



Federal Aviation
Administration



National Airspace System Capital Investment Plan

FY 2008 – 2012



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Federal Aviation Administration National Airspace System Capital Investment Plan for Fiscal Years 2008–2012

1 Introduction

1.1 The Capital Investment Plan

The Federal Aviation Administration Capital Investment Plan (CIP) is a 5-year plan that describes the National Airspace System (NAS) modernization projects and the activities we intend to accomplish in that time. The CIP fulfills our obligations under the Continuing Resolution for fiscal year 2007. That resolution carries over the language in the FY 2006 Transportation, Treasury, Judiciary, HUD and Related Agencies Appropriations Act to

“... transmit to the Congress a comprehensive capital investment plan for the Federal Aviation Administration which includes funding for each budget line item for fiscal years 2008[7] through 2012[1], with total funding for each year of the plan constrained to the funding targets for those years as estimated and approved by the Office of Management and Budget.”

The projects in the CIP are organized by budget line items consistent with the FY 2008 President’s budget. We based project funding estimates on several factors. For the larger projects, the estimated funding is the amount needed for known contract deliverables and associated support costs. For the projects that upgrade infrastructure, the estimated funding is either the cost for completing specific locations or the annual amounts needed to complete a systematic upgrade of existing facilities and equipment. The CIP is an important business tool because it forces the FAA to prioritize the entire range of capital investment opportunities down to those projects that bring the greatest value both internally and to our aviation community customers.

1.2 Strategic Planning and the CIP

Strategic plans include the most important goals that guide agency management. They establish a vision for the future to guide us in improving our performance and changing our operations to meet the challenges of future growth. We must support this vision by developing strategies and initiatives that define the actions necessary to realize the strategic goals. These strategies and initiatives must have measurable performance targets so we know that our actions have been successful. To succeed, we must meet or exceed our goals for each year. We compare actual performance measures to targets on a monthly basis to determine if we need to make management adjustments to realize the planned performance improvements.

1.2.1 The FAA Strategic Plan

The current FAA strategic plan, called the FAA Flight Plan 2007-2011, identifies four specific goal areas:

- **Increased Safety** – Achieve the lowest possible accident rate and constantly improve safety;
- **Greater Capacity** – Work with local governments and airspace users to provide increased capacity in the United States airspace system that reduces congestion and meets projected demand in an environmentally sound manner;
- **International Leadership** – Increase the safety and capacity of the global aerospace system in an environmentally sound manner; and
- **Organizational Excellence** – Ensure the success of the FAA’s mission through stronger leadership, a better-trained and safer workforce, enhanced cost-control measures, and improved decision-making based on reliable data.

Each Flight Plan goal contains a series of objectives, strategies and initiatives to achieve our goals. Each objective has one or more performance targets so we can measure our performance against those targets.

This year’s Flight Plan contains the same overall goals as last year’s plan, but modifies last year’s Increased Capacity goal by adding the phrase, “reduces congestion”. This focuses more attention on present operating conditions and promotes pursuing interim improvements in conjunction with building new runways and taxiways. Airports with chronic delay problems will require innovative solutions to decrease the congestion and improve on-time performance. Two of the actions planned are improved management of traffic flows at peak hours and using more precise navigation equipment to make better use of the airspace around an airport.

Consistent with the President’s Management Agenda, we have linked each CIP project to a Flight Plan goal, objective, and performance target in Appendix A. Many projects are interdependent, and one project may not be successful in meeting the performance target without completing other supporting projects.

The detailed project information in Appendix B includes a “Relationship to Flight Plan Goal” section that gives more specific information about how each project helps meet the Flight Plan goal. This section describes how the projects will improve current performance.

1.2.2 The Strategic Management Process

To supplement the broad goals of the FAA Flight Plan, the Air Traffic Organization (ATO) uses the Strategic Management Process (SMP) to identify more detailed actions to improve performance. The SMP objectives shown in the white ellipses in Figure 1 support four pathways. These pathways identify specific goals for delivering air traffic services more effectively and efficiently in both the near term and in the future. Each objective will have specific metrics so that we can define and measure planned improvement in system performance.

The four SMP pathways are:

- Achieve Operational Excellence;
- Enhance Financial Discipline;
- Increase Capacity Where Needed; and
- Ensure Viable Future.

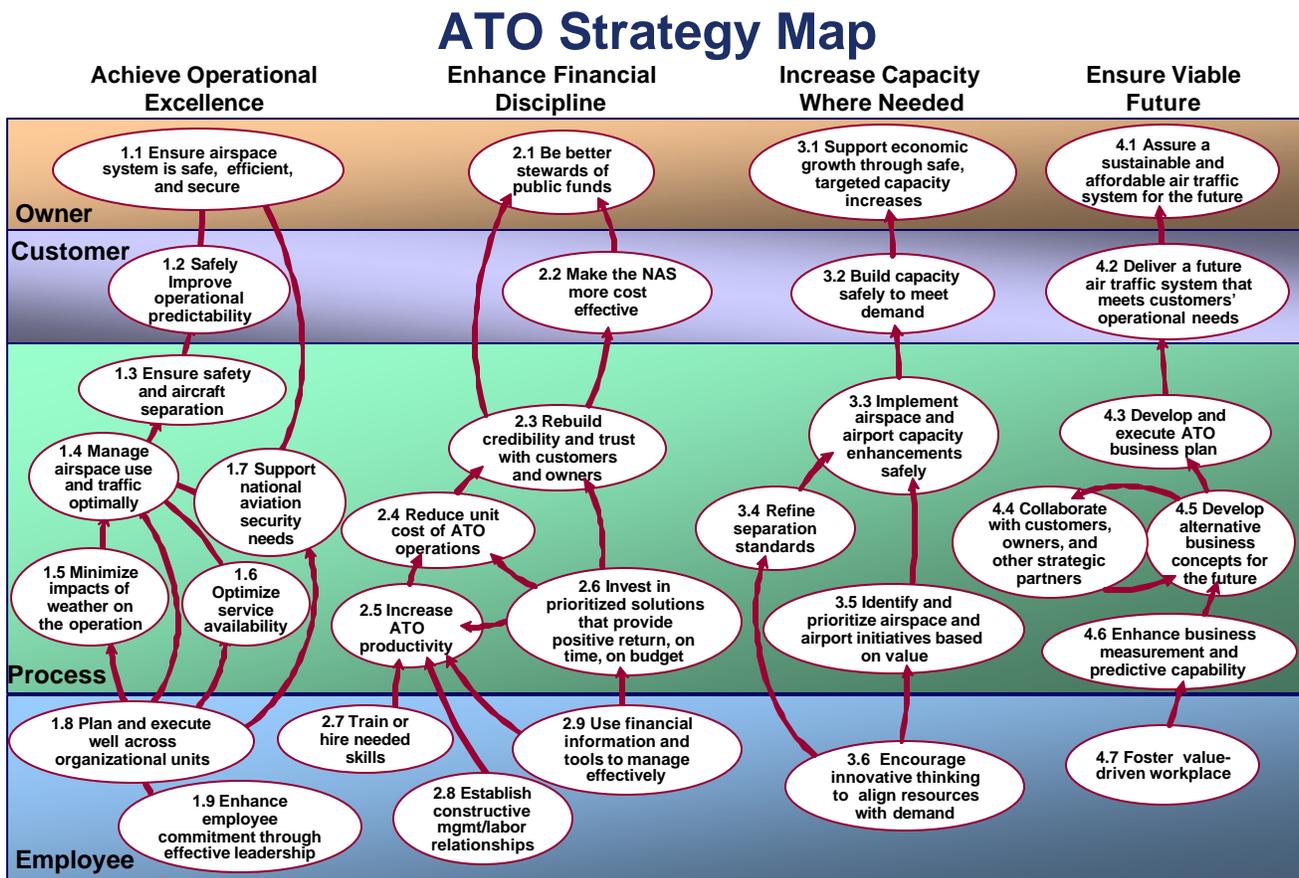


Figure 1 Strategic Management Plan Pathways

The first pathway, Achieve Operational Excellence, focuses on maintaining safe and reliable service to all our customers. This requires keeping the air traffic control system operating efficiently at its current level of performance and constantly seeking ways to improve safety. This pathway requires a large percentage of capital investment resources. The current system must continue to meet the high performance standards set for managing air traffic while we modernize and transform air traffic control to meet the goals of the Next Generation Air Transportation System (NextGen).

The second pathway, Enhance Financial Discipline, signals a transition to managing FAA more like a private business. It depends on accurately measuring costs, setting benchmarks for efficient performance and improved productivity, and investing to reduce operating costs. The pathway objectives focus on controlling costs so there are resources available to meet the challenges of future growth.

The third pathway, Increase Capacity Where Needed, prepares the ATO to handle the growing demand for air travel by expanding and upgrading current infrastructure and technology. Since several large airports are nearing practical capacity and more will reach that point within the next 10 to 20 years, there is significant pressure to create more capacity. This will require us to modernize traffic flow management at busy facilities, and it will rely on airport authorities to add more runways to handle the growth. When local authorities expand the runway capacity of their airports, we must invest in navigation and landing aids, improved automation, and the physical infrastructure associated with an increased scale of operations.

The fourth pathway, Ensure Viable Future builds on actions taken in the first three pathways. It extends planning to the time when the growing number of operations may exceed our ability to expand the capabilities of present systems. Improving the present system successfully is a first step in creating a solid base for expansion. Designing, validating and implementing new technology for the future depends on maintaining reliable operations with present equipment so the new capabilities can be tested and accepted. Developing a detailed transition plan is critical in ensuring that the air traffic system moves seamlessly from its present architecture to its future form without inhibiting traffic growth.

The ATO Service Units use the SMP pathways and objectives to build their business plans. The service units align projects with a pathway and objective, and manage these projects to improve associated metrics.

1.2.3 Next Generation Air Transportation System (NextGen)

Most of the projects described in this CIP are being implemented or are recurring investment for the up keep of the NAS. The congressionally created Joint Planning and Development Office (JPDO) is assessing future air transportation needs and developing the Concept of Operations for NextGen. Projects to support these NextGen concepts and demonstrate them begin in FY 2008 to ensure the planned transition to a more capable NAS keeps pace with aviation growth. Given the long lead times to develop new technologies and systems, planning and prototype testing must occur in the next five years. Investment in NextGen initiatives will continue after the five-year period shown in the CIP. Roadmaps in section 4 portray both the existing projects and the introduction of new systems that support migration to NextGen capabilities.

NextGen will take advantage of various technologies, including: Automatic Dependent Surveillance-Broadcast (ADS-B); System Wide Information Management (SWIM); Global Positioning System (GPS) navigation; and enhanced weather and automation systems for dynamic airspace use. ADS-B will allow a full surveillance picture, independent of radar locations and coverage. An airborne and space-based surveillance and navigation capability based on ADS-B and GPS may break the ties to a ground-based infrastructure. We will provide

security and surveillance for non-cooperative targets through cooperation with the Departments of Defense and Homeland Security. SWIM will allow sharing of information in real time to enhance decision-making. When we adopt these newer systems for use in the NAS, we will have advanced capabilities and may be able to reduce much of the existing infrastructure.

1.3 Important Factors Affecting Planning for the Future

1.3.1 Air Travel Demand

The demand for air travel is closely correlated to changes in the economy. However, for the last year, we have seen some unusual changes in traditional air service patterns. To compete in the marketplace, traditional mainline carriers have dropped unprofitable routes and increased load factors on their remaining routes. For 2006, this has resulted in a slight dip in the number of operations at major airports and in the number of en route aircraft handled by air route traffic control centers (ARTCC). Although the number of flights has decreased in 2006, the number of passengers carried has been nearly equal to the previous year. We believe growth in traffic and passengers will resume in 2007. Current load factors have limited growth potential, and that leads to more flights being added to meet future demand. In addition, lower oil prices should lead to lower ticket prices that will provide a boost to travel demand.

The long-range forecast prepared by the FAA Office of Policy and Plans shows FAA average annual workload growing over 2 percent through 2030. OMB forecasts that the economy will grow about 2 percent each year for the next several years. Increased passenger demand, caused in part by economic growth, supports the forecast of increased FAA workload.

Figure 2 presents the historical growth in one component of air traffic workload over the 22 years, 1984 to 2006. This workload is the number of Instrument Flight Rules (IFR) aircraft handled by all en route centers. The growth trend has been steadily upward except for short-term and explainable deviations from the overall trend line. While we cannot forecast the future perfectly, the many factors that have contributed to past growth are expected to support aviation growth well into the future.

FAA AIR ROUTE TRAFFIC CONTROL CENTERS: TOTAL IFR AIRCRAFT HANDLED

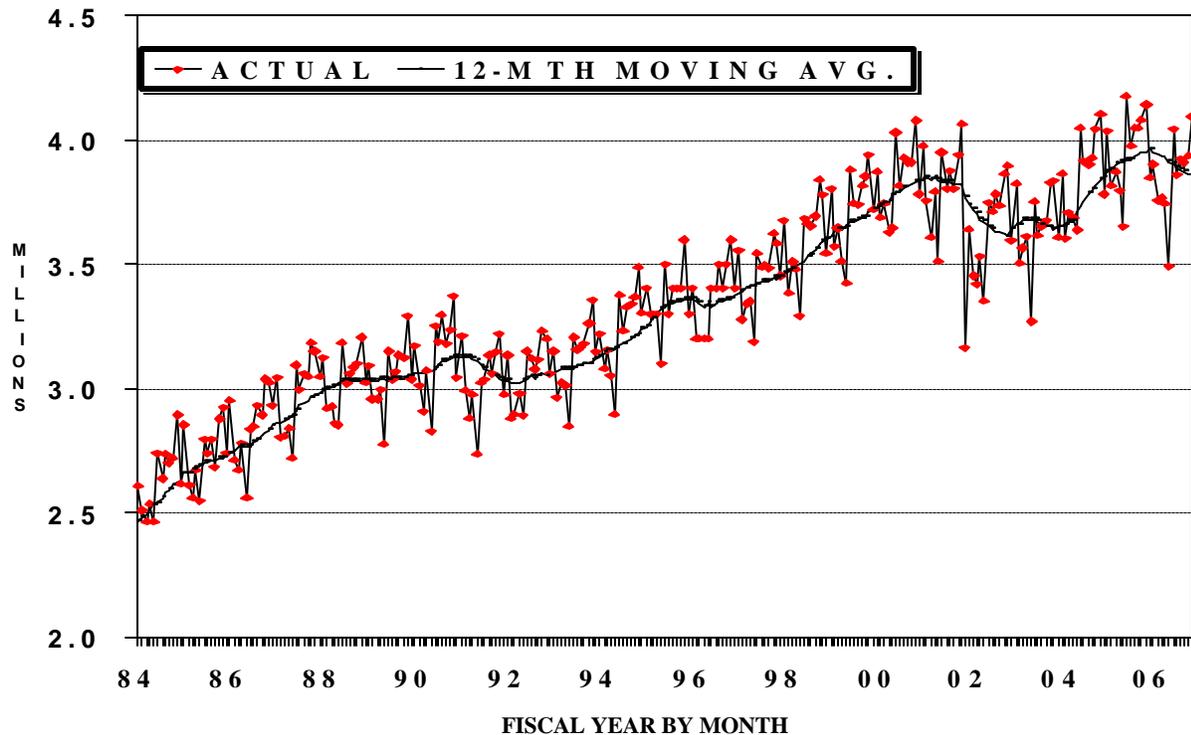


Figure 2 Aircraft Handled by En Route Centers

1.3.2 Air Traffic Workload Growth

The expected increase in small jet travel may also affect FAA workload growth. Regional jets represent 34 percent of the traffic at the nation's 35 busiest airports, and they have taken over many of the shorter routes that larger carriers have abandoned. Many of these aircraft carry fewer than 100 passengers, and the ratio of operations to passengers carried will be higher as they expand their business. In addition, a new category of service by very light jets (VLJs) may add to the number of en route and terminal operations. A portion of that growth may have to met by increasing productivity because of limits on dividing airspace into smaller sectors

1.3.3 Growth in En Route Operations

We understand that much of the new service that very light jets offer will be between smaller airports. Regardless of whether they serve small or large airports, their operating characteristics and the market segment they serve makes it likely that they will fly in controlled airspace, and this will increase FAA's workload. Over the next ten years, this growth could create significant pressure on the air traffic control system and make it more difficult to accommodate the requests for efficient routes and altitudes that reduce operating costs for all commercial operators. Growth is expected to be about 3 percent a year. The FAA long-term forecast prepared by FAA's Office of Policy and Plans estimates that the workload at FAA centers will increase by 82 percent between 2005 and 2025 as Figure 3 shows.

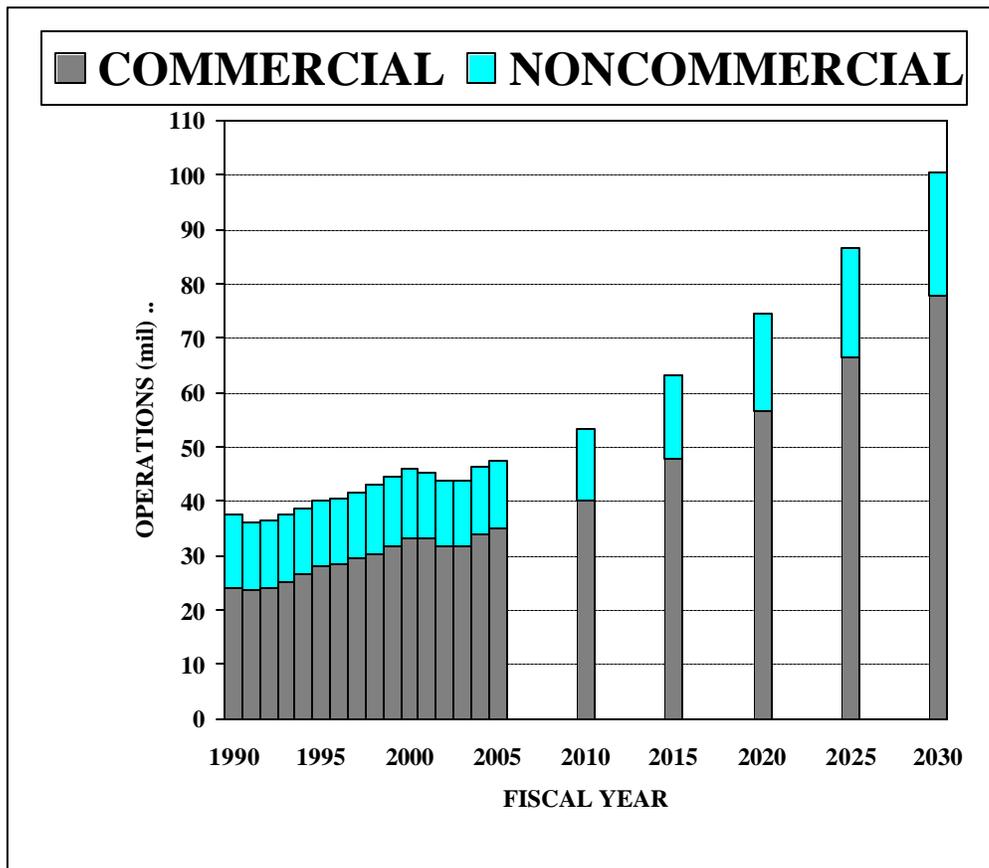


Figure 3 Projected Growth in Number of Aircraft Handled by En Route Centers

1.3.4 Growth in Terminal Operations

Growth in the number of aircraft handled by air traffic control facilities at the major airports has varied during 2006. The 35 busiest commercial airports are identified as Operational Evolution Plan (OEP) airports in FAA's OEP. Ten of these OEP airports had a larger number of operations in 2006 than in 2005. Growth at these larger airports suggests travel demand is supporting increased flights even though airline restructuring has generally been aimed at reducing the number of available flights. Figure 4 shows the latest estimates available for future growth at all 35 OEP airports. All major airports are expecting growth, except LaGuardia, which has unique capacity limitations.

Annual Growth Rate for OEP Airports 2006 - 2025			
ATL	1.9%	LGA	0.0%
BOS	2.2%	MCO	2.5%
BWI	2.7%	MDW	2.7%
CLE	2.1%	MEM	2.0%
CLT	2.1%	MIA	1.7%
CVG	2.9%	MSP	3.4%
DCA	0.5%	ORD	2.1%
DEN	1.9%	PDX	2.1%
DFW	2.2%	PHL	3.3%
DTW	2.3%	PHX	2.5%
EWR	2.3%	PIT	1.8%
FLL	2.9%	SAN	2.5%
HNL	1.7%	SEA	2.5%
IAD	4.3%	SFO	2.5%
IAH	2.4%	SLC	1.8%
JFK	3.5%	STL	1.4%
LAS	3.0%	TPA	2.0%
LAX	2.9%		

Figure 4 Annual Growth Rates at Large Airports 2006-2025

The long-term forecast prepared by FAA's Office of Policy and Plans projects a 60 percent growth in instrument operations at towers and TRACONS between 2005 and 2025 as Figure 5 shows. This will increase congestion and delays if modernization is not completed in time to make more efficient use of airspace capacity.

