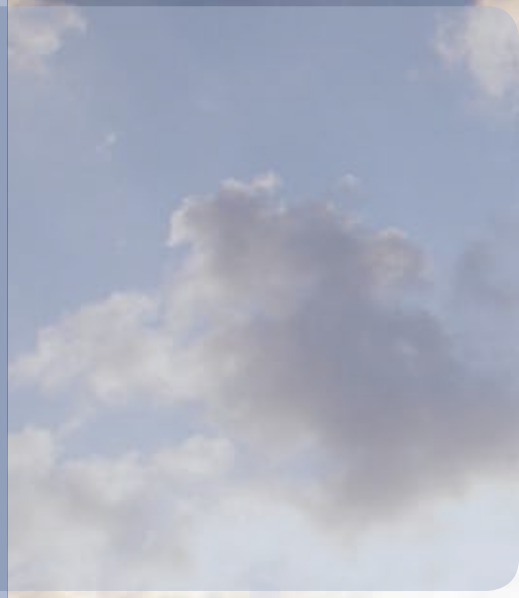


U.S. Department of Transportation

Federal Aviation Administration

800 Independence Avenue, S.W.
Washington, D.C. 20591

www.faa.gov

AJC200806-006

FAA
Air Traffic Organization

2007 Annual Performance Report

Focused on Excellence

ATO by the numbers

America's national airspace system is a network of people, procedures and equipment, all contributing to the safest airspace in the world. Pilots, controllers, technicians, engineers, inspectors and supervisors work together to make sure millions of passengers move through it safely every day. The FAA operates 314 air traffic control facilities and the Air Traffic Control System Command Center.

Facility Type	Number of Facilities
Tower without Radar	1
Terminal Approach Control (TRACON)	22
Combination TRACON and Tower with Radar	137
Combination Non Radar Approach Control & Tower without Radar	2
Combined Control Facility	4
Tower with Radar	123
Air Route Traffic Control Center (ARTCC)	21
Combined TRACON Facility	4
Air Traffic Control System Command Center	1

Cover photo: Localizer system at Miami International Airport. Jon Ross, ATO

2007 Annual Performance Report
Focused on Excellence

Contents:

“We are currently living in the safest period in aviation history. There was not a single airline passenger fatality or major airline accident in 2007. This past fiscal year, we also succeeded in reducing the most serious types of runway incursions and operational errors.”

Letter from Acting FAA Administrator

Whether we fly or not, civil aviation touches our lives in unseen ways. It contributes $1.2 trillion in economic activity, 11 million jobs, and represents 5.6 percent of the gross domestic product. Aviation can also be a lifesaver during times of emergency.

For these reasons, the Federal Aviation Administration's Air Traffic Organization (ATO) is more committed than ever to providing safety, service and value to all of our stakeholders.

We are currently living in the safest period in aviation history. There was not a single airline passenger fatality or major airline accident in 2007. This past fiscal year, we also succeeded in reducing the most serious types of runway incursions and operational errors.

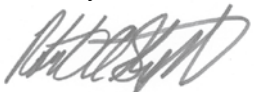
Ensuring safety, however, is an ever-vigilant process. As the fiscal year came to a close, we put the spotlight on runway incursions by convening a meeting with airport and industry officials. Through this effort, we identified more than 100 short-term initiatives, and several more mid- and long-term initiatives. Nearly all of the short-term initiatives are complete and we're working closely with the airports to implement the rest.

The ATO has come a long way toward operating more like a business. We conduct rigorous investment analyses of our capital programs and scrutinize the financial performance of each line of business. Better financial management has allowed us to deliver programs on schedule and within budget.

This past fiscal year, the FAA has moved forward in building the Next Generation Air Transportation System (NextGen). We released a NextGen implementation plan and awarded a $1.8 billion contract to build the Automatic Dependent Surveillance-Broadcast ground infrastructure. We also recently completed the transition to the FAA Telecommunications Infrastructure, a project that will provide the basis for air traffic control communications in the future. As we move forward, we need to have a stable funding stream to ensure that NextGen's benefits come to fruition.

This report details our progress this past fiscal year in safety, improving efficiency, expanding air traffic capacity, performing more like a business and our plans for NextGen.

Sincerely,



Robert A. Sturgell
Acting FAA Administrator

Robert A. Sturgell. Photo: Jeff Bruzdzinski, ATO

“Our plan is to build the Next Generation Air Transportation System (NextGen). NextGen will rely on 21st century technologies, including GPS, digital communications and net-centric operations. NextGen will also be a system that maximizes the value of every drop of fuel burned. And we’re already putting NextGen in place.”

Letter from Chief Operating Officer

The fundamental mission of the Air Traffic Organization (ATO) is to maximize the safety and efficiency of our nation's air traffic system. Toward this effort, our 34,000 employees made great strides in 2007.

Aviation safety is personal for me. As chief operating officer, I am promoting a strong safety culture. A major step toward creating this culture is to focus our attention proactively to mitigate unsafe conditions. That is why in fiscal 2007 we moved forward with the ATO's Safety Management System, a comprehensive, integrated approach to safety.

We're also committed to minimizing airline delays and expanding air traffic capacity. In 2007, we employed the use of innovative delay-reducing tools such as the Airspace Flow Programs and Adaptive Compression. In addition, we began to implement the New York/New Jersey/Philadelphia Airspace Redesign, a project that will help reduce airline delays, fuel usage and emissions.

A safe, efficient system can only be assured by having a dedicated, qualified workforce. This past fiscal year, ATO has taken steps to address the retirement bubble by hiring more than 1,800 air traffic controllers and introducing new technology to reduce controller training time.

In terms of organizational progress, I'm proud to say that in 2007, 97 percent of our major acquisition programs were delivered on schedule and 100 percent were within budget.

Now as we look to the future, we see several trends that will affect air traffic system operations: oil prices, airline mergers, hub redistribution, growth in passenger traffic, and the emergence of very light jets, unmanned aircraft systems and commercial space vessels.

In order to meet the changing needs and demands of the aviation marketplace, we must have an organization that is flexible.

Our plan is to build the Next Generation Air Transportation System (NextGen). NextGen will rely on 21st century technologies, including GPS, digital communications and net-centric operations. NextGen will also be a system that maximizes the value of every drop of fuel burned. And we're already putting NextGen in place.

Many challenges still remain. We must continue to improve our acquisition management. We must clearly articulate the changes that NextGen will bring to the aviation community. We must also cultivate the community and political support necessary to build NextGen.

However, as this report shows, we are in good shape to meet these challenges.

