



2017 INFRASTRUCTURE REPORT CARD



OVERVIEW

U.S. airports serve more than two million passengers every day. The aviation industry is marked by technologically advanced and economically efficient aircraft, however, the associated infrastructure of airports and air traffic control systems is not keeping up. Congestion at airports is growing; it is expected that 24 of the top 30 major airports may soon experience “Thanksgiving-peak traffic volume” at least one day every week. With a federally mandated cap on how much airports can charge passengers for facility expansion and renovation, airports struggle to keep up with investment needs, creating a \$42 billion funding gap between 2016 and 2025.

CAPACITY & CONDITION

New, technologically advanced and fuel efficient aircraft are being deployed regularly, however, that tells only half the story of the aviation industry. In the other half, progress at the nation’s airports and in the air traffic control system is slow, as investment has been consistently lagging in the past 18 years, unable to keep up with demands of increased traffic and new technologies.

In 2015 there were in the United States:

- 8,727,691 commercial flights for the year;
- Approximately 7,000 aircraft in the air at any given time; and
- 2.25 million passengers every day.

The U.S. aviation network includes 3,345 airports as part of the National Plan of Integrated Airport Systems (NPIAS) with 3,331 existing and 14 proposed. Of these, 514 airports offer commercial service. There were a total of 786 million enplanements in the nation’s airports in 2015, up from 728 million in



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2011; that number is expected to grow to 1.24 billion by 2036. Additionally, air cargo represented 27% of exports and 22% of imports by value (though less than 1% by weight) in 2013. General aviation remains an important part of the aviation community, with more than 209,034 aircraft in 2012, down from 223,270 in 2010.

The economic activity attributed to civil aviation-related goods and services totaled \$1.5 trillion in 2012, generating 11.8 million jobs with \$459.4 billion in earnings. Aviation contributed 5.4 percent to GDP. General aviation's total economic impact was estimated to be \$22.7 billion in 2011, down sharply from \$78.5 billion in 2009, however this number is expected to rebound in the coming years.

The FAA's set performance goal is that no less than 93% of runways at NPIAS airports are in excellent, good or fair condition. In 2013 97.5% of NPIAS runways were rated excellent, good, or fair; at commercial service airports 98% of runways are rated excellent, good, or fair. The condition of existing runways is not an issue, rather the overall capacity of the busiest airports, as well as other airport facilities for handling passengers, cargo, security, and related functions. Maintaining and updating runways, including changes to meet new standards, is an ongoing airport operation.

In 2016, 81.42% of flights had an on-time performance. Delays were caused by air carriers (5.04%), weather (0.51%), the national aviation system (5.37%), security (0.03%), late-arriving aircrafts (6.22%), cancelations (1.17%), and diverted flights (0.24%).

The capacity of the nation's airport system is affected by many factors, including the regulatory environment, airline business models, airport layouts, the manner in which the airspace is organized and used, airport procedures, weather conditions, aircraft types, and technology. While most of the nation's airports have adequate airport capacity and little or no delay, a small number of larger airports experience chronic capacity constraints and delays regularly occur, frequently impacting the entire air transportation system. Additionally, continual change in the aviation environment is reflected in the evolving Federal Aviation Administration (FAA) standards, which imposes additional burdens on airports to upgrade airports facilities to meet changing standards.

The promise of the Next Generation Air Traffic Control System (NextGen) has been a long time coming, designed to increase efficiency and flexibility, while offering environmental benefits by using better technology to plot and guide flight paths. NextGen is currently due for implementation across the United States in stages to be completed by 2025. NextGen improvements, including a reliance on the Global Positioning System (GPS), enhanced collaboration in the air traffic environment, use of digital visual and voice communication with aircraft operators, delivery of tailored weather information, and improvements to air traffic control equipment and processes, are expected to improve the use of available airspace and make better, faster dissemination of critical information. Essentially, NextGen transforms air traffic control from a radar-based system to a satellite-based one. Radio communications will be increasingly replaced by data exchange and automation will reduce the amount of information the air crew must process at one time. Enhanced technology will be used to increase routing efficiency, which will shorten routes, save time and fuel, reduce traffic delays, increase capacity, and permit controllers to monitor and manage aircraft with greater safety margins. Implementation is costly, and will require airlines to make expensive investments, but will increase flight efficiency and safety in the process.



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By 2020, the FAA estimates that NextGen improvements, if implemented, could result in a cumulative reduction in fuel consumption of 1.46 billion gallons and a projected 41% reduction in aircraft delays. This would generate \$38 billion in savings through 2020 for aircraft operators, the traveling public, and FAA.

FUNDING & FUTURE NEED

Generally, there are four sources of funding used to finance airport development: airport cash flow; revenue and general obligation bonds; federal/state/local grants, including the Airport Improvement Program (AIP); and Passenger Facilities Charges (PFCs). Under the 2012 FAA reauthorization, AIP received \$13.4 billion over four years or approximately \$3.35 billion annually funded primarily through airline ticket taxes. The PFC Program allows the collection of PFC fees – federally capped at no more than \$4.50 – for every enplaned passenger at commercial airports.