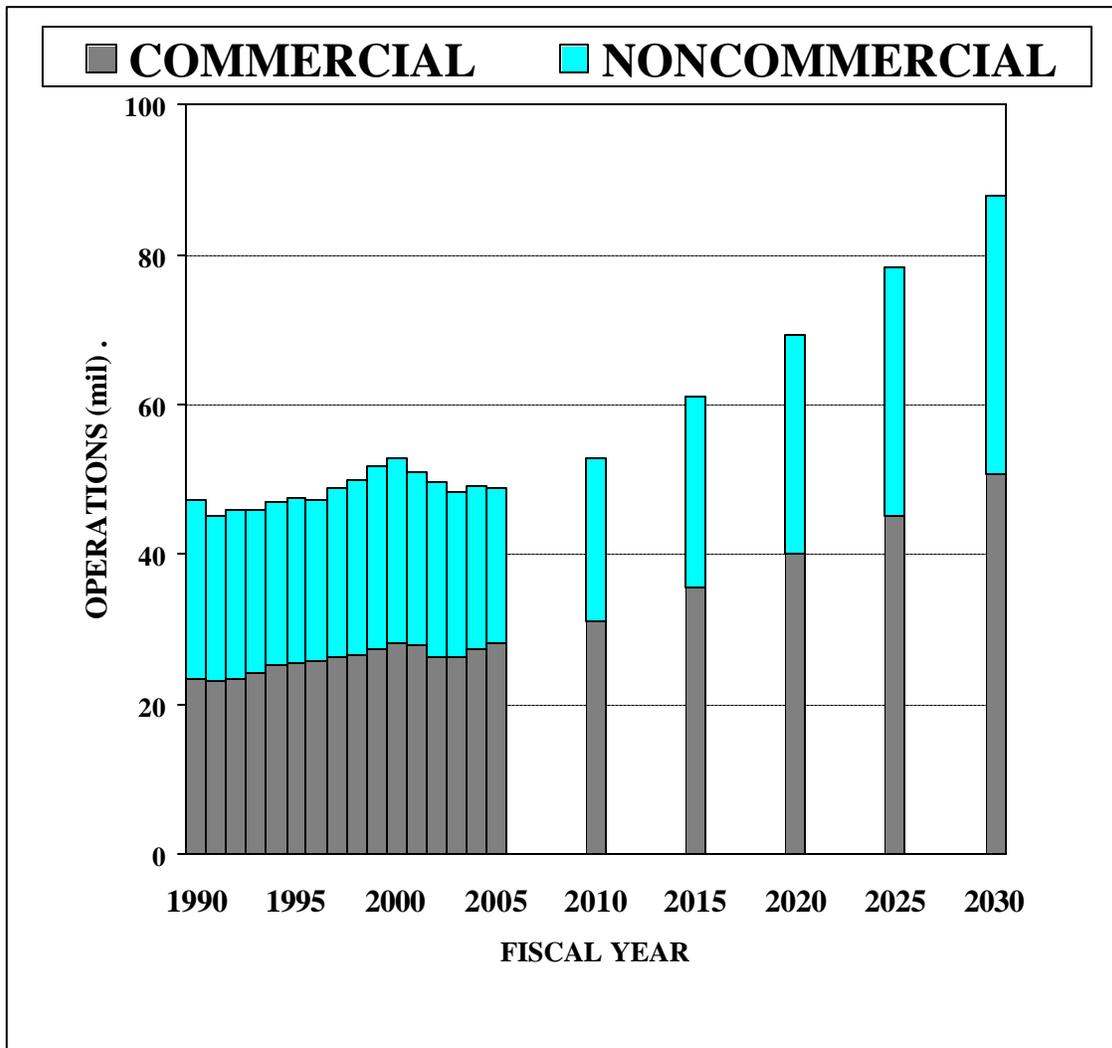


Figure 5 Projected Growth in Instrument Operations at Towers and TRACONS

Supporting increased growth in the future will be more challenging, because several large airports are nearing practical capacity, for example, Newark, LaGuardia, Philadelphia, and Chicago O'Hare. The top 35 airports handle 73 percent of aviation passengers. Predicted growth in operations at these hub airports will translate into increased delays unless capacity is increased. Twelve new runways have become operational since the year 2000. The OEP shows six airfield projects (four new runways, one runway extension, and one airfield reconfiguration) will be operational by 2010.

Local airport authorities build new runways, and local financing for that construction is supplemented by grants from the Airport Improvement Program. In addition to the large local investment necessary to build these runways, FAA capital investment is needed to ensure that the new capacity is fully usable. Often airspace around the airports is reconfigured to accommodate a new runway, and that requires installing new navigational aids and precision landing systems to guide pilots in the approach patterns for the airport. Before precision approach guidance systems become operational, we must develop procedures, install approach lights, and position visibility sensors along the runway so it can be used in the lowest visibility approved for that system. Some airports need new surface surveillance systems to alert pilots to potential runway incursion and to help pilots negotiate complex airport taxiway and runway configurations. Capital investment is also often required to expand air traffic control facilities and add additional controller positions to handle the increased complexity of terminal airspace after a new runway is opened. The FAA must allocate capital investment dollars to support these infrastructure investments in the near term and rely on Next Gen technology to achieve the future capacity expansion to handle increased levels of operations.

2 Allocating Capital Investment Among Competing Demands

One of the significant challenges in allocating capital investment funds is determining how to keep the present system operating safely and efficiently while modernizing it to achieve additional capacity and to reduce unit costs. The FAA has a large base of installed equipment. We must allocate an appropriate portion of capital investment to sustain high levels of reliability while at the same time addressing the need to prepare for future growth.

2.1 Maintaining Current Capacity

We are continually faced with the need to replace equipment used for air traffic control. As equipment ages, it deteriorates and the risk of outages increases. Even short duration equipment outages can have a large economic impact. Other important considerations in replacing equipment are obsolescence, compatibility and inadequate supplies of spare parts. Older systems often lack adequate capacity to run enhanced software; they also can have compatibility issues when surrounding equipment is replaced; and manufacturers may no longer build replacement parts. Resolving these issues requires comparing the relative value of either investing in similar functionality, which may initially cost less, or developing new technology that will take longer to implement but will increase capacity and reduce operating costs. We will be using the framework of the Operational Evolution Partnership (OEP) to guide our transitions to the Next Generation Air Transportation System with appropriately timed implementations.

2.2 Controlling the Cost of Operations

Operating costs have increased at an average annual growth rate of 6.2 percent over the last ten years. We have taken preliminary steps to address this cost growth. We are shrinking our overhead structure, consolidating our telecommunications and information technology services, improving controller and workforce productivity, and restructuring our office leases. We are also continuing to review competitive sourcing options to take advantage of contracting for services when it is cost-effective. One of the high priorities for system modernization is

introducing laborsaving innovations that will allow us to bring our labor costs under control. The following projects are examples of initiatives to reduce the cost of operations for the FAA.

2.2.1 Distance Learning

The Distance Learning program enables us to train FAA employees at their workplace using computer based instruction rather than bringing them to centralized training facilities such as the FAA Academy in Oklahoma City. Employees can take courses at their worksite and use interactive media to learn about new equipment and procedures in the NAS. The major economic benefit of distance learning is that it eliminates part of our costs for student travel and per diem by minimizing the number of employees who have to take resident training. In addition, distance learning increases training opportunities for FAA employees and increases their productivity by minimizing their time away from work.

2.2.2 Energy Cost Savings

The Energy Policy Act of 2005 established a goal for all Federal agencies to reduce their consumption of energy by 2 percent yearly for the ten-year period 2006 to 2015. To reach that goal the FAA/ATO Energy Management Program is adopting energy efficient technologies and providing more precise information on energy consumption to facility managers. Energy efficient office lighting will reduce energy consumption by 25 percent. Radiant barriers will reduce heating or cooling losses from 125 terminal buildings in areas with temperature extremes. Lighting sensors and set-back thermostats will reduce use of heating, ventilation and air conditioning (HVAC) systems and electricity at 25 facilities. The program is also installing clean and renewable power sources such as solar panels and fuel cells at 150 facilities. These new power sources will reduce dependence on the commercial power grid where commercial power is either undependable or very costly. They have the added benefit of improving facility security.

2.2.3 Competitive Sourcing

The Competitive Sourcing program does business case analyses to determine whether there are more cost effective ways to perform FAA functions. Previous analyses across the Federal government indicate that we can expect a cost savings of 20-30 percent from competitive sourcing. This is true whether the function is outsourced to a private sector contractor or retained in the agency and performed by government employees. We expect the same level of savings in the recently awarded contract for outsourcing flight services to the private sector. In FY 2008 and beyond, we will analyze three or more functions to determine whether there are opportunities to make those operations more efficient.

2.2.4 Restructuring the Air Traffic Control (ATC) System

One potential way to operate more cost effectively would be to reduce the number of air traffic control facilities or consolidate some automation functions. There are 20 en route centers and over 500 terminal facilities in the contiguous 48 states. We are studying whether other

configurations of ATC facilities or reducing the number of these facilities would improve productivity and reduce operating costs. We would have to resolve important issues including:

- Location of the facilities,
- System redundancy in case of failures, and
- Comparison of cost and benefits for alternative actions.

2.2.5 Facility Decommissioning

This program funds the preparatory work necessary to dispose of real property and equipment at locations where the FAA has decommissioned facilities. It includes environmental testing, restoring land to its original condition and disposing of buildings, equipment and services that are no longer in use. Initial estimates are that we will dispose of about 1,000 facilities. We expect the number of facilities that this program handles will grow in the future as the FAA continues its transition to NextGen. Disposal will eliminate operating costs for any remaining leases, limited caretaker maintenance and utilities services that have not been discontinued previously.

3 Safety and Security

Most CIP projects support air traffic control functions, but there are several non-ATO projects in the CIP that support the FAA's safety and security missions. Monitoring and enforcing safety standards is mainly the responsibility of FAA lines of business outside the ATO. FAA safety projects include upgrading and improving the hardware, software, and communications equipment that support databases of safety information and aircraft design standards. These databases help safety inspectors allocate their inspection hours to address the most serious problems. They are a readily available source of regulatory data and past FAA actions that safety personnel can access to assist them in carrying out inspections and certifications.

Some projects that improve air traffic control also contribute to the Increased Safety goal. These include weather systems that enable controllers to warn pilots of severe weather problems; upgrades for inspection aircraft that check the accuracy of navigational aids, precision-landing systems; and airport surface surveillance systems. These programs have helped us meet our 2006 safety performance targets for runway incursions and operational errors. Improving that performance in the future will depend on continuing efforts on these capital projects. The ASDE-X ground surveillance system, which provides controllers a display of aircraft and vehicles on the ground and aircraft approaching the runways, will help reduce runway incursions. The ERAM program, which provides parallel operating systems that eliminate reliance on a separate and less functional backup system, will improve NAS safety.

As we transition to the Next Generation Air Transportation System we will implement more safety and security improvements in the NAS. Precision Navigation, the System Wide Information Management (SWIM) system, and Data Communications will all contribute to increased safety while ensuring efficient operations in a secure environment.

Responsibility for regulating airport security has shifted to the Department of Homeland Security, but the FAA must maintain and improve internal security. The air traffic control system is part of the nation's critical infrastructure, and we must protect it from damage and disruption. We must ensure both the physical security of structures and equipment and the integrity of information systems and data transfer among them. We must also maintain emergency radio networks to retain operational control when normal systems are unusable.

3.1 Aviation Safety Projects

The following projects are examples of the most important safety capital investments.

3.1.1 Safety Databases

The Aviation Safety Analysis System (ASAS) and its two follow-on projects—the System Approach for Safety Oversight (SASO) and the Aviation System Knowledge Management Environment (ASKME)—buy hardware, software and information sharing technology to support aviation safety databases. These databases contain records of safety infractions by pilots and air carriers; safety regulations governing how to operate, manufacture, and repair aircraft; and directives and compliance records for commercial operators. Having this information readily available ensures that the FAA safety inspectors are aware of the past safety compliance of the people and organizations they are reviewing. It also increases the effectiveness of these inspectors and ensures that they have the latest information about FAA regulations and Advisory Circulars readily available when they conduct inspections.

3.1.2 Capstone

We are expanding the Capstone program, which has demonstrated new operational concepts in Alaska, to the rest of Alaska and to other locations such as the Gulf of Mexico and selected areas in the lower 48 states. Using Automatic Dependent Surveillance-Broadcast (ADS-B), a surveillance technique that enables equipped aircraft to radio position to air traffic control facilities provides more comprehensive services to aircraft. ADS-B provides positive air traffic control for areas not covered by existing radars. This allows more precise separation of aircraft. It has also been used to quickly locate a downed aircraft and save a pilot's life. The ground based transmitters have been used to transfer weather, air traffic and terrain information to the cockpit to help pilots avoid hazards and choose safe flight paths when adverse weather requires them to deviate from planned routes.

Weather cameras in Alaska provide real-time weather images of remote airports and mountain passes. The camera images are available to pilots through a Web site and support flight service specialists' briefings to pilots regarding weather impacts on route of flight and destination airports.

3.1.3 Runway Incursion Reduction Program

This program investigates technology that can help prevent runway incursions. Runway status lights are one of the technologies we are testing. These lights give pilots signals similar to a

traffic light. One signal tells them not to enter or cross an active runway; another tells them that it is safe to proceed. This program is exploring other technologies to determine the best way to keep controllers informed of an aircraft's position on the airport's surface. As the program develops new and better techniques to warn of potential runway incursions, it will move the techniques from development and testing to implementation.

3.1.4 Airport Surface Surveillance

A more detailed discussion of the Airport Surface Detection Equipment (ASDE), which helps to prevent runway incursions, appears in the roadmap sections. The ASDE-3 is a radar-based system that displays the location of aircraft on or near the runway and ground vehicles that could pose a hazard to aircraft. This enables controllers to issue warnings to prevent a runway or taxiway accident. The ASDE-X uses a variety of technologies to provide a better display of the location of aircraft and ground vehicles near the runways and taxiways.

3.1.5 Weather Systems

Although we discuss these systems in the weather roadmap section, we also mention them here because most weather sensors help to improve the safety of flight. The Terminal Doppler Weather Radar (TDWR), Weather Systems Processor (WSP), and the Low Level Wind Shear Alerting System (LLWAS) provide warnings of dangerous wind shear conditions. This helps pilots avoid flying into hazardous weather as they approach and land at an airport. The TDWR operates at the larger airports; the WSP is at medium-sized airports; and the LLWAS is used both at airports without radar coverage and to supplement the radar information with ground-based sensors. Visibility sensors measure the distance pilots can see on a runway so they know whether visibility is above or below the minimums needed for a safe landing. Information from the weather sensing and reporting systems is often integrated to produce weather forecasts so controllers can make more informed decisions in routing flights around severe weather and avoiding turbulence and thunderstorm risks.

A weather Community of Interest (COI) has formed in support of the System Wide Information Management (SWIM) program. The NextGen Network Enabled Weather (NNEW) will support SWIM by enabling networked access of weather information and facilitating integration of information from various weather sources. The FAA also participates in the JPDO Weather Integrated Planning Team (IPT). Further efforts are aimed at developing and implementing weather policies and standards, base lining and aligning weather projects and products, ensuring their compatibility with other systems, improving predictive capability, and reducing redundancies.

3.2 Security

Several projects protect FAA facilities and equipment and prevent injury to employees and damage and disruption of air traffic control systems.

3.2.1 Facility Security Risk Management

The FAA established the Facility Risk Management Program to respond to Presidential Decision Directive 63, which requires Federal agencies to develop programs to protect critical infrastructure. That directive has been superseded by Homeland Security Presidential Directive 7, which addresses identifying, prioritizing, and protecting critical infrastructure. The program takes an integrated approach to security by improving access control, surveillance, x-ray machines, metal detectors, and intrusion detection. We have already taken steps to improve security at major facilities, and we plan to upgrade the remaining 220 smaller facilities between 2008 and 2012.

3.2.2 Information Security

The FAA must protect the NAS from both external and internal cyber threats. The number of incidents has been reasonably small, but the critical nature of FAA's infrastructure requires elaborate security precautions to prevent intrusions. As FAA has moved from proprietary software to using commercial off-the-shelf software, our vulnerability to hacking has increased. As part of our existing information technology security program, we are working to strengthen the firewalls that prevent intrusion and to upgrade anti-virus software and other safeguards.

The FAA Cyber Security program is a partnership between the Chief Information Officer and FAA lines of business and staff offices that focuses on protecting our information technology (IT) infrastructure. The program includes computer security incident response; IT and Information Systems Security (ISS) awareness and training; IT research and development; policy, standards, and requirements development; program evaluations; and system certification and compliance. This comprehensive Cyber Security effort offers information system security awareness training for the agency's key ISS personnel; protection of FAA's information systems; and appropriate responses to computer security incidents.

3.2.3 Logical Access/Identity Control

Homeland Security Presidential Directive (HSPD) 12 establishes the policy for a Common Identification Standard and government wide implementation of secure and reliable forms of both physical and logical identification. To protect the integrity and availability of its critical information systems and networks and to comply with HSPD 12, FAA is developing and setting standards and policy for logical access and identity control. A critical part of this plan is to ensure authentication of each person's identity (100,000 users) before granting access to agency information systems.

3.2.4 Emergency Communications

In case of natural disasters or human-caused service disruptions, the FAA must maintain communications among its facilities. The NAS Recovery Communications (RCOM) project provides an emergency communications network using high frequency and very high frequency radios and satellite communications. RCOM also provides secure communications equipment for voice and facsimile messages, and mobile communications devices for short-range

communications. We are continually upgrading and testing these systems so that they will work when they are needed.

4 Enterprise Architecture: A Guide for Migration to the System of the Future

Office of Management and Budget policy requires all Federal agencies to produce a detailed enterprise architecture describing the information technology systems they use and their plans for future improvements or replacements. The FAA enterprise architecture provides a clear picture of the complete set of systems used in present air traffic control facilities and the planned progression to a modernized future system. The FAA uses the architecture to analyze how to implement improvements to accommodate future demand and to identify opportunities to standardize and coordinate our use of these new systems. Developing the enterprise architecture requires a disciplined approach that is all-inclusive in describing how current systems function and how changes will affect their future operation. It defines data transfer and appropriate exchange protocols. It encourages standardizing hardware and software to reduce costs and to increase productivity.

4.1 The FAA Enterprise Architecture

The FAA has prepared a NAS architecture for several years, so we have a solid base for an expanded FAA enterprise architecture. The existing NAS architecture describes current systems and plans for how to configure the future air traffic control system. The new enterprise architecture will add information to the existing base to better inform executives and system developers of the implications of making changes to the present system. It will contain several views of the system, from executive overviews to operational descriptions. These views are layered, with detail increasing from the lower numbered views to the higher numbered ones. We will continue to update these views on a regular basis to reflect changes in equipment and decisions to implement new technology. Keeping data in the enterprise architecture current is essential to making it usable throughout the organization. Projects outside the ATO will be part of the FAA enterprise architecture.

4.2 Roadmaps to the Future System

The detailed roadmaps appearing in the following sections are an integral part of the enterprise architecture. The roadmaps show how we get from the present system to the system of the future. They show that long-range planning extends beyond the five-year period covered in the CIP, and that long-range planning is necessary to ensure an orderly transition to the Next Generation Air Transportation System. While modernization will occur in incremental steps, we need to show the beginning and ending configurations accurately so we can synchronize all the changes during the transition. Many enhancements will become operational after 2012, but some CIP projects funded over the next five years are the beginning of that transition, and, in some cases are the building blocks for later system improvements.

The roadmaps in the next sections of the CIP show the scope of current planning. We will update these diagrams continually as we complete studies, demonstration projects, and economic analysis related to projects. The CIP will not explain every detail in the roadmaps, because final decisions on some elements will depend on study results and associated demonstration projects. For more detailed information, you can view the Enterprise Architecture and Roadmaps at www.nas-architecture.faa.gov.

4.2.1 Automation

The FAA uses automation for several purposes. Keeping over 50,000 flights safely separated every day requires a real-time depiction of aircraft location and information about operating characteristics such as speed and altitude. Automation helps controllers by giving them constantly updated displays of aircraft position, identification, speed, altitude and whether the aircraft is level, climbing or descending. Automation systems can continue to show an aircraft's track, when there is a temporary loss of surveillance information. It does this by calculating its ground speed and then using that information to portray its future position.

Other important features of automation are:

- It generates visual displays of information on routes, restricted areas, and several other fixed features of the controller's sector.
- It uses software that further enhances safety by providing automated alerts to controllers of potential aircraft conflicts and warnings that aircraft may be descending toward a terrain hazard.
- It support many functions that are essential to controlling air traffic such as showing the data from weather sensors, giving the status of runway lights and navigational aids, and providing flight plan information on aircraft being monitored.

The automation roadmap in Figure 6 depicts current systems and progression to more capable systems over an extended planning period. One of the important changes that will occur during the time shown in the roadmap is that we will be consolidating functions in larger shared systems. These larger systems will be able to offer more sophisticated services, such as early approval of direct routes and they will allow better allocation of workload among facilities. New systems will have quicker access to more data and the processing power to determine whether the best routes are available or if pilots must use alternative routes to avoid severe weather.

