



EXECUTIVE SUMMARY

Prior to the onset of the COVID-19 pandemic, the nation's airports were facing growing capacity challenges. Over a two-year period, passenger travel steadily increased from 964.7 million to 1.2 billion per year, yet flight service only increased from 9.7 to 10.2 million flights per year — contributing in part to a total of nearly 96 million delay minutes for airline passengers in 2019. Terminal, gate, and ramp availability was not meeting the needs of a growing passenger base. Under pre-COVID-19 projections, our aviation system was set to have a 10-year, \$111 billion funding shortfall, and that gap has likely grown significantly as passenger volumes dropped in March 2020 and have yet to recover. However, funding from Congress has risen from \$11 billion annually to approximately \$15 billion from 2017 to 2020.¹ These additional investments are driving some early results as measured by improved economic performance.

CONDITION & CAPACITY

The National Plan of Integrated Airport Systems (NPIAS) identifies 3,304 public-use airports in the U.S., which includes approximately 520 commercial service airports. More than 2,500 of these NPIAS airports are categorized as general aviation supporting flight training and emergency services.²

From 2017 to 2019, passenger travel steadily rose from 964.7 million to 1.2 billion passengers per year, while commercial service flights increased from 9.7 million to 10.2 million flights per year.³⁴ However, since the onset of the COVID-19 pandemic in early 2020, the aviation sector has been dramatically impacted. In April 2020, passenger travel was 5% of the level seen in April 2019, and by October 2020, passenger volumes had only

rebounded to 32% of October 2019. While passenger volumes have endured significant and potentially sustained impacts during the pandemic, cargo volumes have increased with the expansion of "e-commerce."⁵

From 2017 to 2019, as passenger travel outpaced available flights, delays in the aviation sector grew, and the percentage of flights with "on-time" performance decreased slightly from 80.1% to 79.2%.⁶ The total time passengers were delayed increased from 65.8 million minutes in 2017 to 95.8 million minutes in 2019. Delays in 2019 were caused by a variety of reasons, including aircraft arriving late, national aviation system delays, air carrier delays, weather-related issues, and more.⁷

Flight Delays Over Time



Source: Bureau of Transportation Statistics⁸





While several factors influence air travel delays, airport infrastructure continues to grapple with capacity needs to serve the growing passenger base. The Airports Council International–North America (ACI-NA) shows that over the next few years, all categories of airports will require investments in terminal buildings, access to terminals, airfield capacity, and airfield reconstruction.¹⁰



Top Four Investment Needs as a Portion of Total Needs for Large, Medium and Small Airports

Source: Airports Council International-North America¹¹

The largest portion of the investment need at large, medium, and small airports is for terminal buildings and ranges from 30% to nearly 50% of total needs. Similarly, the FAA routinely publishes National Plan of Integrated Airport Systems (NPIAS) reports of anticipated development activities determined by surveying nationwide capital improvement plans. The NPIAS reports show that the needs for various types of airport development projects continue to increase. Since 2019, forecasts for airport needs to expand or rehabilitate terminal buildings ballooned by 62%, pavement reconstruction needs increased by 28%, and capacity-related development needs rose by 31%. Specifically, capital needs for terminal buildings grew from nearly \$4.1 billion to more than \$6.6 billion, capacity projects rose from \$3.1 billion to around \$4.1 billion, and reconstruction projects increased from around \$13.1 billion to nearly \$16.9 billion.¹²

Fortunately, the condition of runways continues to be consistent. The FAA sets system performance goals to ensure that a minimum of 93% of paved runways at NPIAS airports are maintained in excellent, good, or fair condition. In fiscal year (FY) 2019, data indicates that 97.9% of runways at NPIAS airports are rated as excellent, good, or fair, including 97.8% of commercial service airport runways. While the portion of NPIAS airports rated as excellent, good, or fair saw a slight increase from 97.8% in FY 2017, commercial service airport runways decreased from 98.2% during the same timeframe. However, both categories remained unchanged from FY 2015 to FY 2017.^{13 14 15}

The COVID-19 pandemic has caused a severe decline in flights and passenger boardings, reducing the current capacity demand. Air carriers expect that it will take years to recover from this reduction in operations. The long-term impacts of COVID-19 on air travel remain unclear. It is important to note that there have been similar boarding declines in the past due to traumatic events such as September 11th, but passenger travel has always ultimately rebounded and continued an upward trajectory.

