

2009

INFRASTRUCTURE FACT SHEET

Despite surging oil prices, volatile credit markets, and a lagging economy, the Federal Aviation Administration predicts 3% annual growth in air travel. Travelers are faced with increasing delays and inadequate conditions as a result of the long overdue need to modernize the outdated air traffic control system and the failure to enact a federal aviation program.

FACTS
ABOUT

TRANSPORTATION

AVIATION

RAISING THE GRADES SOLUTIONS

THAT WILL WORK **NOW**

- A** = Exceptional
- B** = Good
- C** = Mediocre
- D** = Poor
- F** = Failing

AMERICA'S
INFRASTRUCTURE
G.P.A.

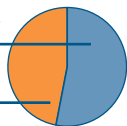
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ESTIMATED 5-YEAR FUNDING REQUIREMENTS FOR AVIATION

Total investment needs
\$87 BILLION

Estimated spending
\$46.3 BILLION

Projected shortfall
\$40.7 BILLION



- ★ **MODERNIZE** the air traffic control system by implementing the Federal Aviation Administration's (FAA) Next Generation Air Transportation System (NextGen) program;
- ★ **INCREASE** the aviation user fee to meet the needs of the National Plan of Integrated Airport Systems (NPIAS);
- ★ **INCREASE** the Passenger Facilities Charge (PFCs) cap;
- ★ **USE** Airport and Airway Trust Fund balances for air traffic and airport infrastructure and improvement projects only, not security costs;
- ★ **PREVENT** trust fund revenues from being diverted from aviation transportation system investment by preserving current firewalls;
- ★ **CLOSE** the gap on annual funding shortfalls by increasing funding guarantees in the reauthorization;
- ★ **STREAMLINE** the regulatory environmental permitting process to reduce delays in constructing new or upgrading existing airport facilities.

CONDITIONS

Air travel in the U.S. rebounded from its post-September 11, 2001, downturn and reached new highs in both domestic and international travel. Enplanements on U.S. carriers for both domestic and international flights totaled 669.2 million in 2000. By 2006, that number had risen to 744.7 million; in 2007 alone, the number increased an additional 25 million to 769.6 million. A sharp increase in the cost of aviation fuel, followed by the recent economic downturn, however, has slowed the demand for air travel. The number of domestic and international passengers on U.S. airlines in October 2008 was 7.1% lower than in October 2007. From January to October of 2008 there were 630.1 million enplanements, a decrease of 2.6% from the same 10-month period in 2007.⁴ It is estimated that air travel will increase in 2009 though, the latest forecast (March 2008) projecting an annual increase of 2.9% in domestic U.S. commercial enplanements and 4.8% in inter-

national enplanements—a system increase total of 3%.²

The Federal Aviation Administration (FAA) has a goal of ensuring that no less than 93% of the runways at National Plan of Integrated Airport Systems (NPIAS) airports are maintained in good or fair condition. That goal was exceeded in 2007: 79% were rated good, 18% were rated fair, and only 3% were rated poor. However, there were 370 runway incursions in 2007—up from 330 in 2006.¹ Due to the FAA's 2008 change in definition for a runway incursion, this number is likely to increase further. A runway incursion is defined as an incident involving the incorrect presence of an aircraft, vehicle, person, or object on the ground that creates a collision hazard for an aircraft taking off, intending to take off, landing, or intending to land.

Every year the industry incurs avoidable air traffic control delays that, while beyond the immediate control of air traffic control personnel, waste hundreds of millions of dollars. In 2007, airlines reported

RAISING THE GRADES CASE STUDIES

WASHINGTON, D.C. ★ Washington-Dulles International Airport

Washington-Dulles International Airport is the nation's 16th busiest airport, with more than 419,127 takeoffs and landings per year and more than 12 million passengers. The new runway, which opened in 2008, is equipped with a high-speed exit taxiway and can handle larger planes, such as the Airbus A380, will see more than 100,000 takeoffs and landings per year. This marks Dulles's first new runway since 1962, when the airport opened for business.