Automation Roadmap

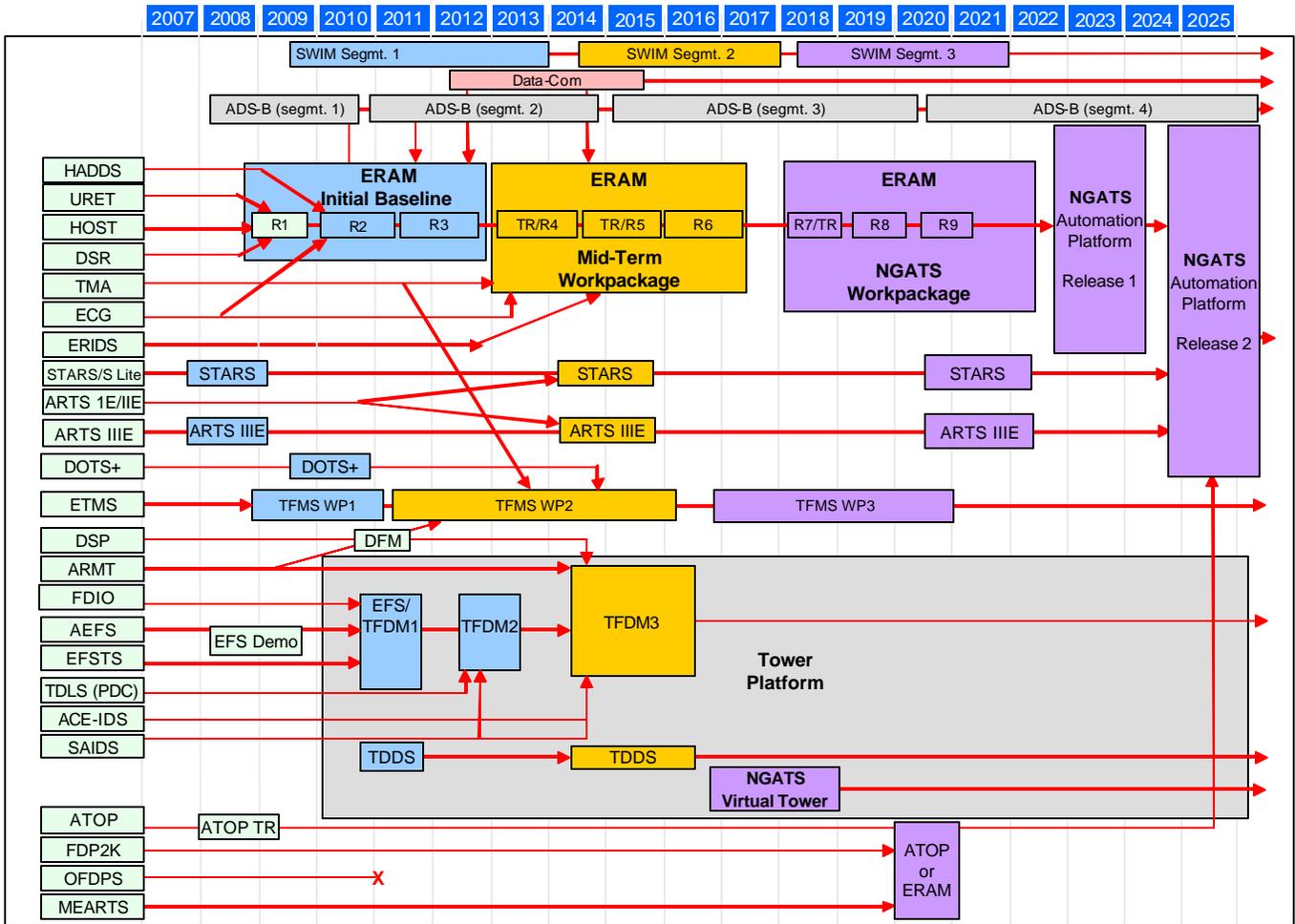


Figure 6 Automation Roadmap

Figure 7 shows the projected CIP expenditures on automation roadmap projects.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Automation Functional Area		\$660.4	\$666.7	\$672.4	\$717.4	\$806.0
1A05	Traffic Management Advisor (TMA)	\$15.4	\$3.7	\$0.0	\$0.0	\$0.0
1A09	System-Wide Information Management (SWIM)	\$21.3	\$31.0	\$31.3	\$38.1	\$51.8
1A15X	Next Generation Air Transportation System High Altitude Trajectory Based	\$0.0	\$85.0	\$165.0	\$223.0	\$210.0
1A16X	Next Generation Air Transportation System High Density Airports	\$0.0	\$68.0	\$92.0	\$132.0	\$142.0
2A01	En Route Automation Modernization (ERAM)	\$368.8	\$202.2	\$170.9	\$131.5	\$183.2
2A02	En Route Communications Gateway (ECG)	\$4.0	\$10.7	\$12.6	\$13.0	\$19.8
2A03	En Route System Modification	\$4.3	\$0.0	\$0.0	\$0.0	\$0.0
2A06	Air Traffic Management (ATM)	\$90.6	\$79.4	\$31.2	\$14.9	\$8.2
2A13	Oceanic Automation System	\$53.1	\$31.7	\$12.7	\$9.8	\$10.0
2A17	Military Operations	\$1.6	\$1.6	\$0.0	\$0.0	\$0.0
2A18	Automated Detection & Processing Terminal (ADAPT)	\$1.0	\$5.0	\$6.0	\$0.0	\$0.0
2A20	Volcano Monitoring	\$1.0	\$0.0	\$0.0	\$0.0	\$0.0
2B03	Standard Terminal Automation Replacement System (STARS)(TAMR Phase 1)	\$31.2	\$47.4	\$47.0	\$47.0	\$47.8
2B04	Terminal Automation Modernization/ Replacement Program (TAMR Phase 2)	\$6.8	\$42.0	\$51.7	\$51.1	\$82.4
2B05	Terminal Automation Program	\$2.3	\$2.3	\$2.4	\$2.4	\$2.5
2D08	Instrument Approach Procedures Automation (IFPA)	\$17.8	\$10.9	\$7.9	\$0.5	\$0.0
3A02	Aviation Safety Analysis System (ASAS)	\$16.9	\$16.9	\$16.8	\$16.8	\$16.8
3A08	System Approach for Safety Oversight (SASO)	\$11.3	\$11.8	\$6.8	\$23.5	\$23.5
3A09	Aviation Safety Knowledge Management Environment (ASKME)	\$4.0	\$7.0	\$8.0	\$8.0	\$8.0
4A10	NOTAMS and Aeronautical Information Programs	\$9.0	\$10.0	\$10.0	\$5.8	\$0.0

Figure 7 Expenditures in the Automation Functional Area

The System Wide Information Management (SWIM) system and the Automatic Dependent Surveillance- Broadcast (ADS-B) system at the top of the roadmap in Figure 6 are examples of technology initiatives that will affect virtually every roadmap. Sharing information through SWIM and using the broad coverage of ADS-B will require that en route systems be designed to take advantage of this information and perform more efficiently.

We are replacing or have already replaced many components of the current en route automation system in the first stages of the En Route Automation Modernization (ERAM) program. We have replaced the original backup system, which sustains operations if the main en route automation system fails, with a system called EBUS (en route back up system). The En Route Communications Gateway (ECG) replaced a support computer system, which formats radar data and flight information for the main en route computer (called the Host Computer System). ECG is now operational. We will be modifying advanced features such as the Traffic Management Advisor (TMA) and User Request Evaluation Tool (URET), an automation tool to assist controllers in approving direct routes, so we can incorporate them into the ERAM software. Other programs linked to ERAM upgrades are the Host air traffic management data distribution system (HADDs), replacing the central mainframe computer (Host) and replacing en route displays (DSR).

We are replacing the existing en route systems for several reasons. Current displays are out of production, and their failure rates are increasing. The automation software is written in an obsolete language, which cannot be used in the next generation of computers. The existing system cannot dynamically process changes in flight plans, and it will not support the most advanced traffic management tools we need to handle the expected growth in air traffic demand.

Developing more sophisticated processing is an essential step in moving to a next generation system. To handle an increased volume of air traffic, the next generation system will rely on standardized message sets, which will reduce the complexity of the current system and allow better coordination between en route and terminal automation systems. The ultimate goal is to build an automation platform that can be used for both en route and terminal air traffic. The steps to reach that goal are depicted in the roadmap. There will be a series of releases upgrading the system until it is ready to transition to the NextGen Automation Platform.

ERAM is a large program, with an estimated capital cost of about \$2.2 billion; but the FAA Investment Analysis, completed in 2004, estimated that it would yield \$8.8 billion in benefits. The benefits come mainly from avoided maintenance costs and increases in the number of aircraft that can use the same segment of airspace simultaneously. Replacing the hardware and software will reduce maintenance costs by \$1.8 billion. User benefits of \$5.3 billion result from improved operating efficiency because ERAM will allow faster processing of route requests and in flight route changes. The remaining \$1.7 billion in benefits comes from safety improvements and reduced FAA staffing from converting paper processes to electronic information systems.

The En Route Information Display System (ERIDS), the ASOS (weather sensing system) controller equipment information display system (ACEIDS), and the System Atlanta information display system (SAIDS) will be integrated into a common information display (CIDP) to reduce the number of displays at air traffic control facilities. In the future, the CIDP will become part of the NextGen automation platform

Automation systems used in the terminal environment are a mix of the Automated Radar Terminal System (ARTS) models I, II and III, and the Standard Terminal Automation Replacement System (STARS). There are about 170 terminal automation systems currently in place, of which 43 are operational STARS sites. The FAA is studying several options for the future mix of terminal automation systems, but both ARTS and STARS will be maintained until we decide to deploy the NextGen automation platform. As terminal automation systems are being upgraded, we will be developing the format for a common message set and a terminal automation data display system (TADDS)

There are several supporting systems being developed or improved including the Electronic Flight Strip Transfer System (EFSTS), the Tower Data Link services (TDLS), and the Airport Resource Management Tool (ARMT) that handle information flows in and out of the automation systems. The roadmap indicates that these systems will eventually be integrated with the consolidated automation systems planned for the future.

The Enhanced Traffic Management System (ETMS) hardware and software is installed at traffic management units at the centers and large terminal control facilities. These units coordinate with the Air Traffic Control System Command Center (ATCSCC) to manage traffic flows across the NAS. The ETMS software tracks aircraft in controlled airspace and calculates the anticipated demand on system capacity with present and future levels of operations. It also relies on detailed weather forecasts to predict delays, and, if necessary, to help choose the best routes to avoid severe weather. The Departure Sequencing Program (DSP) is a software enhancement that assists controllers in maximizing the use of runway capacity by identifying optimal departure

times for aircraft. A key element in successfully managing traffic flows is cooperation with airspace users. The Collaborative Air Traffic Management Technology (C-ATM-T) program is upgrading software to improve coordination with airline operations centers. We plan to consolidate these systems with upgrades of en route and terminal automation to create more sophisticated strategic planning tools.

The Advanced Technology and Oceanic Procedures (ATOP) system for oceanic air traffic control is fully operational at New York and Oakland centers. It will become fully operational at Anchorage in FY 2007. ATOP allows reduced separation of properly equipped aircraft flying over the oceans. Reduced separation results in more aircraft receiving the most fuel-efficient altitudes and routes. The most recent update of benefits prepared by the integrated product team estimates total user benefits of \$2.6 billion. We are upgrading ATOP and other systems used for offshore control and planning such as the MEARTS (microprocessor en route automated tracking system), DOTS (dynamic ocean tracking system) and OFDPS (offshore flight data processing system). DOTS is used to select the most fuel-efficient oceanic routes based on forecasted winds, and the roadmap shows it being integrated into the Traffic Flow Management System (TFMS) in 2014. In 2019 we will decide whether ATOP and its supporting systems will be upgraded or integrated during later phases of the en route automation (ERAM) program with the NextGen automation system.

4.2.2 Communications

Radio, ground telecommunications lines, and satellite links connect pilots with controllers and provide communications within and among facilities. Voice switches in air traffic facilities allow controllers to select the channels they need to communicate with one another and with pilots. Radios in these facilities and at remote locations that extend the range of communication beyond the limits of direct radio transmission are connected to the voice switches. Backup systems provide communications when the primary systems fail. Figure 8 is the roadmap for the modernization of these systems.

A limited band of frequencies is available for air traffic communications. As the volume of air traffic increases, the fixed number of available frequencies limits our flexibility to add control sectors. There are several solutions to expanding the number of communication channels. FAA is working proactively with international standards committees and industry to identify the most suitable technology for handling future growth and the expanding levels of information exchange needed to maintain efficient operations.

Communication Infrastructure Roadmap

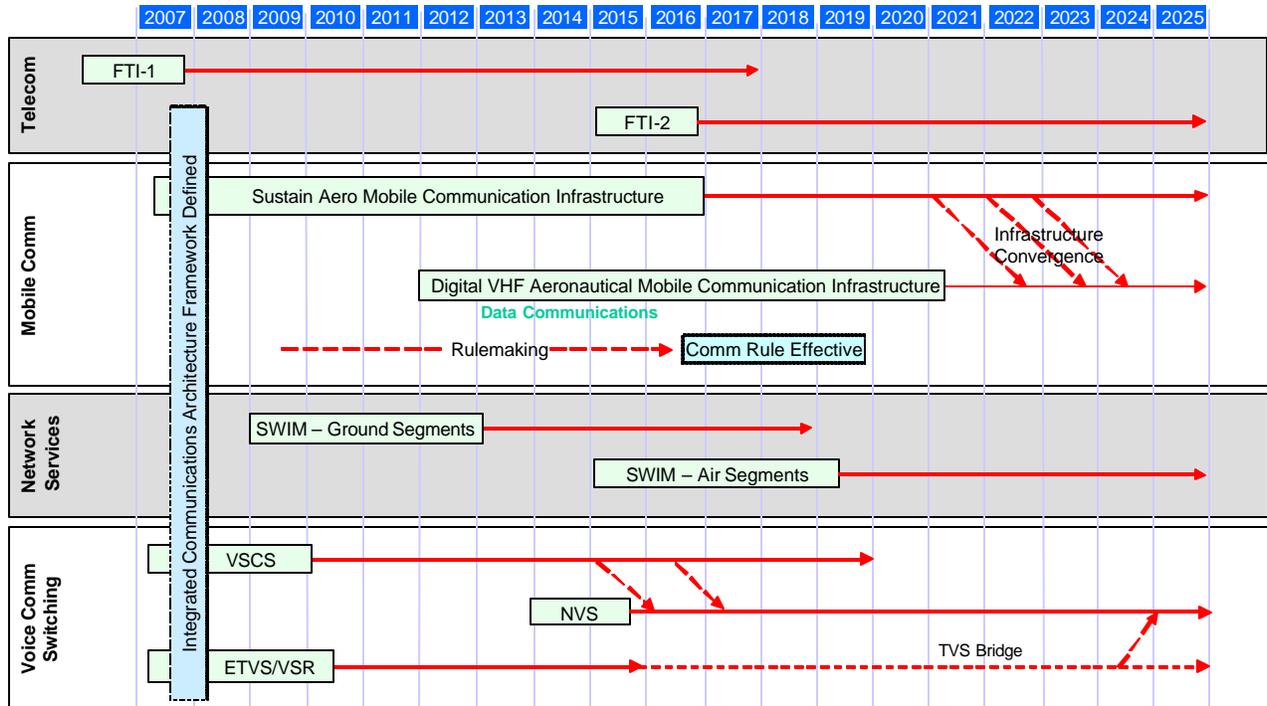


Figure 8 Communications Roadmap

Figure 9 shows the projected CIP spending for replacing communications systems and improving and modernizing communications channels.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Communication Functional Area		\$125.4	\$165.6	\$221.3	\$238.6	\$289.8
1A03	Aeronautical Data Link (ADL) Applications	\$1.0	\$2.0	\$2.2	\$2.2	\$2.1
1A04	Next Generation VHF Air/Ground Communications System (NEXCOM)	\$30.4	\$63.4	\$88.7	\$106.4	\$184.7
1A12	Data Communication for Trajectory Based Operations NextGen	\$7.4	\$14.9	\$28.6	\$36.7	\$38.1
2A07	Air/Ground Communications Infrastructure	\$29.2	\$19.8	\$15.0	\$15.6	\$5.0
2A10	Voice Switching Control System (VSCS)	\$15.7	\$23.3	\$16.6	\$15.5	\$0.0
2A12	FAA Telecommunications Infrastructure (FTI)	\$8.5	\$0.0	\$0.0	\$0.0	\$0.0
2B08	Terminal Voice Switch Replacement (TVSR)/ Enhancement Terminal Voice Switch	\$12.3	\$8.2	\$10.0	\$0.0	\$0.0
2B15	National Airspace System Voice Switch (NVS)	\$3.0	\$14.0	\$40.0	\$50.0	\$50.0
2B17	Voice Recorder Replacement Program (VRRP)	\$5.9	\$8.0	\$8.2	\$8.2	\$9.9
2E07	Alaskan NAS Interfacility Communications System (ANICS)	\$2.0	\$2.0	\$2.0	\$2.0	\$0.0
3A05	National Airspace System (NAS) Recovery Communications (RCOM)	\$10.0	\$10.0	\$10.0	\$2.0	\$0.0

Figure 9 Expenditures in the Communications Functional Area

The FAA relies on commercial telecommunications companies to provide links between its facilities and to relay messages from remote radio sites to control facilities. These telecommunications links carry both operational and administrative messages. The single contract awarded through the FAA Telecommunications Infrastructure (FTI) program in 2002 consolidates these services to reduce costs, upgrade security, and increase accountability for internal users of telecommunications services. The contract expires in 2017, and the roadmap shows these services will have to be re-competed before 2017.

The voice switching and control system (VSCS) in Figure 8, is used in the en route centers. It allows controllers to choose the best lines to communicate with pilots, and with other controllers in their own and nearby facilities. This includes radio communications that are routed to the centers from remote radio facilities because aircraft often are beyond the range for direct radio communication. Because of increasing maintenance costs on the current switches, we must replace some components to maintain system reliability, and that program is the Voice Switching and Control System (VSCS) Technical Refresh. We are planning to replace the VSCS with the NAS voice switch in the future. We will design this new switch so we can use it in both en route and terminal facilities. It will have a flexible configuration that we can build to the right size for each facility. Using a standardized switch reduces training, maintenance, and spare parts costs.

Terminal facilities also rely on voice switches so controllers can communicate with aircraft and controllers in other facilities. These switches are smaller, but they must operate at the same high reliability as the large switches in the centers. We have purchased three sizes of these switches and replaced many older terminal switches. In 2008, we plan to begin developing the NAS voice switch that can replace existing terminal switches as they reach the end of their service life.

We will maintain the current radio communications systems for air traffic control until at least 2020 while decisions are made on how best to increase capacity of existing radio frequencies. Current systems use Very High Frequency (VHF) and Ultra High Frequency (UHF). We will continue to buy replacements for these radios that can support up to four channels on one frequency. Once we reach agreement with foreign operators and our domestic airlines we will be ready to implement the new technology, but it will require users install radios meeting the agreed technical standard. In addition to buying the radios we will continue to support programs that find and eliminate interference on the aviation frequencies. We will continue to upgrade and relocate remote receive and transmit stations that extend the range of radio communications with pilots to meet changing flight patterns.

In parallel, we will be studying and developing Data Communications for NextGen. Commercial airlines make extensive use of data link for communications between aircraft and airline operations centers. The ATO program will enhance the technology for data link transmission of routine air traffic control messages. There are many advantages to data link, including eliminating pilot read back errors when they confirm clearance information with controllers, and reducing controller workload. In addition, the data link would allow the pilot and controller to exchange weather and traffic information.

New services enabled by Data Communications will contribute dramatically to air traffic capacity. Advanced 4-dimensional trajectories will enable more strategic operations that can

ensure the most efficient use of airspace resources, with greatly reduced ground management oversight. More predictable traffic flows will yield better on-time performance and minimize service impact from weather-related system disruptions. Many of these new services will have positive impacts in other areas. Continuous Descent Arrivals, for example, will enable pilots to throttle back to idle on their descent to the airport, reducing noise, emissions, and fuel consumption. Data Communications, by allowing exchange of data to carefully coordinate the aircraft's position in time and space, will allow the FAA to effectively employ these approaches even in congested airspace.

4.2.3 Surveillance

To provide separation services to aircraft, air traffic controllers must have an accurate display of all aircraft under their control. Controller displays use radar and transponder information to show where aircraft are located and to portray flight data. En route facilities use the Air Route Surveillance Radar (ARSR) and terminal facilities use several models of the Airport Surveillance Radar (ASR) as primary radars. These radars use reflected electromagnetic energy to show aircraft location, and they do not depend on any equipment in the aircraft.

Both en route and terminal facilities usually rely on a more sophisticated system to determine aircraft location and control traffic. It is the air traffic control beacon interrogator (ATCBI), and it sends a signal to aircraft equipped with a transponder. The transponder sends a reply, which gives the aircraft call sign, altitude, and speed and allows the beacon interrogator to determine its position.

We use two systems on the airport surface. The Airport Surface Detection Equipment (ASDE) provides a display of aircraft and ground vehicles in the airport operating areas (runways and taxiways). This helps controllers manage aircraft on the ground to prevent runway incursions. There are two ASDE models. The ASDE-3 relies on radar surveillance, and the ASDE-X uses several technologies to improve detection of aircraft and provide a clear display of the positions of aircraft and vehicles on taxiways and runways.

The Precision Runway Monitor (PRM) uses rapid-update radar to provide the accuracy controllers need to handle simultaneous parallel approaches on closely spaced runways.

Figure 10 is the roadmap for surveillance systems.

