Airport in North Dakota opened in October 2019 with scheduled commercial service, and the replaced airport closed shortly thereafter.

SYSTEMWIDE REVIEW OF AIRPORTS

The FAA reviews the airports in the NPIAS on a periodic basis and makes adjustments to their hub/role in the Federal system. One hundred seventy airports have been unclassified since the 2013 NPIAS (five consecutive publications). This includes 22 privately owned general aviation airports, 13 privately owned reliever airports, and 135 publicly owned general aviation airports. The FAA is reviewing these 170 locations to determine the appropriateness of their continued inclusion in the NPIAS. The Agency will complete this review by 2022.

Additionally, the FAA is reviewing 250 airports that were designated as relievers for large, medium, and small hub airports more than 25 years ago to determine the appropriateness of those reliever designations. Many previously congested hub airports are no longer considered congested. As of early 2020, only 21 of 61 large and medium hubs and none of the 69 small hub airports have sufficient demand to regularly operate above 60 percent of their capacity and require a reliever.[11] In the next published NPIAS, approximately 200 airports will likely no longer qualify for designation as a reliever and will show adjusted roles based on the criteria in appendix C. This review will be completed by 2022.

NATIONAL CAPACITY OUTLOOK

A national capacity evaluation was completed by the FAA[12] in early 2020, prior to the substantive impacts of the COVID-19 public health emergency on aircraft activity levels across the system. As a result, the evaluation should be understood as a representative snapshot of 2019 activity levels and forecasts. Going forward, the results should be interpreted with caution as the timing of airport congestion levels is expected to be markedly slower than presented here

[10] FAA Order 5090.5, Formulation of the NPIAS and ACIP contains the process and specific criteria for airports to be included in the NPIAS along with their eligible and justified development.
[11] FAA Order 5090.5, Formulation of the NPIAS and ACIP, table 3-3 states a reliever is for a large or medium hub operating at 60 percent of its capacity.
[12] Contact the FAA Office of Airports' Airport Planning and Environmental Division for further information on the methodologies used in this section.

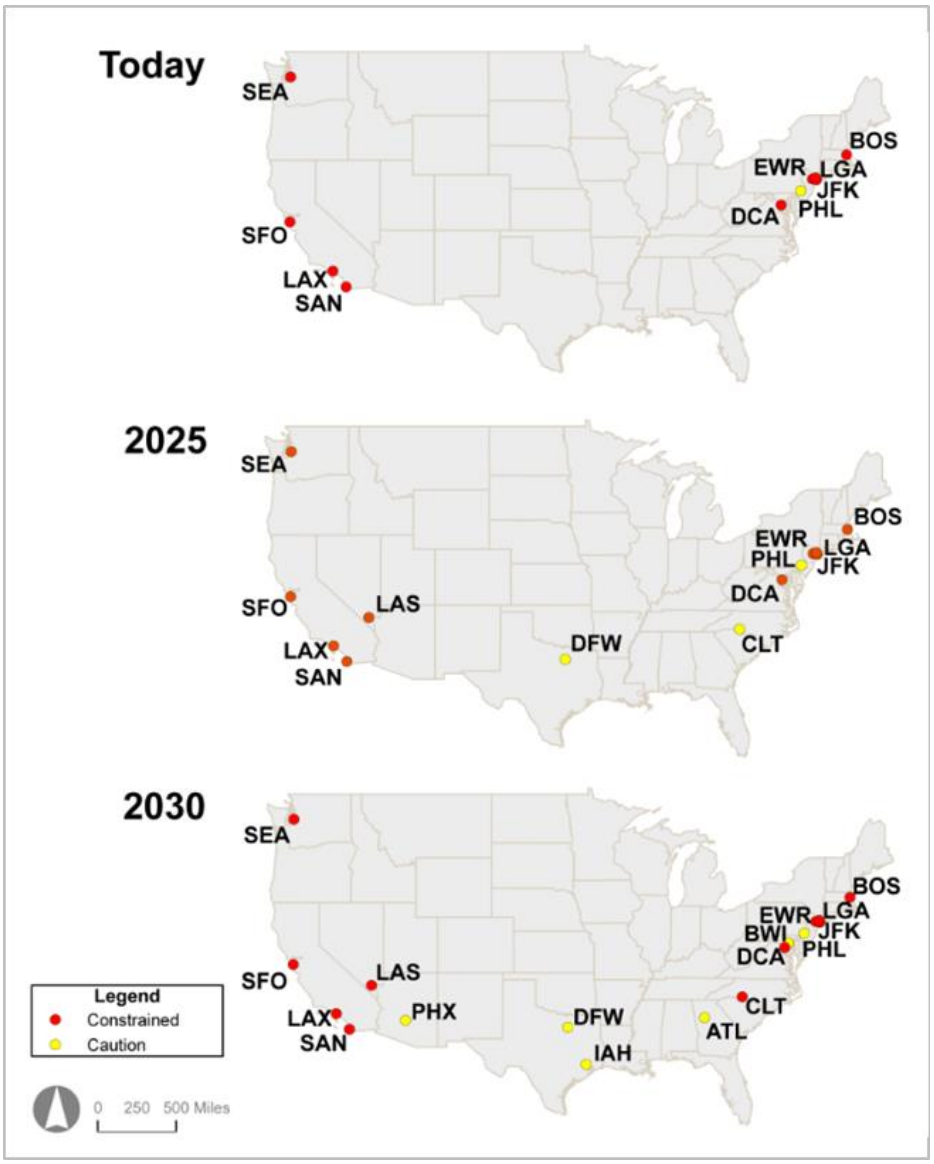
due the uncertain timeframe for recovery of the aviation industry. The FAA will update this evaluation using revised forecasts in the 2023 NPIAS.

This evaluation identified airports that are runway capacity constrained today, or at risk of becoming runway capacity constrained in 2025 and 2030. Figure 11 shows the number of runway capacity constrained airports is expected to increase from 9 today (red dot) to 10 in 2025 and 11 in 2030. An additional six airports (yellow dots) are at risk of becoming runway capacity constrained through 2030. While aircraft operations can continue to grow at capacity constrained airports, the operations growth is expected to result in increasing levels of congestion. Several factors were used in this evaluation:

- Forecast operations at large and medium hub airports as projected in the 2019 Terminal Area Forecast (TAF), released in January 2020. Generally, changes to forecast activity at an airport (up or down) is the single most significant factor for future changes to the capacity outlook at that location.
- The ratio of operational demand to available capacity at the airport across 16 representative days with varying levels of traffic and weather. Historical air traffic control call rates along with expected increases in capacity due to NextGen[13] and related National Airspace System (NAS) modernization improvements are incorporated into the capacity estimate. Airports that exceed 80 percent of their hourly capacity, for at least 40 percent of the time measured between 7 a.m. and 11 p.m., are considered capacity constrained.
- New runways are reflected in the assessment only after being approved through National Environmental Policy Act evaluations. Gate constraints are not directly used in the evaluation.
- Airports with insufficient runway capacity that have been identified by the FAA as subject to schedule facilitation or schedule limitations under the International Air Transport Association's Worldwide Slot Guidelines Levels 2 or 3 or the High Density Rule are generally considered capacity constrained for the purposes of this evaluation.
- In addition, a NAS-wide simulation is used to incorporate airspace constraints into the outlook. Runway capacity estimates are derived from the Airport Capacity Profiles[14] and related airport-specific evaluations. Airports with arrival or departure delays that exceed delays experienced at the top-delayed airports today (i.e., delays above the 90th percentile of all large and medium hub airports occurring for more than 30 percent of the time measured between 7 a.m. and 11 p.m. local time) are considered to be congested. In particular, this methodology helps to identify airports at risk of becoming capacity constrained.

[13] Additional information about the Next Generation Air Transportation System (NextGen) is available at: http://www.faa.gov/nextgen/.
[14] The Airport Capacity Profiles are available online at: https://www.faa.gov/airports/planning_capacity/profiles/.

Figure 11: Capacity Constrained Airports – 2020, 2025, and 2030



At locations that are repeatedly shown to be capacity constrained in this or via prior evaluations, a new well-located runway is often the best solution for substantive improvements to capacity to serve fixed-wing aircraft. At the same time, NextGen capabilities are also needed to enable efficient operations to and from new and existing runways, including flight procedures and air traffic control automation technologies.

This outlook replaces the Future Airport Capacity Task (FACT) series of reports, last updated with FACT3 in 2015. Going forward, an updated evaluation of capacity constrained airports will be incorporated into the biennial NPIAS. With this approach, changes in aviation forecasts and related variables (such as use of larger aircraft with more seats, referred to as "upgauging") can be readily incorporated into a refreshed capacity outlook.