Sincerely,

Hank P. Krakowski
ATO Chief Operating Officer

Hank P. Krakowski. Photo: David Hills

FOCUSED ON SAFETY:

Delivering Quality Operations

Runway Status Lights are helping curb runway incursions: The number of serious runway incursions has been reduced by 55 percent since 2001. In fiscal 2007, there were 24 serious incursions during 61 million aircraft operations — a significant reduction from the 31 incursions in 2006 and the 53 in fiscal 2001. Photo: ATO

The Air Traffic Organization (ATO) was established in 2003 to provide the most efficient air traffic control service and the highest level of system safety. This system is one that moves aircraft safely, handles the volume of air traffic operations with minimal delays and is protected from security threats. Commercial, private and military aviation operators want predictability of flight operations with an emphasis on maximum throughput – the rate aircraft pass through the airspace – and on-time arrivals.

Operating Safely

The best way to measure the effectiveness of any safety system is to examine the available data. And the data we have today tells us that commercial aviation is safer than ever before. According to the National Transportation Safety Board (NTSB), in 2007 U.S. carriers had only 0.1 serious accidents* for every million hours flown.

The ATO's priority is to make a safe system even safer, especially as aviation is forecast to continue to grow over the long-term, even with current record oil prices.

Increasing Predictability of Flight Operations

Adverse weather, such as thunderstorms, low cloud ceilings and snow, has a significant impact on flight operations. In 2007, 66 percent of all delays were due to weather-related events. The ATO aims to improve how traffic is managed during bad weather and minimize the impact of weather on on-time performance.

Safeguarding National Aviation Security

The security of the national airspace system (NAS) goes hand-in-hand with the safety of the system. The ATO works in collaboration with the departments of Defense and Homeland Security, as well as law enforcement agencies, to protect the NAS from security threats. At the same time, the ATO is helping to optimally balance these security actions with the efficiency needs of the system's users.

> "The whole purpose of the safety effort is to make sure that you have operational excellence. It's not just safety compliance, it's operating the best you can, safely, all the time."
>
> Hank P. Krakowski, ATO Chief Operating Officer

*NTSB classifies a serious accident as one in which at least one of two conditions is met: there was one fatality without substantial damage to a Part 121 aircraft (scheduled air carrier), or there was at least one serious injury and a Part 121 aircraft was substantially damaged. A major accident is classified as one in which any of three conditions is met: a Part 121 aircraft was destroyed, there were multiple fatalities, or there was one fatality and a Part 121 aircraft was substantially damaged.

“While the ATO’s aggressive runway safety program has reduced the number of serious runway incursions by 55 percent since 2001, we continue to focus on reducing the number of incursions through outreach, awareness, improved infrastructure and technology.”

Robert A. Sturgell, Acting FAA Administrator

Fiscal 2007 Accomplishments that Improve Operations

Rate of Operational Errors Reduced

Air traffic controllers ensure the safety of air travel by keeping aircraft safely separated from other aircraft, vehicles and terrain. An operational error occurs when an aircraft comes closer than the established standards for separation.

Identifying the various factors associated with those incidents, ensuring that errors are correctly reported and conducting targeted preventive training ensures the ATO continues to reduce the risk of operational errors.

Each year, the ATO sets a more aggressive goal to reduce operational errors to make the system safer. The agency met its operational error reduction target in 2007 for the second year in a row. The ATO achieved a safety milestone with the reduction of the most serious Category A and B operational errors. The performance limit was to reduce the rate to no more than 4.27 A and B operational errors per million operations. Fiscal year 2007 ended with a rate of 4.06 A and B operational errors per million operations (figure 1.1).

Additionally, in fiscal 2007 the ATO launched a software-based operational error detection system. The ATO began installing Traffic Analysis and Review Program (TARP) software at five ATO approach control facilities across the country. The program automatically detects losses of aircraft separation, allowing better analysis of the factors that lead to operational errors, and helping find ways to eliminate them and reduce risk.

Figure 1.1 **Operational Errors**

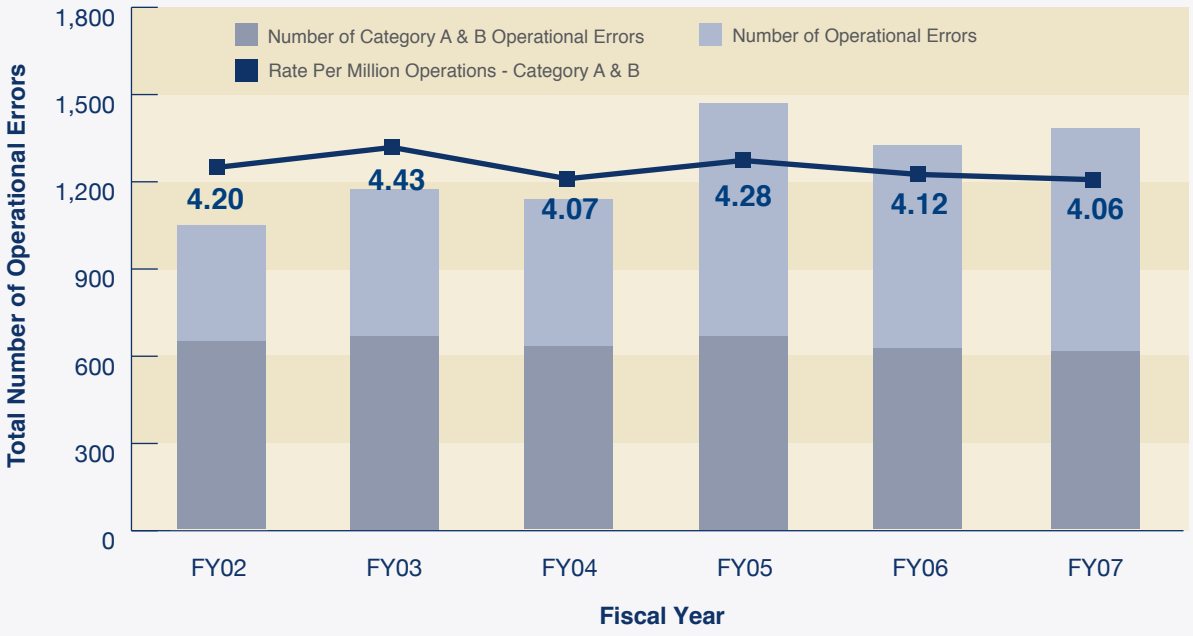
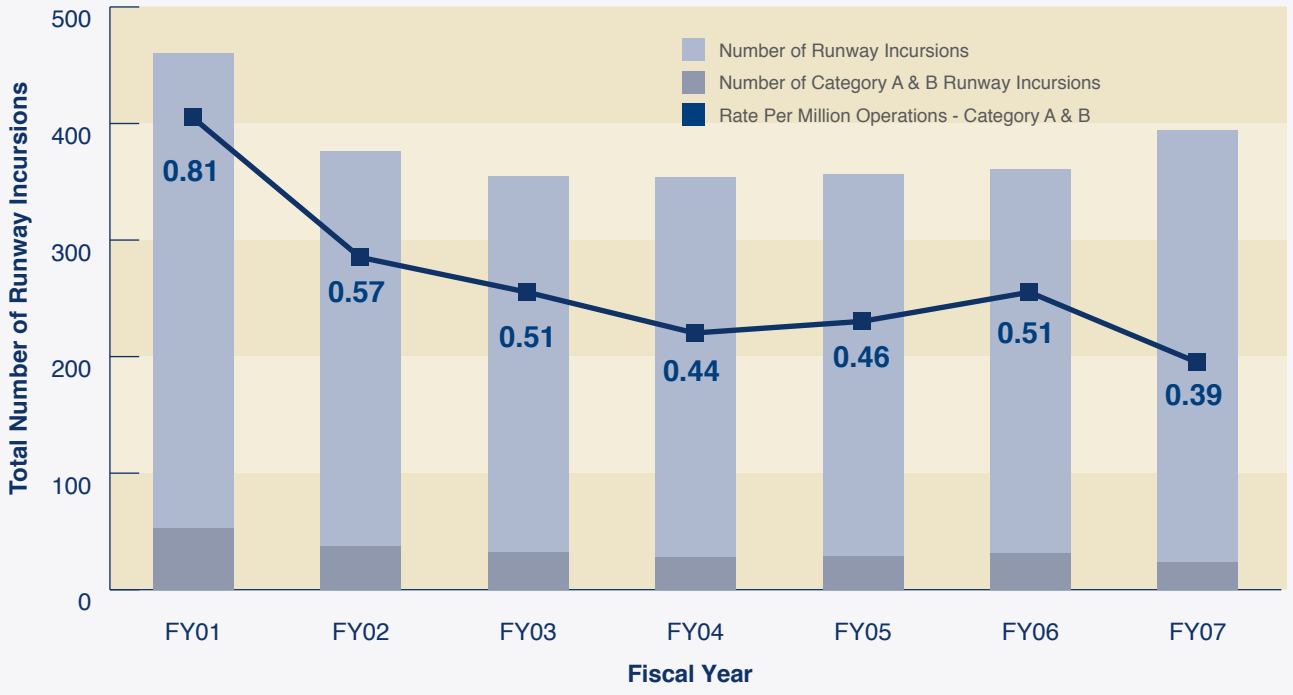