Surveillance Roadmap

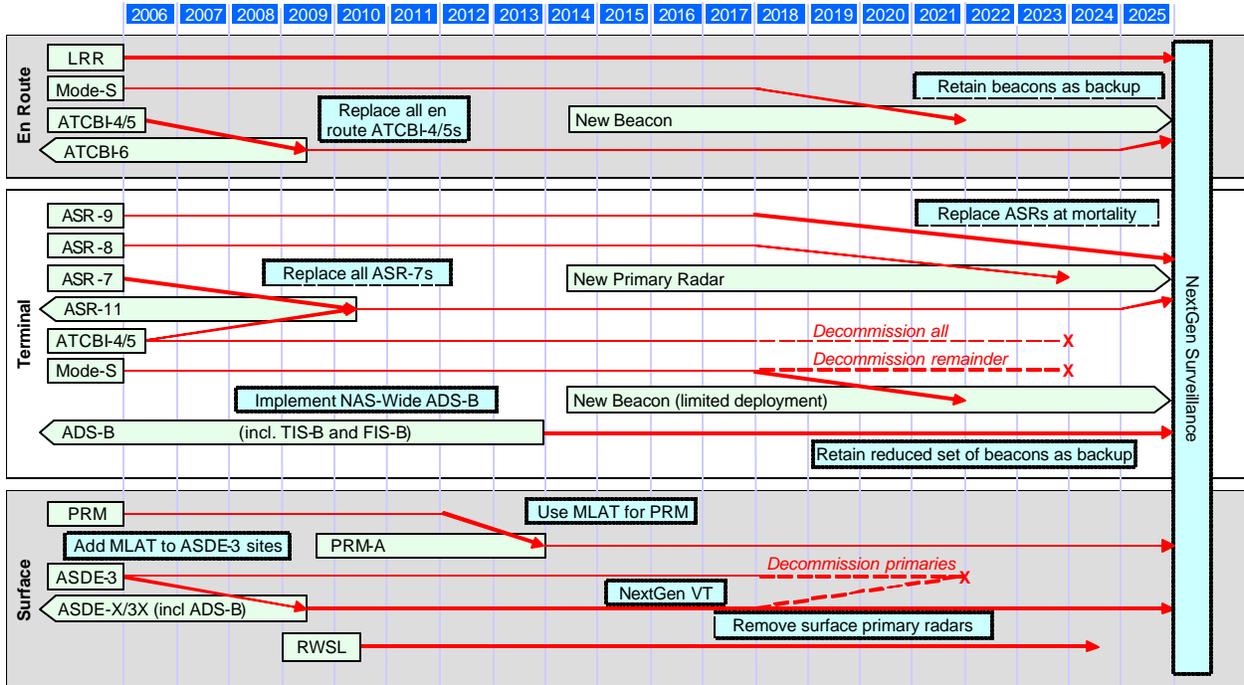


Figure 10 Surveillance Roadmap

Figure 11 shows the CIP costs associated with upgrading the surveillance units.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Surveillance Functional Area		\$207.0	\$198.2	\$202.7	\$200.3	\$126.8
1A02	Safe Flight 21 (SF-21)	\$17.0	\$20.0	\$20.0	\$20.0	\$13.3
1A10	ADS-B NAS Wide Implementation	\$85.7	\$92.9	\$139.6	\$155.6	\$90.7
2A08	ATC Beacon Interrogator (ATCBI) - Replacement	\$20.2	\$24.2	\$0.0	\$0.0	\$0.0
2A09	Air Traffic Control En Route Radar Facilities Improvements	\$5.3	\$5.3	\$5.3	\$5.3	\$0.0
2B01	Airport Surface Detection Equipment - Model X (ASDE-X)	\$37.9	\$26.0	\$13.1	\$5.0	\$8.4
2B10	Airport Surveillance Radar (ASR-9)	\$6.3	\$4.0	\$2.1	\$0.0	\$0.0
2B11	Terminal Digital Radar (ASR-11)	\$20.3	\$15.8	\$12.6	\$4.4	\$4.4
2B13	Precision Runway Monitors	\$9.0	\$0.0	\$0.0	\$0.0	\$0.0
2B14	Runway Status Lights (RWSL)	\$5.3	\$10.0	\$10.0	\$10.0	\$10.0

Figure 11 Expenditures in the Surveillance Functional Area

The long-range primary radars (LRR) will remain in operation, but the Departments of Defense and Homeland Security are responsible for funding their operation. However, FAA funds upgrades to the sites because the beacon interrogator antennas are mounted on the same rotating mechanism as the LRR.

Terminal radars display traffic within 60 miles of an airport. The ASR-9 radars, which are the newest terminal models, will remain in service past 2014, when we will decide whether to replace them. Most ASR-9s were installed in the 1990s and are undergoing a service life extension program. The older ASR-7s are being replaced by the ASR-11. We must consider a number of factors in deciding on a replacement for terminal radars including how to continue the service ASR-9s now provide by detecting weather and showing its location and intensity. Many of the older beacon interrogators were upgraded by the Mode-S system. The Mode-S system can address aircraft individually rather than just send out a signal that triggers all aircraft transponders. Also, the Mode-S aircraft transponder transmissions can be used by other aircraft's collision avoidance systems to calculate the relative position of the transmitting aircraft and warn both pilots when two aircraft are too close. The Air Traffic Control Beacon Interrogator Model 6 (ATCBI-6) program will replace the beacon interrogators not replaced by the Mode-S. When ADS-B is operational we may be able to decommission the Mode-S and ATCBI-6. If not, we will implement a new beacon system in 2014.

We have installed ASDE-X surveillance systems at 10 airports, and 35 systems will be operational by 2011. They will remain in service until the Automatic Dependent Surveillance-Broadcast System is operational. They use a triangulation technique to locate and display the position of aircraft both in the air approaching runways and on the ground. They also detect ground vehicles in the operations area near the runways and taxiways.

We have installed the Precision Runway Monitor (PRM) at five airports. It is used at airports with closely spaced parallel runways to increase capacity during marginal weather conditions. The PRM systems use rapid update radars and special displays so controllers have precise location information to ensure separation of aircraft making simultaneous approaches to two closely spaced parallel runways. Controllers can maintain a safe margin of separation because the frequent updates allow them to detect deviations from the approach path in time to warn pilots. PRM allows both runways to be used to full capacity rather than having to reduce airport arrivals during low visibility conditions and use staggered approaches. We are developing a new PRM application called PRM-A, which will rely on ADS-B information. Replacing PRM with a technique called multilateration (using information from several sensors to precisely locate an aircraft's position) is being studied.

4.2.4 Navigation

There are two major uses for navigational aids: en route navigation and precision approach and landing guidance. Generally, pilots use radio navigation aids to determine their location when flying over land. These navigation aids allow pilots to follow their planned routes accurately under all visibility conditions. Precision landing guidance systems, and the associated equipment on the ground, provide radio signals and approach lights that pilots can follow to land in limited visibility.

The ground-based system commonly used for en route navigation is the Very High Frequency Omnidirectional Radio Range with Distance Measuring Equipment (VOR and DME). There are over 1,000 VORs spread across the United States. These navigational aids define the airways, which are routes used by pilots and are based on the straight lines from VOR to VOR. These routes provide structure for air traffic control. Using airways can simplify route planning and reduce the length of the clearances to fly from departure to destination. The precision landing aids, called Instrument Landing Systems (ILS), guide pilots to runway ends in very limited visibility. There are over 1,000 ILS installed in the United States. They are essential to airlines for maintaining schedule reliability during poor weather.

Figure 12 shows the roadmap for navigation aids.

Navigation Roadmap

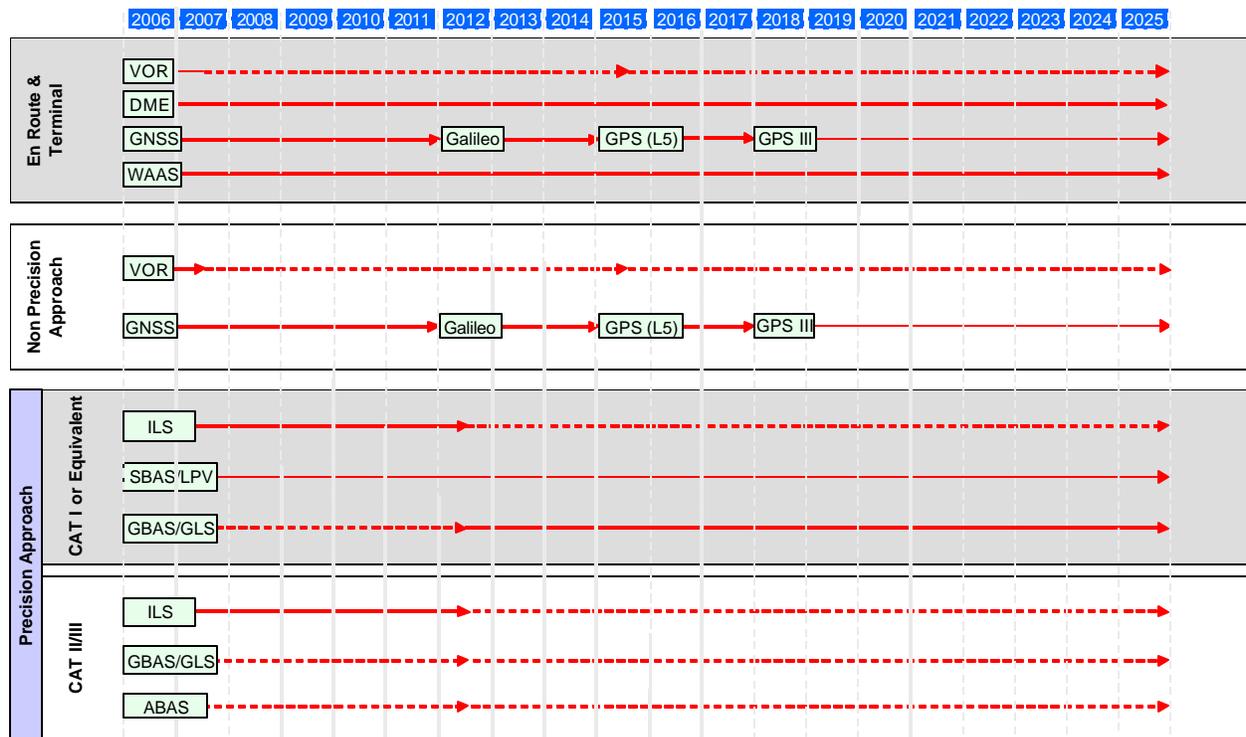


Figure 12 Navigation Roadmap

Figure 13 shows the future capital investments for navigation systems included in the CIP.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Navigation Functional Area		\$166.4	\$216.1	\$209.4	\$182.4	\$165.5
2D01	VHF Omnidirectional Radio Range (VOR) with Distance Measuring Equipment (DME)	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0
2D02	Instrument Landing Systems (ILS) - Establish	\$9.0	\$10.3	\$21.8	\$5.0	\$5.0
2D03	Wide Area Augmentation System (WAAS) for GPS	\$115.9	\$158.0	\$146.8	\$143.5	\$127.4
2D04	Runway Visual Range (RVR)	\$5.0	\$7.0	\$5.0	\$5.0	\$5.0
2D05	Approach Lighting System Improvement Program (ALSIP)	\$15.0	\$15.0	\$5.0	\$5.0	\$5.0
2D06	Distance Measuring Equipment (DME)	\$5.0	\$6.0	\$8.0	\$1.0	\$0.0
2D07	Visual Nav aids - Establish/Expand	\$3.5	\$5.4	\$5.8	\$5.9	\$6.1
2D09	Navigation and Landing Aids - Service Life Extension Program (SLEP)	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0
2D10	VASI Replacement - Replace with Precision Approach Path Indicator	\$3.0	\$4.4	\$7.0	\$7.0	\$7.0

Figure 13 Expenditures in the Navigation Functional Area

The navigation roadmap envisions a transition to space-based service. We are planning to decide in 2008 whether to reduce the number of VORs in service. The remaining VORs would serve as a back-up to GPS because some aircraft will not be equipped with GPS navigation receivers, and there are occasionally small gaps in GPS coverage. Back-up navigation systems would also be used during a GPS failure, which could be either loss of the signal from the satellites or failure of the aircraft equipment that receives and processes that signal. We will review the appropriate number and types of back up systems again in 2015, to determine if any further reductions are feasible beyond the number identified in the 2008 decision.

The FAA will continue to install low-power DMEs near airports to support recommendations of the Civil Aviation Safety Team to improve precision landing guidance to aircraft. As part of that program, the DME will replace a portion of the outer markers used with the ILS. The purpose of the outer marker is to confirm to the pilot that the aircraft is at the right location for following instrument landing system guidance for a precision approach.

We normally install a few new ILSs every year to provide precision approaches to newly constructed runways and to provide approach guidance at existing runways, that qualify because of increased operations. Precision approaches supported by GPS augmented with Wide Area Augmentation System (WAAS) corrections may eventually replace many ILSs; however, current planning calls for ILSs to remain in service at the 55 busiest airports. The Space Based Augmentation System (SBAS) and Ground Based Augmentation System (GBAS) may be certified for Category I landings, and development continues on the potential use of GBAS for Category II and III approach guidance.

Both ILS and space-based precision approaches require several other supporting systems. Runway lights and approach lights must be installed. Runways with precision approach guidance also have Runway Visual Range systems that measure the distance a pilot can see down the runway so that pilots know whether visibility is above minimum requirements for a precision approach. We must replace and upgrade existing lighting and visibility systems associated with ILS and other precision landing systems.

The term Global Navigation Satellite System (GNSS) in the roadmap refers to use of all available systems. European countries are developing the Galileo system, which is scheduled to be operational in 2014, and enhancements to GPS are being developed now. Adding a second civilian frequency to the GPS satellites will improve the accuracy of positions calculated using the GPS signals and increased electrical power on the satellites will improve reception.

4.2.5 Weather Systems

Weather information is essential to aviation. Pilots need to know the effect winds aloft will have on their speed and whether there will be sufficient visibility for them to land at their destination airport. Pilots also use weather information to determine if they need to fly a different route to avoid severe weather. Thunderstorms and turbulence can damage aircraft and cause injuries to passengers. Because of its impact on an aircraft's speed, weather data is essential for computing the 4D trajectories used in the NextGen systems. The FAA has a significant role in collecting weather data and distributing it to aviators. The FAA distributes weather hazard information from its own systems and from the National Weather Service to air traffic control facilities, pilots, airline operations centers, and other aviation-related facilities.

There are two major categories of weather information systems. The first is the weather sensors that measure several atmospheric parameters, including temperature, wind speed and direction, relative humidity, and cloud heights. Sensors provide real-time information to air traffic facilities and to centralized weather forecasting systems. The second is weather processing and display systems, which integrate data from the sensors, forecast weather patterns and create weather graphics for air traffic displays. An advanced feature enables some systems to project the future movement of weather affecting operations. The first weather roadmap (Figure 14) shows the current and planned status of weather sensors.

Weather Roadmap - Sensors

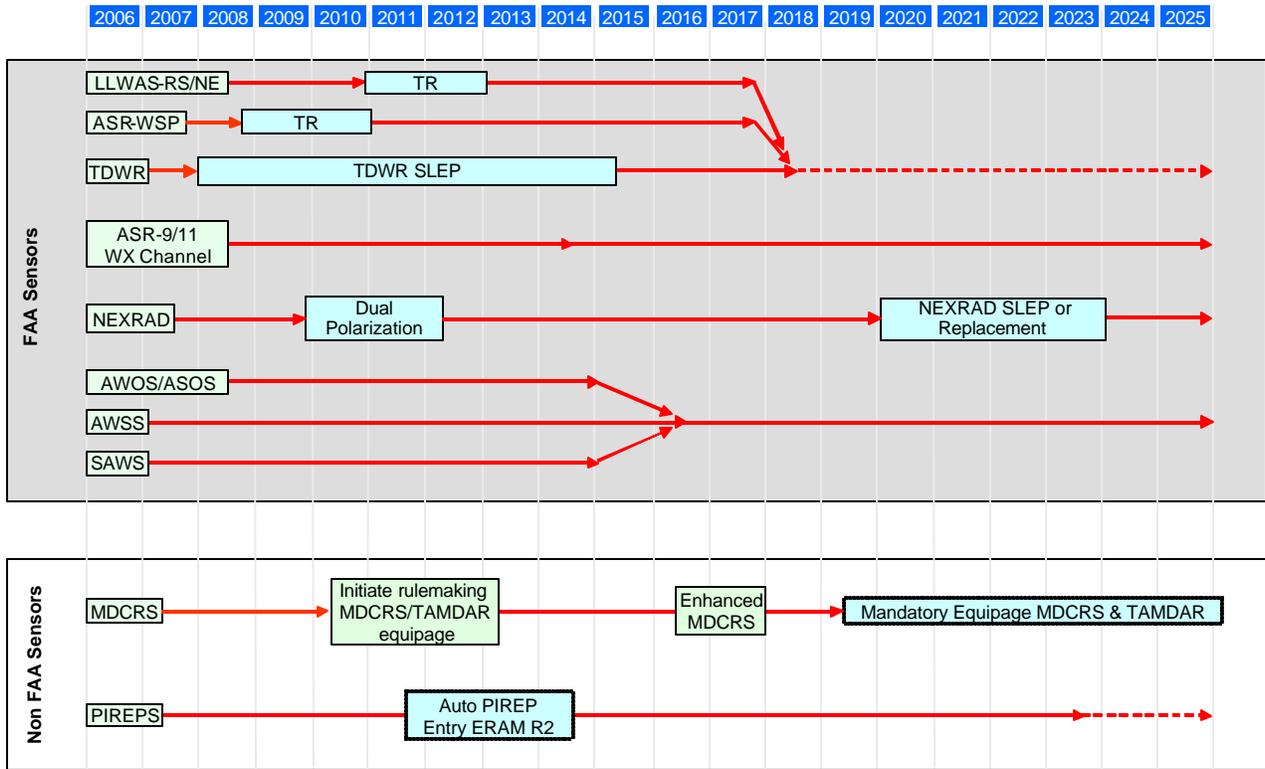


Figure 14 Weather Sensor Roadmap

Three different sensors can detect wind shear, which is a significant hazard to landing aircraft. The most sophisticated is the Terminal Doppler Weather Radar (TDWR). There are 47 of these radars and most are located within 10 miles of a runway end. Using Doppler technology, the radars can detect the rapid changes in wind speed and direction that indicate hazards for an aircraft approaching a runway. For medium-sized airports that don't qualify for a TDWR, a lower cost alternative is the Weather System Processor (WSP), which interprets data from the terminal surveillance radar to identify wind shear. To supplement these radar systems, wind sensors near ground level measure wind direction and velocity at six to ten points around the runways. The wind sensors and the associated computer systems that determine whether there are significant changes in the wind at different locations near the airport are called the Low-Level Wind Shear Alerting System (LLWAS). The LLWAS serve locations that do not have radar as well as locations where they supplement the radars with point specific wind measurements to verify the presence and location of wind shears. The roadmap shows that we will decide whether to modernize existing systems or develop a lower cost replacement for wind

shear detection. A similar decision will be made for continuing operation of the ASR-9 to gather weather information.

The Automated Surface Observing Systems (ASOS) and other variants such as the Automated Weather Observing System (AWOS) and the Stand Alone Weather Sensing (SAWS) system, have up to 14 sensors that measure weather data. These systems feed data directly to air traffic control facilities and support automated broadcast of weather information to pilots. They also provide regular updates for the forecast models that predict future weather problems. These sensors will require updating, and we plan to decide in 2016 whether to replace, consolidate, or continue modernizing them.

The Next Generation Weather Radar (NEXRAD) was developed under a joint National Weather Service, DoD, and FAA program. These systems are essential sensors that are used for forecasting weather. We will decide by 2019 to either replace these radars or complete a Service Life Extension Program (SLEP).

The Meteorological Data Collection and Reporting System (MDCRS) and other non-FAA systems collect data from aircraft in flight. The winds and humidity at high altitudes are very useful for forecasting movement and intensity of weather systems. Sensors on the aircraft measure the outside air temperatures and water content of the atmosphere. They combine that information with the wind computed in the aircraft navigation system and radio this information to the ground stations. Using aircraft to report weather expands the number of observations available to meteorologists and improves their forecasts. To expand use of these sensors we will have to issue rules to require aircraft to carry them. Pilot reports (PIREPS) of weather conditions are often transmitted by voice to FAA facilities. We are studying whether these reports can be transmitted automatically.

Weather Roadmap - Dissemination, Processing & Display

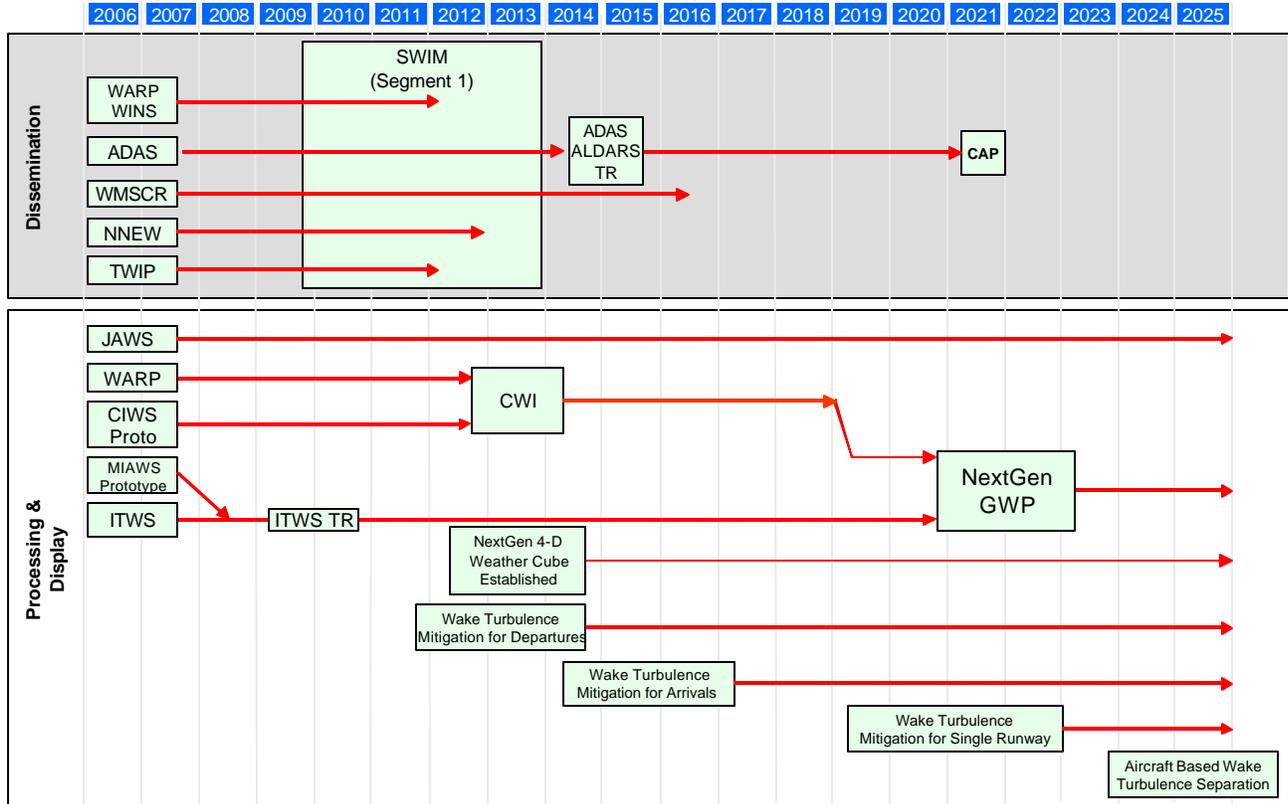


Figure 15 Weather Dissemination, Processing, and Display Roadmap

Figure 16 shows the planned expenditures included in the CIP for weather sensors and weather dissemination and processing systems.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Weather Functional Area		\$42.4	\$67.6	\$64.9	\$68.0	\$67.9
1A11	NextGen Network Enabled Weather	\$7.0	\$20.0	\$25.0	\$25.0	\$25.0
2A04	Next Generation Weather Radar (NEXRAD)	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0
2A11	Integrated Terminal Weather Systems (ITWS)	\$13.2	\$9.1	\$5.6	\$0.0	\$0.0
2A15	Corridor Integrated Weather System (CIWS)	\$2.1	\$4.0	\$4.0	\$4.0	\$4.0
2A21X	General Weather Processor (GWP)	\$0.0	\$15.3	\$20.3	\$29.3	\$34.6
2B02	Terminal Doppler Weather Radar (TDWR) - Provide	\$8.0	\$7.1	\$0.0	\$0.0	\$0.0
2B16	Weather System Processor (WSP)	\$4.1	\$0.7	\$0.3	\$0.0	\$0.0
2C01	Automated Surface Observing System (ASOS)	\$5.0	\$8.5	\$6.7	\$6.7	\$1.3

Figure 16 Expenditures in the Weather Functional Area

Weather distribution and display systems, Figure 15, consolidate weather information and send it to the National Weather Service and air traffic computer systems. These systems compile radar data and other observations to produce a visual display of weather location, including color-coded information on the intensity of thunderstorms and other significant weather. It provides an immediate picture of the current weather and the data for forecasting the future location and intensity of weather systems.