Another series of reports also provides a technical reference of capacity of the 30 busiest hub airports referred to as "core airports."[15] The Airport Capacity Profiles, formerly known as the Airport Capacity Benchmark Report, were published in 2014. The profiles use an operational definition of capacity (i.e., the hourly throughput of arrivals and departures that an airport's runways are able to sustain during periods of high demand). Information is provided on the facility's layout, annual weather conditions, current operations, and recent and future improvements. Both air traffic control facility "call rates" and model-estimated hourly throughput rates are shown for the highest capacity configuration that is commonly used during visual, marginal, and instrument conditions. Updated airport profiles are published annually for selected airports that have either seen enhancements to runway infrastructure or updated air traffic control procedures. The model used for the profiles is also used in the National Capacity Outlook, as well as for the NextGen systems analysis evaluations, and is available for use by airports in the United States.[16]

Aircraft Movement Delay Indicators

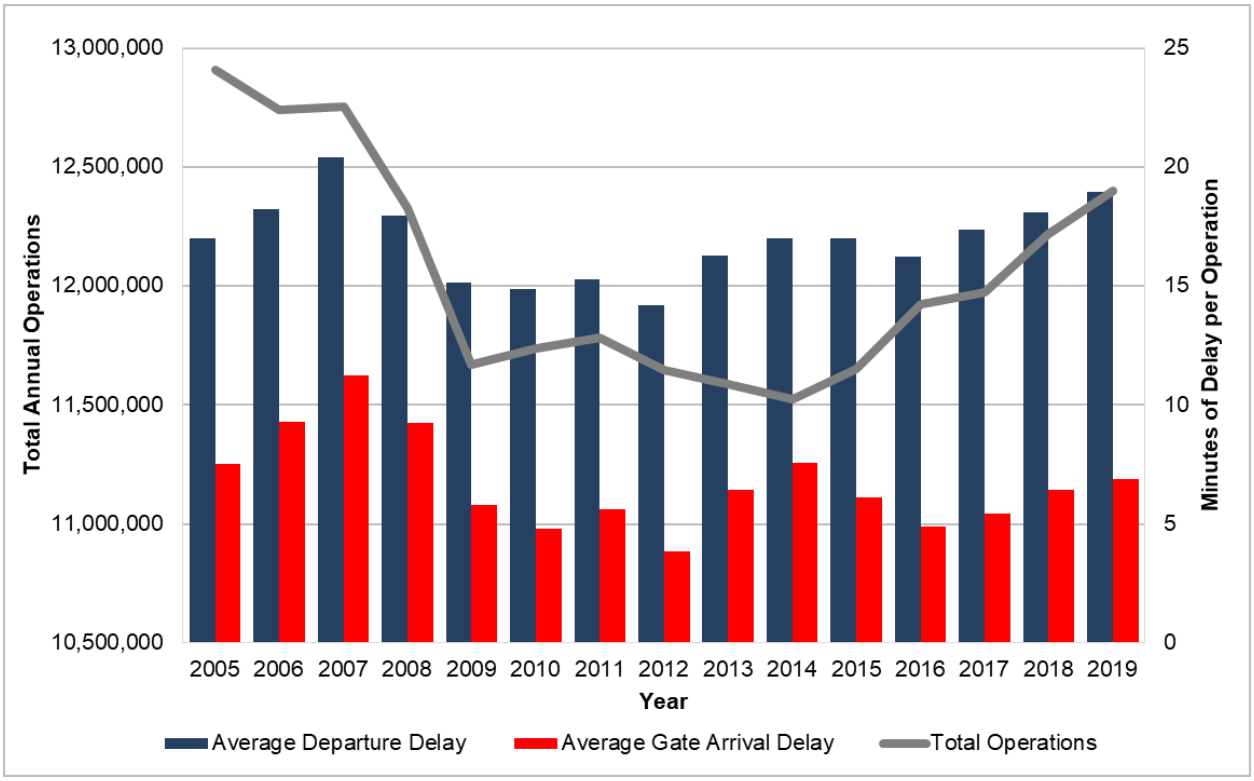
The concentration of aircraft arrival and departure operations at an airport can result in congestion and delay. Consistent delays are an indicator that aircraft activity levels are approaching or exceeding throughput capacity of the airfield system, including runways, gates, or ramps. The FAA monitors the day-to-day operations of the NAS, including the operational efficiency of airports and the air traffic control system. Through the Aviation System Performance Metrics (ASPM) system, the FAA tracks delay indicators at the core airports using reporting from air traffic controllers and participating airlines. Airport planners use delay per aircraft operation as a measure of congestion to identify airport infrastructure projects that can enhance airfield capacity.

Figure 12 shows recent trends in aircraft operations and average delays at the core airports from 2005 through 2019. Total aircraft operations are lower than the 2005 peak due to the effects of economic changes, airline consolidation, and upgauging. Delay trends have been generally lower in part due to changes in operational demand but also due to additional capacity added to the system with airport runway development and airspace modernization, including NextGen. Departure delays remain more common than arrival delays due to weather (including thunderstorms en route to the destination) and the peaking characteristics of airline schedules at the time. Generally, a more "peaked" schedule offers better connection opportunities for passengers and shorter total travel time as compared to a depeaked schedule. However, delays tend to grow with the concentration of flights during scheduled peaks.

[15] The FAA identified those airports with the greatest impact on system performance as "core airports." These core airports have more than 1 percent of passenger enplanements or 0.75 percent or more of the total nonmilitary itinerant operations.

[16] Model information is available at: https://www.faa.gov/airports/planning_capacity/runwaysimulator/.

Figure 12: Average Delays for Core 30 Airports



Source: ASPM. Data available at: https://aspm.faa.gov/aspm/entryASPM.asp.

USERS OF THE SYSTEM

The national airport system is a reflection of the types of aircraft using the airfields, passengers using the terminals, and associated economic activity. These users include commercial airline service, air cargo, general aviation, industrial aviation, unmanned aircraft systems (UAS), and commercial space launches.

Commercial Airline Service

Commercial airline service represents the most widely known aspect of the aviation industry and includes the carriage of passengers on aircraft. In 2018, more than 900 million people boarded aircraft in the United States. About 87 percent of those passengers traveled domestically and 13 percent traveled to international destinations. More than 500 NPIAS airports are used by air carriers conducting scheduled passenger service. These airports account for about 99 percent of passenger boardings and 37 percent of all aircraft operations. Three hundred thirty-two of the 519 commercial service airports have air traffic control towers.

Air Cargo

Air cargo (domestic and international freight air/express and mail) is moved in both the bellies of passenger aircraft and in dedicated all-cargo aircraft. Air cargo flights are concentrated at busy commercial service airports, usually occur during off-peak periods, and do not substantially contribute to airport congestion and delay problems. The principal need for airport development

to support cargo operations is related to cargo sorting and transfer facilities developed by the package express carriers and online retailers. These airports must have high-capacity, all-weather runway systems to support reliable operations.

Air transportation is generally the preferred mode for the shipment of high-value, lightweight, and perishable goods.[17] In 2019, 30 percent of exports and 27 percent of imports measured by value were shipped by air.[18] In 2018, 10 of the 25 busiest international freight gateways (seaports, land ports, and airports) by value of shipment were airports.[19]

General Aviation

Eighty-nine percent of NPIAS airports are classified as nonprimary airports and serve mainly general aviation activity. Approximately 229 general aviation airports (8 percent) have an air traffic control tower.

The term "general aviation" encompasses a diverse range of commercial, governmental, and recreational uses. While it is often easier to consider what general aviation does not include—scheduled airline and military activity—this does not sufficiently define general aviation activity. To better understand this segment of the industry and the resulting requirements for the airport and air traffic system, each year the FAA surveys the general aviation community through general aviation and 14 Code of Federal Regulations (CFR), part 135[20], activity surveys. These surveys ask respondents to indicate the types of uses of their aircraft and the number of hours flown, as well as the type of aircraft flown, flying conditions, fuel consumption, and aircraft age.

Table 3 summarizes the results of the CY 2016 and CY 2018 surveys by types of uses. The percentages are based on the number of actual hours flown. Personal use of general aviation aircraft (30.3 percent) is the single largest use category and includes recreational flying, family use, and tourism, as well as flying to stay current with license requirements. The combined nonpersonal uses of general aviation aircraft represent the majority (54.3 percent) of all general aviation activity. It is notable that instructional uses comprise the second largest use category and continue to increase. The majority of commercial airline pilots are trained through civilian training systems. Instructional training for pilots is typically conducted away from commercial service airports to preserve commercial service airport capacity and enhance reliability for airline schedules. For these reasons, instructional training tends to be focused at general aviation airports.

The results of the survey demonstrate the role general aviation plays in accommodating commerce throughout the United States. It is estimated that thousands of passengers are carried

[17] Air cargo accounts for less than 1 percent of imports and exports by weight.
[18] Source for air, water, and total – U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade. FT920: U.S. Merchandise Trade: Exhibit 1–U.S. Exports and Exhibit 4–U.S. General Imports, December 2019. Available at: https://www.census.gov/foreign-trade/Press-Release/2019pr/12/ft920/index.html.
[19] Source: DOT, Bureau of Transportation Statistics, Top U.S. Foreign Trade Freight Gateways by Value of Shipments at: https://www.bts.gov/content/top-us-foreign-trade-freight-gateways-value-shipments-current-billions.
[20] 14 CFR, part 135, Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft.

on business and corporate aircraft each year. Business and corporate aircraft also move airfreight[21] ensuring overnight delivery of high-priority business documents and providing just-in-time delivery of parts to manufacturing plants.