Figure 1.2 **Runway Incursions**



Rate of Serious Runway Incursions Reduced

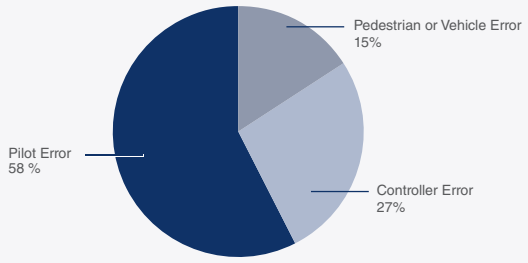
In 2007 61 million aircraft operations occurred on the nation's runways managed by the ATO. One of the ATO's key safety goals is preventing the occurrence of incursions on these runways. Runway incursions are defined as the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft.

Implementing runway management strategies, the ATO achieved its safety performance limit for runway incursions for the sixth consecutive year. The goal was to reduce the rate of Category A and B runway incursions, the most serious, to 0.530 incursions per million operations. In fiscal 2007 the final rate was 0.393 serious incursions per million operations (figure 1.2).

A number of factors contribute to runway incursions (figure 1.3). In an effort to address the causes of runway incursions, the FAA issued a "Call to Action" in August 2007 for the aviation community to refocus on ways to improve runway safety. The FAA and industry agreed to an ambitious plan focusing on improving airport signage and markings, air traffic procedures, cockpit procedures and introducing new technology to reduce runway incursions and wrong runway departures.

As a result of the Call to Action, specific runway safety improvements have already been implemented at hundreds of airports. These include improved airport markings, additional pilot and controller training, and the installation of new low-cost technologies to improve airport surface operations.

Figure 1.3 **What's Driving Runway Incursions?**



Fiscal Year 2007

Icy Upkeep

Technical Operations employees keep equipment working every day of the year and in all kinds of weather. In the remote four-mile stretch of tundra known as Middleton Island in the Gulf of Alaska, technicians work shifts that sometimes last several weeks to make sure the radar is operational.

Photo: ATO

Safety Management System Order Approved

The ATO introduced a new Safety Management System (SMS) to manage safety risk while reinforcing and improving the ATO's existing safety culture. By gaining a better understanding of problems, the potential for incidents is reduced. Millions of records of runway safety data have been reviewed to develop and implement runway safety improvements.

The ATO's SMS order was published on March 19, 2007, and conforms to an International Civil Aviation Organization (ICAO) agreement and aviation industry safety practices.

Use of Adaptive Compression Maximizes Available Airport Slots

In March 2007, the ATO introduced a new automated tool that constantly scans for open airport slots due to delayed, cancelled or rerouted flights, which has saved 1.1 million delay minutes and more than $27 million. It is part of a portfolio of traffic management system enhancements.

Airspace Flow Programs Respond to Severe Weather

In fiscal 2007, the ATO more than doubled the number of Airspace Flow Program (AFP) locations to help manage traffic across much of the country from the Mississippi River eastward.

Airlines choose the option of either accepting delays for flights scheduled to fly through thunderstorms or flying longer routes to maneuver around storms.

The number of AFP locations — chosen for their combination of heavy traffic and frequent bad weather — has been expanded from seven to 18.

Dynamic AFPs are used in other areas to target storms with surgical precision as storms develop and move.

From May through August 2007, a total of 58 AFPs were used. Airlines saved $68 million dollars in fuel, crew costs and avoided cancellations and delays.

