



The Next Generation Air Transportation System

The Next Generation Air Transportation System, NextGen, is an umbrella term for the ongoing, wide-ranging evolution of the United States' national airspace system. NextGen is not a single piece of equipment or a program or a system that will instantaneously transform the NAS. Rather, it is a portfolio of changes to systems, procedures, airspace, and airfields that allow us to improve operations across every phase of flight.

At its most basic level, NextGen transforms how we communicate, navigate and provide surveillance. These core improvements derive from aviation-specific applications of widely-used technologies that are similarly transforming our personal and professional lives, such as GPS, digital communications, and network-to-network data sharing. In addition to the new tools and procedures these improvements will enable, NextGen also includes airfield improvements at key locations across the country. Taken together, NextGen's comprehensive portfolio will increase safety and operational efficiency, improve aviation's environmental performance, and support future air traffic growth.

FAA's NextGen Implementation Plan describes the operational changes we aim to implement over the next 10 years. It shows how systems we're installing today—ERAM and ASDE-X, for example—will combine with the core transformational programs, like System Wide Information Management (SWIM) and Data Communications, to support these changes. It takes an initial look at the degree of benefits we expect from early NextGen implementation, and starts a dialogue with the aviation community

about the avionics equipment that may be required to complement systems on the ground. FAA's NAS Enterprise Architecture provides the technical details and decision milestones behind the evolution. Both are available online on FAA's NextGen Web site.

NextGen has been characterized by Congressional leaders as "a systems engineering, management, and regulatory challenge as complex as any the nation has ever faced." Much research, development and testing remain to be done to prove the feasibility and value of the operational capabilities defined in the Plan, and the agency has been given the green light to aggressively pursue this work. NextGen is fully supported by Congress. We received more than \$600 million for fiscal year 2009, and the President's fiscal year 2010 budget proposes \$800 million for the effort. Transportation Secretary Ray LaHood said that "civil aviation is one of the most critical components of our economy and it needs to be a part of our economic recovery. You're going to see some dramatic movements in the area of NextGen."

NextGen's success depends on the participation of a highly-trained workforce with the technical and operational expertise and the business acumen to continue to deliver complex programs on time and on budget. Everyone who works in the system—researchers, engineers, program managers, policy makers, pilots, controllers, dispatchers and technicians—each and every discipline has a role and a stake in NextGen. NextGen offers tremendous career opportunities for those who want to lead this chapter in aviation history.

NextGen on the Web

Public Web site: www.faa.gov/nextgen

Intranet site: atoexperience.faa.gov/nextgen

E-mail: nextgen@faa.gov



**Federal Aviation
Administration**



WHAT THIS MEANS TO YOU:

TECHNICAL OPERATIONS IN THE SERVICE AREAS

NexGen is underway, but it will not happen overnight. Technical Operations employees will be responsible for integrating new NextGen systems into the NAS over the next decade. Even as the new equipment is installed, legacy equipment and training will need to be maintained and other systems decommissioned. The first wave begins today, with the installation of ERAM, and the decommissioning of HOST.

Training on new systems and equipment as they come online will include enhancements, such as simulator-based training using virtual reality methodology. This enhancement will be developed to ensure that Airway Transportation System Specialists maintain proficiency on these new systems without removing equipment from operation.

With NextGen, systems will be developed with like system design for multiple type facilities. Technology will become network based, allowing us to take advantage of centralized control and maintenance. One of the NextGen cornerstones is information sharing. In Technical Operations, centralized

databases will track life expectancy of parts based on historical data and improve the ability to better predict lifecycle trends. This information will then feed back to program offices to better meet the needs of these customers.

The ATO leadership team is working with Technical Operations management and employees in the field on the following issues:

- Updating a maintenance strategy that includes NextGen capabilities and beyond.
- Investigating NextGen's effect on facility power and communications infrastructure, airport shared power, and communications resources.
- Investigating how to enhance remote monitoring application through modern networking and develop standards. Then use those standards to expand the capability into NextGen equipment.
- Improving communication with the field when conducting demonstrations and trials.

NextGen Transformational and Enabling Technologies

- **Communication and Data Sharing**
 - Collaborative Air Traffic Management Technologies (CATMT)
 - Data Communications (Data Comm)
 - En Route Automation Modernization (ERAM)
 - NAS Voice Switch (NVS)
 - System Wide Information Management (SWIM)
- **Navigation**
 - Area Navigation (RNAV) / Required Navigation Performance (RNP)
- **Surveillance**
 - Airport Surface Detection Equipment – Model X (ASDE-X)
 - Automatic Dependent Surveillance – Broadcast (ADS-B)
- **Weather**
 - NextGen Network Enabled Weather (NNEW)