Table 3: General Aviation and CFR Part 135 Activity Survey, Actual Hours Flown by Use, CY 2016 and CY 2018

Category	Percent of Total	
	2016	2018
General Aviation Use		
Personal Use	31.7%	30.3%
Instructional	19.7%	22.3%
Corporate/Executive (with paid flight crew)	10.3%	10.3%
Business (without paid flight crew)	7.2%	6.6%
Aerial Observation	5.8%	5.0%
Aerial Application Agriculture	3.5%	3.6%
Other (e.g., training, sales, demos, positioning)	3.8%	3.3%
Other Work Use	1.7%	1.2%
Aerial Application Other	0.6%	0.9%
Sightseeing	0.7%	0.8%
External Load (Rotorcraft)	0.6%	0.4%
Air Medical	0.4%	0.3%
Subtotal	**86.0%**	**85.0%**
On-Demand Federal Aviation Regulation Part 135 Use		
Air Taxi and Air Tours	11.0%	12.2%
Part 135 Air Medical	3.0%	2.9%
Subtotal Part 135 Use	14.0%	15.0%
Total All Uses	**100.0%**	**100.0%**

On-demand air taxi services provide air access to communities not served by commercial airlines and additional access to communities with airline service. Air medical services provide rapid access to emergency medical services that cannot be provided on scheduled airline aircraft and in many rural parts of the country, which may not be served by scheduled airline activity. Aerial application includes activities, such as fertilizing for agricultural purposes or fighting forest fires. Aerial observations includes patrolling pipelines or the electrical grid infrastructure to ensure safety and reliability of these energy systems, identifying forest fires early in their development, and surveying wildlife and natural habitats.[22]

General aviation also encompasses public aircraft operation[23] within these use categories. Examples include all inland search and rescue services, homeland security, law enforcement, and disaster relief activities by other nonmilitary government agencies. These activities are not identified separately but are included within each use category. In 2018, public aircraft

[21] Large transport aircraft carrying air cargo are included with the air carrier counts, as many of these operators operate under similar regulations to commercial airlines carrying passengers.
[22] These functions are increasingly supported via Unmanned Aircraft Systems (UAS), and the FAA is working with multiple stakeholders to evaluate how this might change future airport infrastructure needs.
[23] Public aircraft as defined by 49 U.S.C. §§ 40102(a)(41) and 40125.

operations were 8 percent of the total general aviation hours. General aviation also includes the humanitarian services, such as transporting patients to medical centers or delivering relief supplies to areas following natural disasters.

As evidenced by the diverse range of activities, general aviation has various land use, airspace, and air traffic requirements that are much different from the requirements for commercial air service. This necessitates a system of airports that is flexible in design and construction to accommodate these uses. General aviation airports are included in the NPIAS because they have the capacity to accommodate these varied uses and roles.

Industrial Aviation

Many airports support activities that are more industrial in nature, ranging from maintenance, repair, and overhaul (MRO) (which occurs nationwide);[24] to specialized aviation services, such as paint and interior completion; to aircraft assembly, fabrication, and manufacturing. A number of airports that support industrial activities have a military history, due in part to the infrastructure developed by the military and left behind, sometimes including large hangars and specialized facilities capable of supporting industrial aviation activities.

Airports with industrial aviation tend to be primary airports or large nonprimary airports. They are often large in scale and require substantial land, as well as varying levels of access to the airfield depending upon the specific functions involved. Because of the commercial nature of the facilities, effective planning for such functions requires extensive early coordination with the FAA's planning, environmental, and compliance specialists. Although some industrial aviation activities require considerable real estate (airside and landside), industrial aviation activities are rarely airspace intensive. The landside facilities supporting this type of activity are generally not AIP eligible.

Military/Civil Airfields

Military officials have cooperated with local communities across the country to provide civilian access to military airport facilities. These local arrangements add capacity to the national airport system and maximize public investment dollars by eliminating the duplication of airport facilities in a community for military and civilian activities. There are 21 military installations that allow civilian aircraft activity. Many of the facilities are included in the NPIAS.

The U.S. Department of Defense has also found it advantageous to operate from civilian airfields. Similar to civilian uses on military airfields, military activity at civilian airfields reduces public investments in airport infrastructure by taking advantage of existing civilian airfield capabilities for military purposes. As of 2020, the military has agreements in place with 65 civilian airports. The FAA invests in these airports based on the justification for civilian operations and works with the military to identify funding for infrastructure in support of military operations. Working together results in economies of scale.

[24] Source: 2020-2030 Global Fleet and MRO Market Economic Assessment (ARSA News & Media).

Unmanned Aircraft Systems (UAS)

UAS, sometimes called drones, include an aircraft without a human pilot onboard, a ground-based control station, and a communications link connecting all the components. UAS come in a variety of shapes and sizes. They can have wingspans as large as a Boeing 737 or be smaller than a radio-controlled model airplane and serve diverse purposes. Regardless of size, they are all aircraft, and the responsibility to fly safely applies equally to the operation of manned and unmanned aircraft systems.

The FAA is working closely with a broad range of Federal agencies, as well as State, county, and local governments to address the regulatory requirements necessary to accommodate and integrate UAS operations without impacting the safety and efficiency of the traditional air transportation system. Additional information is available online at: https://www.faa.gov/uas/.

Commercial Space Launches and Reentries

The FAA licenses and regulates U.S. commercial space launches and reentries and the operation of commercial space launch and reentry sites. Commercial space transportation generally consists of the launch of payloads or space flight participants into orbit for either commercial or government customers by private, nongovernment entities called launch service providers. It also covers suborbital launches where a vehicle containing a payload or space flight participants is launched on a trajectory that briefly goes into space but returns to Earth without going into orbit.

Vehicles are launched from licensed launch sites referred to as commercial spaceports. The FAA has granted launch site operator licenses to 11 commercial space launch sites located in the following eight States: Alaska, California, Colorado, New Mexico, Oklahoma, Virginia, Texas, and Florida. Currently, six licensed launch sites are collocated with public-use NPIAS airports that accommodate both aviation and space operations and are listed below:

- Mojave Air and Space Port – Mojave, California;
- Colorado Air and Space Port – Denver, Colorado;
- Clinton-Sherman Airport – Burns Flat, Oklahoma;
- Midland International Air and Space Port – Midland, Texas;
- Houston Spaceport at Ellington Airport – Houston, Texas; and
- Cecil Airport – Jacksonville, Florida.

FINANCIAL PERFORMANCE OF THE AIRPORT SYSTEM

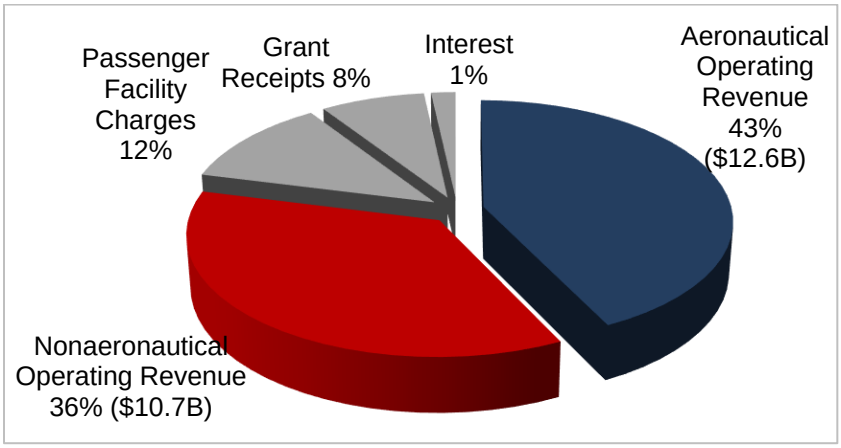
The NPIAS airports are owned and operated by thousands of State and local agencies and a few private owners. This makes compiling comprehensive data on the financial operations of all 3,304 existing NPIAS airports difficult. However, the FAA Authorization Act of 1994 requires commercial service airports to report financial data annually, including revenue and expense information. Because the remaining 2,800 NPIAS airports are not required to report financial information, there is limited financial data available for general aviation airports.

The FAA uses data provided by commercial service airports from FAA Form 5100-127, Operating and Financial Summary, for each fiscal year to evaluate the financial performance of the airports.[25] Data collected in these forms includes the following:

- Aeronautical and nonaeronautical revenues;
- Operating and nonoperating expenses;
- Beginning and ending balances for net assets; and
- Operating statistics.

Five hundred twenty-one commercial service airports reported total airport revenue of $31 billion in 2018. Total airport operating revenue, which includes aeronautical and nonaeronautical, totaled $23.3 billion (see figure 13).

Figure 13: 2018 Revenue at Commercial Service Airports by Type



The costs of airport operations and maintenance are a function of the age of the facilities and the nature of airline activity and other operations. There is considerable variation in net income by hub type and year with large hubs accounting for 63 percent of the net income reported in 2018. There is also a variation in revenue sources and expenditures among airports. For example, concessions, rental car, and parking revenues are 25 percent of total revenues for large hub airports compared with 34 percent for medium hub airports, 30 percent for small hub airports, and 12 percent for nonhub primary and nonprimary commercial service airports. Table 4 provides a summary of 2018 revenue and expenses by hub type.

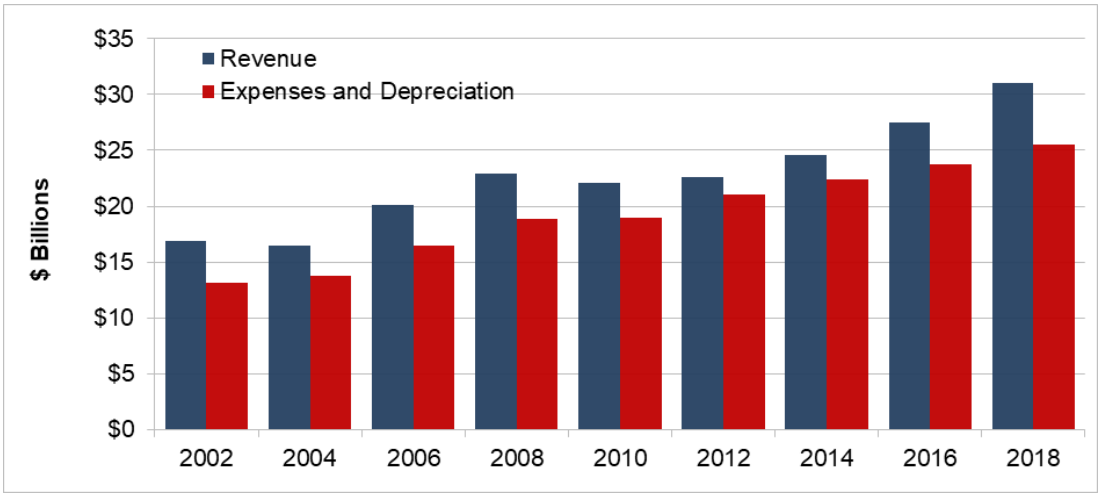
The financial status of the Nation's air carrier airports is stable with airports very carefully managing operating, financing, and capital expenses. Between 2002 and 2018, the total airport revenue and expenses reported for commercial service airports increased (see figure 14). In 2018, the total revenue at commercial service airports was $5.5 billion more than the total expenses (including depreciation), an increase of 5.3 percent in the 10-year period.