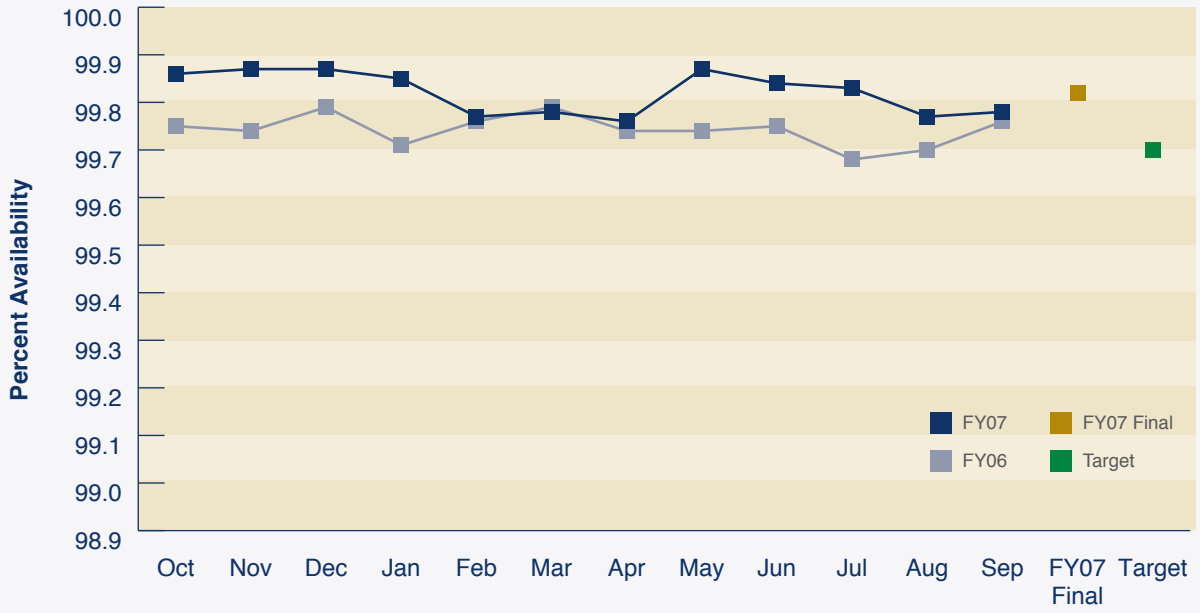
Expanded Precision Approach Procedures

With new on-board technology, pilots can use satellite-position reports to navigate through bad weather using the FAA's Wide Area Augmentation System (WAAS), a system of ground stations that provide necessary augmentations to the Global Positioning System navigation signal. Using a precision maneuver known as Localizer Performance with Vertical Guidance (LPV), pilots can use their onboard instruments to get as close as 200 feet above the runway during periods of low visibility due to bad weather. Precision approaches help maintain the same number of arrivals during poor weather as during optimal weather.

Exceeded Operational Availability

In fiscal 2007, the agency exceeded its goal (99.70 percent) for adjusted operational availability of equipment, which is the percentage of time equipment systems are available, with a 99.82 percent availability rate (figure 1.4).

Figure 1.4 **Adjusted Operational Availability at the 35 Busiest U.S. Airports**



Washington, D.C., Metropolitan Air Defense Identification Zone Modified

In fiscal 2007, the FAA modified the restricted airspace above Washington, D.C., to make it safer, more secure and easier for general aviation and other pilots to navigate. Pilots now use a single navigational aid instead of four; and 33 airports and helipads, in approximately 1,800 square miles of airspace, are now outside the Air Defense Identification Zone (ADIZ).

As a result of the redesign, there has been a significant drop in the number of air defense zone violations; analysis indicates that about one third of all violations occurred in the “mouse ear” portion of the former ADIZ.

The Washington, D.C., Metropolitan ADIZ prior to Aug. 31, 2007 (left), and the redesigned ADIZ (right). Chart: FAA

FOCUSED ON CREDIBILITY:

Enhancing Financial Discipline

The FAA has made significant progress in addressing air traffic modernization program weaknesses since it was designated as high risk in 1995, according to the Government Accountability Office. Photo: Jeff Bruzdzinski, ATO

The ATO has made significant improvements in financial discipline. Since established by Congress, the ATO has come a long way toward investing in the right capital programs by adhering to an established set of business controls. Reducing overhead costs is a motivating force that has reaped substantial benefits. Managing operations now clearly means managing safety, service delivery and cost.

Lowering Operating Costs

Congress expects the ATO to wisely use the funds and resources it entrusts to the organization. If it invests wisely in facilities and equipment, increases productivity, eliminates waste, and adheres to proven business practices to prioritize investments, the ATO will increase operating efficiency of the national airspace system (NAS), reducing the operating costs and delays.

Improving Credibility

Improved program management and reduced costs have had a direct impact in earning the public's trust and boosting the organization's financial credibility.

Investing In the Future

Sound investment decisions are essential. The best investments support the evolution of the air traffic control system, keeping today's air traffic system running while building a platform for the future. ATO leaders review each capital investment to determine if the program will support the development of the Next Generation Air Transportation System (NextGen).

> "We systematically manage our appropriated funds. We know where we stand. We know how much money we have and where we spend it. We know this early and plan our expenditures carefully to help make our operations efficient."
>
> Gene Juba, ATO Senior Vice President for Finance Services

Fiscal 2007 Accomplishments that Enhance Financial Discipline

> FAA continues to make progress in implementing a comprehensive and complex staffing plan."
>
> Department of Transportation Inspector General

The ATO Met Its Two Acquisition Targets in Fiscal 2007

- **Cost:** The target required that at least 87.5 percent of major baseline Capital Investment programs stay within 10 percent of budget. 100 percent of the programs met this standard.
- **Schedule:** The target specified that 87.5 percent of major Capital Investment programs should meet established activity milestones schedule dates – 97 percent (65 of 67) met the standard.

Controller Hiring

In fiscal 2007, the agency hired 1,815 new controllers, boosting the total controller workforce to 14,874 employees, which is 0.5 percent higher than the fiscal year performance goal (figure 2.1).

Increasing Productivity

By taking advantage of improved technologies, insights from industry, and training, the ATO is becoming more productive. Notable accomplishments for fiscal 2007:

- A Staffing-to-Traffic Tool has been created to help facility planners determine the most effective way to schedule controllers for each shift. By using historic controller staffing data and merging it with peaks and valleys in air traffic operations, the tool helps managers build optimal staffing schedules. For example, using the tool, planners at the Minneapolis Air Route Traffic Control Center were able to improve the average controller time-on-position per eight-hour shift from 3.75 hours to 4.58 hours in just one month in April 2007 – a productivity gain of more than 20 percent.
- ATO implemented an effective and efficient training process that takes a newly hired controller from learning the fundamentals of air traffic control to earning the Certified Professional Controller designation and maintaining that proficiency. The use of simulators is a proven and effective training aid and mirrors what pilots have been doing for years. By introducing high-fidelity simulators to FAA Academy curriculum and field facilities, the training process is now more efficient. Depending on the complexity of the facility, controllers are now being trained in 2 to 3 years, down from 3 to 5 years, and are able to be fully productive where it counts – the air traffic facilities in the field – in nearly two-thirds of the time it used to take.

Wise Investment Decisions

By tracking cost and schedule milestones, the ATO ensures that taxpayer dollars spent through acquisition programs achieve desired performance outcomes. The ATO met its targets regarding high-interest programs such as Airport Surface Detection Equipment–Model X, Runway Incursion Reduction Program, Automatic Dependent Surveillance–Broadcast, Integrated Terminal Weather System, Distance Measuring Equipment and FAA Telecommunications Infrastructure. Some notable accomplishments during fiscal 2007:

- Installed 931 new Ultra High Frequency and 1,180 multi-mode digital radios under separate communications upgrade projects.
- Installed 54 Precision Approach Path Indicators and 21 Runway End Identifier Lights systems.