The Weather and Radar Processor (WARP) used in en route control facilities receives information from Next Generation Weather Radars (NEXRAD), from automated weather sensors located at airports, and from other sources such as weather satellites. It compiles the information for interpretation by the Center Weather Service Unit forecasting stations. We will replace this system with the CWI, which will integrate the Corridor Integrated Weather System (CIWS) and the WARP. The CIWS gathers weather information occurring along the busiest air traffic corridors to help controllers select the most efficient routes for diverting traffic to avoid severe weather conditions. To complement the weather observations, we are adding a predictive capability to refine the decisions on when routes will be available. This is done by estimating how long it will take for the severe weather to move away from the corridors.

A new project that begins in 2008 is the NextGen Network Enabled Weather (NNEW). It will support the NextGen 4D weather database in Figure 15. It enables all users to have broad-scale, networked access of weather information from distributed weather information sources, and integrates information into NextGen decision support systems. The initial NNEW requirements and architecture will be developed in conjunction with the JPDO Weather IPT. To verify the adequacy of the requirements and technology readiness, we will develop and test a NNEW prototype on the System Wide Information Management (SWIM) Test Bed. This work will support the first operational implementation phases of the NNEW in FY 2012.

The General Weather Processor (GWP) will provide automated, accurate, timely, high-resolution and reliable, current and forecast weather products to air traffic controllers, traffic management specialists, ARTCC meteorologists, and airlines. The GWP will also provide weather data to NAS systems to further improve capacity management. Programs connecting to GWP data include the En Route Automation Modernization (ERAM), User Request Evaluation Tool (URET), Advanced Technologies and Oceanic Procedures (ATOP), and the Enhanced Traffic Management System (ETMS).

The GWP will use the standards for weather product formatting, registration, and dissemination as defined by the NNEW or the SWIM architecture. GWP will leverage open system architecture design concepts to promote rapid integration of new capabilities, which will reduce system operations and maintenance costs.

More detailed, real-time weather information presented in the en route environment allows us to use air routes more efficiently. We can open routes impacted by weather as soon as possible and keep them open as long as possible. Pilots are provided optimal routes to avoid severe weather and they save fuel by avoiding last minute changes that result in extra flying time. It also supports strategic planning to increase the number of airplanes accommodated during poor

weather conditions to allow higher traffic flows starting earlier in the daily flight planning process.

The Integrated Terminal Weather System (ITWS) consolidates weather information from automated sensors and surrounding radars to provide real-time weather information for terminal control facilities. The system also projects movement of severe weather systems up to 20 minutes into the future. Tower and Terminal Radar Approach Control (TRACON) controllers use the information to make more precise estimates of when runways should be closed and subsequently reopened. They also use the information to plan for a switch in terminal arrival patterns to avoid excessive maneuvering as aircraft approach an airport. The ITWS has been installed at 22 airports. We are examining whether we can integrate it with the General Weather Processor. The combined system would collect and analyze terminal and en route weather information and provide automated forecasts of the future location of weather.

We are currently testing the Wake Turbulence System. It determines the rate of dissipation of the wake vortex created by aircraft arriving and departing airports. Aircraft must be spaced farther apart when the turbulence created by the air swirling off their wings persists near the runways. This system detects when surface winds are dissipating the wake turbulence and spacing for arriving and departing aircraft can be reduced.

We must maintain the central weather distribution facilities called the Weather Message Switching Centers (WMSCR) until we transition to the General Weather Processor (GWP) and the SWIM network. The two WMSCR facilities collect and transmit weather data to FAA operational facilities. The FAA Bulk Weather Telecommunications Gateway (FBWTG) is a similar link between the National Weather Service and the Air Traffic Control System Command Center.

The AWOS Data Acquisition Service (ADAS) radio links send weather data from automated sensors to FAA facilities. These radio links will eventually send data to SWIM. The Automated Lightning Detection and Reporting System (ALDARS) reports the location of lightning strikes. Current planning calls for all this data to be stored in the SWIM system so that everyone with a need to review weather conditions will have a comprehensive database of current weather conditions.

The Terminal Weather Information for Pilots (TWIP) system broadcasts weather conditions near airports to pilots and may be integrated into SWIM. The Weather Information Network Server (WINS) stores NEXRAD data, which will be stored in SWIM once it is operational.

4.2.6 Facilities

The ATO has thousands of manned and unmanned facilities, which we must regularly modernize. The largest facilities are the 20 en route centers, which house hundreds of employees and the equipment needed to control aircraft flying in the en route airspace, which is the airspace not assigned to terminal facilities. The other operational facilities with significant staffing are the over 500 tower and TRACON facilities that control traffic departing and arriving at airports. There are also several thousand unmanned facilities containing radar equipment, remote

communication links, and navigational aids. We need significant funding to upgrade older facilities and repair damage.

At the en route centers, we are continually upgrading automation equipment, and we need to renovate the centers to accept the new equipment. A closely associated program replaces the back up electrical power-generating equipment that provides electrical power when commercial power is lost. This program also upgrades power-conditioning and surge protection equipment that ensures that power spikes do not damage sensitive electronic equipment. Other major renovations at the centers include upgrading heating and air-conditioning systems and replacing roofs. We expect to spend at a level consistent with previous years to keep these facilities modernized.

We spend between \$100 million and \$200 million annually to construct new towers and renovate existing towers and TRACON facilities. As airports grow and build new runways and hangers, the existing towers no longer have clear sight lines to the operating area, and we need to build new taller towers. When the number of controller workstations is increased to accommodate increased traffic, many towers and TRACONs do not have enough interior space to handle the new equipment and controller positions necessary. This can require either a new facility or extensive modernization. As with the centers, we need to modernize infrastructure at several towers, including heating and air conditioning systems and elevators.

The FAA is evaluating potential avenues for controlling facility costs in the future. One possibility would be to optimize the network of air traffic control facilities. It may be feasible to reduce the number of facilities or consolidate some automation functions to reduce operating costs. Studies are examining whether alternative configurations of air traffic facilities or reducing the number of facilities would improve productivity and save operating costs.

There are several navigation and surveillance systems installed on and in the area near the larger airports. They are linked to the tower and maintenance workstations by airport cable loops. These loops provide operating status of the systems and allow adjustments to be made from the control facilities. Because they are buried in the ground, the cables deteriorate and need to be replaced. We are replacing them with optical fiber, which has more capacity and a longer life.

Figure 17 shows the planned expenditures for facilities projects that contribute to modernizing the air traffic control system.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Facilities Functional Area		\$425.3	\$578.3	\$646.2	\$795.3	\$835.7
1A07	William J. Hughes Technical Center Facilities	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
1A08	William J. Hughes Technical Center Infrastructure Sustainment	\$4.2	\$5.4	\$5.5	\$5.6	\$5.7
1A17X	Next Generation Air Transportation System Networked Facilities	\$0.0	\$88.0	\$173.0	\$316.0	\$375.0
2A05	ARTCC Building Improvements/Plant Improvements	\$52.9	\$51.0	\$51.0	\$56.0	\$61.0
2A16	San Juan Radar Approach Control (CERAP)	\$8.0	\$6.0	\$0.0	\$0.0	\$0.0
2B06	Terminal Air Traffic Control Facilities - Replace	\$150.6	\$147.0	\$150.0	\$160.0	\$160.0
2B07	ATCT/Terminal Radar Approach Control (TRACON) Facilities - Improve	\$47.0	\$46.6	\$46.5	\$51.9	\$57.2
2B12	DOD/FAA Facilities Transfer	\$1.3	\$1.4	\$1.4	\$1.4	\$1.5
2B18	Houston Area Air Traffic System (HAATS)	\$4.0	\$10.0	\$2.0	\$0.0	\$0.0
2A19	ATCSCC Infrastructure Planning	\$2.5	\$28.6	\$10.3	\$2.1	\$2.1
2C02	Flight Service Station (FSS) Modernization	\$5.1	\$7.1	\$6.0	\$2.0	\$2.0
2E01	Fuel Storage Tank Replacement and Monitoring	\$5.9	\$6.1	\$6.2	\$6.3	\$6.4
2E02	FAA Buildings and Equipment	\$13.7	\$13.4	\$13.8	\$14.3	\$14.9
2E03	Air Navigational Aids and ATC Facilities (Local Projects)	\$3.0	\$2.5	\$2.5	\$2.6	\$2.6
2E06	Airport Cable Loop Systems - Sustained Support	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0
2E08	Facilities Decommissioning	\$8.0	\$5.0	\$5.0	\$5.0	\$5.0
2E09	Electrical Power Systems - Sustain/Support	\$41.0	\$60.0	\$60.0	\$60.0	\$60.0
2E11	Energy Management	\$2.0	\$10.0	\$10.0	\$10.0	\$10.0
3A01	Hazardous Materials Management	\$18.2	\$20.0	\$20.0	\$20.0	\$20.0
3A06	Facility Security Risk Management	\$22.0	\$30.0	\$40.0	\$38.4	\$8.0
3B01	Aeronautical Center Infrastructure Modernization	\$5.4	\$9.5	\$9.8	\$10.1	\$10.3
4A04	Mike Monroney Aeronautical Center Leases	\$13.5	\$13.8	\$16.2	\$16.6	\$17.0

Figure 17 Expenditures in the Facilities Functional Area

4.2.7 Support Contracts, Automated Management Tools and Processes, and ATO Employee Costs

The FAA uses a single line item to request funding for employees who support capital investment programs. These employees supervise installing new equipment, maintain documentation, test new equipment, and perform support functions for capital investment. We budget these costs yearly at the request of Congress to avoid large unobligated balances that including them in project funding requests would cause. This work is essential for successfully implementing new and upgraded equipment. On-site engineers and technicians ensure the equipment is installed properly and that installation doesn't interfere with on-going air traffic control functions. Maintaining documentation improves efficiency when personnel are making repairs or upgrades and reduces the time spent planning for future modernization. Engineers and specialists at the William J. Hughes Technical Center thoroughly test and evaluate systems before they are deployed and ensure operational performance by following up with site acceptance testing.

The FAA has several support contracts and automated management tools that help our employees plan and manage modernization of existing systems; plan the transition to new equipment; and oversee installing that new equipment. The System Engineering and Technical Assistance (SETA) and the Center for Advanced Aviation System Development (CAASD) contracts help us plan modernization and simulate the impact on air traffic of implementing new concepts and new equipment. The Technical Services Support Contract (TSSC) provides field

engineers that oversee site preparation and installation of new equipment. These engineers and technicians help the FAA keep installation on schedule for the many projects with equipment deliveries. The National Implementation Support Contract (NISC) helps plan our transition to new equipment. Since air traffic control functions must continue while we install new equipment, we must prepare detailed plans before we begin to install it so we minimize any disruption. The Computer Assisted Engineering Graphics and Web-based Configuration Management programs provide engineers the tools to effectively plan, manage, and document NAS improvements.

Another category of support contracts covers leasing, modifying, or modernizing buildings to house engineering and training. FAA also leases or purchases computer automation to support those engineering functions. Examples include leases for the Mike Monroney Aeronautical Center and licenses for software used for the William J. Hughes Technical Center. We also need the support contract to provide spectrum engineering to allocate radio frequencies and to prevent interference with existing frequencies. These projects help sustain the infrastructure for testing new equipment and help to analyze system needs and develop the system of the future. We also have environmental projects to remove asbestos, improve fire/life safety, prevent fuel tanks from leaking, and clean up environmental pollution.

Figure 18 shows the planned expenditures for the specific mission support projects that will help us modernize the air traffic control system.

BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Mission Support Functional Area		\$374.8	\$580.2	\$590.3	\$620.1	\$657.5
1A01	Advanced Technology Development and Prototyping (ATDP)	\$37.8	\$31.9	\$31.9	\$29.2	\$23.2
1A06	NAS Improvement of System Support Laboratory	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0
1A13	Next Generation Air Transportation System Technology Demonstration	\$50.0	\$30.0	\$30.0	\$30.0	\$30.0
1A14X	Next Generation Air Transportation System System Development	\$0.0	\$102.0	\$102.0	\$105.0	\$107.0
1A18X	Next Generation Air Transportation System Cross-Cutting Infrastructure	\$0.0	\$107.0	\$130.0	\$145.0	\$175.0
2A14	Air Traffic Operations Management System (ATOMS)	\$3.5	\$5.0	\$5.0	\$5.0	\$1.5
2B09	NAS Facilities OSHA and Environmental Standards Compliance	\$26.0	\$26.0	\$26.0	\$26.0	\$26.0
2E04	Aircraft Related Equipment Program	\$9.8	\$9.0	\$10.0	\$9.0	\$11.0
2E05	Computer Aided Engineering and Graphics (CAEG) - Modernization	\$1.5	\$0.0	\$0.0	\$0.0	\$0.0
2E10	Aircraft Fleet Modernization	\$9.0	\$9.0	\$9.0	\$0.0	\$0.0
2E12X	International Flight Inspection Aircraft	\$0.0	\$18.6	\$3.5	\$0.0	\$0.0
2E13X	Independent Operational Test/Evaluation - Outyear request *	\$0.0	\$3.5	\$3.5	\$5.0	\$5.2
3A03	Logistics Support Systems and Facilities (LSSF)	\$6.3	\$0.0	\$0.0	\$0.0	\$0.0
3A04	Test Equipment - Maintenance Support for Replacement	\$2.5	\$3.0	\$3.0	\$3.0	\$3.0
3A07	Information Security	\$8.0	\$12.0	\$12.0	\$12.0	\$12.0
3A10	Logical Access Control	\$7.0	\$0.0	\$0.0	\$0.0	\$0.0
3B02	National Airspace System (NAS) Training Facilities	\$1.9	\$0.0	\$0.0	\$0.0	\$0.0
3B03	Distance Learning	\$1.4	\$1.5	\$1.5	\$1.0	\$1.0
3B04	National Airspace System (NAS) Training - Simulator	\$14.6	\$7.6	\$0.3	\$0.7	\$1.3
4A01	System Engineering and Development Support	\$30.2	\$31.0	\$31.7	\$32.3	\$32.9
4A02	Program Support Leases	\$44.0	\$45.9	\$47.6	\$49.1	\$50.5
4A03	Logistics Support Services (LSS)	\$7.5	\$7.9	\$8.0	\$8.5	\$8.5
4A05	Transition Engineering Support	\$10.7	\$15.0	\$15.0	\$15.0	\$15.0
4A06	Frequency and Spectrum Engineering	\$3.4	\$2.3	\$3.3	\$3.3	\$3.4
4A07	Technical Support Services Contract (TSSC)	\$20.0	\$22.0	\$22.0	\$22.0	\$22.0
4A08	Resource Tracking Program (RTP)	\$3.5	\$4.0	\$4.0	\$4.0	\$4.0
4A09	Center for Advanced Aviation System Development (CAASD)	\$74.2	\$85.0	\$90.0	\$114.0	\$119.0
4A11	Permanent Change of Station (PCS) Moves	\$1.0	\$0.0	\$0.0	\$0.0	\$5.0

Figure 18 Expenditures in the Mission Support Functional Area

5 Conclusion

The year 2006 has been unique in terms of aviation growth. The number of passengers has been nearly level and operations have been slightly down. This was the result of significant restructuring by the legacy airlines to become more cost competitive. The number of commercial flights declined very slightly, but these aircraft flew with higher load factors. In addition, higher fuel prices resulted in higher ticket prices. We believe many of these changes have worked their way through the system and growth in the number of passengers and aircraft operations will resume. Growth will put pressure on the capacity at large airports, and both new runways and more sophisticated management of air traffic activity will be needed. We will need new and better equipment and procedures to accommodate the anticipated growth. Capital investment will provide the equipment necessary to increase capacity to support that growth.

We have already begun preparing for the future by starting new projects that are the beginning stages of supporting our roadmaps to the future. These projects must begin now to be ready for the increase in demand predicted by the Joint Planning and Development Office. We must have the tools to allocate airspace more efficiently for the expected volume of flights and to reduce congestion and delays caused by severe weather. Timely and accurate information must be shared with users to optimize the airspace use and allow efficient operations for our customers.

One of the great challenges in preparing for the future is deciding how to balance spending between building significant system improvements and maintaining reliability and availability of the current system while reducing costs. We need additional capacity, but we must also reduce operating costs. In the short term, reducing costs depends on a consistent program of modernizing existing facilities and equipment. Expanding capacity will rely on the funds that are available while also providing resources to maintain the current infrastructure. This Capital Investment Plan shows how we plan to expand capacity to handle future travel demand and modernize facilities and equipment to control costs.

As the roadmaps show, we must have a long-term, coordinated effort to build a system that can handle future air travel demand and prevent increases in delays. We have begun work on some of the initiatives, but several important steps follow. Continuing to enhance the collaborative air traffic management technology program will improve interaction between commercial carriers and the FAA and help reduce delays. The SWIM program will help us share information so decisions will be more informed with real-time information on system status. Introducing Automatic Dependent Surveillance and data link communication will improve efficiency and reduce workload. Improving automation and weather display systems will increase the data available and make it widely available to support decision making for more efficient use of airspace. It will take these initial efforts and a continuing commitment to modernization to achieve the goal of building a system that can handle future growth.

6 Appendices to the Capital Investment Plan

The CIP contains four appendices:

Appendix A

- Lists FAA strategic goals, objectives, and performance targets
- Associates CIP projects with strategic objectives and performance targets

Appendix B

- Provides CIP project descriptions and the relationship of projects to strategic goals
- Provides the Strategic Management Process (SMP) Pathway and Objective supported by projects
- Lists FY 2008–2012 — Performance Output goals
- Shows System Implementation Schedules

Appendix C

- Provides estimated expenditures 2008–2012 by Budget Line Item (BLI)

Appendix D

- Defines acronyms and abbreviations

Federal Aviation Administration

National Airspace System

Capital Investment Plan

Appendix A

Fiscal Years 2008 – 2012

APPENDIX A

GOAL MATRIX

The Capital Investment Plan (CIP) projects have been aligned to the goals, objectives, and performance targets in the Federal Aviation Administration (FAA) Flight Plan 2007-2011 and the Department of Transportation's (DOT) strategic plan. Many FAA projects will contribute to more than one goal, objective, or performance target. The project linkages in Appendix A are aligned to the goal, objective, and performance target where its contribution is most significant. Only CIP projects with Fiscal Year (FY) 2008-2012 funding are included in this Appendix.

For clarification, the following definitions generally describe the elements of the FAA Flight Plan 2007-2011 and can be used to relate the objectives and performance targets to the CIP projects.

BLI numbers with an X (i.e., 1A09X) are used to designate programs/projects that are not in the FY 2008 President's Budget (Facilities & Equipment). Accordingly, their inputs are reflected as follows:

- Programs/projects representing new starts or future programs not currently in the President's budget will report future year Performance Output Goals based on projected funding.

STRATEGIC GOAL

A general statement of the broad agency purpose in carrying out its mission, such as: "To achieve the lowest possible accident rate and constantly improve safety."

OBJECTIVE

A statement of a specific emphasis area that will contribute to the overall goal, such as: "Reduce the commercial airline fatal accident rate."

PERFORMANCE TARGET

A quantifiable measure of the improvement in a goal area that sets a target for specific improvements in outcomes that affect FAA customers, such as: "Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures".

1. STRATEGIC GOAL: INCREASED SAFETY

FAA Strategic Goal: To achieve the lowest possible accident rate and constantly improve safety.

- **FAA Objective 1:** Reduce the commercial airline fatal accident rate.
 - **FAA Performance Target 1:** Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

FY 2008 BLI	CIP #	CIP Name
1A01L	N12.02-01	Local Area Augmentation System (LAAS) – ATDP
1A01LX	N12.02-00	Local Area Augmentation System (LAAS)
1A01M	A28.01-01	Traffic Collision & Avoidance System (TCAS)
2A20	M08.10-00	Volcano Monitoring
2B02	W03.03-01	Terminal Doppler Weather Radar (TDWR) – SLEP
2D05	N04.03-00	Approach Lighting System Improvement Program (ALSIP) Continuation
2D07	N04.01-00	Visual Nav aids - Visual Nav aids for New Qualifiers
2E04A	M12.00-00	Aircraft Related Equipment Program
2E04B	M12.01-01	Aircraft Related Equipment – Boeing Simulator Replacement
2E10	M11.02-00	Flight Standards Inspector Aircraft Replacement
2E12X	M11.03-00	International Flight Inspection Aircraft – Bombardier Challenger Purchase
3A02	A17.00-00	Aviation Safety Analysis System (ASAS)
3A08	A25.01-00	System Approach for Safety Oversight (SASO)
3A09	A26.01-00	Aviation Safety Knowledge Management Environment (ASKME)
4A10B	A08.01-01	NOTAMS Infrastructure / Distribution (NOTAM Distribution Program (NDP))

- **FAA Objective 2:** Reduce the number of fatal accidents in general aviation.
 - **FAA Performance Target 1:** By FY 2009, reduce the number of general aviation and nonscheduled Part 135 fatal accidents to no more than 319 (from 385, which represents the average number of fatal accidents for the baseline period of 1996-1998).

