

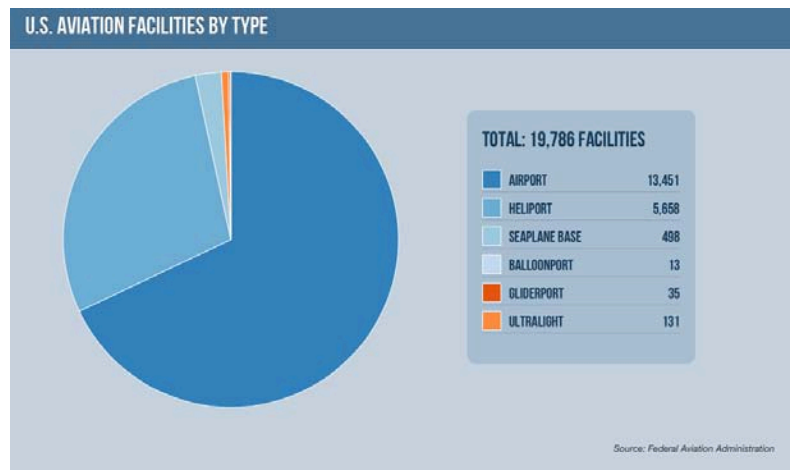
Aviation

2013
GRADE **D**



2013 Report Card for America's Infrastructure Findings

Despite the effects of the recent recession, commercial enplanements were about 33 million higher in number in 2011 than in 2000, stretching the system's ability to meet the needs of the nation's economy. The Federal Aviation Administration (FAA) estimates that the national cost of airport congestion and delays was almost \$22 billion in 2012. If current federal funding levels are maintained, the FAA anticipates that the cost of congestion and delays to the economy will rise from \$34 billion in 2020 to \$63 billion by 2040.



Aviation: Conditions & Capacity

The U.S. aviation industry is made up primarily of airports, the air traffic control system, and aircraft (commercial and private). The United States has 3,330 existing public use airports and 25 proposed airports, which make up the National Plan of Integrated Airport Systems (NPIAS). NPIAS airports are those which the FAA considers significant to national air transportation and are eligible to receive Airport

TOP 10 U.S. PASSENGER AIRPORTS

RANK	AIRPORT NAME	CITY	STATE	2011 PASSENGERS (ENPLANEMENTS)
1	HARTSFIELD-JACKSON ATLANTA INTERNATIONAL	ATLANTA	GA	44,414,121
2	CHICAGO O'HARE INTERNATIONAL	CHICAGO	IL	31,892,301
3	LOS ANGELES INTERNATIONAL	LOS ANGELES	CA	30,528,737
4	DALLAS/FORT WORTH INTERNATIONAL	FORT WORTH	TX	27,518,358
5	DENVER INTERNATIONAL	DENVER	CO	25,667,499
6	JOHN F. KENNEDY INTERNATIONAL	NEW YORK	NY	23,664,832
7	SAN FRANCISCO INTERNATIONAL	SAN FRANCISCO	CA	10,056,568
8	MCCARRAN INTERNATIONAL	LAS VEGAS	NV	19,872,617
9	PHOENIX SKY HARBOR INTERNATIONAL	PHOENIX	AZ	19,750,306
10	GEORGE BUSH INTERCONTINENTAL/HOUSTON	HOUSTON	TX	19,306,660

Source: Federal Aviation Administration, National Plan of Integrated Airport Systems (NPIAS), 2012

Improvement Program (AIP) grants. Of these airports, 499 accommodate scheduled air carrier service including:

- 29 large hub airports;
- 36 medium hub airports;
- 74 small hub airports;
- 239 nonhub primary airports; and
- 121 nonprimary commercial service airports.

The NPIAS system also includes 2,563 general aviation airports and 268 reliever airports.

Airports not included in the NPIAS system include facilities closed to the public or those that do not meet the NPIAS criteria. The total U.S. aviation system includes approximately 617,128 pilots, 222,520 general aviation aircraft, 7,185 air carriers, and a total 19,734 landing areas. Among airports the 29 major hubs play a dominant role in the economy, and the top 15 metropolitan areas with their 35 airports account for 80% of U.S. passenger origins and destination movements, totaling 343 million trips. Similar to passenger travel, freight air shipments are also concentrated in major metro areas, with 70% of domestic air tonnage originating in key metro markets.