» Integrated five international reference stations into the Wide Area Augmentation System (WAAS) and a new geostationary satellite signal into the system three months ahead of the target.

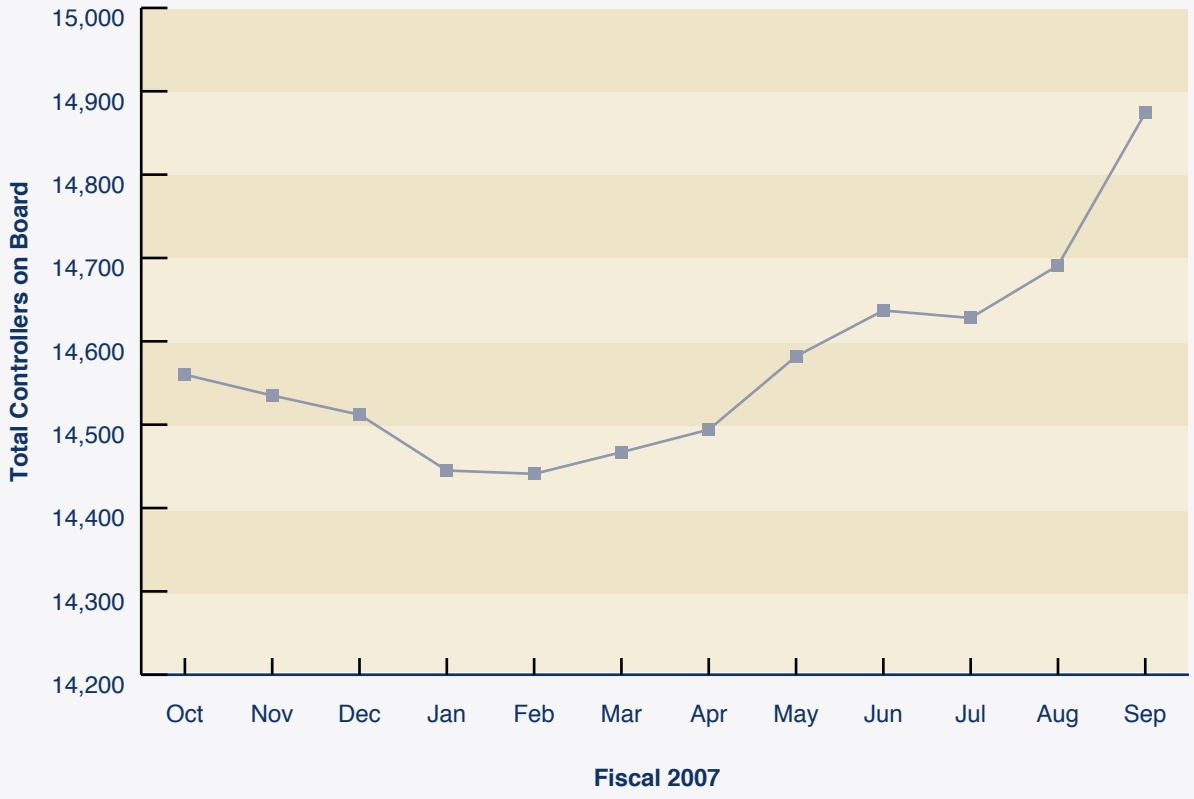
Decommissioning and Disposal of Real Property

In fiscal 2007, the ATO removed 488 outdated navigational aids from the federal network. Disposing of obsolete technology has saved the agency $8.6 million. The ATO also disposed of real property and restored land assets at 45 locations, saving $3.2 million over a 10-year period. Additional cost savings from this program are expected in 2008.

Sound Business Practices

The ATO implemented strong program control procedures to institutionalize processes and ensure efficient program and project management. Executive oversight focuses not only on delivering solutions to meet growing demand, but also on cost, schedule and performance. More detail and agency scrutiny have created budgets that provide transparency.

Figure 2.1 **Air Traffic Controller Hiring**



FOCUSED ON GROWTH:

Increasing Capacity

The FAA strives to increase capacity to meet expected demand growth. Photo: Jon Ross, ATO

To meet America's aviation needs, increasing system capacity is an absolute necessity. The ATO works to ensure that planes arrive and depart their destinations on time. With an extensive data collection network, the ATO tracks airport capacity at the busiest and most congested airports in the system. An examination of this data allows the ATO to identify trends and risks to be addressed.

Safely Increase System Capacity Where and When Needed

Aviation is a big driver of U.S. economic growth. It is important that the national airspace system (NAS) keeps up with growing demand for more flights and accommodates new types of aircraft. The ATO recognizes that the airline companies will adapt their own business plans to respond to the traveling public's needs and to maximize profitability. Such changes can happen quickly, and the ATO must position itself to respond effectively.

Collaborate Effectively with Stakeholders

Effective collaboration is the solution to understanding the future needs of stakeholders and customers. The ATO works closely with the aviation industry to reduce delays. For example, Collaborative Decision Making involves airlines sharing schedule information with the ATO's Air Traffic Control System Command Center, including flight delays, cancellations and newly created flights. The Command Center uses this information to monitor airport arrival demand, and takes steps to reduce delays caused by heavy traffic and severe weather, and acts to minimize choke points. The Command Center hosts telephone conference calls every two hours throughout the day to discuss problems affecting capacity in the system and decide the most effective way to handle them. During the calls, traffic flow managers seek input from frontline air traffic facilities, weather professionals and representatives from the aviation community, including the commercial airlines and general aviation.

Prioritize Capacity Initiatives Based on Outcomes and Costs

To meet the emerging demands for quality and safe services at lower costs, the ATO is approaching everything it does with an eye toward innovation. The organization is carefully prioritizing these improvements by preparing and analyzing operational business cases before decisions are made to ensure that it has complete pertinent information to make the right choices in how to drive capacity improvement.

> "By 2025, we expect revenue passenger miles to more than double."
>
> Transportation Secretary Mary Peters

Fiscal 2007 Accomplishments that Increase Capacity

Increasing Daily Capacity

The average daily capacity at the 35 busiest U.S. commercial airports was 102,545 arrivals and departures, exceeding the fiscal 2007 target of 101,562 arrivals and departures (figure 3.1).