12



Passenger Boarding Totals After Historic Events

Sources: Bureau of Transportation Statistics^{16 17}

FUNDING & FUTURE NEED

Our nation's airports have diverse revenue and funding streams, but total financial resources fall short of the sector's estimated needs. These resources include federal, state, and local grants; revenue from general obligation bonds; airport cash flow through concession fees and other revenue mechanisms; and public-private partnerships (P3s). The two primary federal sources of airport revenue come from the Airport Improvement Program (AIP), which is funded generally through aviation fuel and airline ticket taxes, and the Passenger Facility Charge (PFC), which is funded through a federally mandated \$4.50 capped user fee.

In 2018, a five-year FAA reauthorization was signed into law; however, the legislation failed to increase the

AIP or the PFC. The AIP has had the same annual authorization level of \$3.35 billion for over 10 years, and the PFC cap has remained unchanged since 2000. Despite an unchanged authorization level, Congress has provided recent supplemental funding for the AIP program, including \$1 billion in FY 2018, \$500 million in FY 2019, and \$400 million in FY 2020. The PFC has continued to collect revenue to help make capital improvements to our nation's airports, with the most recent figures indicating that \$3.6 billion in fees was collected in 2019. While the PFC is not the sole source of airport capital project funding, it can help alleviate the pre-COVID-19 pandemic, 10-year total investment need of \$237 billion.^{18 19 20}



LAGUARDIA AIRPORT TERMINAL BARRIVALS HALL

13

The long-term impacts of COVID-19 are still unfolding for airport revenue collection. However, in the last two COVID-19 relief packages (the CARES Act and the Consolidated Appropriations Act of 2021), Congress provided a total of \$12 billion in direct aid to airports, including \$100 million for general aviation. As the pandemic continues, the complex revenue streams that airports depend on for infrastructure improvements are likely to remain in flux.

OPERATIONS, MAINTENANCE, & INNOVATION

Airport operations and maintenance activities are influenced by many factors, including the age of the facilities, aircraft use patterns, and weather exposure, to name a few. Preventive maintenance such as seal coat surface treatment, patching, and crack-sealing must be regularly performed to protect and preserve airfield pavement, while also serving to keep long-term rehabilitation costs down. Airfield pavement maintenance occurs on a four- to seven-year cycle, while more significant repairs take place on a 15- to 25-year cycle.²¹

Technological advancements are playing a critical role in improving airport service flexibility and efficiency. Halfway through its multi-year investment and implementation plan, the FAA has been rolling out its Next Generation Air Transportation System (NextGen) that improves air travel safety, efficiency, and predictability. While transitioning from a radar-

based to satellite-based system, NextGen replaces radio communications with data exchange and automation. This ultimately reduces the amount of information needed to be processed by an air crew and will increase routing efficiency (shorten routes), save time and fuel, minimize traffic delays, increase capacity, and permit controllers to monitor and manage aircraft, leading to greater safety.²² During NextGen implementation, the FAA has reported more than 15,000 hours of delay avoided through improved reroutes, more than 25,000 hours of communication time saved, and average delays less than 17 minutes per flight, despite increased reports of severe weather and traffic. Currently, NextGen capabilities are being implemented at 30 of the largest airports in the nation. Despite some positive momentum, NextGen investments are taking about 4 years longer than expected to translate into foundational infrastructure that supports the new technology.^{23 24}





SAN FRANCISCO INTERNATIONAL AIRPORT HARVEY MILK TERMINAL 1

PUBLIC SAFETY & RESILIENCE

The people and commerce using the nation's air transportation system are protected by the Transportation Security Administration (TSA).²⁵ While TSA's primary focus is placed on screening areas and eliminating airplane hijackings, safety goes beyond screening points. For instance, the COVID-19 pandemic has played a major role in airport safety protocols. In February 2021, TSA implemented an executive order requiring individuals to wear a mask at TSA screening checkpoints and throughout the commercial and public transportation systems until at least May 2021.²⁶ To support airport security, \$4.9 million of federal funds were spent on airport security in FY 2020 - consistent with federal spending since FY 2017. However, the NPIAS has identified that from 2021 to 2025, anticipated needs for safety and security projects account for \$1.6 billion, or nearly 4% of overall airport funding needs.

In 2018, the FAA reported 395 deaths caused by U.S. airplanes - an increase from 347 the previous year. The death total includes incidents on U.S. air carriers,

commuter carriers, on-demand air taxis, and general aviation operations.²⁷ Maintaining safe conditions through establishing runway safety areas, practicing runway incursion mitigation, and implementing wildlife hazard mitigation improves public safety by minimizing the risk of serious accidents.^{28 29}

The nation's aviation system continues to be tested by natural and man-made disasters. Specifically, cybersecurity issues have the potential to cause harm to all aspects of air travel. Aviation communication and passenger services, like ticketing, are highly dependent on a strong cybersecurity network, so ensuring safeguards to this system ensures traveler safety and system resilience. Furthermore, during and after natural disasters and other emergencies, airports play a major role as a gateway for urgent relief and access to critical supplies. Therefore, it is important that airports develop and exercise rapid facilities assessments and recovery strategies that can be efficiently and effectively implemented after these types of events.