TABLE 7.1 ★ Top 10 U.S. Passenger Airports, 2006–2007

RANK	LOCATION	AIRPORT
1	Atlanta, GA	Hartsfield–Jackson Atlanta International
2	Chicago, IL	Chicago O’Hare International
3	Los Angeles, CA	Los Angeles International
4	Fort Worth, TX	Dallas/Fort Worth International
5	Denver, CO	Denver International
6	New York, NY	John F. Kennedy International
7	Las Vegas, NV	McCarran International
8	Phoenix, AZ	Phoenix Sky Harbor International
9	Houston, TX	George Bush Intercontinental/Houston
10	Newark, NJ	Newark Liberty International

SOURCE U.S. Department of Transportation, Bureau of Transportation Statistics, 2008

an on-time arrival record of 73.3%, the second worst in history; the worst record—72.6%—was recorded in 2000.¹ The air traffic control system remains outdated and inefficient, and modernization efforts continue to meet with delay. The FAA is seeking to implement its NextGen system; however, drawn-out congressional reauthorization of the FAA funding mechanism is causing delay and confusion among airport sponsors across the nation.

The old airline business model is being replaced by a newer low-fare, low-cost model. Between 2000 and 2006, U.S. airlines’ domestic operations reported combined operating and net losses of \$27.9 and \$36.2 billion, respectively. However, in 2007—for the first time since 2000—the

airline industry posted a \$5.8-billion net profit. And, cargo carriers continue to report strong results with net profits of \$1.4 billion.¹ While the new airline operating model along with more fuel and operationally efficient aircraft are being introduced into the National Airspace System (NAS), commercial and corporate aircraft operators cannot take advantage until the FAA and other sponsoring agencies implement policies that reduce delays and invest in emerging technologies and infrastructure that increase capacity and safety. In order to meet these challenges, the NAS must find ways to become more flexible and ensure that the capital required to meet these infrastructure needs is available. There is general

SEATTLE / TACOMA, WA ★ Sea-Tac International Airport



Sea-Tac Airport, in the top 10% of the nation's busiest airports, experiences delays due to low visibility conditions approximately 44% of the year. However, its two existing runways were too close to allow for two streams of traffic to land in such conditions. The new, \$1.1-billion runway, which does allow for two streams of traffic, was designed to reduce arrival delays by as much as 80%, save millions of dollars in wasted fuel, and prevent the release of thousands of tons of greenhouse gases. *Photo courtesy of Sea-Tac Airport.*

CHICAGO, IL ★ Chicago-O'Hare International Airport

In 2004, the FAA imposed flight caps on Chicago O'Hare International Airport due to extreme delays that were affecting the airport's operations. The new runway—the airport's seventh and its first since 1971—is part of a larger, \$15-billion expansion project. Designed to handle planes as large as the Boeing 747, the runway will primarily be used for arrivals in inclement weather. The new runway, which has prompted the flight cap to be lifted, will reduce delays by as much



as 40% and allow for an additional 52,000 flights per year, according to the FAA. *Photo courtesy of the City of Chicago.*

TABLE 7.2 ★ Top 10 U.S. Cargo Airports, 2006–2007

RANK	LOCATION	AIRPORT
1	Anchorage, AK	Ted Stevens Anchorage International
2	Memphis, TN	Memphis International
3	Louisville, KY	Louisville International
4	Miami, FL	Miami International
5	Los Angeles, CA	Los Angeles International
6	Indianapolis, IN	Indianapolis International
7	New York, NY	John F. Kennedy International
8	Chicago, IL	Chicago O'Hare International
9	Newark, NJ	Newark Liberty International
10	Oakland, CA	Metropolitan Oakland International