FY 2008 BLI	CIP #	CIP Name
1A03	C20.03-00	Aeronautical Data Link – Flight Information Service (FIS)
2D03A	N12.01-00 N12.01-05	Wide Area Augmentation System (WAAS) – LPV Segment and GLS Segment
2D03B	N12.01-06	Wide Area Augmentation System (WAAS) – Survey and Procedures
4A10A	A08.01-00	NAS Airspace System Resources – NAS Aeronautical Information Management Enterprise System (NAIMES)

1. Strategic Goal: Increased Safety

- **FAA Performance Target 2:** By FY 2009, reduce accidents in Alaska for general aviation and all Part 135 operations from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year.

FY 2008 BLI	CIP #	CIP Name
1A01I	W10.01-00	Juneau Airport Wind System (JAWS), Alaska Weather Research
1A02A	M36.01-00	Safe Flight 21 – Alaska Capstone Initiative
1A02B	M08.31-00	Alaska MIH & Video Equipment – Alaska Weather Cameras
2C02	F05.04-01	Flight Services Facilities – Alaska FSS Modernization

- **FAA Objective 3:** Reduce the risk of runway incursions.

- **FAA Performance Target 1:** By FY 2010, reduce Category A and B (most serious) runway incursions to a rate of no more than 0.450 per million operations and maintain through FY 2011.

FY 2008 BLI	CIP #	CIP Name
1A01A	S09.02-00	Runway Incursion Reduction Program (RIRP) – ATDP
2B01	S09.01-00	Airport Surface Detection Equipment – Model X
2B01X	S09.01-01	Airport Surface Detection Equipment – Model X – Tech Refresh & Disposition
2B14	S11.01-01	Runway Status Lights (RWSL)

- **FAA Objective 4:** Ensure the safety of commercial space launches.

- **FAA Performance Target 1:** No fatalities, serious injuries, or significant property damage to the uninvolved public during licensed or permitted space launch and reentry activities.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Objective 5:** Enhance the safety of FAA's air traffic systems.

- **FAA Performance Target 1:** By FY 2010, reduce Category A and B (most serious) operational errors to a rate of no more than 3.18 per million activities.

FY 2008 BLI	CIP #	CIP Name
1A01E	M08.28-02	Airspace Management Lab – ATDP

- **FAA Performance Target 2:** By FY 2010, apply Safety Risk Management to at least 22 significant changes in the NAS

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

**** END OF INCREASE SAFETY STRATEGIC GOAL****

2. STRATEGIC GOAL: GREATER CAPACITY

FAA Strategic Goal: Work with local governments and airspace users to provide increased capacity in the United States airspace system that reduces congestion and meets projected demand in an environmentally sound manner.

- **FAA Objective 1:** Increase capacity to meet projected demand and reduce congestion.
 - **FAA Performance Target 1:** Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

FY 2008 BLI	CIP #	CIP Name
1A01B	M08.28-00	System Capacity, Planning, and Improvements – ATDP
1A01C	M08.29-00	Operations Concept Validation – ATDP
1A01D	M08.27-01	NAS Wide Weather Requirements & Strategic Planning
1A01F	M08.28-04	Airspace Redesign – ATDP
1A01J	M08.36-01	Wake Turbulence Research
1A05	A24.03-00	Traffic Management Advisor (TMA) – Single Center
1A11	W11.01-01	NextGen Weather – NextGen Network Enabled Weather (NNEW)
1A12	C27.01-01	NextGen Data Communications
2A01	A01.10-01	En Route Automation Modernization (ERAM)
2A01X	A01.10-02	En Route Automation Modernization (ERAM) – Tech Refresh
2A03	A01.09-01	En Route Automation Program – En Route System Modification
2A11	W07.01-00	Integrated Terminal Weather System (ITWS) – ITWS Development/Procurement/ Pre-Planned Product Improvements
2A15	W07.02-00	Corridor Integrated Weather System (CIWS)
2A21X	W12.01-01	General Weather Processor (GWP)
2B13	S08.01-01	Precision Runway Monitor (PRM) – Multilateration Technology
2D02	N03.01-00	Instrument Landing Systems (ILS) – Instrument Landing Systems (ILS)
2D06	N09.00-00	Distance Measuring Equipment (DME)

- **FAA Performance Target 2:** Commission as many as six new runway projects, increasing the annual service volume of the 35 OEP airports by at least 1 percent annually, measured as a five-year moving average, through FY 2011.

FY 2008 BLI	CIP #	CIP Name
2B18	F02.11-01	Houston Area Air Traffic System (HAATS)

2. Strategic Goal: Greater Capacity

- **FAA Performance Target 3:** Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

FY 2008 BLI	CIP #	CIP Name
1A04	C21.01-01	Next-Generation VHF A/G Communication System (NEXCOM) – Segment 1A
1A04X	C21.01-02	Next-Generation VHF A/G Communication System (NEXCOM) – Segment 1B
1A04X	C21.02-01	Next-Generation VHF A/G Communication System (NEXCOM) – Segment 2 & 3
2A02	A01.12-02	En Route Communication Gateway (ECG) – Technology Refresh
2A04	W02.02-00	Next Generation Weather Radar (NEXRAD) – Open System Upgrades
2A05	F06.01-00	ARTCC Plant Modernization/Expansion – ARTCC Modernization
2A07	C06.01-00	Communications Facilities Enhancement – Expansion
2A07	C06.03-00	Communications Facilities Enhancement – Air/Ground Communications RFI Elimination
2A07	C06.04-00	Communications Facilities Enhancement – UHF Replacement
2A07	C04.01-01	Radio Control Equipment (RCE) – Modernization
2A08	S02.03-00	Secondary Surveillance – ATC Beacon Interrogator (ATCBI) Replacement
2A08	S02.03-02	Air Traffic Control Beacon Interrogator (ATCBI-6) – Beacon Only Buildings
2A09	S04.02-03	Long Range Radar (LRR) Program – LRR Improvements – Infrastructure Upgrades/Sustain
2A10	C01.02-03	Voice Switching and Control System (VSCS) – Tech Refresh – Phase 2
2A16	F08.01-01	San Juan Facility Remediation
2B03	A04.01-01	Standard Terminal Automation Replacement System – Technology Refresh
2B03	A04.01-02	Standard Terminal Automation Replacement System – Terminal Enhancements
2B04	A04.05-00	Terminal Automation Modernization Replacement (TAMR) – Phase 2
2B04X	A04.05-02	Terminal Automation Modernization Replacement (TAMR) – Phase 2 Tech Refresh
2B04X	A04.07-01	Terminal Automation Modernization Replacement (TAMR) – Phase 3
2B05	A01.11-01	Flight Data Input/Output (FDIO) Replacement
2B06	F01.02-00	ATCT/TRACON Establish/Sustain/Replace – ATCT/TRACON Replacement
2B07A	F01.01-00	ATCT/TRACON Establish/Sustain/Replace – ATCT/TRACON Modernization
2B08	C05.02-00	Terminal Voice Switch Replacement (TVSR)
2B10	S03.01-04	ASR-9/Mode S – Service Life Extension Program – Phase 1A – External Modifications
2B10	S03.01-05	ASR-9/Mode S – Service Life Extension Program – Phase 1B – Transmitter Modifications
2B11	S03.02-01	Terminal Digital Radar (ASR-11) – ASR-7/ASR-8 Replacement, DOD Takeover, New Establishments

FY 2008 BLI	CIP #	CIP Name
2B11	S03.02-04	Terminal Radar (ASR) Program – ASR-11 – Tech Refresh
2B12	F04.01-00	DOD/FAA ATC Facility Transfer/Modernization – Original Program
2B15	C05.03-01	NAS Voice Switch
2B16	W09.01-00	ASR Weather Systems Processor (ASR-WSP) – Technology Refresh / Product Improvement
2B17	C23.01-00	Next Generation Recorders – Voice Recorder Replacement Program (VRRP)
2C01	W01.02-02	Automated Surface Observing System (ASOS) – Pre-Planned Product Improvements (P3I)
2D01	N06.00-00	Very High Frequency Omni-Directional Range (VOR) Collocated with Tactical Air Navigation (VORTAC)
2D04	N08.02-00	Runway Visual Range (RVR) – Replacement/Establishment
2D09	N04.04-00	Visual Nav aids – Sustain, Replace, Relocate
2E02A	F12.00-00	Improve FAA Buildings & Equipment Sustain Support – Unstaffed Infrastructure Sustainment
2E02B	F12.01-01	Seismic Safety Risk Mitigation
2E03	M08.04-00	Air Navigation Aids Facilities – Local Projects
2E06	F10.00-00	Airport Cable Loop Systems Sustained Support
2E07	C17.02-01	Alaskan NAS Interfacility Communications System (ANICS) Satellite Network – ANICS Modernization – Phase I
2E09	F11.00-00	Power Systems Sustained Support
3A04	M17.00-00	Test Equipment Modernization/Replacement
4A02	M08.06-00	Program Support Leases
4A06A	M15.01-00	NAS Spectrum Engineering Management – NAS Spectrum Engineering Sustained Support
4A06A	M15.02-00	NAS Spectrum Engineering Management – Frequency Interference Support/Resolution
4A06B	M43.01-00	NAS Spectrum Engineering Management – National Airspace System Interference Detection, Locating and Mitigation (NAS IDLM)

- **FAA Performance Target 4:** By FY 2009, achieve an average daily airport capacity for the seven major metropolitan areas of 64,117 arrivals and departures per day and maintain through FY 2011.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Objective 2:** Increase reliability and on-time performance of scheduled carriers.
 - **FAA Performance Target 1:** By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.

FY 2008 BLI	CIP #	CIP Name
1A13	M49.01-01	NextGen Demonstration & Infrastructure Development
2A06	A05.01-06	Air Traffic Management (ATM) – TFM Infrastructure – Infrastructure Modernization
2A06	A05.01-10	Collaborative Air Traffic Management Technologies (CATMT)

FY 2008 BLI	CIP #	CIP Name
1A10	S10.04-01	Automatic Dependent Surveillance Broadcast (ADS-B) – National Implementation Segment 1a
1A10X	S10.05-01	Automatic Dependent Surveillance Broadcast (ADS-B) – National Implementation Segment 1b
1A10X	S10.06-01	Automatic Dependent Surveillance Broadcast (ADS-B) – National Implementation Phases 2-4
2A06	A05.05-01	Route Availability Planning Tool (RAPT)
2A06x	A05.03-06	Air Traffic Management – Functionality Development / Deployment – Departure Sequencing Program (DSP)
2A13	A10.03-00	Advanced Technologies and Oceanic Procedures (ATOP)
2A17	A30.01-01	Military Operations
2D10	N04.02-00	Visual Nav aids – Replace Visual Approach Slope Indicator (VASI) with Precision Approach Path Indicator (PAPI)
4A09	M03.02-00	CIP Systems Engineering & Technical Assistance – MITRE

- **FAA Objective 3:** Address environmental issues associated with capacity enhancements.
 - **FAA Performance Target 1:** Reduce the number of people exposed to significant noise by 1 percent per year through FY 2011, as measured by a three-year moving average, from the three-year average for calendar years 2000-2002

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Performance Target 2:** Improve aviation fuel efficiency per revenue plane-mile by 1 percent per year through FY 2011, as measured by a three-year moving average, from the three-year average for calendar years 2000-2002

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

****END OF GREATER CAPACITY STRATEGIC GOAL****

3. STRATEGIC GOAL: INTERNATIONAL LEADERSHIP

FAA Strategic Goal: Increase the safety and capacity of the global civil aerospace system in an environmentally sound manner.

- **FAA Objective 1:** Promote improved safety and regulatory oversight in cooperation with bilateral, regional, and multilateral aviation partners.
 - **FAA Performance Target 1:** Work with the Chinese aviation authorities and industry to adopt 27 proven Commercial Aviation Safety Team (CAST) safety enhancements by FY 2011.
 - **FAA Performance Target 2:** Conclude at least eight (new or expanded) bilateral safety agreements that will facilitate an increase in the ability to exchange aviation products and services by FY 2011.
 - **FAA Performance Target 3:** Secure a yearly increase of 20 percent in external funding for international aviation activities from the United States and international government organizations, multilateral banks, and industry. FY 2007 target is \$12 million.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support these Targets

- **FAA Objective 2:** Promote seamless operations around the globe in cooperation with bilateral, regional, and multilateral aviation partners.
 - **FAA Performance Target 1:** By FY 2011, expand the use of Next Generation Air Transportation System (NextGen) performance-based systems to five priority countries.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

****END OF INTERNATIONAL LEADERSHIP STRATEGIC GOAL****

4. STRATEGIC GOAL: ENVIRONMENTAL STEWARDSHIP

DOT Outcome : Reduce pollution and other adverse effects of transportation and transportation facilities.

- **DOT Strategy:** Adopt transportation policies and promote technologies that reduce or eliminate environmental degradation.

FY 2008 BLI	CIP #	CIP Name
2E01	F13.01-00	NAS Facilities OSHA & Environmental Standards Compliance – Fuel Storage Tanks
3A01	F13.02-00	NAS Facilities OSHA & Environmental Standards Compliance – Environmental Cleanup / HAZMAT

****END OF ENVIRONMENTAL STRATEGIC GOAL****

5. STRATEGIC GOAL: HOMELAND AND NATIONAL SECURITY

DOT Outcome : Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce.

- **DOT Strategy:** Support and implement U.S. security strategies and plans related to transportation.

FY 2008 BLI	CIP #	CIP Name
2A18	A29.01-01	Automated Detection & Processing Terminal (ADAPT)
3A05	C18.00-00	National Airspace System Recovery Communications (RCOM) – Command & Control Communications (C3)
3A06	F24.00-00	Facility Security Risk Management (FSRM)
3A07	M31.00-00	NAS Information Security – Information Systems Security
3A10	M31.02-01	Logical Access/Identity Management

****END OF SECURITY STRATEGIC GOAL****

6. STRATEGIC GOAL: ORGANIZATIONAL EXCELLENCE

FAA Strategic Goal: Ensure the success of the FAA's mission through stronger leadership, a better trained and safer workforce, enhanced cost-control measures, and improved decision-making based on reliable data.

- **FAA Objective 1:** Make the organization more effective with stronger leadership, increased commitment of individual workers to fulfill organization-wide goals, and a better prepared, better trained, safer, diverse workforce.
 - **FAA Performance Target 1:** Increase Employee Attitude Survey scores in the areas of management effectiveness and accountability by at least 6 percent, over the FY 2003 baseline by FY 2011.
 - **FAA Performance Target 2:** By FY 2011, reduce the time it takes to fill mission-critical positions by 7 percent (to 51 days) over the FY 2006 baseline of 55 days.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support these Targets

- **FAA Performance Target 3:** Reduce the total workplace injury and illness case rate to no more than 2.76 per 100 employees by the end of FY 2007, representing a cumulative 3 percent annual reduction from the FY 2003 baseline (3.12) set in the Safety, Health and Return to Employment (SHARE) Presidential Initiative.

FY 2008 BLI	CIP #	CIP Name
2B09	F13.03-00	Fire Life Safety for Air Traffic Control Tower and Environmental and Occupational Safety and Health Compliance

6.Strategic Goal: Organizational Excellence

- **FAA Performance Target 4:** Reduce grievance processing time by 25 percent by FY 2010, and maintain through FY 2011.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Performance Target 5:** Maintain air traffic controller annual hiring within 5 percent of the Air Traffic Controller Workforce Hiring Plan

FY 2008 BLI	CIP #	CIP Name
3B02	M20.00-00	National Airspace System (NAS) Training – Equipment Modernization
3B04	M20.01-00	NAS Training – Equipment Modernization – Training Simulators

- **FAA Objective 2:** Improve financial management while delivering quality customer service.

- **FAA Performance Target 1:** Close out 85 percent of eligible cost reimbursable contracts during each fiscal year.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Performance Target 2:** Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
Strategic sourcing for selected products and services;
Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
Eliminating or reducing obsolete technology;
Implementing Environmental Management Systems.

FY 2008 BLI	CIP #	CIP Name
1A01K	M45.01-01	Enterprise Solutions
2A19	F28.01-01	ATCSCC – Infrastructure Planning
1A06/ 1A07	F14.00-00	System Support Laboratory Sustained Support
1A08	F16.00-00	William J. Hughes Technical Center Infrastructure Sustainment
1A09	A31.01-01	System-Wide Information Management (SWIM)
2A12	C26.01-00	FAA Telecommunications Infrastructure (FTI)
2A14	M29.00-00	ATOMS Local Area/Wide Area Network
2B07B	F02.10-00	Large TRACONs – Advanced Facility Planning
2D08	A14.02-01	Instrument Flight Procedures Automation (IFPA)
2E05	F17.01-01	Computer Aided Engineering Graphics (CAEG) – Modernization
2E08	F26.01-01	Decommissioning
2E11	F13.04-01	Energy Cost Savings – ATDP
3A03	M21.04-01	Logistics Support Systems & Facilities (LCSS)
3B01	F18.00-00	Aeronautical Center Infrastructure Modernization

6.Strategic Goal: Organizational Excellence

FY 2008 BLI	CIP #	CIP Name
3B03	M10.00-00	Distance Learning
4A01A	M03.01-00	CIP Systems Engineering & Technical Assistance – SETA and Other Contractors
4A01B	M08.01-00	Provide ANF/ATC Support (Quick Response)
4A01C	M03.01-01	Web Configuration Management
4A03	M05.00-00	NAS Regional/Center Logistics Support Services
4A04	F19.00-00	Mike Monroney Aeronautical Center – Leases
4A05A	M22.00-00	NAS Implementation Support (NIS)
4A05B	M22.01-01	NAS Implementation Support (NIS) – Configuration Management
4A07	M02.00-00	Technical Support Services (TSS)
4A11	M51.01-01	Terminal Permanent Change of Station (PCS) Moves

- **FAA Performance Target 3:** Obtain an unqualified opinion on the agency’s financial statements (clean audit with no material weaknesses) each fiscal year.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Objective 3:** Make decisions based on reliable data to improve our overall performance and customer satisfaction.

- **FAA Performance Target 1:** By FY 2008, 90 percent of major system acquisition investments are within 10 percent of annual budget, and maintain through FY 2011.

FY 2008 BLI	CIP #	CIP Name
1A01G	M46.01-01	Strategy and Evaluation – ATDP
1A01H	M47.01-01	Dynamic Capital Planning

- **FAA Performance Target 2:** By FY 2008, 90 percent of major system acquisition investments are on schedule and maintain through FY 2011.

FY 2008 BLI	CIP #	CIP Name
4A08	M08.14-00	Resource Tracking Program (RTP)

- **FAA Performance Target 3:** Increase agency scores on the American Customer Satisfaction Index.

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Performance Target 4:** Achieve zero cyber security events that disable or significantly degrade FAA services.

6.Strategic Goal: Organizational Excellence

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Target

- **FAA Objective 4:** Enhance our ability to rapidly and effectively respond to crises, including security related threats and natural disasters .

- **FAA Performance Target 1:** None

FY 2008 BLI	CIP #	CIP Name
None	None	Currently no Facilities & Equipment projects are required to support this Objective

****END OF ORGANIZATIONAL EXCELLENCE STRATEGIC GOAL****

Federal Aviation Administration

National Airspace System

Capital Investment Plan

Appendix B

Fiscal Years 2008 – 2012

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APPENDIX B

DETAILED PROGRAM PLAN DATA

LINKING FAA CIP PROJECTS TO GOALS

The Capital Investment Plan (CIP) projects support the goals, objectives, and performance targets in the FAA Flight Plan 2007-2011. Projects are linked to a single objective and the data provided in Appendix B describes how these projects contribute to the performance target under those objectives. For each project output goals are described for the 5 years of this CIP and if the CIP project is delivering air traffic control systems into the National Airspace System (NAS) a graphical representation of the implementation schedule is shown. New for this year, CIP projects managed by the Air Traffic Operations organization show the alignment to Strategic Management Process (SMP) Pathway and Objective.

FORMAT

Appendix B is organized by budget line item (BLI) consistent with the fiscal year (FY) 2008 President's submission to Congress. Several CIP projects may be included in one BLI. In those cases when all of the CIP projects pertain to one specific purpose, they are grouped. However, when the CIP projects have different purposes, they are described with separate CIP entries.

Programs/projects in Appendix B contain a Program Description and Relationship to Performance Target description. FY 2008 Performance Output Goals and FY 2009-2012 Performance Output Goals for all Facilities and Equipment (F&E) funded CIP projects are reported as outlined below.

BLI numbers with an X (i.e., 1A09X) are used to designate programs/projects that are not in the FY 2008 President's Budget (Facilities & Equipment). Accordingly, their inputs are reflected as follows:

- Programs/projects representing new starts or future programs not currently in the President's budget will report future year Performance Output Goals based on projected funding.

CIP Programs/projects are required to reflect FY 2008-2012 Performance Output Goals, with the exception of the following:

- Programs/projects that do not exceed \$5M annually.
- Programs/projects that fund support contracts (such as CAASD, SETA, NISC) or fund program support leases.

Where, 'None' is reflected in the 2008-2012 Performance Output Goals sections, it denotes that no funding was allocated for that fiscal year.