Dealing with Weather

By closely examining data, the ATO is able to propose programs and procedures that mitigate weather delays. Overall weather at the 35 busiest U.S. commercial airports for fiscal 2007 improved when compared with fiscal 2006; however, data indicates that less frequent patterns of more severe weather at the very busiest airports have the same effect in causing congestion and delays in the system. Severe weather includes thunderstorms, snow storms, ice storms, high winds, wind sheer and blizzards. The ATO implements a combination of increased spacing, Ground Delay Programs and Ground Stops to manage weather-related delays.

Most air traffic delays are due to poor weather. In fact, 66 percent of all delays in fiscal 2007 were due to weather-related events. As visibility is reduced when the weather deteriorates, the maximum number of operations per hour at a given airport decreases, which results in delays and cancellations. Figure 3.2 depicts how much weather impacted the busiest airports.

In fiscal 2007, 86.96 percent of flights arrived on time at the 35 busiest airports in the United States, not meeting the goal of 87.67 percent.

Performance-Based Navigation

Through the use of enhanced technology and procedures, the ATO is increasing the capacity of the airspace system.

For example, aircraft properly equipped can use performance-based navigation — a framework for defining navigation performance requirements that can be applied to an air traffic route, instrument procedure or defined airspace. This includes both Area Navigation (RNAV) and Required Navigation Performance (RNP).

The ATO has implemented more than 150 RNAV arrivals and departures at nearly 40 airports, with 42 published in fiscal 2007. Using more efficient RNAV routes saves operators millions of dollars a year in fuel costs and reduces aircraft emissions.

The ATO is beginning to realize capacity benefits at Dallas/Fort Worth International Airport, where RNAV initiatives enable 20 additional departures per hour, and at Hartsfield-Jackson Atlanta International Airport, where RNAV technology allows for 10 additional departures per hour.

Reduced Vertical Separation Minima (RVSM), completed in fiscal 2005, continues to pay dividends. With RVSM, the ATO effectively doubled the number of flight levels controllers can assign in high-altitude airspace, providing more options for pilots that can save $1 billion annually in fuel costs at today's prices.

The ATO implemented 42 new RNAV arrivals and departures in fiscal 2007. More efficient RNAV routes save operators millions of dollars a year in fuel costs and reduce aircraft emissions.

Figure 3.1 **Average Daily Capacity at the 35 Busiest U.S. Airports**

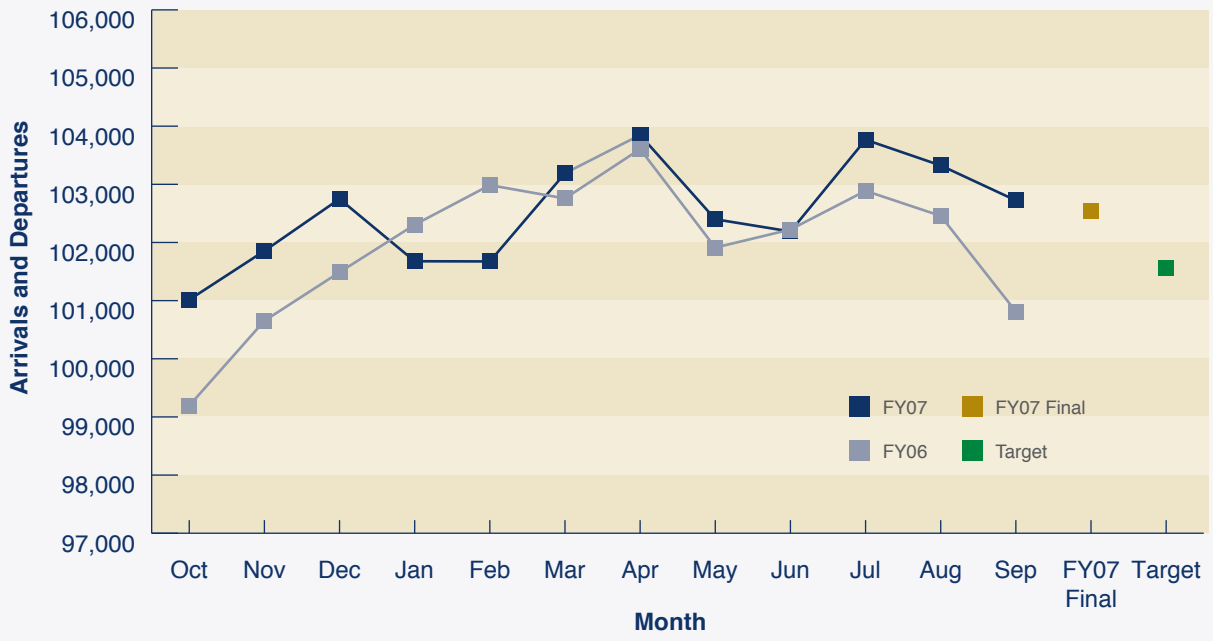
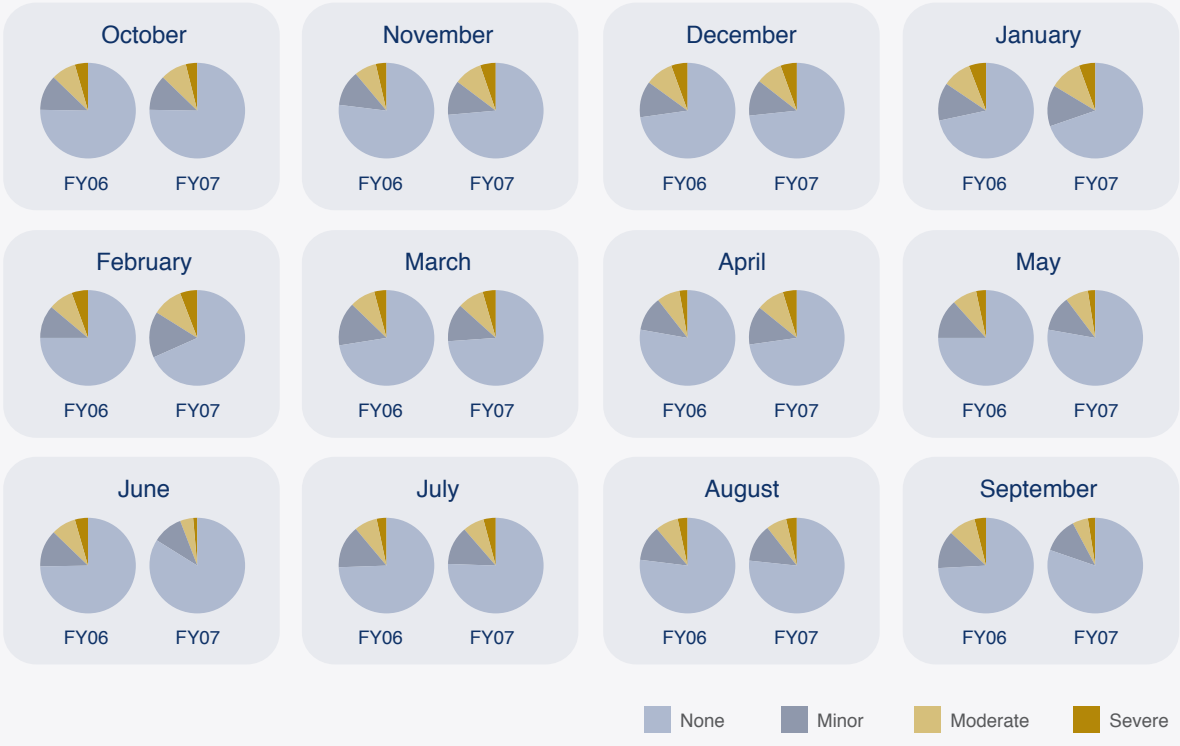