Aviation



RECOMMENDATIONS TO RAISE THE GRADE

- Airport authorities should develop plans to improve resilience to potential catastrophic events, whether it be seismic incidents, weather-related disasters, cybersecurity threats, or global pandemics. Strong revenue mechanisms must be developed that can withstand changes in passenger travel and provide long-term revenue certainty.
- Airports should continue to invest in capacity enhancements that will accommodate projected capacity needs based on pre-COVID-19 pandemic trends.
- Raise or eliminate the cap on the Passenger Facility Charge (PFC) to allow airports the needed revenue to invest in their infrastructure.
- Support efforts to increase federal funding for the Airport Improvement Program (AIP) and continue to support user fee mechanisms that fund the Airport and Airway Trust Fund and maintain budgetary firewalls.
- Explore the use of public-private partnerships (P3s) to support existing funding efforts.
- Support innovative technology, like NextGen, that offers the ability to reduce congestion and improve capacity.
- Continue to recognize that there needs to be a strategic balance between infrastructure investment, enhanced safety measures, and technology improvements, both in investment and long-term planning.

SOURCES

- American Society of Civil Engineers, "Failure to Act: Economic Impacts of Status Quo Investment Across Infrastructure Systems," 2021.
- 2. U.S. Department of Transportation, Federal Aviation Administration, "National Plan of Integrated Airport Systems (NPIAS): 2021-2025."
- 3. U.S. Department of Transportation, Bureau of Transportation Statistics, "Passengers: All Carriers – All Airports."
- 4. U.S. Department of Transportation, Bureau of Transportation Statistics, "Flights: All Carriers – All Airports."
- 5. American Society of Civil Engineers, "Failure to Act: Economic Impacts of Status Quo Investment Across Infrastructure Systems," 2021.
- 6. U.S. Department of Transportation, Bureau of Transportation Statistics, "Annual Airline On-Time Rankings 2003-2019."
- 7. U.S. Department of Transportation, Bureau of Transportation Statistics, "Airline On-Time Statistics and Delay Causes."
- 8. U.S. Department of Transportation, Bureau of Transportation Statistics, "Airline On-Time Statistics and Delay Causes."



SOURCES (Cont.)

- 9. U.S. Department of Transportation, Bureau of Transportation Statistics, "Airline On-Time Statistics and Delay Causes."
- 10. Airports Council International-North America, "Terminally Challenged: Addressing the Infrastructure Funding Shortfall of America's Airports: 2019-2023."
- 11. Airports Council International-North America, "Terminally Challenged: Addressing the Infrastructure Funding Shortfall of America's Airports: 2019-2023."
- U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2015-2019."
- U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2017-2021."
- U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2019-2023."
- U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2021-2025."
- U.S. Department of Transportation, Bureau of Transportation Statistics, "Passengers: All Carriers – All Airports."
- 17. U.S. Department of Transportation, Bureau of Transportation Statistics, "U.S. Airline Passengers."
- U.S. Department of Transportation, Federal Aviation Administration, "Key Passenger Facility Charge Statistics, (PFC Branch)," December 31, 2020.
- 19. Airports Council International–North America, "Terminally Challenged: Addressing the Infrastructure Funding Shortfall of America's Airports: 2021-2025."
- 20. American Society of Civil Engineers, "Failure to Act: Economic Impacts of Status Quo Investment Across Infrastructure Systems," 2021.
- U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2019-2023."
- 22. U.S. Department of Transportation, Federal Aviation Administration, "Modernization of U.S. Airspace."
- U.S. Department of Transportation, Office of Inspector General, "FAA Needs To Strengthen Its Management Controls Over the Use and Oversight of NextGen Developmental Funding," FAA Report No. AV2018030, March 6, 2018.
- U.S. Department of Transportation, Office of Inspector General, "FAA Has Made Progress in Implementing Its Metroplex Program, but Benefits for Airspace Users Have Fallen Short of Expectations," FAA Report No. AV2019062, August 27, 2019.
- 25. Transportation Security Administration, "Mission."
- 26. Transportation Security Administration, "Coronavirus (COVID-19) Information."
- 27. U.S. Department of Transportation, Bureau of Transportation Statistics, "Transportation Fatalities by Mode."
- U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2021-2025."
- 29. U.S. Department of Transportation, Federal Aviation Administration, "Report to Congress: National Plan of Integrated Airport Systems (NPIAS): 2019-2023."