EXAMPLE

The following example illustrates how the project data provided is used to support the FAA Flight Plan Goal, Objective, and Performance Target, along with a sample format of CIP project inputs:

PROGRAM DESCRIPTION

ASDE-X is a modular surface surveillance system that processes multiple radar sources, multilateration, and Automatic Dependent Surveillance-Broadcast (ADS-B) sensor data to provide seamless airport

movement area coverage and aircraft identification to air traffic controllers. ASDE-X is being deployed to airports with no surface surveillance systems and...

RELATIONSHIP OF PROGRAM TO FAA STRATEGIC GOAL, OBJECTIVE, AND PERFORMANCE TARGET

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 3** – Reduce the risk of runway incursions.
- **FAA Performance Target 1** – By FY 2010, reduce Category A and B (most serious) runway incursions to a rate of no more than 0.450 per million operations and maintain through FY 2011.

RELATIONSHIP TO PERFORMANCE TARGET

The ASDE-X system provides air traffic controllers with a visual representation of the traffic situation on the airport surface movement area and arrival corridors in the form of aircraft and vehicle position information and flight identifications or call signs. This increased awareness of the situation on the airport surface movement area is essential in reducing runway collision risks...

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

PROGRAM PLAN FY 2008 – PERFORMANCE OUTPUT GOALS

- Achieve Operational Readiness Date (ORD) at 4 out of 35 ASDE-X sites.

SYSTEM IMPLEMENTATION SCHEDULE

Within this section system deployment and operational period from 2005 through 2015 for major system acquisitions will be graphically reflected. For example:

Air Traffic Control Beacon Interrogator - Model 6 (ATCBI-6)

First site ORD: July 2002 -- Last site ORD: November 2008

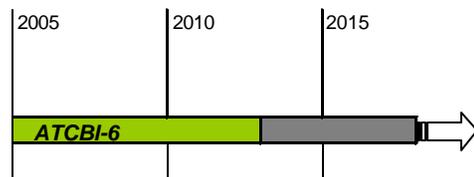


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ACTIVITY 1: ENGINEERING, DEVELOPMENT, TEST, AND EVALUATION

1A01, ADVANCED TECHNOLOGY DEVELOPMENT AND PROTOTYPING (ATDP)

FY 2008 Request \$37.8M

- A, Runway Incursion Reduction Program (RIRP) – ATDP, S09.02-00
- B, System Capacity, Planning, and Improvements – ATDP, M08.28-00
- C, Operations Concept Validation – ATDP, M08.29-00
- D, NAS Weather Requirements and Programs – ATDP, M08.27-01
- E, Airspace Management Lab – ATDP, M08.28-02
- F, Airspace Redesign – ATDP, M08.28-04
- G, Strategy and Evaluation – ATDP, M46.01-01
- H, Dynamic Capital Planning, M47.01-01
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- L, Local Area Augmentation System (LAAS) for GPS – ATDP, N12.02-01 and Local Area Augmentation System (LAAS), N12.02-00
- M, Traffic Alert and Collision Avoidance System (TCAS), A28.01-01

A, RUNWAY INCURSION REDUCTION PROGRAM (RIRP) – ATDP, S09.02-00

Program Description

The Runway Incursion Reduction Program (RIRP) will continue research, development, and operational evaluation of technologies to increase runway safety. Consistent with standing National Transportation Safety Board recommendations and initiatives identified in the FAA Flight Plan and the Runway Safety Blueprint, research emphasis will remain on technologies that provide for direct safety warnings to pilots and aircrews as well as those that can be applied cost effectively at small to medium airports. The program will explore alternative small airport surface detection technology and the application of these technologies to pilot, controller, and vehicle operator situational awareness tools, including tools to support staffed Virtual Tower Concepts as outlined in the Next Generation Air Transportation System (Next Gen) Concept of Operations. Initiatives include operational evaluations of Low Cost Surface Surveillance (LCSS) and Final Approach Runway Occupancy Signal (FAROS) awareness tools. When appropriate, solutions will be prototyped and tested in an operational setting to validate their technical performance and operational effectiveness.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 3 – Reduce the risk of runway incursions.**
- **FAA Performance Target 1 – By FY 2010, reduce Category A and B (most serious) runway incursions to a rate of no more than 0.450 per million operations and maintain through FY 2011.**

Relationship to Performance Target

The RIRP is developing, and evaluating a Runway Status Lights (RWSL) system for Airport Surface Detection Equipment – Model X (ASDE-X) and Airport Movement Area Safety System (AMASS) airports. The RWSL is intended to address the runway safety risk that remains at the 59 busiest airports. Current analyses project that a risk of 242 fatalities resulting from runway accidents during the period 2005-2031 will remain after the deployment of AMASS and ASDE-X is completed. RWSL will add an

additional layer of safety to reduce that risk. It will also contribute toward the reduction of category A and B (high-hazard) runway incursions.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Conduct surveillance system performance analyses required to support implementation of RWSL at the three initial sites.
- Complete evaluation of RWSL performance for intersecting/converging runways.
- Complete evaluation of low cost surface surveillance alternatives for small airports.
- Complete evaluation of Final Approach Runway Occupancy Signal (FAROS) implementation alternatives.
- Continue to perform analyses required to support implementation of RWSL throughout the NAS.
- Develop performance specifications and transition approved projects to acquisition/implementation.
- Continue to survey industry for emergent surface technologies to enhance runway safety.
- Initiate efforts to harmonize FAA approved surface technology enhancements with international standards.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue to perform analyses required to support implementation of RWSL throughout the NAS.
- Continue international standardization/harmonization efforts for approved surface technologies.
- Continue to explore and evaluate emergent surface technologies to enhance runway safety.

B, SYSTEM CAPACITY, PLANNING, AND IMPROVEMENTS – ATDP, M08.28-00

Program Description

The System Capacity, Planning, and Improvements program identifies, evaluates, and formulates system capacity improvements for the NAS. This program sponsors airport capacity studies where experts from the FAA and industry are assembled in design teams to develop recommendations for improving capacity, increasing efficiency, achieving FAA Flight Plan targets, and reducing delays at specific airports. In addition to capacity design team studies, this program also supports the FAA's mission to measure and improve system performance. The Performance Data Analysis and Reporting System (PDARS) is a fully integrated performance measurement tool designed to help the FAA improve the NAS by tracking the daily operations of the air traffic control (ATC) system. The tracking and monitoring capabilities of PDARS support studies and analysis of air traffic operations. The new large aircraft impact analysis is also a highly visible activity within this program. Support for the integration of the new Airbus A380 aircraft into the NAS includes developing proposed solutions to modifying structural components of airports and developing operational procedures to accommodate this aircraft at U.S. airports.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

This program will facilitate the design and improvements of new runways, airfield improvements, air traffic procedures, and other technological implementations to improve airport capacity and increase efficiency. The Airport Design Teams evaluate alternatives for increasing capacity at specific airports that

are experiencing or projected to experience significant flight delays. Capacity studies provide recommendations and solution sets for improving capacity at the airport.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Continue evaluating alternatives for increasing capacity at specific airports that are projected to experience significant flight delays.
- Continue the development of PDARS with the installation of five Operational Evolution Plan (OEP) Ground Stations and two International Civil Aviation Organization (ICAO) sites.
- Provide facility and system level metrics to support FAA goals and objectives.
- Connect PDARS to Microprocessor En Route Automated Radar Tracking System.
- Provide a system that connects a common set of understandable corporate level performance targets and activities to daily operations.

Program Plans FY 2009-2012 – Performance Output Goals

- Connect PDARS to ASDE-X at each deployed site.
- Develop waterfall and support gate-to-gate performance analysis.
- Conduct ground movement analyses at U.S. airports to determine whether the operation of new large A 380 aircraft would adversely impact the operation of other aircraft at that airport.
- Continue the development of the Future Airport Capacity Task reports to identify airports where additional capacity development may be necessary.
- Coordinate international cooperative efforts to improve system capacity and efficiency via the Design Team Programs Facilitation Group and the International Terminal Benchmark Study.
- Update the Airport Capacity Benchmark Report to analyze the number of flights that the 35 OEP airports can accommodate during optimum and reduced weather conditions.

C, OPERATIONS CONCEPT VALIDATION – ATDP, M08.29-00

Program Description

Operational Concepts are the Office of Management and Budget (OMB) recommended first step in developing an Enterprise Architecture. This program develops and does initial validation of operational concepts that are key to Air Traffic Organization's (ATO) modernization programs and the goals of the Next Generation Air Transportation System (Next Gen). The program office works with stakeholders to develop and maintain the overall NAS Concept of Operation and the International Civil Aviation Organization (ICAO) "ATM Global Concept", which are common reference points for modernization. It provides the detailed second level, subsidiary concepts required for validation and requirements development. Examples of second level concepts include those for En Route, Traffic Flow Management (TFM), Surface, Communications, and Flight Data Management. Second level concepts identify the personnel and functional changes necessary for the ATO to provide customer service in ways that increase productivity and reduce net cost. This information helps the aviation community to develop new procedures and anticipate the changes in aircraft equipment to use with new technology being implemented in the NAS. Information developed includes the system specification, roles and responsibilities, procedures, training, and certification requirements. The operational concept development and validation outputs provide for continued development and support of NAS modernization through: (1) concept/scenario development; (2) concept validation; (3) simulation and analysis; (4) system design; (5) metric development; and (6) modeling.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

Concept validation supports development, analyses and simulation of new concepts to evaluate the following;

- Alternative teaming structure which may be more cost effective,
- Alternative airspace structure which may increase productivity, and
- Alternative communication, navigation and surveillance (CNS) architecture to support the ATO goal of cost efficiency.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.2** – Deliver a future air traffic system that meets customer operational needs.

Program Plans FY 2008 – Performance Output Goals

- Continue concept development and validation to include increased opportunities to right size the ATC infrastructure for cost efficiency and productivity – high altitude specialties.
- Expand the concept development and validation of the multi-sector planner to identify opportunities for the utilization of new systems and capabilities.
- Expand the gate-to-gate concept for increased coordination and integration of operations across time horizons in a net-centric System Wide Information Management environment including detail operational concepts for the Next Gen Evaluator.
- Conduct analyses and develop concept to support the applications of 4-D trajectory management.
- Conduct analyses and develop concept for end-to-end traffic flow management.
- Continue RTCA support.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue operational concept development.
- Develop criteria for evaluation of the standard controller platform to support reduced maintenance, training, and increased flexibility in establishing and implementing changes to controller roles and responsibilities.
- Conduct analyses and develop detailed NAS concept for incorporating Next Gen terminal operations.
- Develop Concept of Use for the advanced flight deck.
- Continued support for the Validation Data Repository.
- Expand cognitive and analytic models to support assessments.
- Continue RTCA support.

D, NAS WEATHER REQUIREMENTS AND PROGRAMS – ATDP, M08.27-01

Program Description

This program develops aviation weather policy and standards for the entire NAS, represents FAA in the Joint Program Development Office (JPDO) Weather Integrated Planning Team (IPT) and manages the Activity 1 Facilities and Equipment (F&E) weather portfolio. The purpose is to reduce the number of weather related general aviation/Part 135 accidents, evaluate the effectiveness of weather information to improve system operational performance, develop and implement strategies to promote US Next Gen vision globally and implement global harmonization.

The funding supports contract services to develop and implement weather policies, including setting surface and airborne observation service standards for efficiency, improved forecasts, and traffic flow management tool enhancements, promoting US current and NextGen practices at ICAO for global harmonization and accelerated change, representing the Department of Transportation to the Office of the Federal Coordinator for Meteorology for operational efficiencies and developing system performance metrics related to weather for efficiency and capacity. When representing FAA in the JPDO Weather IPT, contract services are used to align FAA weather investments and NextGen weather plans and develop required policies. Contract services also support developing the weather segment of the Corporate Mission Analysis, developing aviation weather research requirements, developing concept and requirements definition for weather and managing the transition of weather research and development into operation for accelerated safety and efficiency payoffs.

As part of developing concept and requirements and transitioning weather research into operations, this program must define performance standards, evaluate human factors, check that procedures are compatible with new technology, analyze impact on controller and pilot workloads, analyze maintainability of new equipment and determine if new capabilities are consistent with the NAS Architecture.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

This program contributes to the FAA's greater capacity goal by facilitating the movement of aviation weather products that are designed to increase capacity, from research and development into operational use. The program funds studies that will establish metrics and determine weather provider needs. The studies will help determine opportunities to improve weather products, leading to increased capacity. It also facilitates policy development for long-range efforts to modernize the air transportation system.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.2** – Deliver a future Air Traffic Control System that meets customer operational needs.

E, AIRSPACE MANAGEMENT LABORATORY – ATDP, M08.28-02

Program Description

The Airspace Management Laboratory has a leading role in developing and fielding advanced information systems and decision support tools that allow the FAA to more safely and efficiently manage the NAS. The laboratory's aeronautical information management activities include: performance measurement, standardization and productivity improvements, and improving the distribution of aeronautical information:

Performance measurement. The Laboratory provides historical and near-real-time metrics for monitoring and predicting operational performance, costs and facility usage. These measurements make it possible for the FAA to evaluate the effects of past changes and identify areas for further improvements and cost savings. Laboratory measures are used as a component in calculating unit costs of air traffic service and for calculating pay rates and staffing standards in the ATC facilities.

Standardization and Productivity Improvements. The Airspace Management Laboratory provides productivity and automation support tools for local, regional and headquarters ATO divisions. Airspace Laboratory systems are also used to evaluate the effect of obstacles and cell phone towers on airport operations and evaluate the minimum safe altitudes for aircraft approaching an airport.

Distributing Aeronautical Information. Aeronautical information is used in air traffic control systems for flight planning, capacity simulations and aircraft separation. Aeronautical information such as charts, publications and NOTAMS is used by pilots to safely navigate in the airspace system. Next Generation Air Traffic Systems (NextGen) rely on new laboratory initiatives to provide dynamic distribution of aeronautical information to advanced avionics and air traffic control systems. Systems developed in the laboratory will support flexible operations, shared situational awareness, and other next generation air traffic system goals. The laboratory leads the aeronautical information management (AIM) effort to streamline input, storage and output mechanisms of FAA AIM systems. An important component of this work is working with international aviation organizations in the development and use of international standards and best practices for electronic exchange of aeronautical information.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 5** – Enhance the safety of the FAA’s air traffic systems.
- **FAA Performance Target 1** – Maintain category A and B (most serious) operational errors to a rate of no more than 4.27 per million activities through FY2008.

Relationship to Performance Target

The Airspace Management Laboratory directly affects the success of current and future FAA initiatives such as space based navigation, shared situational awareness and safe air traffic operations.

Through advanced AIM automation and decision support tool development efforts underway in the Airspace Laboratory, the FAA will see significant cost savings through aeronautical chart automation, consolidation and reconciliation of FAA aeronautical data sources, digital input and output of aeronautical data, and streamlined workflow processes in local facilities and FAA headquarters. However, the primary purpose of these AIM projects is to improve NAS safety by incorporating end-to-end data integrity, international standards and best practices information engineering techniques.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future
- **SMP Objective #4.2** – Deliver a future air traffic system that meets customer operational needs.

F, AIRSPACE REDESIGN – ATDP, M08.28-04

Program Description

Airspace Redesign is the FAA initiative to improve the use of the nation’s airspace, leverage new technologies, equipment, infrastructure and procedural development to maximize benefits and system efficiencies.

This project supports airspace changes that increase capacity by leveraging changes in facility structure such as integration and/or consolidation of facilities and closure of military facilities. Past examples of Facility Facilitated Redesign projects include Boston Consolidated Terminal Radar Approach Control (TRACON) and Potomac Consolidated TRACON. As the FAA increases its focus on facility efficiencies and right-sizing, Facility Facilitated Redesign projects will take on increased emphasis at both the national and regional levels to ensure that the maximum efficiencies are achieved with right-sizing of facilities, including efficiencies achieved through airspace redesign.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

Airspace Redesign will increase system capacity by reducing any limitations that the airspace places on the system. Congestion, complexity and limited departure points in the current airspace can result in restrictions, limiting airport departure throughput. Inefficient en route holding and arrival routes can limit airport arrival throughput. Airspace Redesign is striving to address these issues both locally and system-wide.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.5** – Identify and prioritize airspace and technical initiatives based on value.

Program Plans FY 2008 – Performance Output Goals

- Implement New York/ New Jersey / Philadelphia (NY/NJ/PHL) Metropolitan Airspace Redesign, initial sectors and routes.
- Implement Honolulu (ZHU) and Houston Area Air Traffic System (HAATS) sectors and routes.
- Implement Chicago Airspace Project (sectors and infrastructure changes).
- Implement Oakland (ZOA) 3-Tier, final phases.

Program Plans FY 2009-2012 – Performance Output Goals

- Implement additional terminal/en route/oceanic changes.
- Implement airspace changes to complement new facility management and structural plans.

G, STRATEGY AND EVALUATION – ATDP, M46.01-01

Program Description

Strategy and Evaluation – The ATO Strategic Management Process (SMP) provides strategic direction across the entire organization to ensure that the ATO focuses its entire budget on the most important strategic and core business activities that are aligned with the FAA Flight Plan goals and objectives. In particular, ATO strategies need to be formulated to achieve the objectives in the strategic pathway 4 – Ensure a Viable and Affordable Future ATC System. Two fundamental drivers in strategy developments are accurate traffic forecasts and the business outlook. Accurate forecasting is critical to set ATO performance metrics and ensure that our Service Delivery Points (SDP) get the best traffic demand projections to support workload planning and to develop more detailed bottoms-up budgets for performance accountability and tracking. More detailed traffic forecasts, coupled with SDP revenue and cost projections, also helps us develop a more comprehensive business outlook. Best value and low risk ATO strategies need to be developed and implemented to best respond in a cost-effective and productive manner to the future business environment.

This program will develop economic and operational forecasting techniques to better define the expected future demand on the NAS. It will also develop programs to model NAS system performance, so new FAA initiatives can be tested for effectiveness when they are being considered.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 3** – Make decisions based on reliable data to improve our overall performance and customer satisfaction.
- **FAA Performance Target 1** – By FY 2008, 90 percent of major system acquisition investments are within 10 percent of annual budget, and maintain through FY 2011.

Relationship to Performance Target

This project will support development of the ATO Business Plan, which is a strategic plan to ensure that ATO spending for strategic and core activities is aligned with its mission and objectives. The Business Plan will project aviation activity and the types of operational services that will be needed to safely and efficiently manage air traffic. It will be based on the goals and objectives of the SMP, which has established pathways to success. These pathways emphasize the core needs of the organization: (1) maintaining safe and efficient operations; (2) increasing capacity; (3) controlling costs; and (4) ensuring a viable future. By identifying key objectives for these pathways and allocating resources to carry them out, it will sustain and improve the quality of service while simultaneously implementing management tools to control costs and improve productivity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.5** – Develop alternative business concepts for the future.

Program Plan FY2008 – Performance Output Goals

- Develop strategies to improve ATO performance, cost efficiency, and productivity.
- Complete ATO SDP Forecasts including uncertainty analysis.
- Build forecasting and simulation models to formulate strategies for a viable future and develop more detailed traffic forecasts and NAS predictability.
- Continue NAS Strategy Simulator expansion with Joint Program Development Office (JPDO).
- Define requirements for data warehouse for research and strategy decision making.

Program Plan FY2009-2012 – Performance Output Goals

- Develop strategies to improve ATO performance, cost efficiency, and productivity.
- Complete ATO SDP Forecasts including uncertainty analysis.
- Build operational data warehouse for research and strategy decision making.
- Continue to refine modeling capabilities.

H, DYNAMIC CAPITAL PLANNING, M47.01-01

Program Description

This program will upgrade the analytical tools used to assess and rank capital investment projects in the Facilities and Equipment budget requests. The Office of Management and Budget (OMB) recommended a number of actions to the ATO to improve the management and performance of the capital budget, and this program will support the ATO's efforts to implement those improvements. During the development of the capital budget and in the follow on evaluation of the programs, additional tools are needed to make decisions based on quantifiable data, and analytical modeling techniques using best business practices. Collecting and analyzing data on program acquisitions through all phases of the life cycle, will improve accountability and management decision-making.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 3** – Make decisions based on reliable data to improve our overall performance and customer satisfaction.
- **FAA Performance Target 1** – By FY 2008, 90 percent of major system acquisition investments are within 10 percent of annual budget, and maintain through FY 2011.

Relationship to Performance Target

The project will allow the initial procurement of financial analysis tools and consultant support to allow a better evaluation of programs through all phases of the acquisition life cycle. The improved data will lead to better decisions on program implementation, improvements in ATO's performance, and the resulting higher level of customer satisfaction.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.5** – Identify and prioritize airspace and airport initiatives based on value.

I, JUNEAU AIRPORT WIND SYSTEM (JAWS), ALASKA WEATHER RESEARCH, W10.01-00

Program Description

This program uses wind sensors to detect and deliver turbulence and dangerous wind alerts to the Juneau International Airport, Alaska. Future efforts include algorithm tuning, operation of the prototype, and development of the end-state system. The Juneau Airport Wind System (JAWS) provides data intended for use by non-meteorologists. Wind data from JAWS will be transmitted to the Juneau Airport Traffic Control Tower (ATCT); the Juneau Automated Flight Service Station (AFSS); the Juneau National Weather Service (NWS) office; and the Anchorage Air Route Traffic Control Center (ARTCC); and it will be available to other Alaska aviation users via the Internet.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2** – Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 2**– By FY 2009, reduce accidents in Alaska for general aviation and all Part 135 operations from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year.

Relationship to Performance Target

With improved information to the ATCT, aviation users may be able to avoid the hazards that are the major causes of accidents in Alaska.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.1** – Ensure airspace system is safe, efficient, and secure.

Program Plan FY2007 – Performance Output Goals

- Operate JAWS prototype.