Commercial service airports have several sources to fund airport development projects, including bond proceeds, PFC revenues, airport-generated funds, and tenant and third-party financing, as

[25] Source: Data collected by the FAA on FAA Form 5100-127 for fiscal years ending in 2018 (as of February 2020). Available in the Certification Activity Tracking System (CATS) at: https://cats.airports.faa.gov/. Numbers may not add exactly due to rounding.

well as Federal, State, and local grants. A significant percentage of the development projects at major U.S. airports is financed through the capital markets, most commonly through airport revenue bonds. Bond ratings range from B at the low end to AA at the high end. Airports with more economic and financial strength and diversity tend to achieve higher ratings, while smaller airports tend to be rated lower.

Figure 14: Revenue and Expenses Plus Depreciation for Commercial Service Airports by Year



Capital markets evaluate the creditworthiness of an airport based on several factors. These factors include the demand for air service in the region, the type of passenger demand, the number of commercial airports in the region, and the quantity and diversity of service provided by the airlines, as well as diversification of other revenue sources (including nonaeronautical revenues). The overall creditworthiness of U.S. airports as a group remains strong. Large and medium hub airports have historically had strong credit ratings. Nonhub primary and nonprimary commercial service airports typically have more limited and less diverse revenue streams. As a result, smaller airports tend to rely more heavily on grants than larger airports to finance capital improvements.

Table 4: Airport Operating and Financial Summary for Commercial Service Airports 2018 ($ Millions)

Category	30	31	72	388	521
	Large Hub	Medium Hub	Small Hub	Nonhub	Total
Aeronautical Operating Revenue					
Aeronautical Operating Revenue					
Landing Fees	$3,216	$631	$315	$115	$4,277
Terminal Rents	$4,561	$708	$331	$107	$5,707
Cargo and Hangar Rentals	$508	$85	$89	$84	$766
Fixed-Base Operator Revenue	$131	$51	$51	$65	$298
Apron Charges/Tie Downs	$110	$63	$30	$9	$212
Fuel Sales and Taxes	$203	$50	$46	$120	$419
Other Aeronautical Fees	$735	$77	$62	$84	$958
Total Aeronautical Operating Revenue	***$9,464***	***$1,665***	***$924***	***$584***	***$12,637***
Nonaeronautical Operating Revenue					
Parking and Rental Car	$3,944	$1,343	$869	$257	$6,413
Concessions	1,357	226	105	14	$1,702
Terminal Rents	395	60	39	11	$505
Land Rental and Nonterminal	410	106	113	148	$777
Other Nonaeronautical Fees	957	135	133	59	$1,284
Total Nonaeronautical Operating Revenue	***$7,063***	***$1,870***	***$1,259***	***$489***	**$10,681**
Nonoperating Revenue (Expenses) and Capital					
Passenger Facility Charges	$2,527	$572	$280	$89	$3,468
Grant Receipts	539	306	544	856	$2,245
Interest	394	79	38	13	$524
Other	825	183	203	280	$1,491
Total Nonoperating Revenue	***$4,285***	***$1,140***	***$1,065***	***$1,238***	**$7,728**
TOTAL REVENUE	**$20,812**	**$4,675**	**$3,248**	**$2,311**	**$31,046**
Operating Expenses					
Personnel Compensation and Benefits	$3,885	$865	$704	$455	$5,909
Contractual Services	3,548	791	364	223	$4,926
Communications and Utilities	710	178	128	80	$1,096
Supplies and Materials	389	125	111	88	$713
Insurance, Claims, and Settlements	135	35	29	25	$224
Other	1152	245	178	145	$1,720
Total Operating Expenses	***$9,819***	***$2,239***	***$1,514***	***$1,016***	**$14,588**
Nonoperating Expenses					
Interest Expense	$2,809	$438	$185	$64	$3,496
Other	0	0	0	0	$0
Total Nonoperating Expenses	***$2,809***	***$438***	***$185***	***$64***	$3,496
TOTAL EXPENSES	***$12,628***	***$2,677***	***$1,699***	***$1,080***	***$18,084***
Depreciation	**$4,724**	**$1,111**	**$955**	**$656**	**$7,446**
NET INCOME	**$3,460**	**$887**	**$594**	**$575**	**$5,516**
Other Information					
Capital Expenditures	$10,384	$2,008	$1,146	$1,182	$14,720
Bond Proceeds	13,369	329	334	93	$14,125
Sale of Property, Contributed Capital, Other	316	3	5	14	$338
Reporting Year Debt Payments	8,397	1,642	701	212	$10,952
Indebtedness at End of Year	$82,159	$11,612	$4,140	$1,506	$99,417

Nonhub Note: Included in the Nonhub column are nonhub primary and nonprimary commercial service airports along with approximately 77 State of Alaska airports, which are consolidated into one reporting entity.
Note: Information from CATS as of February 2020.

CHAPTER 2: DEVELOPMENT REQUIREMENTS

OVERVIEW

The FAA uses a comprehensive process to guide airfield development. It includes airport master planning, FAA airspace studies, airfield modeling, capacity/delay analysis, and benefit-cost analyses (BCA) for larger capacity projects. The largest factors affecting airport facility requirements and capital investment are the current type and level of operations and the forecasted future demand for air transportation.

The FAA issues an annual aerospace forecast that is a top-down (national level) forecast for aviation activity in the United States for the next 20 years. The national forecast[26] examines current commercial operations (passenger and cargo) and general aviation, as well as emerging aircraft operations (e.g., commercial space and UAS) and projects future activity. The FAA also develops a bottom-up TAF for each individual NPIAS airport.[27] These forecasts are prepared to meet the budget and planning needs of the FAA and to provide information that may be useful for State and local authorities, the aviation industry, and other stakeholders.

The development reflected in this NPIAS was largely gathered in 2019 and does not reflect the impact of COVID-19 on aviation.

CAPITAL PLANNING PROCESS

The development needed to provide an adequate national airport system as demonstrated in this NPIAS is derived from locally prepared airport master plans, airport system plans,[28] capital improvement plans, and airport inspections. These airport planning documents consider all significant aviation requirements and are tied to the current use and condition of each airport and the forecast increase in activity. Typically, operators of individual airports prepare airport master plans, usually with the assistance of consultants. Airport sponsors provide project cost estimates to the FAA and these planning estimates are compiled in the NPIAS. The FAA evaluates and may adjust these estimates when evaluating the project for a grant award.

FAA planners compile data on development that is eligible for AIP funding and likely to be justified by the aviation activity forecast over the next 5 years. Forecasts of future levels of aviation activity, which typically are part of an airport master plan, are the basis for airport planning decisions. These projections are used to determine the need and timing for new or expanded facilities at individual airports. This process results in a reasonable and documented estimate of future airport project requirements. However, the actual timing and cost of development may vary from the airport master plan. For instance, projects may be deferred or

[26] FAA Aerospace Forecast, FY 2020-2040, is available online at: https://www.faa.gov/data_research/aviation/.
[27] The 2019 TAF is available online at: https://taf.faa.gov/.
[28] An airport master plan is a detailed, long-term development plan for an individual airport. Airport system plans (regional and State) provide an analysis of performance and interaction of an entire aviation system to understand the interrelationships among and between individual airports.

developed in phases to reduce immediate costs or conversely an unexpectedly rapid increase in aeronautical activity may justify accelerating certain development.

The NPIAS also uses State airport system plans as a data source. The State airport system plan includes airport locations considered important to State air transportation objectives, as well as those that are of sufficient national interest to be included in the NPIAS. These plans play a part in the development of the airport role and conditions and performance information. However, aviation system plan recommendations on capital development at individual airports (or for a State airport system plan) are usually secondary to airport master plan information. The State or regional system plan typically identifies broad needs or priorities within its jurisdiction, rather than detailed projects and cost estimates.

The FAA expects airports to consult with airlines and other user groups about major airport investment programs. Airlines typically exercise a high level of interest and raise questions about the scope and timing of significant development proposals, ranging from new airports and ground access projects to certain terminal and airfield improvements, and whether to preserve runways that may no longer be needed for crosswind coverage. The NPIAS generally reflects the FAA's conclusions about the scope and timeframe for proposed development.

All development projects reflected in the NPIAS have been determined by the FAA to be eligible for AIP funding and likely to be justified within the 5-year timeframe. However, the planned development exceeds the funding available from the AIP each year. In addition, although some projects are AIP eligible, the individual airport may not have access to sufficient AIP funds in eligible categories.[29] As an example, passenger terminals are eligible for AIP funding—but only nonhub primary airports and designated relievers can get AIP discretionary funding for terminals. Other types of airports must use AIP entitlement funds for terminal projects. Therefore, although all of these 5-year capital estimates are AIP eligible, some projects may be funded by other sources, including PFC revenues or other airport revenue or financing provisions.