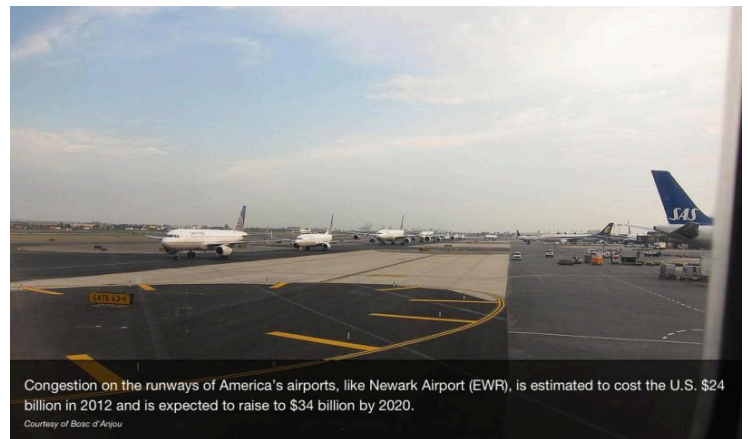
The U.S. airport system accommodates more than \$562 billion in cargo annually in addition to 728 million passenger enplanements. By 2040, the U.S. airport system will carry more than one billion passengers and that air freight tonnage could grow by nearly 200%. A growth in demand could have major ramifications for the U.S. economy. In 2011, the FAA reported that the total output of aviation-related goods and services amounted to \$1.3 trillion in 2009, and generated more than 10 million jobs.

Since 2003, the FAA has been planning and developing the Next Generation Air Transportation System (NextGen), which would replace the nation's 1960s radar technology with a satellite-based air traffic control system. The NextGen system is intended to improve the efficiency and safety of air traffic flow into and out of airports. By improving the flow of air traffic, NextGen is expected to increase capacity of the air transportation system so that future growth can be accommodated while maintaining safety. FAA's capital investment in NextGen is anticipated to be over \$11 billion by 2018, and full implementation of NextGen is projected to cost at least \$32 billion by 2025. However, this does not include the research, airport and associated airfield improvements, or the aircraft equipment needed to realize all the benefits of NextGen.

Despite tough economic times, the aviation industry has proved to be fairly stable for passenger travel. Passenger enplanements for U.S. airlines at home and abroad increased slightly by 3.5% in 2011. This continues

TOP 10 U.S. CARGO AIRPORTS				
RANK	AIRPORT NAME	CITY	STATE	2011 CARGO (BY WEIGHT IN LBS.)
1	MEMPHIS INTERNATIONAL	MEMPHIS	TN	20,303,149,106
2	TED STEVENS ANCHORAGE INTERNATIONAL	ANCHORAGE	AK	17,774,071,223
3	LOUISVILLE INTERNATIONAL-STANDIFORD FIELD	LOUISVILLE	KY	10,981,281,067
4	MIAMI INTERNATIONAL	MIAMI	FL	6,634,448,852
5	INDIANAPOLIS INTERNATIONAL	INDIANAPOLIS	IN	4,813,314,835
6	CHICAGO O'HARE INTERNATIONAL	CHICAGO	IL	4,368,420,500
7	LOS ANGELES INTERNATIONAL	LOS ANGELES	CA	4,043,122,100
8	JOHN F. KENNEDY INTERNATIONAL	NEW YORK	NY	3,944,502,109
9	DALLAS/FORT WORTH INTERNATIONAL	FORT WORTH	TX	3,064,264,844
10	NEWARK LIBERTY INTERNATIONAL	NEWARK	NJ	3,049,215,532

Source: Federal Aviation Administration, National Plan of Integrated Airport Systems (NPIAS), 2012



the post-September 11, 2001 trend, from a low of 612 million passengers in 2002, to 728 million passengers in 2011. In addition to the airline passenger industry, air cargo is important to the U.S. economy, as 30% of exports and 20% of imports measured by value in 2008 were shipped by air. The FAA forecasts an annual average rate of growth of 5.1% through 2030.

