Why NextGEN Matters

The movement to the next generation of aviation is being enabled by a shift to smarter, satellite-based and digital technologies and new procedures that combine to make air travel more convenient, predictable and environmentally friendly.

As demand for our nation's increasingly congested airspace continues to grow, NextGen improvements are enabling the FAA to guide and track aircraft more precisely on more direct routes. NextGen efficiency enhances safety, reduces delays, saves fuel and reduces aircraft exhaust emissions. NextGen is also vital to preserving aviation's significant contributions to our national economy.

- NextGen provides a better travel experience, with less time spent sitting on the ground and holding in the air.
- NextGen gets the right information to the right person at the right time.
- NextGen reduces aviation's adverse environmental impact.
- NextGen lays a foundation for continually improving and accommodating future air transportation needs while strengthening the economy locally and nationally.
- NextGen increases airport access, predictability and reliability.
- NextGen enables us to meet our increasing national security and safety needs.
- NextGen safety management helps us to proactively identify and resolve potential hazards.
- NextGen brings about one seamless, global sky.

Visit us at www.faa.gov/nextgen
for information on NextGen, videos, interactive maps and answers to the questions below:

- In discussing the approach procedures at my airport with pilots, there seems to be a need for a new PBN procedure. I'm the airport manager. How do I request consideration for a new instrument flight procedure?
- Where can I find information on newly published RNAV and RNP approach procedures? How many LPV approaches has the FAA published?
- My airport has an existing WAAS-enabled LPV or LP approach, but I'd like to get better ceiling and visibility minimums. What can I do?
- What does NextGen do for airport capacity, particularly during inclement weather?
- I'm interested in vehicle transponders for my airport to improve situational awareness. Where can I go for additional information?
- How does NextGen help improve ATC-surveillance at airports that don't have radar coverage today?
- What is FAA doing to help airports prepare for NextGen?

U.S. Department of Transportation
Federal Aviation Administration

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Federal Aviation Administration

NextGEN Works for Airports

NextGen and General Aviation Airports

Modernizing the U.S. air traffic system is providing access and safety benefits for general aviation airports large and small. General aviation operations will continue to benefit as NextGen progresses.

The WAAS/LPV Option for Low Visibility Approaches

New approach procedures using the Wide Area Augmentation System (WAAS) increase access to general aviation airports, especially during low visibility. WAAS improves horizontal and vertical accuracy of GPS to about 7 feet. New Localizer Performance with Vertical Guidance (LPV) approaches can be flown by equipped aircraft down to a decision altitude as low as 200 feet above the runway. Pilots fly the approach much like an Instrument Landing System (ILS) approach, but airports do not have to install and maintain expensive ground- based equipment.

The FAA has published 3,402 WAAS-enabled approach procedures featuring LPV minima at 1,675 airports, as of April 2014. More than 65,000 general aviation aircraft are equipped with the WAAS receivers needed to fly WAAS-enabled procedures with LPV minima or WAAS-enabled non-precision approach procedures with Localizer Performance minima.

Information Provided Free via TIS-B and FIS-B

Traffic Information Service–Broadcast (TIS-B) uses surveillance data from ground-based air traffic control radars and ADS-B position reports from equipped aircraft and sends these reports back through the ADS-B ground stations to the cockpits of properly equipped aircraft. This will help pilots visually acquire other aircraft more easily. TIS-B will improve pilot situational awareness, including when the aircraft is near an airport. TIS-B shows the pilot of an equipped aircraft the position of traffic within a 15-nautical mile radius and plus or minus 3,500 feet altitude.

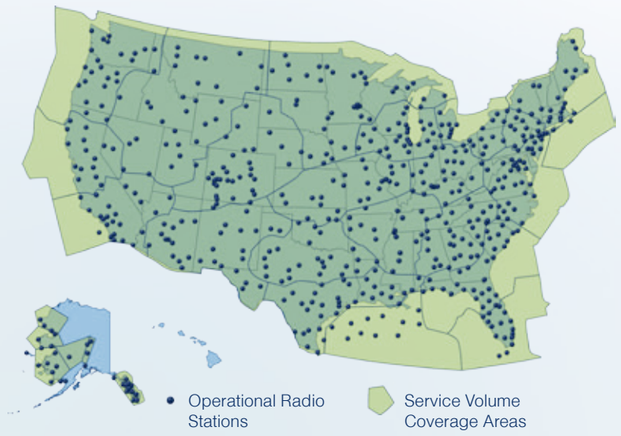
Flight Information Service–Broadcast (FIS-B) is a collection of 12 products that bring to the cockpit display graphical and textual Notices to Airmen, Significant Meteorological Information, pilot reports, real-time weather and the status of special use airspace. Because weather plays a role in many general aviation accidents, FIS-B will provide enhanced safety for pilots of equipped aircraft.