Figure 3.2 **Airport Weather by Severity at the 35 Busiest U.S. Airports**



The New York/New Jersey /Philadelphia Airspace Redesign Project will save approximately 12 million minutes of delay annually, reduce carbon emissions and $248 million in fuel consumption, and reduce aircraft noise exposure for more than half-a-million people.

New Runways/Taxiways in Boston, Los Angeles and Atlanta

A new runway (Runway 14/32) opened in November 2006 at Boston's Logan International Airport, which helped reduce delays by 40 percent. Los Angeles International Airport's Runway 7R/25L opened in March 2007.

In April 2007, an end-around taxiway was commissioned at Hartsfield-Jackson Atlanta International Airport, the busiest airport in the United States. This provides an alternative to aircraft crossing an active runway and eliminates more than 600 runway crossings per day.

Chicago Airspace Project – Phase One

In fiscal 2007, Phase One of the O'Hare Modernization Plan doubled the number of eastbound departure routes out of Chicago and increased efficiencies with three new RNAV arrivals.

These new routes and procedures were implemented as part of the Chicago Airspace Project to better serve domestic and international aviation customers.

New York/New Jersey/Philadelphia Airspace Redesign

To improve the efficiency and reliability of the airspace structure and air traffic control system from southern Connecticut to eastern Delaware, the FAA chose the Integrated Airspace Alternative as the preferred alternative for the New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign Project. This alternative, among the four studied over a nine-year period, best meets the purpose and need of the project.

The new end-around taxiway at Hartsfield-Jackson Atlanta International Airport provides a safer alternative for aircraft moving across the airport surface.
Photos: Hartsfield-Jackson Atlanta International Airport

Redesigning the New York/New Jersey/Philadelphia metropolitan area airspace is expected to reduce delays, fuel consumption, aircraft emissions and noise.

The plan combines high-altitude and low-altitude airspace to create more efficient arrival and departure routes and will eliminate 12 million minutes of flight delays annually for the area's four major international airports — John F. Kennedy, LaGuardia, Newark Liberty and Philadelphia. This airspace was first designed in the 1960s and has become much more complex.

Advanced Technologies and Oceanic Procedures

Advanced Technologies and Oceanic Procedures (ATOP) provides a fully modernized oceanic air traffic control automation system that allows customers to take advantage of investments made in advanced avionics and cockpit digital communications.

With ATOP, the ATO significantly reduces the intensive manual processes that limited the ability of controllers to safely handle airline requests for more efficient tracks or altitudes over long oceanic routes. It allows the ATO to meet international commitments of reducing aircraft separation standards, thereby dramatically increasing capacity and efficiency for customers.

By fiscal 2007, ATOP successfully transitioned to around-the-clock operations at all three oceanic sites: the Anchorage, Oakland and New York Air Route Traffic Control Centers.

ATOP Excels

With so much traffic routed over the Pacific Ocean beyond radar coverage, Anchorage was a natural location for Advanced Technologies and Oceanic Procedures.

ATOP creates a radar-like image using information known about the flight, projecting a flight path, then correcting it as new information is received from the aircraft. In the past, planes disappeared from the "glass" at Anchorage Center after flying out of radar range and were tracked by information on paper flight progress strips. ATOP, which became operational in March 2007, replaces those strips with graphic positional displays and electronic flight strips that are automatically updated to reflect the most accurate current and projected information for flights. Separation is assured by use of the system's dynamic conflict probe, which models flight paths and checks for possible conflicts up to two hours downstream.

Photo: Dale Hopper, ATO

Focused on The Next Generation:

Building for the Future Now

The flight deck of the Atlantic City, N.J., Technical Center's new flight test aircraft, N47. The aircraft is equipped with the Honeywell PRIMUS 2000XP Integrated Avionics Flight Control System (IAFCS). The FAA's William J. Hughes Technical Center flight program supports many advanced aircraft navigation, surveillance and communications initiatives that are making flying safer and more efficient, including Automatic Dependent Surveillance-Broadcast (ADS-B), GPS with both the Wide Area Augmentation System (WAAS) and the Local Area Augmentation System (LAAS), the Airport Movement Area Safety System (AMASS) and aircraft security.
Photo: Ernie Pappas, ATO

It is an exciting time to be in aviation. The advancements being put in place today will be the foundation upon which tomorrow's National Airspace System (NAS) will rest. While reaping the benefits of improved technologies to make flying safer and more efficient, the ATO must have a solid and deliberate plan to secure the future of the NAS. The NAS must continue to exist and function in a financially healthy manner for generations to come, and meet the evolving needs of its users.

Ensuring a Viable Future

As such, the ATO is accelerating the Next Generation Air Transportation System (NextGen). Using satellites, digital networks and airport enhancements, this transformation provides added flexibility to meet 21st century air traffic demands.

Delivering NextGen

As the aviation industry in fiscal 2007 saw greater use of performance-based navigation procedures under Required Navigation Performance (RNP) and Area Navigation (RNAV) procedures, the ATO also moved forward with the five foundational programs for NextGen:

- Automatic Dependent Surveillance-Broadcast (ADS-B)
- System Wide Information Management (SWIM)
- Data Communications (DataComm)
- NextGen Network Enabled Weather (NNEW)
- NAS Voice Switch (NVS)

It is critically important that the work on these five foundational programs continues so they will be operational in the NAS in time to meet projected traffic increases.

Working with Partners

The ATO is also engaging its international and domestic partners to deliver on the NextGen promise. The ATO actively works with other air navigation service providers, civil aviation authorities and global organizations to expand use of performance-based and satellite-based technologies that serve as the foundation of NextGen. It is not cost effective for airlines to equip aircraft with multiple same-purpose systems solely because of operations in other countries. The FAA is working closely with European partners to harmonize the U.S. and European visions to jointly support global air traffic management modernization efforts. Additionally, the ATO has formed steering groups with Canada, China, Japan and Mexico in an effort to encourage the development of regional air traffic management systems using U.S. NextGen technologies, procedures, concepts and systems.