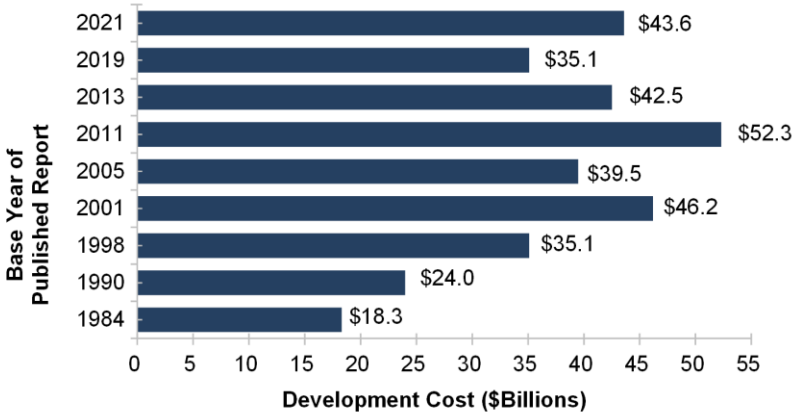
It is also important to note that even for a project that has been determined to be eligible and justified, a BCA is also required for capacity projects involving at least $10 million in AIP discretionary funds over the life of the project or for any project where the airport sponsor is requesting a letter of intent (a multiyear commitment of Federal AIP support). In some cases, the estimate contained in this NPIAS may include projects for which a BCA has not yet been completed or validated by the FAA.

[29] There are two basic categories of AIP funding: apportioned funds (also known as entitlements) and discretionary funds. Entitlement funds are apportioned by formulas contained in statute and the remaining amount of AIP funding is discretionary funding. Additional information is available online at: https://www.faa.gov/airports/aip/grant_histories/annual_reports/.

AIRPORT DEVELOPMENT

This NPIAS reflects $43.6 billion in costs associated with capital development projects needed between 2021 and 2025 that are AIP eligible and do not have funding sources identified. As shown in figure 15, the 2021 estimates contained in this NPIAS are 24 percent higher than 2019. These estimates were largely compiled in FY 2019 and validated in FY 2020. Since the last NPIAS was prepared 2 years ago, construction costs have increased 3.1 percent.[30]

Figure 15: Development Needs (1984-2021)



Airport projects in the NPIAS are based on eligible and justified needs consistent with the role of the airport in the national system. The $43.6 billion total comprises approximately 16,700 projects at 3,000 existing and 6 new airports. While 89 percent of NPIAS airports have AIP-eligible development identified, 304 airports do not have development identified, including 232 unclassified airports.

Projects are categorized by the principal purpose of the development and the airport type. For this NPIAS, 12 project purposes and 9 airport types are identified. Development totals by airport type and purpose are shown in table 5.

Table 5: 2021–2025 NPIAS Costs by Airport and Development Category (2019 $ Millions)

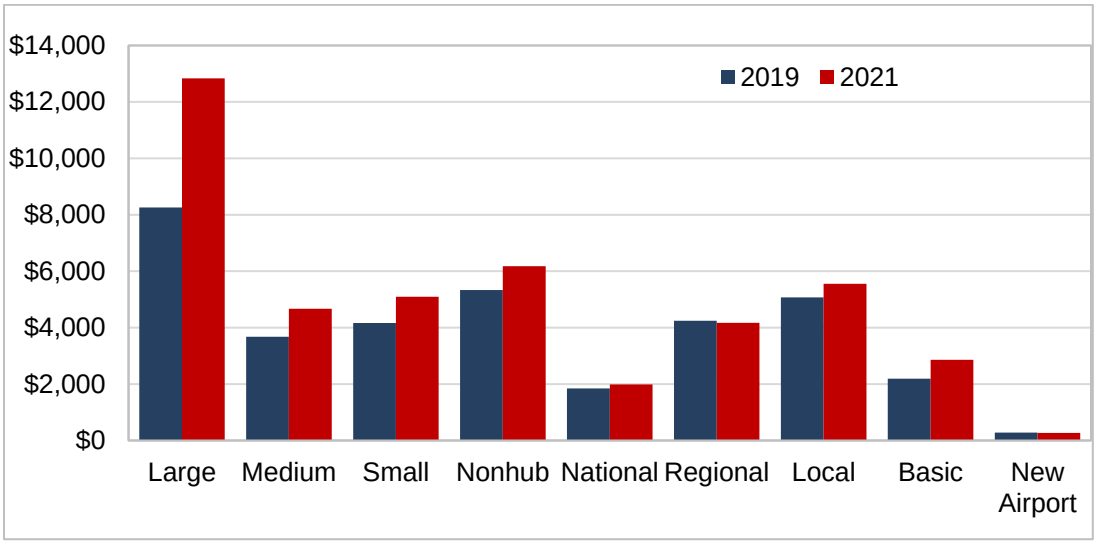
Development Category	Large	Medium	Small	Nonhub	National	Regional	Local	Basic	Unclassified	New Airports	Total	Percent
Safety	$195	$79	$175	$317	$220	$176	$246	$79	$0	$0	$1,487	3.4%
Security	$34	$13	$21	$45	$3	$11	$6	$3	$0	$0	$136	0.3%
Reconstruction	$3,826	$2,108	$2,001	$2,434	$900	$2,092	$2,256	$1,256	$0	$0	$16,873	38.7%
Standards	$1,732	$1,129	$1,015	$2,139	$721	$1,365	$2,528	$1,200	$0	$0	$11,829	27.1%
Environmental	$691	$61	$15	$58	$6	$15	$15	$5	$0	$0	$867	2.0%
Noise	$446	$33	$68	$25	$34	$7	$1	$0	$0	$0	$614	1.4%
Capacity	$2,732	$292	$200	$166	$66	$311	$234	$128	$0	$0	$4,129	9.5%
Terminal	$3,174	$870	$1,542	$834	$12	$77	$83	$42	$0	$0	$6,634	15.2%
Access	$4	$81	$42	$131	$22	$60	$63	$54	$0	$0	$457	1.0%
New Airport	$0	$0	$0	$0	$4	$0	$0	$29	$0	$269	$302	0.7%
Other	$0	$0	$1	$19	$2	$44	$123	$65	$0	$0	$254	0.6%
Special Programs	$0	$0	$13	$9	$1	$14	$0	$0	$0	$0	$36	0.1%
Total	$12,835	$4,667	$5,092	$6,177	$1,988	$4,172	$5,556	$2,862	$0	$269	$43,617	100.0%
Percentage	29.4%	10.7%	11.7%	14.2%	4.6%	9.6%	12.7%	6.6%	0.0%	0.6%	100.0%	

[30] Source: Civil Works Construction Cost Index System calculated by the U.S. Army Corps of Engineers, September 30, 2019. Comparing construction costs for FY 2017 and FY 2018.

By Airport Type

Figure 16 highlights the change in total AIP-eligible development by airport category from the last NPIAS. The AIP-eligible development needs increased at all airport types, except for regional airports, which saw a 1.8 percent decrease. The most significant increases in development are projected for large hub (55 percent) and medium hub (27 percent) airports. The $4.6 billion increase in AIP-eligible development at large hub airports reflects an increase in terminal development along with a focus on reconstruction of airport facilities, primarily pavement and lighting systems. While terminal projects (rehabilitation or expansion) at large and medium hub airports are generally funded with PFCs or other funding sources, they are still technically eligible for AIP funding, and therefore the associated costs are properly reflected in this NPIAS. Accordingly, 12 airports have identified major terminal projects that are now reflected in this NPIAS ($3.2 billion in AIP-eligible terminal development).

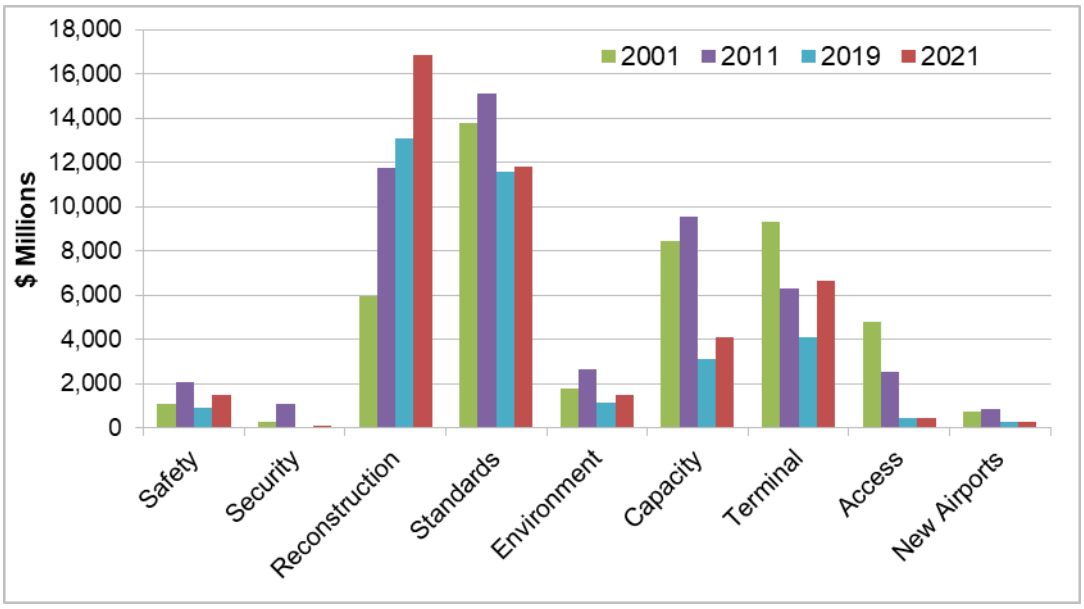
Figure 16: 5-Year AIP-Eligible Development Costs by Airport Type 2019 and 2021 ($ Millions)



By Type of Development

All AIP-eligible projects are categorized based on the principal purpose of the development. Figure 17 compares the type of development identified over the last 20 years. Increases in all development types (compared to 2019), especially reconstruction, terminal, and capacity projects, are anticipated over the next 5 years.