The FAA continues to have as its performance goal that 93% of runways in NPIAS airports are maintained in excellent, good, or fair condition. Data for 2011 indicate that 97.5% of runways at NPIAS airports meet that goal, with pavement at commercial airports being better, with 98% meeting the goal. Capacity of runways is also limited by their length as shorter runways cannot accommodate larger airplanes.

In 2011, U.S. air carriers reporting performance reported an overall on time rate of 79.6%. For 2011, 18% of flights were delayed and almost 2% of flights were cancelled.

General aviation is an important part of the aviation community, with more than 222,520 aircraft, including business jets, leisure, law enforcement, medical transportation, agricultural services, and others. The FAA notes that between 2000 and 2009, general aviation flight hours dropped nearly 25%, with fuel costs and aviation security changes as the primary reasons. General aviation's total economic impact was estimated to be \$76.5 billion in 2009, down sharply from the \$97.2 billion in 2008.

The cost of airport congestion and delays to the national economy was \$21.9 billion (adjusted to 2010 dollars) in 2007. If current funding levels are maintained, the FAA further estimates that the cost will rise from \$24 billion in 2012 to \$34 billion in 2020 and can be expected to reach \$63 billion by 2040.

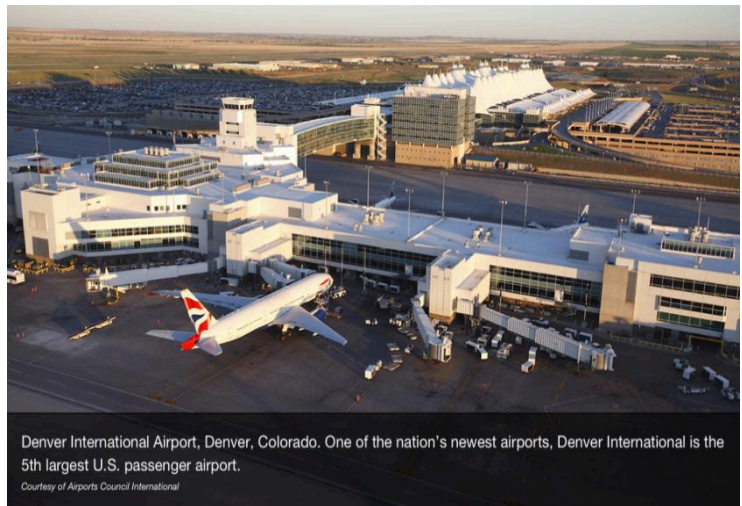
Aviation: Investment & Funding

The primary source of the FAA's capital programs and general operations is the Airport and Airway Trust Fund (Trust Fund). The Trust Fund receives its revenue from excise taxes paid by users of the national aviation systems, including airline passengers, and also taxes charged on ticket purchases and aviation fuel, as well as the shipment of cargo. The Trust Fund provided 68.8% of the FAA budget in 2011, with the rest coming from general treasury appropriations. The Trust Fund's purpose was to establish sources of funding that would increase concurrently with the use of the system, and assure timely and long-term commitments to capacity increases.



Florence Municipal Airport in Florence, Oregon, is one of 2,563 general aviation airports included in the National Plan of Integrated Airport Systems (NPIAS) that represent the closest source of air transportation for 19% of nation's population.

Courtesy of Wikipedia Commons



Denver International Airport, Denver, Colorado. One of the nation's newest airports, Denver International is the 5th largest U.S. passenger airport.

Courtesy of Airports Council International

Generally, four sources of funding are used to finance airport development – airport cash flow, revenue and general obligation bonds, federal, state, and local grants (including the Trust Fund-financed Airport Improvement Program), and Passenger Facilities Charges (PFCs). Since fiscal year (FY) 2001, AIP grants have exceeded \$3 billion annually, and for the last seven years, PFC collections have exceeded \$2 billion annually. Combined, AIP grants and PFC collections account for 40% of annual U.S. airport capital spending. In 2008, commercial service airports reported spending \$10.9 billion in development projects.