> "The Next Generation Air Transportation System is a wide-ranging transformation of the entire national air transportation system – not just certain pieces of it. NextGen's purpose is to meet future demands and avoid gridlock in the sky and in the airports while improving safety and protecting the environment."
>
> Victoria Cox, ATO Senior Vice President for NextGen and Operations Planning

Fiscal 2007 Accomplishments that Build Toward the Future

ADS-B Moves Forward

ADS-B uses GPS technology to determine an aircraft's exact position. Because ADS-B provides more precise information than radar, planes can safely fly closer together, therefore increasing capacity. In February 2007 the FAA made the final investment decision for the ADS-B program, calling for NAS-wide infrastructure roll-out by 2013.

> "This signals a new era of air traffic control. ADS-B — and, in turn, NextGen — will attack the delay problem head on by dramatically increasing air traffic efficiency."
>
> Robert A. Sturgell, Acting FAA Administrator

SWIM Advances

SWIM provides common information across a secure, digital network to all NAS users. The investment decision for the SWIM program was made in June 2007.

NextGen Implementation Plan

The Operational Evolution Partnership (OEP) was chartered to develop the FAA's NextGen implementation plan. The OEP integrated planning activities into one comprehensive, high-level document. It is organized around three key transformation areas – air traffic operations, airport development and aircraft and operator requirements – focusing on the capabilities needed for aviation. (The OEP was renamed the NextGen Integration and Implementation Office in 2008).

International Cooperation

- The FAA and the European Commission announced the creation of the Atlantic Interoperability Initiative to Reduce Emissions partnership (AIRE). The partnership aims to accelerate development of operational procedures to reduce aviation's environmental footprint for all phases of flight.
- A top-to-bottom review of FAA policies and procedures was completed to identify differences with international Standards and Recommended Practices established by the International Civil Aviation Organization (ICAO). Aligning the procedures and technologies ensures all airspace users, regardless of which country the pilot is from, follow the same rules and thereby improve safety. The ATO set a goal to reduce the 318 differences by 10 percent – or 32 items – by fiscal 2012.
- A representative from the European Organization for the Safety of Air Navigation (EUROCONTROL) was detailed to the ATO to coordinate NextGen and Europe's Single European Sky Air Traffic Management Research Program harmonization.
- The ATO sent a representative to Germany's air traffic agency, Deutsche Flugsicherung GmbH, and hosted a representative from that agency to learn how each respective country manages and operates its air traffic system.
- Through interaction with ICAO and the Civil Air Navigation Services Organization, senior leaders learn corporate best practices from global partners so that the ATO continues to be an international leader in running an air transportation system.
- The ATO has established an international leadership goal as an FAA performance target related to the expansion of NextGen technologies. The objective for fiscal 2007 was to expand use of performance-based systems to one country. Toward that end, the FAA successfully signed a technical assistance agreement with China to support Reduced Vertical Separation Minima

(RVSM) implementation ahead of the 2008 Summer Olympics. RVSM allows decreased vertical distance between properly equipped airplanes, a more efficient use of airspace.

Delivering the NextGen Promise

The current hard-wired system of moving airplanes using ground-based radar, radio technology and capacity-constrained airports will not meet future demands because of increased traffic and new classes of aircraft such as very light jets and unmanned aircraft systems flying alongside superjumbos and commercial space flights. To avoid gridlock, NextGen transforms how the FAA handles the increased traffic and new types of aircraft.

NextGen transforms all three components of air traffic - the airport, the aircraft and air traffic control – to provide the flexibility needed to safely and efficiently handle air traffic into the 21st century. Airports will provide greater safety and capacity, and lessen the environmental impact on surrounding areas thanks to NextGen. Pilots and ground personnel will have greater situational awareness, thereby reducing runway incursions.

NextGen Transformation:

From...

- Ground-Based Navigation and Surveillance
- Voice Radio Control
- Disconnected Information Systems
- Air Traffic "Control"
- Fragmented Weather Forecasting
- Visibility Limited Airfield Parameters
- Forensic Safety System

To...

- Satellite-Based Navigation and Surveillance
- Digital Data Exchange
- Net-Centric Information Access
- Air Traffic "Management"
- Informed Decisions Using Integrated Weather
- "Equivalent Visual" Operations
- Prognostic Safety System

The bottom line: While the future system will look and feel very different from today's environment, the change will be incremental – the public will be able to reap the benefits throughout the NextGen investment period and not have to wait until 2025.

Reaping Benefits from New Technologies Now

The Joint Planning and Development Office (JPDO) developed the foundational NextGen documents and is now focused on the long-term NextGen vision and on ensuring FAA's alignment with partner government agencies and other stakeholders. FAA staff at the FAA's William J. Hughes Technical Center in New Jersey are leading the testing and prototype development of the actual systems that are making the NextGen vision a reality. Using the successful Operational Evolution Partnership (OEP) model, the FAA will integrate these changes into today's air traffic system as quickly as possible.

NextGen will not "power up" on a certain inaugural date with the flip of a switch. Rather, it is an evolutionary change that has already started and will be implemented in stages over the next 20 years.

The FAA is already beginning the transition to NextGen with new capabilities being integrated into many of the existing systems to improve operations. For example, helicopter operations to offshore oil platforms are being aided by the implementation of ADS-B in the Gulf of Mexico.

Photo: FAA

Governance

Air Traffic Services Committee

Created in 2003 by the "Vision 100—Century of Aviation Reauthorization Act," the Air Traffic Services (ATS) Committee meets quarterly to assess and advise the ATO. The panel members, who serve three-year terms, are appointed by the President with the advice and consent of the Senate. They are chosen based on their professional experience and expertise in management, customer services, procurement, technology and labor relations. The Administrator of the Federal Aviation Administration chairs the committee.

ATS Committee

- Robert A. Sturgell, Acting FAA Administrator and ATS Committee Chairman
- Sharon Patrick, President and CEO of the Sharon Patrick Company
- Leon Lynch, former International Vice President of Human Affairs for the United Steelworkers of America
- Phil Brady, President of National Automobile Dealers Association

FAA/ATO Leadership

Robert A. Sturgell
Acting Administrator for FAA

Hank P. Krakowski
ATO Chief Operating Officer

Gene Juba
Senior Vice President
for Finance Services

Victoria Cox
Senior Vice President
for NextGen and Operations
Planning Services

Nancy Kalinowski
Vice President for System
Operations Services

Rick Day
Vice President for En Route
and Oceanic Services

Bruce Johnson
Vice President for
Terminal Services

Steve Zaidman
Vice President for Technical
Operations Services

Robert Tarter
Vice President for
Safety Services

Jim Washington
Vice President for Acquisition
and Business Services

Sandra Sanchez
Vice President for
Communications
Services

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