

# NEXTGEN AND AIRPORTS

**Airports play an integral part in the efficient operation of the National Airspace System. As we put new systems in place, it is necessary to effectively integrate airport infrastructure, technology and procedures to provide the most benefits of NextGen capabilities.**

Over the next decade, air traffic operations are expected to rise by about 2 percent per year. This increase in demand will put pressure on our nation's airports to provide additional capacity but do so in a safe, efficient and environmentally responsible manner. NextGen technologies and procedures, along with infrastructure construction and improvements, will provide the tools for airports to accommodate future growth.

The FAA is currently improving airfield infrastructure at Charlotte, Chicago O'Hare, Fort Lauderdale and Portland, Ore. Those four are among the 21 airfield projects that, over the last decade, have provided 18 of the nation's 35 busiest airports with the potential to accommodate 1.9 million additional operations annually, decrease average delay per operation at these airports by about 5 minutes and reduce the potential for runway incursions.

New airport infrastructure will continue to play an important role in increasing capacity. However, the greatest benefits will come from integrated airport planning and terminal airspace redesign projects that deliver new airport infrastructure served by NextGen Performance Based Navigation (PBN) capabilities. Airport technology systems will need to be optimized to integrate NextGen weather and traffic flow tools into everyday operations, supporting active airport participation in surface management via collaborative decision making with air traffic control and airlines. Airports will need to balance surface, gate and terminal capacity with the improved runway capacity enabled by NextGen.

## **FUTURE AIRPORT CAPACITY TASK**

The FAA's Future Airport Capacity Task (FACT) is an assessment of the future capacity needs of the nation's airports and metropolitan areas to determine which areas have the greatest need for additional capacity. The FACT team published its second report, Capacity Needs in the National Airspace System, 2007-2025, or FACT-2, in 2007. The report identified 14 airports and eight metro areas that will have the greatest need for additional capacity in 2025. Since publication, the FACT team has been working closely with airport operators to develop toolboxes of potential solutions and action plans to address capacity shortfalls. Through ongoing coordination between the FAA and airport sponsors, FACT is identifying planned NextGen capabilities with potential benefits to airports. A summary of ongoing work will be completed in early fiscal year 2011. FACT-3 will expand the analysis. It will incorporate NextGen operational improvement plans that benefit runway capacity, as well as factors such as airspace, surface, gate and terminal/passenger flow constraints.

## **PLANNING AND DESIGN STANDARDS**

As NextGen evolves, airport design standards will change. Several approaches to improving closely spaced parallel runway procedures are being evaluated. When the new

flight procedures are complete, the FAA will revise its airport planning and design standards so that additional runway development alternatives will be available to airports, including the potential to build within existing property. NextGen improvements to precisely separate aircraft and redesign airspace should allow airports to maintain optimum (visual) runway throughput, using their existing runways, during inclement weather. Increased flexibility in gates, terminal designs and access should improve passenger flows to keep pace with capacity improvements of runways, taxiways and ramp areas.

## **GEOGRAPHIC INFORMATION SYSTEM**

Geographic Information System (GIS) surveys are being conducted to provide detailed geospatial data about airports. The data will be used for new Localizer Performance with Vertical Guidance approaches, including obstruction analyses, as well as electronic Notices to Airmen and flight deck airport moving maps. The central database for airport GIS data enhances sharing of both safety-critical data (such as runway end points or the location of navigational aids) and non-safety-critical data (such as the location of a building on the airfield). In addition to providing users with current airport data, it will improve airport planning efforts with more efficient reviews of airport layout plan updates.

## **METROPLEX SYSTEMS**

Many near- and mid-term NextGen capabilities will address capacity and delays at the busiest airports and in congested metropolitan areas. However, less congested airports also will see meaningful benefits from NextGen. With enhanced capabilities, general aviation and reliever airports may be part of potential regional solutions to capacity problems in congested metropolitan areas. For example, the satellite-based Wide Area Augmentation System provides precision approach capabilities to many airports where it was previously not practical using ground-based equipment. These new approaches can provide lower approach minimums and vertical guidance, thus improving safety and providing increased access, especially during periods of poor visibility. Automatic Dependent Surveillance-Broadcast can provide increased safety and efficiency at airports with precision surveillance of aircraft in the air and on the surface as well as improved situational awareness for pilots and airport operators. Surveillance technologies can improve access to airports in non-radar areas. Metroplex improvements that incorporate PBN can reduce airspace constraints and result in improved, efficient access to busy reliever airports.

## **SUSTAINABLE, GREEN AIRPORTS**

As NextGen evolves, airports will become better neighbors. New flight procedures for aircraft have the potential to reduce emissions and noise near airports. Airports are looking at new ways of operating in an environmentally responsible manner. Programs such as the Voluntary Airport Low Emissions program provide funding from the Airport Improvement Program and Passenger Facility Charges to reduce ground emissions at commercial service airports through low-emission vehicles, refueling and recharging stations, gate electrification and other air quality improvements. To help airports plan for the future, the FAA is reviewing existing policies and guidance to see how sustainable planning, design and construction can be incorporated into airport development.

FAA's

# NextGen

## WHY NEXTGEN MATTERS



Federal Aviation  
Administration

NextGen is a comprehensive overhaul of our national airspace system to make air travel more convenient and dependable, while ensuring your flight is as safe, secure and hassle-free as possible.

In a continuous roll-out of improvements and upgrades, the FAA is building the capability to guide and track air traffic more precisely and efficiently to save fuel and reduce noise and pollution. NextGen is better for our environment, and better for our economy.

- NextGen will be a better way of doing business. Travel will be more predictable because there will be fewer delays, less time sitting on the ground and holding in the air, with more flexibility to get around weather problems.
- NextGen will reduce aviation's impact on the environment. Flying will be quieter, cleaner and more fuel-efficient, we'll use alternative fuels, new equipment and operational procedures, lessening our impact on the climate. More precise flight paths help us limit the amount of noise that communities experience.
- NextGen will help us be even more proactive about preventing accidents with advanced safety management to enable us, with other government agencies and aviation partners, to better predict risks and then identify and resolve hazards.
- NextGen boils down to getting the right information to the right person at the right time. It will help controllers and airlines make better decisions. This data will assist airlines in keeping employees and passengers better informed.
- Our nation's economy depends on aviation. NextGen lays a foundation that will continually improve and accommodate future needs of air travel while strengthening the economy with one seamless global sky.
- NextGen will help communities make better use of their airports. More robust airports can help communities attract new jobs, and help current employers expand their businesses. By doing this the U.S. will strengthen its economy and help communities realize all the benefits that aviation can bring.
- NextGen will allow us to meet our increasing national security needs and ensure that travelers benefit from the highest levels of safety.

Excerpts from the FAA's NextGen Implementation Plan, March 2010.  
Download the Plan at [www.faa.gov/nextgen](http://www.faa.gov/nextgen)

# Improved Airport Surface Operations and Airspace Access

- Improved Airspace Safety & Operations
- Improved Runway Access
- Improved Ground Safety & Operations