When Congress reauthorized the FAA in 2012, the AIP was authorized at \$13.4 billion over four years or approximately \$3.35 billion annually. This represents a slight cut to the AIP, which in the last few fiscal years received \$3.5 billion annually. The nation's airports, including both commercial and general aviation airports, have an estimated \$80.1 billion in total projects between 2011 and 2015 that are considered essential by the airport and airport users. With current funding trends, the total gap between anticipated funding and the capital needs projected by airports is about \$2.2 billion a year between 2012 and 2020. If the funding needs of NextGen are added, that increases to about \$4.3 billion from 2012 to 2020, during the largest implementation phase.

Aviation: Success Stories

Airfield Electrical System at Raleigh-Durham Airport

The replacement of the entire airfield electrical system at Raleigh-Durham International Airport (RDU) represents the first major air carrier airport in the United States to complete a full airfield conversion to FAA-certified LED airfield lighting. Beginning in 2008, the \$20 million, two-year project replaced roughly 230 signs and 3,200 bulbs lighted with incandescent lighting — everything from taxiway edge and centerline lighting to runway centerline lights, obstruction lights, touchdown zone lights, runway end identifier lights, and elevated and in-pavement guard lights — with LED technology. The transition will save approximately \$400,000 per year in energy and maintenance costs, including labor and parts. With AIP funds covering 75 percent of Phase One and North Carolina state funds and federal stimulus funds combining for Phase Two, maintenance savings alone are expected to recoup the airport's portion of the project's cost within 18 months.



Lighting brightens a runway at RDU airport
Courtesy of Raleigh-Durham Airport

Geothermal Project at Portland International Airport

The centerpiece of the Portland International Jetport's \$75 million terminal expansion project was the installation of a geothermal heating and cooling system that reduces operating costs and emissions. A creative first in the airport industry, the \$3 million project was able to make use of a \$2.5 million



The Watsonville Municipal Airport in Santa Cruz County, California, is one of over 5,000 general aviation airports that contributed \$39 billion in economic output in 2009.

Courtesy of Dan Dawson

Federal Aviation Administration (FAA) Voluntary Airport Low Emissions (VALE) grant.

The system will maintain a constant temperature inside the terminal building by injecting heat into the ground during the summer and taking heat out of the ground during the winter. The system has 23 miles of high-density polyethylene piping and 120 ground wells that reach as deep as 500 feet. The system moves more than 475 gallons of water per minute with a 125 horsepower pump.

The new systems replace an oil-fired system and will save \$160,000 in operating costs and prevent the emission of 1,000 tons of carbon per year.

Aviation: Conclusion

The NextGen program, if fully and successfully implemented, promises to enhance air safety, create new efficiencies, and increase capacity. This would in turn save the airlines billions of dollars and alleviate the inconvenience now facing air travelers and goods on which this country is dependent. Meanwhile, an aviation system that was once the envy of the world is beginning to be overtaken by countries with ambitious investment programs for development of dozens of airports, and U.S. airports are no longer ranked among the world's best by air travelers. General aviation airports in the NPIAS program continue to be at risk, as funding for improvements and upkeep remains limited.

Raising the Grades: Solutions that Work Now

1. **Accelerate efforts to modernize the nation's air traffic control system** by implementing the NextGen to meet the 2021 deadline.
2. **Select a dedicated funding source for implementation of NextGen**, such as the existing Aviation Fuel Tax. Avoid any new fees that would compromise the use of the system or public safety.
3. **Increase or eliminate the cap on the Passenger Facilities Charges (PFCs)** to allow airports the flexibility to invest in their own facilities.
4. **Manage the Airport and Airway Trust Fund** so as to maximize investment in the nation's aviation infrastructure and preclude its being used to pay for passenger screening or related security costs.
5. **Preserve the current budget firewalls** to allow for full use of Airport and Airway Trust Fund revenues for investment in the nation's aviation transportation system. Congress should be proactive and reauthorize FAA programs prior to the September 2015 deadline.
6. **Encourage airports to use innovative technology and processes** when expanding and enhancing their infrastructure.