Figure 17: 5-Year AIP-Eligible Development Costs by Category, FYs 2001–2021



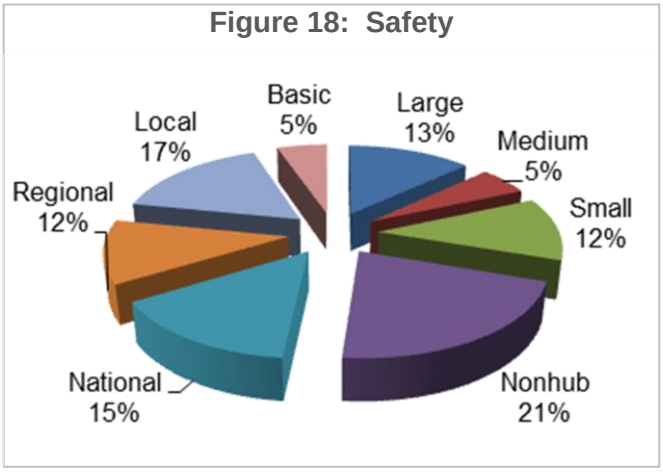
DEVELOPMENT CATEGORIES

Listed on the following pages are the development categories, a description of each category, and charts illustrating the percentage of development by airport category (figures 18-25).

Safety and Security

The FAA uses AIP funds to enhance airfield safety and support the Agency's goal of reducing accidents, fatalities, and runway incursions.

Figure 18: Safety



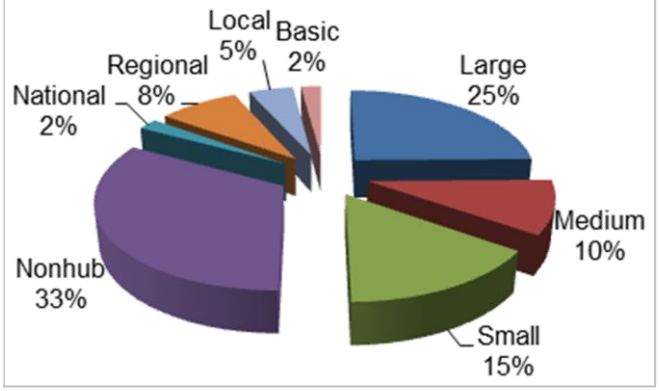
Safety and security projects include development that is required by Federal regulation, airport certification procedures, or design standards and are intended primarily for the protection of human life. These two categories account for almost 4 percent ($1.6 billion) of the funding needs identified in the NPIAS. The FAA gives safety and security development the highest priority to ensure rapid implementation and to achieve the highest possible levels of safety and security.

Projects included in the safety category include obstruction lighting and removal, continued improvements to runway safety areas (RSAs) and Engineered Materials Arresting Systems (EMAS), acquisition of ARFF equipment required by 14 CFR, part 139,[31] and construction or

[31] 14 CFR, part 139, requires the FAA to issue airport operating certificates to airports that meet specific requirements as shown online at: https://www.faa.gov/airports/airport_safety/part139_cert/what-is-part-139/.

expansion of ARFF buildings. Safety development totals almost $1.5 billion, an increase of $533 million from the last NPIAS. The 396 primary airports account for 51 percent of the safety projects with nonhub airports accounting for 21 percent of this total. The 2,908 nonprimary airports account for 49 percent of safety projects.

Figure 19: Security



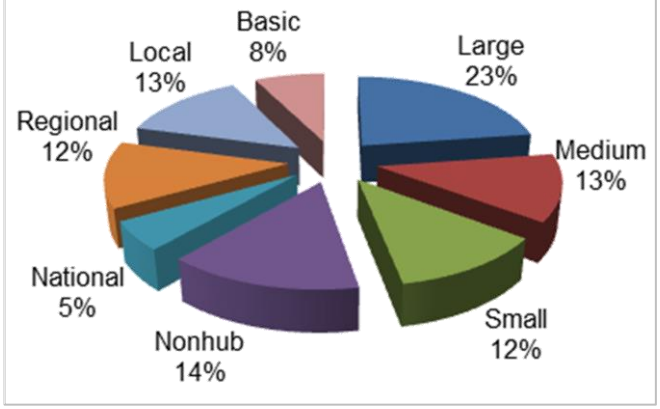
For airports where it is not possible to acquire sufficient land to meet RSA standards through full physical compliance, the FAA issued a specification for EMAS. An EMAS is designed to stop an over-running aircraft by exerting predictable deceleration forces on its landing gear as the EMAS material deforms. EMAS have been installed at 112 runway ends at 68 airports, and there are plans to install 6 more EMAS at 2 airports over the next several years. To date, there have been 15 incidents where EMAS has safely stopped 15 overrunning aircraft with a total of 406 crew and passengers aboard those flights.

Security projects include security fencing, access control from aircraft movement areas to the terminal, and other security enhancements required by 49 CFR part 1542. Security development totals $135 million, more than doubling the amount identified in the last NPIAS. Primary airports have identified access control systems and other security improvement projects totaling $112.5 million (83 percent). Nonprimary airports have identified approximately $23 million (17 percent) in perimeter fencing.

Rehabilitation/Reconstruction

Airfield pavement needs regular preventive maintenance to seal cracks and repair damage decreasing the frequency of major rehabilitation cycles. Preventive maintenance or rehabilitation may be needed on a 4- to 7-year cycle while more significant rehabilitation may be necessary on a 15- to 25-year cycle to remedy the effects of age, use, and exposure. Runway pavement in a state of good maintenance minimizes damage to aircraft and avoids unnecessary higher costs for major rehabilitation (e.g., full-depth reconstruction).

Figure 20: Reconstruction



As part of airport inspections, the FAA updates airport master records for public-use airports and reports the results through the Airport Safety Data Program. Runway pavement conditions are classified as excellent (no visible deterioration); good (e.g., all cracks and joints sealed); fair (e.g., mild surface cracking, unsealed joints, some slab edge spalling); poor (e.g., large open cracks, slab surface and edge

spalling, and vegetation growing through cracks and joints); or failed (e.g., widespread severe cracking with raveling and deterioration).

The FAA's longstanding goal is to ensure that at least 93 percent of paved runways at airports in the NPIAS are maintained in excellent, good, or fair condition. Data for FY 2019 indicates that 97.9 percent of runways at NPIAS airports are rated excellent, good, or fair. While 97.8 percent of the runway pavement at commercial service airports are rated excellent, good, or fair, it is important to note that even a runway in "poor" condition is still safe for flight operations. It simply requires more frequent inspections and often more intensive pavement maintenance (e.g., patching and crack sealing). By the time a runway is in poor condition, the FAA expects the airport to be well underway with the necessary planning and engineering design work to rehabilitate the runway (if it is still needed for flight operations).

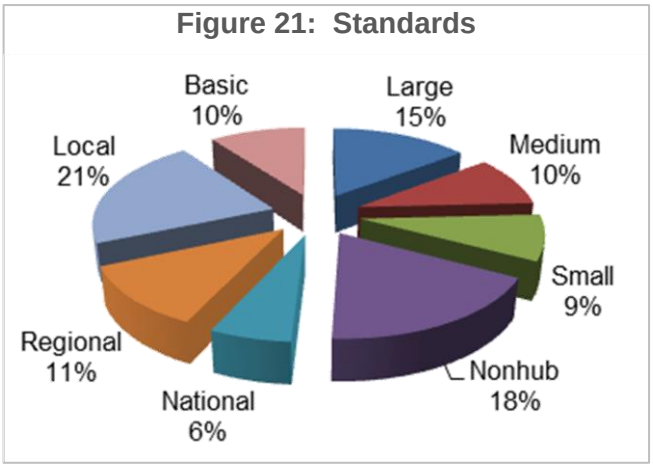
Development to reseal, rehabilitate, or reconstruct airport facilities, runway, taxiway, and apron pavement and lighting systems that have deteriorated due to weather or use is categorized as rehabilitation. Failure to replace deteriorating pavement increases airport maintenance costs and can result in damage to aircraft propellers and engines and pooling water and ice deposits that can jeopardize braking and directional control and eventually cause potholes that can damage landing gear. Airfield lighting cables and fixtures deteriorate with age resulting in dim and unreliable lighting if they are not replaced.

This category is the largest development category accounting for about 39 percent or $17 billion of NPIAS funding needs and includes sealing, rehabilitation, and reconstruction of airfield pavement. It increased by 29 percent and reflects an increase in pavement rehabilitation costs by every type of NPIAS airport. The primary airports account for 62 percent of this development with large hub airports accounting for 23 percent. The nonprimary airports account for 38 percent of this development.

Standards

The FAA helps airports maintain safe conditions by developing airport design standards based on airport design categories that apply to facilities throughout the system. The FAA airport design standards have evolved over time and provide the necessary dimensions to accommodate the changing aircraft fleet, such as with the standards for RSAs. Airports agree, to the extent practical, to meet these FAA design standards when they accept AIP funds for capital improvements to their facilities. The FAA standards address physical layout characteristics, such as runway length and width; separation between runways, taxiways, and taxilanes; RSAs; lighting; signs; and markings. The standards also address material characteristics (e.g., pavement, wiring, and luminance of lights) and issues such as ARFF equipment, training and operations, snow removal plans and supporting equipment, and wildlife hazard management.