One interesting note is that as airlines have implemented a la carte pricing, ticket price revenue has suffered because the airline ticket taxes are not applied to baggage fees, food sales, or other discretionary passenger purchases. Allowing for a modest increase of approximately \$1 per ticket in the airline tax would cover much of the investment gap in airport infrastructure funding.

Funding issues have been compounded by the failure of Congress to regularly reauthorize FAA programs. Between 2007 and 2012 and again since 2015, the FAA operated under a series of short-term authorizations, leading to delays in investment decisions of FAA-funded airport projects. The current authorization will lapse on September 30, 2017. Furthermore, lapses in FAA authorization led to the stoppage of work on more than \$10 billion in national aerospace and support projects and \$2.5 billion in grants to new airport projects were withheld.

ASCE's *Failure to Act* economic study released in 2016 projects that the average annual investment gap for airports through 2025 is expected to decrease from \$4.6 billion to \$4.2 billion. However, by 2040, the cumulative gap is expected to slightly increase from a per year average of \$3.3 billion to \$3.5 billion in 2015 dollars – leaving a total investment gap of \$88 billion. By 2025 these projected infrastructure investment short falls may cause the loss of nearly 257,000 jobs and \$337 billion in lost GDP.

PUBLIC SAFETY & RESILIENCE

Airport security and the safety of the traveling public is an ongoing challenge for the nation's aviation enterprise. The needs of additional security to address the threats posed to airports and aircraft have had an impact on the operation of the nation's aviation system. The Transportation Security Agency (TSA) spent \$5.6 billion on aviation security in 2015; this does not include the financial burden on airports to accommodate security requirements.

The cost of additional security is measured not just in terms of the direct cost of security personnel, but also in terms of the needed footprint and additional infrastructure needed. Security measures also include hidden costs, such as the additional time spent by passengers undergoing security procedures, up to and including missed flights.



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Airports are a critical component to the movement of goods and people and must be resilient in the event of catastrophic events, be it weather, man-made, or other events. Airports often serve as a gateway to urgent relief supplies during large events and are interdependent on other forms of transportation to work efficiently.

RECOMMENDATIONS TO RAISE THE GRADE

- Permanent extension and increase of user fees to adequately fund the Airport Improvement Program (AIP) through the Airport and Airway Trust Fund (Trust Fund). Such funds should not be used to pay for security costs, but specifically used for airport capacity, air traffic, and airport maintenance and improvement.
- Continue the practice that all monies collected from these user fees be deposited in the Trust Fund with budgetary firewalls to eliminate the diversion of transportation revenues from non-airport capacity, air traffic and maintenance and improvement purposes.
- Continued and accelerated implementation of the NextGen air traffic control system.
- Congress must timely enact multi-year reauthorizations of aviation programs to ensure predictability and stability in airport improvement funding.
- Remove the federally-imposed cap on Passenger Facility Charges (PFCs) to allow airports a tool to invest in their own facilities.
- Funding for security measure must not impact needed infrastructure funding.
- Explore innovative third-party funding such as privatization, public private partnerships and others.

DEFINITIONS

Enplanements — Individual trip segments for each passenger.

Large Hub Airports — The FAA defines as airports that account for one percent or more of total U.S. enplanements.

Medium Hub Airports — The FAA defines as airports that account for between 0.25 and 1% of the total U.S. enplanements.

Small Hub Airports — The FAA defines as airports that account for between 0.05 and 0.25% of the total U.S. enplanements.

Nonhub Primary Airports — The FAA defines as airports that enplane less than 0.05% of all commercial passengers, but more than 10,000 annual enplanements.

Nonprimary Commercial Airports — The FAA defines as airports that have less than 10,000 commercial passengers enplanements annually.

SOURCES

Report to Congress National Plan of Integrated Airport Systems (NPIAS), Federal Aviation Administration, US Department of Transportation, 2017-2021



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https://www.faa.gov/airports/planning_capacity/npias/reports/media/NPIAS-Report-2017-2021-Narrative.pdf

FAA Aerospace Forecast Fiscal Years 2015-2035

https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/2015_National_Forecast_Report.pdf

Airports Council International–North America, *Airport Capital Development Costs, 2015–2019*, February 2011 – new one should be out in early 2016

http://www.aci-na.org/sites/default/files/2014-15_capital_needs_survey_report_final.pdf

GAO – Aviation Finance: Observation on the Effects of Budget Uncertainty on FAA, GAO-16-198R, 11-19-2015 -- <http://www.gao.gov/products/GAO-16-198R>

GAO – NEXTGEN Air Transportation System: FAA Has Made Some Progress in Midterm Implementation, but Ongoing Challenges Limit Expected Benefits, GAO-13-264, April 2013 -

<http://www.gao.gov/assets/660/653626.pdf>

FAA – The Economic Impact of Civil Aviation on the U.S. Economy, June 2014

https://www.faa.gov/air_traffic/publications/media/2014-economic-impact-report.pdf

U.S Travel Association, *Thanksgiving in the Sky: A Look at the Future of Air Travel in America*, November, 2014 https://www.ustravel.org/sites/default/files/Media%20Root/Thx_report_single_page.pdf