The Benefits of ADS-B

Another NextGen development helping general aviation pilots is the Automatic Dependent Surveillance–Broadcast (ADS-B) network of ground-based transceivers. These transceivers receive GPS position reports from aircraft equipped with ADS-B Out, which enhances air traffic surveillance and aviation safety. The upgrade is required by 2020 for aircraft flying in most controlled airspace.

Ground-based transceivers provide nationwide coverage. Transceivers transmit data on air traffic (TIS-B) and weather information (FIS-B). Pilots of equipped aircraft are benefitting from these data when flying over many areas of the United States. The services are free.

Surveillance and Broadcast Services



A service volume is a defined volume of airspace in the National Airspace System within which a set of Automatic Dependent Surveillance–Broadcast services, such as traffic and weather information, is available and has achieved required performance levels. The three types of service volume are En Route, Terminal and Surface.

NextGen and Commercial Airports

In anticipation of air traffic growth, NextGen will help commercial airports accommodate the demand for additional capacity in a safe, efficient and environmentally responsible manner.

Sharing Surface Surveillance Data

Surface data sharing among airports, airlines and the FAA is key to safe and efficient airport operations, enabling better use of existing capacity and a more integrated recovery after irregular operations. The FAA is deploying tools that will enable airports, airlines and other operators better access to surface surveillance data. The FAA has installed Airport Surface Detection Equipment–Model X (ASDE-X) at 35 busy airports, and is deploying ADS-B and multilateration upgrades to the surface detection equipment at San Francisco International Airport. Upgrades at San Francisco will be complete by the end of 2014, and eight other airports will receive enhancements through 2017.

Real-time surface data at these 44 airports is available to airport and aircraft operators. The FAA has streamlined the approval processes for access through the new, secure National Airspace System (NAS) Enterprise Services Gateway. The gateway provides a secure connection between NAS and non-NAS systems that meets federal requirements, permitting external release of data while protecting internal systems.

The System Wide Information Management (SWIM) Terminal Data Distribution System (STDDS) takes raw surface data and converts it into easily accessible information. STDDS sends surface information from airport towers to the corresponding Terminal Radar Approach Control facility, which makes the information available via SWIM messaging services. Airlines and airports can use this information to streamline surface operations and increase efficiency.

Keeping Track of Ground Vehicles with ADS-B Out

The 44 airports with FAA surface surveillance can install ADS-B Out transponders, also known as squitters, on vehicles that drive in the airport movement area. Vehicles will transmit their GPS-derived position so controllers will see their location on an ASDE-X display of the airport surface. Airport operations centers can see the same, real-time operational picture. Pilots of aircraft equipped with ADS-B In cockpit displays also will be able to see vehicle locations.

Surface Collaborative Decision Making

FAA and aviation community collaborators have developed the U.S. Airport Surface Collaborative Decision Making (SCDM) concept of operations (ConOps). SCDM leverages real-time data sharing among all surface stakeholders, coupled with operational data from flight and airport operators, to better understand and manage demand on the surface. SCDM shifts delays from the runway to the ramp or gate area where aircraft can wait with engines off. Aircraft burn less fuel, the airport surface is less congested and passengers are able to wait comfortably in the terminal.

NextGen Upgrades for 13 Metroplex Areas

The FAA is moving ahead to rapidly implement new Performance Based Navigation (PBN) procedures and minor adjustments to airspace sectors. PBN includes Area Navigation (RNAV) and Required Navigation Performance (RNP) procedures that enable aircraft to fly approaches and departures on paths not available previously because of the constraints of ground-based navaids.

This effort, the Optimization of Airspace and Procedures in the Metroplex, is addressing 13 metroplex areas for study and improvement through 2017. A metroplex is a metropolitan area where multiple airports are located. For example, the Southern California metroplex contains more than a dozen general aviation airports and commercial airports such as Los Angeles International Airport. Metroplex improvements include more direct routings and optimized profile descents that save fuel, and procedures to deconflict arrivals and departures at proximate airports. General aviation airports with substantial instrument operations will also see improved efficiency and access.

Closely Spaced Parallel Runway Operations

The FAA continues to evaluate procedures at airports with closely spaced runways. Our goal is to reduce separation with no loss of safety between aircraft as they approach closely spaced parallel runways to improve capacity.

For many years, the lateral separation standard for independent arrivals required that runways be spaced 4,300 feet or more apart. After determining lateral runway separation can be reduced safely, the FAA in August 2013 made effective a revised separation standard of 3,600 feet for independent arrivals.

There are 16 parallel runway pairs at eight airports: Boston, Cleveland, Newark, Memphis, Philadelphia, Seattle, San Francisco and Salt Lake City. These runways spaced less than 2,500 feet apart are authorized for 1.5 nautical mile-dependent staggered approaches. Work will continue through 2015 to authorize additional runway pairs at more airports.