Figure 21: Standards



Many airports were designed and built to serve relatively small and slow aircraft. They now serve larger and faster turboprop and jet aircraft. As a result, runways and taxiways must be relocated to provide greater clearance for aircraft with larger wingspans, taxiway geometry must be improved to correct confusing layouts, and aircraft parking areas must be adapted to accommodate larger aircraft. Standards development at general aviation and reliever airports is generally justified to accommodate a substantial number of operations by a "critical" aircraft with sizes and operating characteristics that were not foreseen at the time of original construction. If this work is not undertaken, aircraft may be required to limit fuel or passenger loads because of inadequate runway length. The FAA usually requires proof that an aircraft type or group will account for at least 500 annual local and itinerant operations at an airport (excluding touch-and-go operations) before including the development to accommodate it in the NPIAS.

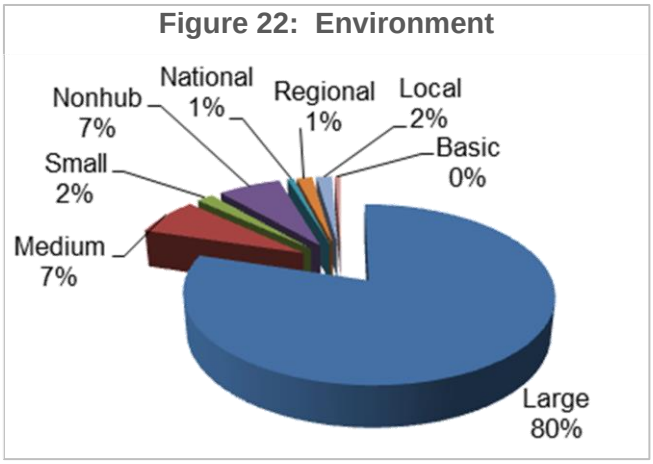
Standards projects include development that is needed to bring an existing airport into compliance with design criteria recommended by the FAA. It also includes development that is needed to comply with FAA technical and operational specifications. Examples of these projects include strengthening, widening, narrowing, relocating, or extending runways and taxiways, and associated lighting; expansion of existing or construction of new aprons; acquiring equipment (e.g., snow removal, deicing, weather reporting, and approach lighting and guidance systems); and constructing buildings for equipment primarily for snow removal equipment or aircraft hangars. Additionally, AIP funding may be used to study alternatives to reduce the number of runway incursions at an airport or for infrastructure improvements to address unclear taxiway markings, lighting, signage, or taxiway layout issues. Included in this NPIAS is almost $400 million to mitigate problematic airport geometry.

This development category accounts for 27 percent ($11.8 billion) of the NPIAS funding needs, an increase of $263 million from the last NPIAS. Primary airports account for 51 percent and nonprimary airports account for 49 percent of this development.

Environment

Before a new runway or major airport development program can be built, the FAA must assess potential environmental impacts to comply with a number of environmental laws. The FAA works with other Federal and State environmental resource agencies to achieve concurrent reviews and coordinate permit approvals to the greatest extent possible.

Figure 22: Environment



Community concern about environmental issues can complicate plans to expand existing airports and develop new airports. The problems can be particularly serious in metropolitan areas where there is high aviation demand and strong pressure to develop residential and other incompatible land uses near airports. Historically,

communities have been concerned about noise levels, but they are also concerned about air quality, water quality, traffic congestion, and other environmental issues.

Many of the Nation's airports are located in air quality nonattainment or maintenance areas. Air quality improvements in these areas are accomplished through State Implementation Plans, which provide controls and measures to meet health-based U.S. National Ambient Air Quality Standards under the Clean Air Act. The FAA provides financial support for airport air quality mitigation through the AIP and the PFC Program.

Historically, airports tend to be located near waterways and wetlands. Today, activities at these airports, if not properly designed and managed, have the potential to impact water quality. In particular, airport construction activities and seasonal aircraft and runway anti-icing/deicing operations are concerns. The FAA continues to work with other Federal and State agencies, airport operators, airlines, and industry groups to address various water quality issues.

The environment category includes projects designed to achieve an acceptable balance between airport operational requirements and environmental requirements. These projects include replacing impacted wetlands, removing wildlife attractants, constructing deicing containment facilities, acquiring energy efficient equipment, and purchasing specialized equipment or infrastructure to help reduce airport-related air quality impacts.

This category accounts for 2 percent ($614 million) of the NPIAS costs with large hub airports accounting for 80 percent of total costs. Thirteen of these environmental projects are for constructing deicing containment and treatment facilities. Approximately $141 million in eligible equipment and projects have been identified through 2025 for the Voluntary Airport Low Emissions (VALE)[32] Program. Additionally, $42 million in eligible projects for the Zero Emission Vehicle[33] and Infrastructure Pilot Program are identified through 2025.

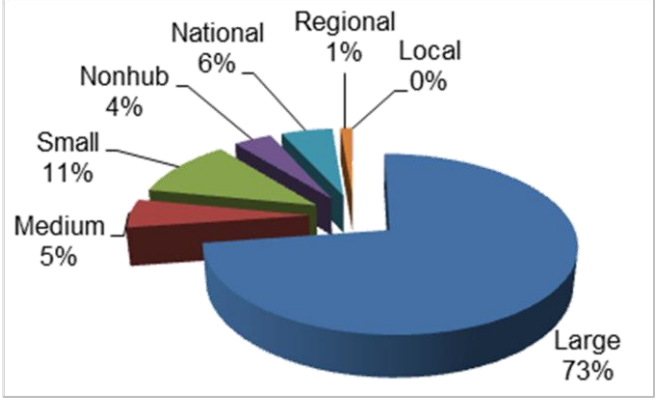
[32] The VALE Program improves air quality and provides air quality credits. For more information, see: https://www.faa.gov/airports/environmental/vale/.

[33] The Zero Emission Vehicle and Infrastructure Pilot Program improves air quality and facilitates use of zero emissions technologies at airports. For more information see: https://www.faa.gov/airports/environmental/zero_emissions_vehicles/.

Noise

The noise situation around airports has changed dramatically since 1976.[34] At that time, an estimated seven million people living near airports in the United States were exposed to significant levels of aircraft noise.[35] That number decreased markedly over time, despite significant increases in both passenger demand and flight operations. This reduction of aircraft noise levels for people living near or around airports who are exposed to aircraft noise is primarily due to reductions in aircraft source noise and the phaseout of older Stage 1 and 2 aircraft. The FAA estimates that the number of people in the United States living in areas adjacent to airports with noise levels above the DNL of 65 dB decreased from approximately 498,000 in CY 2005 to 430,000 in CY 2018.

Figure 23: Noise



Considerable effort has been expended over the past 45 years to provide relief to noise-impacted areas in part by funding noise mitigation projects under the AIP. Noise mitigation projects include residential and public building sound insulation, land acquisition, and relocating residents from noise-impacted areas. Noise compatibility efforts also promote preventive measures, such as comprehensive planning, zoning, subdivision ordinances, building codes, and real estate disclosure. In addition, airports have acquired noise barriers to reduce ground run-up noise.

Development in this category includes projects to meet the expectations of residents of the surrounding area for a quiet and clean environment. It also includes projects to mitigate noise for residences or public buildings, noise monitoring systems, and compensation to property owners for overflights. This development supplements the noise reductions that have been achieved by quieter aircraft and the use of noise abatement flight procedures. This category accounts for almost 1.4 percent ($614 million) of NPIAS costs with 73 percent of the costs at large hub airports. Costs are concentrated at airports with frequent flights by jet aircraft and include the relocation of households and sound insulation of residences and public buildings in noise impacted areas underlying aircraft approach and departure paths. This development is part of an extensive Federal and industry program involving land use planning, quieter aircraft, and noise abatement procedures that have reduced the estimated number of people exposed to significant noise.

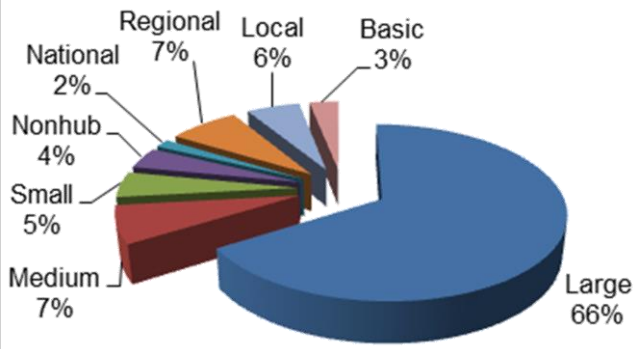
[34] In 1976, the DOT published its Aviation Noise Abatement Policy, which provided a course of action for reducing aviation noise impact. The principles contained in that document and subsequent legislative and regulatory action have resulted in a dramatic reduction in the number of Americans adversely exposed to aviation noise. An excerpt of that policy is available online at: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/planning_toolkit/.

[35] Defined as day/night average sound level (DNL) of 65 decibels (Db) or higher in title 14 CFR part 150, § 150.7, and appendix A (table 1) for residential land uses.

Airport Capacity

The FAA works with State and local units of government to enhance airport capacity where it is justified by current or anticipated aeronautical demand and where the benefits of additional capacity exceed the costs. The majority of airports in the NPIAS have adequate airport capacity and little or no consistent delays. However, at a small number of airports where consistent capacity constraints and delays regularly occur, delays frequently impact the entire air transportation system.

Figure 24: Airport Capacity



A major concern in airport planning is the adequacy of the runways and taxiways to handle anticipated aircraft operations safely and efficiently. A single runway with a parallel taxiway can normally accommodate approximately 200,000 annual aircraft operations. The FAA provides technical guidance to help airport sponsors decide when they should consider airfield capacity improvements. Current FAA guidance[36] recommends that capacity planning starts when aircraft activity reaches 60 to 80 percent of an airport's airfield capacity. This is because major airfield modifications often involve significant land acquisition, changes in airspace, and the need to address community concerns. As a result, such initiatives can often take many years from concept to completion so the FAA's recommendation to start early allows adequate lead time for improvements to be consider and implemented before congestion problems become critical.