SOURCE U.S. Department of Transportation, Bureau of Transportation Statistics, 2008

consensus that maintaining the integrity of the NAS requires continuous updates and a steady and predictable flow of capital. The FAA estimates a five-year need of \$49.7 billion for the years 2009–2013.¹ The most recent estimates from the Airports Council International's *Airport Capital Development Costs 2007–2011* noted total U.S. airport capital development costs as \$87.4 billion over five years, or \$17.5 billion per year (adjusted for inflation of 4%).⁷

Generally, there are four sources of funding used to finance airport infrastructure and development: airport cash flow; revenue and general obligation bonds;

federal/state/local grants, including the Airport Improvement Program (AIP) grants; and passenger facility charges (PFCs). Access to these funding sources varies widely among airports. Since fiscal year 2001, AIP grants have exceeded \$3 billion annually, and for the past five years, PFC collections have exceeded \$2 billion annually. Together, AIP grants and PFC collections account for 40% of annual U.S. airport capital spending. Since 1990, annual funding for airport capital needs has been in the range of \$5.5 to \$7.3 billion.¹ Since congressional authorization for the AIP expired in September of 2007,

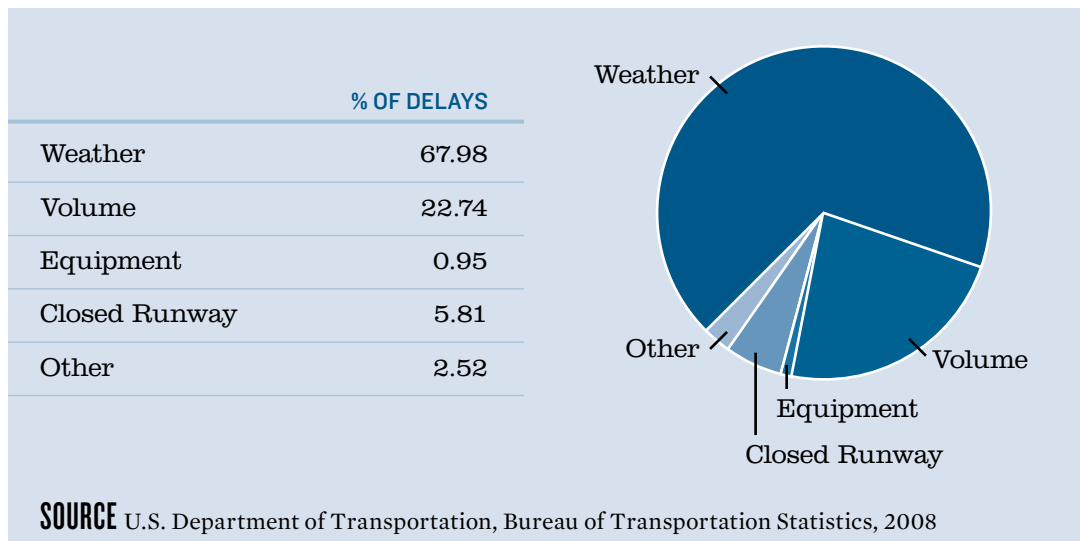
the program has operated under a series of continuing resolutions, making long-term planning difficult.

An additional challenge to airport capacity-building is the fragmented nature of airport ownership. Local governments and the private sector represent the majority of owners and investors in air transportation infrastructure, and they tend to focus primarily on their own needs, and only secondarily on national, systemwide concerns. According to the NPIAS, there are 3,356 existing publicly owned, public-use airports in the United States, with an additional 55 proposed. There are also 522 commercial service airports, and of these, 383 have more than 10,000 annual enplanements and are classified as primary airports.¹

RESILIENCE

Aviation's rapid movement of goods and services, as well as its support of tourism, is critical to the economic vitality of the nation, and air travel is often chosen over other modes of transportation on the basis of convenience, time, and cost. Thus, the consequence of failure is severe. Additionally, shifts in demand corresponding to threats, delays, and fuel pricing contribute to the volatility of the industry. In a highly complex system like aviation, resilience is not simply a matter of technical or facility upgrades. Future investments must consider dynamic system changes, security, capacity, life-cycle facility maintenance, technology innovations, and redundancy.