New airport infrastructure continues to play a vital role in increasing capacity. This is true even with the capacity and efficiency benefits that are being realized with the NextGen program to modernize the NAS. Going forward, both new runways and NextGen improvements are needed to improve efficiency at capacity-constrained airports. Comprehensive information is available in the FAA's NextGen Update at: https://www.faa.gov/nextgen/where_we_are_now/.

Development that will improve an airport for the primary purpose of reducing delay and/or accommodating more passengers, cargo, aircraft operations, or based aircraft is labeled as capacity. This is the fourth largest development category accounting for 9.5 percent ($4.1 billion) of the NPIAS and includes new runways, taxiways, and apron construction and extensions. Large hub airports account for 66 percent of this development. While terminal building development often accommodates more passengers and is generally considered capacity development, in this NPIAS it is shown separately.

Development to improve airfield capacity increased 31 percent from the last NPIAS. While remaining airfield capacity development included in this 5-year plan will help to reduce congestion, problems will remain in certain large metropolitan areas. The FAA will continue to

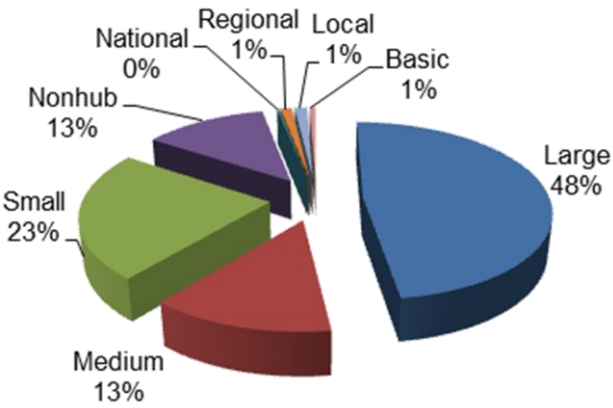
[36] See table 4-4 in FAA Order 5090.5, Formulation of the Formulation of the National Plan of Integrated Airport Systems (NPIAS) and the Airports Capital Improvement Plan (ACIP).

focus on the need for additional capacity and increased efficiency in those metropolitan areas and the locations identified in figure 11.

Terminal Building

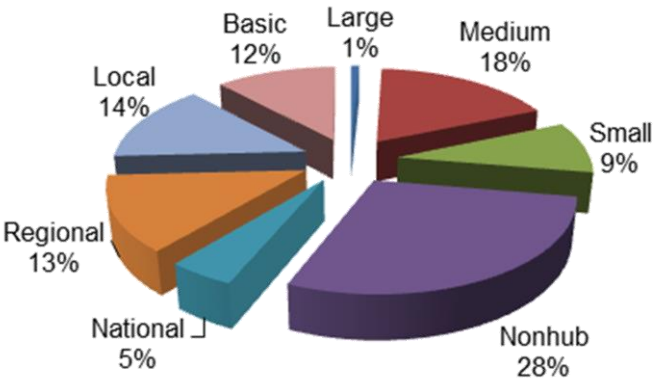
Terminal building costs are incurred for development to accommodate more passengers and changes in aircraft fleet. This is the third largest development category accounting for 15 percent ($6.6 billion) of the NPIAS costs. Terminal costs have increased for the last 6 years. The NPIAS includes only the public-use portion of terminals that are AIP eligible (about 50 to 60 percent of the terminal area) and excludes revenue-generating areas,[37] such as areas that are leased by a single tenant or used by concessions, such as gift shops and restaurants.

Figure 25: Terminal Building



Terminal development is concentrated at the busiest commercial service airports. Funding of terminal projects, especially at large and medium hubs, tends to be accomplished through PFCs and other funding sources rather than through AIP funding.

Figure 26: Surface Access



Surface Access

Statistics for major airports in the United States show a limited but important role for public transportation to airports. The airports with high passenger traffic are more likely to have two or more other transport modes. Nationwide, air and rail transit are linked at 29 airports, including 6 airports served by more than one rail mode. Current plans include the extension of rail to three additional airports: Washington Dulles International (opening in 2021), Los Angeles International (anticipated opening in 2023), and Daniel K. Inouye International in Honolulu (anticipated opening in 2026). In addition, several other communities are examining potential rail extensions or mass transit projects to get passengers to the airport.

Access includes the portion of airport ground access via highways and transit that is within the airport property line and eligible for grants under the AIP. Surface access currently accounts for 1 percent ($457 million) of the NPIAS costs, down 2 percent from the last NPIAS. The nonhub airports account for 44 percent of the access development needs ($199 million). The FAA encourages airport sponsors and State and local officials to develop airport master plans and

[37] Some smaller public-use airports can use AIP funds for public-use areas of a terminal that are revenue producing.

airport system plans that consider passenger convenience, airport ground access, and access to airport facilities. As new airport master planning begins to explore and analyze these aspects of the airport, the decreasing trend in access projects may reverse as new and innovative surface projects are identified.

New Airports

New airports are proposed in the NPIAS for communities that generate a substantial demand for air transportation and either do not have an airport or have an airport that cannot be improved to meet minimum standards of safety and efficiency. During the next 5 years, three general aviation airports, two nonprimary commercial service airports, and one primary airport are anticipated to open or be under development. New airport costs account for almost 1 percent ($302 million) of all NPIAS development. Development costs in this category increased by 7 percent from the last NPIAS. This category also includes AIP-eligible costs for new airports opening by 2025 or under construction with an opening date after 2025.

Other

This category of development accounts for about 0.6 percent ($253 million) of the total development in the NPIAS. It includes construction and rehabilitation of fuel farms, hangars, utilities, and parking lots. Nonprimary airports account for 92 percent of this development.

Special Programs

This category has not been included in previous NPIAS publications. It includes projects that satisfy FAA priorities to enhance the safety, security, and capacity of the NAS or project types designated within the AIP legislation. Examples of special emphasis projects include application of grooving or friction treatment to primary and secondary runways (Wendell H. Ford Aviation Investment and Reform Act) and Federal contract tower buildings or equipment (FAA Reauthorization Act of 2018). This accounts for $36 million (0.1 percent) with contract towers comprising 95 percent of this total.

ANTICIPATED SOURCES OF FUNDING

There are four major sources of funds used to finance airport capital development: airport revenue, bond proceeds, Federal/State/local grants, and PFCs. Access to these sources of financing varies widely among airports with some large airports able to generate and apply significant cash flow to capital projects and the small commercial service and general aviation airports often requiring subsidies from local and State governments to fund operating expenses and finance modest improvements.

Over the last 19 years, AIP grants have exceeded $3 billion annually. Additionally, through supplemental appropriations in FY 2018, FY 2019, and FY 2020, an additional $1.9 billion in AIP discretionary funding was provided for development projects.[38] In March 2020, the President signed into law the CARES Act that included $10 billion in funds to be awarded as economic relief to eligible U.S. airports affected by the prevention of, preparation for, and

[38] Additional information is available at: https://www.faa.gov/airports/aip/aip_supplemental_appropriation/.

response to the COVID-19 public health emergency. The majority of airports have elected to use these funds to offset operating costs and/or debt service due to severe downturns in operating revenues, rather than for new capital investment.

Commercial service airports reported on FAA Form 5100-127 (see table 4) that approximately $14 billion in airport bonds were issued in 2018. They also reported grant receipts totaling $2.3 billion and PFC collections totaling $3.6 billion. Additionally, capital expenditures and construction for airport development projects totaling $14.7 billion were reported. These expenditures include projects eligible for AIP grants and projects ineligible for AIP grants, like automobile parking garages and hangars.

The AIP serves as an effective investment tool to fund safety, security, and airfield projects that rank highest in national priority. The PFC Program has broader eligibility than the AIP, particularly for terminal projects, noise compatibility measures, and costs associated with debt financing and is available in significant and generally predictable amounts to large and medium hub airports. As a result, large and medium hub airports in particular have been directing the majority of their PFC revenues to terminal and landside projects, including debt financing costs, as well as to noise mitigation. The majority of nonhub primary airports use PFC revenues as the local matching funds for AIP grants.

ADDITIONAL COSTS NOT INCLUDED IN THE NPIAS

The NPIAS includes only development that is eligible to receive Federal grants under the AIP. It does not include ineligible airport development, such as automobile parking structures, hangars, air cargo buildings, or the revenue-producing portion of large passenger terminal buildings. In addition, it does not include:

- Development eligible under the PFC Program but ineligible under the AIP, such as leased aircraft gates and related areas;
- Improvements to assist airports to withstand or recover from severe weather events;
- Improvements to highway and transit systems beyond the airport property line;
- Improvements to air traffic control facilities and navigation aids that may be funded by the FAA's Facilities and Equipment Program, including towers, Terminal Radar Approach Control facilities, runway status lights, or most equipment associated with NextGen;
- Costs associated with modifying terminals to accommodate explosive detection systems. The FAA is prohibited from funding these projects with AIP funding. However, they are eligible under the PFC Program and the Transportation Security Administration's grant program; and
- Costs associated with planning (master plans, regional and State system plans, environmental studies, and wildlife hazard assessments and management plans). While eligible for AIP funding, these costs are not captured in this NPIAS since they are planning, not development. For the 5-year period covered by this NPIAS, planning costs total $392 million with nonprimary airports accounting for 56 percent and primary airports accounting for 44 percent.