FIGURE 7.1 ★ Cause of National Aviation System Delays



LOS ANGELES, CA ★ Center Taxiway, Los Angeles International Airport

In 1991, Los Angeles International Airport (LAX) experienced one of the worst runway accidents in the nation's history—between a US Airways 737 and a Sky-West Metroliner. Since then, LAX has consistently held some of the nation's highest annual runway incursion rates, several of which have been classified by the FAA as having had serious potential to cause an accident. Completed on budget and four days ahead of schedule, the new center taxiway was designed to improve safety and reduce the number of runway incursions by acting as a buffer between the two southern runways. After landing, pilots will hold planes on the taxiway for clearance to cross the inner runway. *Photo courtesy of LAWA-LAX (Los Angeles World Airports/Los Angeles International Airport).*



NEWARK, NJ ★ Next Generation Ground Based Augmentation System, Newark Liberty International Airport



In December 2008, Newark Liberty International Airport, in collaboration with the Port Authority of New York and New Jersey, the FAA, Continental Airlines, and Honeywell International, announced that it would be the nation's first major hub to test a new satellite navigation technology designed to reduce flight delays. Replacing existing radar technology, the Ground Based Augmentation System (GBAS) uses data from ground-based antennas and satellites, which prevents the signal from being blocked by mountains, buildings, and other obstacles. This eliminates the need for planes to take a straight-line approach to landing, thus increasing efficiency and navigational precision. The new GBAS system will be installed at the airport and Continental will outfit 15 of its planes with the new equipment and train pilots in using the new system. The program is expected to be operational by the end of 2009.

Photo courtesy of the Port Authority of New York and New Jersey.

CONCLUSION

Just as the industry was recovering from the events of September 11, 2001, it was dealt another blow from the impact of surging oil prices, volatile credit markets, and a lagging economy. In the face of recent FAA estimates that predict an annual 3% growth in air travel, the continuing delays in reauthorization of federal programs and updating of the outdated air traffic control system threaten the system's ability to meet the needs of the American people and economy. To remain successful, the nation's aviation systems need robust and flexible federal leadership, a strong commitment to airport infrastructure, and the rapid deployment of NexGen. ★

SOURCES

- 1 Federal Aviation Administration, U.S. Department of Transportation, *Report to Congress National Plan of Integrated Airport Systems (NPIAS) 2009–2013*, September 30, 2008
- 2 Federal Aviation Administration, U.S. Department of Transportation, *FAA Aerospace Forecast, Fiscal Years 2008–2025*, March, 2008
- 3 Federal Aviation Administration, U.S. Department of Transportation, *Capacity Needs in the National Airspace System 2007–2025: An Analysis of Airports and Metropolitan Area Demand and Operational Capacity in the Future*, May, 2007
- 4 Research and Innovative Technology Administration, Bureau of Transportation Statistics, U.S. Department of Transportation, *October, 2008 Airline Traffic Data*, December 11, 2008.
- 5 U.S. Government Accountability Office, *Next Generation Air Transportation System: Status of Systems Acquisition and the Transition to the Next Generation Air Transportation System*, GAO-08-1078, September, 2008.
- 6 Statement of Gerald L. Dillingham, Ph.D., Director of Physical Infrastructure Issues, U.S. Government Accountability Office, Before the Committee on Science and Technology, U.S. House of Representatives, *Next General Air Transportation System: Status of Key Issues with the Transition to NextGen*, GAO-08-1154T, September 11, 2008
- 7 Airports Council International, *Airport Capital Development Costs 2007–2011*, May, 2007.



ABOVE: Airport congestion at Philadelphia International Airport. Photo courtesy of Matthew Johnson, skyscrapersunset.com