Program Plans FY2008 – FY2011 Performance Output Goals

- Operate and maintain JAWS prototype.
- Complete safety mitigation activities.
- Procure supply support spares.
- Implement and commission JAWS end-state system.

J, WAKE TURBULENCE RESEARCH, M08.36-01

Program Description

This program will develop air traffic control decision support tools and the supporting infrastructure to safely reduce the separation necessary to avoid the effects of wake turbulence between aircraft departing and arriving on an airport's closely spaced parallel runways. The National Aeronautics and Space Administration (NASA) is exploring various concepts for the departure separation decision support tool and will develop a prototype for evaluation early in FY 2007. The prototype will be evaluated in an airport environment but will not have the design maturity for immediate integration into the NAS. If the prototype successfully demonstrates the expected performance and benefits, the Wake Turbulence Program will initiate the development engineering to integrate the prototype's capabilities into the NAS beginning in FY 2011.

The Wake Turbulence Program has also developed a pulsed Light Detection and Ranging system that is able to track aircraft-generated wake vortices. This sensor and others collect detailed information on how wake vortices travel and decay in varying weather conditions. NASA is using this information in designing its prototype decision support tool and associated supporting system (which may include new crosswind sensors).

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

This program is presently developing a technology based solution that will reduce the required wake turbulence separation for aircraft departing on an airport's closely spaced parallel runways. This solution will allow, when the crosswind is favorable, the lifting or reduction of the wake turbulence separation time constraint that translates to 6 to 10 more departures per hour for an airport that has a significant percentage of 757 and heavier aircraft traffic. The direct result is an increase in airport average daily arrival/departure capacity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Complete functional requirements definition for departure spacing tool.
- Develop implementation and maintenance.
- Complete assessments for the FAA investment analysis decision.
- Award development contract if investment decision was favorable.

Program Plans FY 2009 – 2012 Performance Output Goals

- To be determined by FAA investment decision – late FY 2008.

K, ENTERPRISE SOLUTIONS, M45.01-01

Program Description

As one of the five government wide reforms under the President’s Management Agenda, the competitive sourcing initiative calls on agencies to strive to create a market-based government advocating an environment of competition, innovation and choice. The primary tool for achieving this competition is the Office of Management and Budget (OMB) Circular A-76, “Performance of Commercial Activities”. The FAA has established the Office of Competitive Sourcing Acquisitions to use A-76 as a means of determining whether selected FAA services can be provided more cost effectively to users of the NAS. Circular A-76, establishes the policies and procedures for competing commercial activities and determining the best service providers.

Consequently, the FAA has established the Office of Competitive Sourcing Acquisitions to conduct A-76 studies to determine whether selected FAA services can be provided more cost effectively to users of the NAS. Through data provided by the Federal Activities Inventory Reform Act, the FAA is able to determine which FAA functions are inherently governmental in nature and which services are commercial in nature. The commercial activities identified in the Federal Activities Inventory Reform Act are available for consideration under the A-76 study for competition.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal** – Organizational Excellence
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

Enterprise Solutions is the most significant cost-control measure in the FAA. The outcome of the competition is a contract award that caps annual costs for Automated Flight Service Station services and mandates a minimum 22 percent cost savings over a 5-year period. The FAA ensures these cost-control measures by including contractual requirements to cap annual spending at \$435 million and a 22 percent cost reduction over a 5-year period. This equates to a minimum, anticipated savings of \$479M during the first five years of the contract.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.5** – Develop alternative business concepts for the future.

L, LOCAL AREA AUGMENTATION SYSTEM (LAAS) – ATDP, N12.02-01 AND LOCAL AREA AUGMENTATION SYSTEM (LAAS), N12.02-00

Program Description

LAAS is currently considered a research program, due to technical risks associated with meeting its performance requirements. The FAA in partnership with industry is pursuing the development and implementation of special LAAS procedures, which have the potential to provide benefits to the aviation community at specific locations. LAAS is a Ground-Based Augmentation System that will provide all-weather approach capabilities to aircraft within line-of-sight distances from airports using a very high frequency (VHF) data broadcast of a Global Positioning System (GPS) error correcting and integrity signal.

The LAAS will augment the GPS by providing corrections to the GPS signals that improve aircraft navigation accuracy to the level necessary to make precision approaches. This will improve aircraft safety during approaches and landings at airports that currently do not have precision guidance available. LAAS will yield the extremely high accuracy, availability, and integrity necessary for Category I, II, and III precision approaches. It is expected that the end-state configuration will have accuracy of one meter or less, and LAAS will be able to provide a significant improvement in service flexibility and reduce user operating costs.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The LAAS program supports the goal to reduce commercial airline fatal accident rates by providing a navigation system whose performance is equal to or better than existing ground based navigation systems. The system will also be an enabling technology to the Agency's goal of transitioning to a Global Navigation Satellite System infrastructure.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.2** – Deliver a future air traffic system that meets customer's operational needs.

Program Plans FY 2008 – Performance Output Goals

- Complete the certification of a Part 171 Non-Federal LAAS installation at Memphis International Airport.
- Continue the requirements development and research to achieve a Cat II/III precision approach performance capability with a LAAS system.

Program Plans FY 2009-2012 – Performance Output Goals

- Upgrade test-bed Cat I LAAS system to meet performance requirements for Cat II/III operations.
- Assuming approval of an investment decision, initiate procurement of LAAS Cat II/III systems.

M, TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS), A28.01-01

Program Description

In 2004, RTCA reconstituted its TCAS Special Committee (SC-147), as the direct result of a TCAS related crash in Europe and a near mid-air collision that occurred in Japan. The committee examined these events and others to determine the cause and contributing factors. The committee determined that in certain encounters between two aircraft, TCAS does not issue a sense reversal (e.g. change a “Climb” command to a “Descend”) in a timely manner, if at all. Based on limited monitoring in the U.S. and Europe, approximately 11 such “reversal logic” episodes have been detected. The predicated rate of mid-air collisions rate associated with this problem has been estimated to be once every four years, unless a fix is implemented. A basis for a fix to the reversal logic has been identified.

During FY 2008 the TCAS program will complete and validate the new US airspace model and finalize rulemaking, if necessary, for the upgrade of all existing TCAS II units. This will be followed by coordination with avionics manufacturers and airlines on an implementation plan if a final rule is issued requiring an upgrade.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

This program is focused on emerging safety issues related to collision avoidance systems carried in aircraft; it improves the TCAS system’s ability to resolve near-midair encounters; and the pilot’s ability to react correctly to TCAS instructions. An independent collision avoidance system for pilots becomes even more essential, when ADS-B based capabilities enter the NAS and more responsibilities for aircraft separation are transferred to the flight deck.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.1** – Ensure airspace system is safe and efficient.

1A02, SAFE FLIGHT 21 (SF-21)

FY 2008 Request \$17.0M

- A, Safe Flight 21 – Alaska Capstone Initiative, M36.01-00
- B, Alaska MIH & Video Equipment – Alaska Weather Cameras, M08.31-00

A, SAFE FLIGHT 21 – ALASKA CAPSTONE INITIATIVE, M36.01-00

Program Description

Capstone is a joint government/industry initiative designed to prototype, demonstrate, validate and coordinate the implementation of new technologies. The purpose is to improve aviation system safety and to increase operational efficiency in Alaska through the introduction of new communication, navigation and surveillance (CNS) capabilities. Capstone Phases I and II installed the infrastructure that provided enhanced services to pilots that included weather, terrain, and traffic information. It allowed improved

flight monitoring and locating capabilities, GPS non-precision approaches to airports; and use of GPS for navigation.

The Phase III statewide architecture extends those services to other areas in Alaska. Capstone relies on private and government incentives for installing the avionics in aircraft used in Alaska. GPS/WAAS navigation receivers are planned for use as a sole means of navigation for Instrument Flight Rules (IFR) departures from airports, en route flight navigation, and IFR approaches to destination airports.

The major components being acquired to support the Capstone program include:

- Automated Weather Systems (AWS),
- ADS-B Ground Broadcast Transceivers (GBT) and a Microprocessor En Route Automated Radar Tracking System (MEARTS) interface,
- Remote Communication Outlets (RCO), and
- Development work for GPS/WAAS approaches.

The end result of full avionics equipage and Capstone installed ground infrastructure will be more efficient services for aircraft operating in the Southwestern Alaska communities. The ability to operate in IFR weather will reduce by 50% the time that remote villages are inaccessible.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2** – Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 2** – By FY 2009, reduce accidents in Alaska for general aviation and all Part 135 operations from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year.

Relationship to Performance Target

The safety benefits demonstrated and documented from the work in Southwest Alaska include reductions in Weather Related Accidents, Runway Collisions, and Controlled Flight into Terrain. Capstone also improved Search and Rescue for downed aircraft. The Capstone Phase I Final Report shows a 49% reduction in accident rate from 2000 to 2006 for Southwest Alaska. The analysis indicates that total General Aviation (GA) accidents were reduced by 15%; GA fatal accidents were reduced by 34%; and commercial aviation fatal accidents were reduced by 41%.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.1** – Ensure airspace system is safe, efficient, and secure.

Program Plans FY 2008 – Performance Output Goals

Phase III Statewide Expansion will include:

- Approach/departure procedure development,
- Purchase and install Automated Weather Systems (AWS),
- Continue installing ADS-B Ground Broadcast Transceivers (GBT), and
- Remote Communications Outlets (RCO).

The following Test and Demonstration activities will also continue:

- The Traffic Information Service-Broadcast (TIS-B) will operation as a Developmental System.
- Development of Additional Flight Information Service-Broadcast (FIS-B) Products.
- Development of standards for Large Aircraft avionics such as the Universal Access Transceiver (UAT).
- Modernization of Alaska flight service stations.
- Development of Enhanced Operator Fleet Monitoring.

Program Plans FY 2009-2012 – Performance Output Goals

Statewide Implementation will continue with additional efforts supporting:

- Approach/departure procedure development,
- Automated Weather Systems (AWS),
- ADS-B Ground Broadcast Transceivers (GBT), and
- Remote Communications Outlets (RCO).

New Test and Demonstration activities will include:

- Surface Vehicle Surveillance for airports.
- Satellite Communication Data Link for flight monitoring, search and rescue, and FIS-B services.

System Implementation Schedule

Automatic Dependent Surveillance-Broadcast (ADS-B) - Alaska

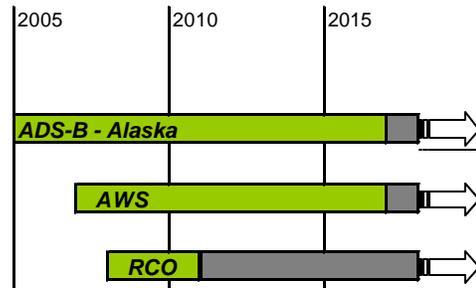
First site IOC: January 2001 -- Last site IOC: 2016

Automated Weather Systems (AWS)

First site IOC: 2007 -- Last site IOC: 2016

Remote Communications Outlets (RCO)

First site IOC: 2008 -- Last site IOC: 2010



B, ALASKA MIH & VIDEO EQUIPMENT – ALASKA WEATHER CAMERAS, M08.31-00

Program Description

Weather cameras provide near real-time weather images of remote airports and mountain passes. Camera images are updated every ten minutes and stored for six hours and are accessible to the public via the FAA weather camera website <http://akweathercams.faa.gov>. The web site allows pilots to have the most accurate and up-to-date weather information about their destination airport and route of flight. These same weather camera images are also used by Alaska Flight Service Specialists as a source of data for weather briefings, both preflight and en route. The Weather Camera Program provides a cost effective means of information gathering, allowing specialists to effectively disseminate the information.

Continued funding in FY 2008 is needed to support further weather camera installations in areas that have minimal automated weather reporting, a high volume of commercial and general aviation traffic, and an elevated accident rate.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2 –** Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 2 –** By FY 2009, reduce accidents in Alaska for general aviation and all Part 135 operations from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year.

Relationship to Performance Target

There are currently over 60 weather camera sites operational in Alaska. Pilots and flight service specialists routinely use weather camera images prior to and during flight. When used to corroborate current and forecasted weather, pilots make informed “go or no go” decisions. In an independent study (December 2002 to March 2003 by Parker Associates, Inc.) 68 percent of pilot’s decisions to cancel or delay their flights were based on weather camera information, resulting in fewer aircraft accidents.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.1** – Ensure airspace system is safe and efficient.

Program Plans FY 2008 – Performance Output Goals

- Install weather cameras.
- Continue maintenance of weather cameras.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue program administration.
- Continue weather camera installation.
- Continue weather camera maintenance.
- Explore possible expansion outside of Alaska.
- Continue to explore and demonstrate alternative technologies to provide weather data and real-time images.

1A03, AERONAUTICAL DATA LINK (ADL) APPLICATIONS

FY 2008 Request \$1.0M

- Aeronautical Data Link – Flight Information Service (FIS), C20.03-00

Program Description

The FIS program includes two key elements. The first is a national ground-to-air data link system that broadcasts graphic and text FIS data, including weather products, to the cockpit. The second is a national air-to-ground system for collecting and disseminating automated meteorological (AUTOMET) reports from aircraft operations.

The FIS data link (FISDL) system provides pilots timely access to FIS data that is consistent with the same information available to air traffic controllers and flight service specialists in the NAS. The FISDL service implementation is through an FAA/Industry agreement based on the FAA Airborne FIS Policy Statement (May 1998, as revised January 2006) and a supporting FIS Data Link Requirements Document (February 1999). The FAA is providing access through frequencies in the aeronautical spectrum, and it provides program quality assurance and control. An industry service provider is furnishing the data processing and communications infrastructure. FISDL is a very high frequency broadcast service. As the NAS modernization evolves, the FISDL service will terminate and the FAA will transition to providing FIS-Broadcast (FIS-B) service via the FAA Automatic Dependent Surveillance-Broadcast Universal Access Transceiver (UAT) network.

The AUTOMET reports will provide coverage over regions which have limited or no meteorological observations, and will supplement similar data collected from airline operations centers through the Meteorological Data Collection and Reporting System. The FIS program is developing implementation strategies for establishing a national AUTOMET system for collecting and disseminating weather reports from low altitude commuter and package carrier operations through on-board automation and data link communications. This task builds on the Tropospheric Airborne Meteorological Data Reporting (TAMDAR) sensor sponsored by NASA. Flight evaluations of the TAMDAR sensor have been completed and an FAA business case analysis will be completed during FY 2007. Contract award for establishing a national AUTOMET collection system is targeted for FY 2008.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2** – Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 1** – By FY 2009, reduce the number of general aviation and nonscheduled Part 135 fatal accidents to no more than 319 (from 385, which represents the average number of fatal accidents for the baseline period of 1996-1998).

Relationship to Performance Target

Hazardous weather is a major factor in general aviation accidents. Timely access to weather information through the FISDL system allows pilots to make early decisions to continue or divert a flight; and this leads to safer flight operations. The collection of AUTOMET data nationwide will enable increased resolution and accuracy in National Weather Service aviation weather forecasts. These improved forecasts will be used by the Weather and Radar Processor (WARP) and the Integrated Terminal Weather System (ITWS) to help predict the location and intensity of hazardous weather conditions that impact the NAS.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.5** – Minimize impacts of weather on the operation.

Program Plans FY 2008 – Performance Output Goals

- Manage FISDL service in providing national coverage (158 ground sites) and access to free basic text products.
- Award contract for national AUTOMET (TAMDAR) capability with at least 60 aircraft providing 12,000 reports per month.

Program Plans FY 2009-2012 – Performance Output Goals

- Complete termination of the FISDL service by September 2011 with transition to the FAA Surveillance and Broadcast Service via the planned UAT network.
- Pending funding starting in FY 2009, expand AUTOMET service to include at least 150 aircraft providing 30,000 AUTOMET (TAMDAR) reports per month.

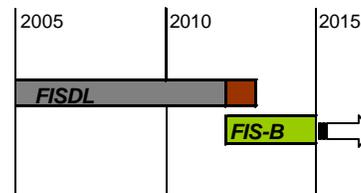
System Implementation Schedule

Flight Information Services Data Link (FISDL)

First site IOC: July 2000 -- Last site IOC: December 2004

First Site Decom: January 2011 -- Last Site Decom: September 2011

Replacement System: FAA Flight Information Service–Broadcast (FIS-B)
via UAT network



1A04, NEXT GENERATION VHF AIR-TO-GROUND COMMUNICATIONS SYSTEM (NEXCOM)

FY 2008 Request \$30.4M

- Next-Generation VHF A/G Communications System (NEXCOM) – Segment 1a, C21.01-01
- Next-Generation VHF A/G Communications System (NEXCOM) – Segment 1b, C21.01-02
- Next-Generation VHF A/G Communications System (NEXCOM) – Segment 2 & 3, C21.02-01

Program Description

The NEXCOM program replaces and modernizes the aging and obsolete NAS air-to-ground (A/G) analog radios. Replacing the radios is part of a larger program to eliminate existing NAS limitations that will

affect the air traffic system’s capability to effectively manage the projected U.S. air traffic requirements of the future. These limitations include FAA very high frequency (VHF) radio frequency spectrum saturation, inadequate A/G radio equipment maintainability and reliability, and lack of A/G information security and communications control.

The FAA is currently fielding new multimode, digital radios. However, in recognition of the need for international harmonization on the best long-term technical solution to the global spectrum congestion problem, the FAA decided in FY 2004 to defer the development and implementation of the NEXCOM ground system (Segment 1b) which adds capacity by reducing bandwidth requirements and so gaining more intensive use of the existing radio frequencies.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

NEXCOM will reduce the number of unplanned outages by replacing existing communications equipment with modern digital communications A/G equipment. The second stage of the program will increase capacity by expanding the number of communication channels within the spectrum assigned to the FAA. This capability increases the capacity to meet current and near-term air traffic control radio communication demands.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Procure and begin installing 2,004 (11,792 out of 15,800-75%) additional Multimode Digital Radios.

Program Plans FY 2009-2012 – Performance Output Goals

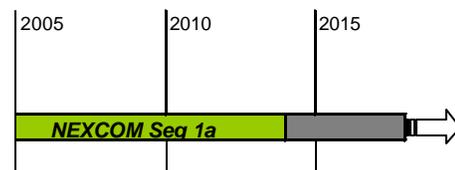
- Procure and begin installing 4,008 (15,800 total-100%) additional Multimode Digital Radios out through 2013.

System Implementation Schedule

Next-Generation VHF A/G Communications System (NEXCOM) – Segment 1a

First site IOC: July 2002 -- Last site IOC: September 2013

First Site Decom: July 2022 -- Last Site Decom: September 2032



1A05, TRAFFIC MANAGEMENT ADVISOR (TMA)

FY 2008 Request \$15.4M

- Traffic Management Advisor (TMA) – Single Center, A24.03-00

Program Description

TMA is an automated decision-support system that allows air traffic controllers to sequence aircraft in a way that reduces airspace congestion and optimizes airport arrival capacity. TMA processes all arrival aircraft flight plans, weather data, and local airport operating procedures to produce the most efficient

airport arrival sequence. The TMA system allows air traffic control procedures to progress from an aircraft distance-based sequencing to a more efficient time-based sequencing. The automation capability of TMA allows air traffic controllers to more precisely meter arriving aircraft by computing a specific time for each to "cross" a fixed point in the airport landing route, while maintaining the minimum safe distance between each type of aircraft. This optimization allows more aircraft to land during peak airport operations, with peak capacity increases of 3% or more over the pre-installation baseline. TMA is based on commercial-off-the-shelf hardware and operating system software.

TMA-SC has been deployed to all en route centers and the Planned Capability Achieved milestone will be declared for the last seven systems in FY 2008. These centers are Salt Lake City, Jacksonville, Washington, Cleveland, New York, Indianapolis and Kansas City. The TMA system will also be sustained at all deployed sites.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

TMA-SC contributes to the FAA's greater capacity goal by improving capacity utilization at selected airports by an average of 3 percent. The program includes a software tool that traffic management coordinators use to plan traffic flows to major airports. It also helps controllers adjust aircraft spacing to optimize use of runways at major airports. Through time-based metering, TMA provides optimal arrival flows by dynamically feeding an airport arrival rate consistent with the airport acceptance rate.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plan FY 2008 – Performance Output Goals

- Planned Capability Achieved milestones at Salt Lake City, Jacksonville, Washington, Cleveland, New York, Indianapolis and Kansas City Air Route Traffic Control Centers (ARTCC).
- Identify technology refresh and obsolescence issues.
- Develop, test, and implement solutions to technology refresh and obsolescence issues.

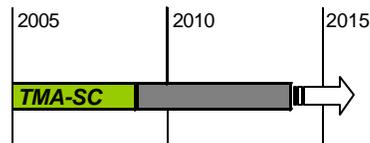
Program Plan FY2009-2012 – Performance Output Goals

- Identify technology refresh and obsolescence issues.
- Develop, test, and implement solutions to technology refresh and obsolescence issues.

System Implementation Schedule

Traffic Management Advisor – Single Center (TMA-SC)

First site PCA: December 2000 -- Last site PCA: September 2008



1A06/1A07, NAS IMPROVEMENT OF SYSTEM SUPPORT LABORATORY AND WILLIAM J. HUGHES TECHNICAL CENTER FACILITIES
FY 2008 Request \$13M

- System Support Laboratory Sustained Support, F14.00-00

Program Description

The William J. Hughes Technical Center (WJHTC) System Support Laboratory provides the facilities to develop, test, and integrate new systems into the NAS. Once prototype systems become operational, they become part of the FAA's test bed and are used to support the operational field sites over their lifecycle. This program sustains the agency's centralized test bed infrastructure. Testing and support facilities include: the En Route System Support Facility; Terminal System Support Facility; Oceanic System Support Facility; Flight Service Station and Weather Systems; Communications Systems; Radar Systems; Navigation and Tracking Systems; Target Generator Facility; Cockpit Simulation Facility; Human Factors Laboratory; and the fleet of specially instrumented aircraft. The test beds are also used for developmental activities associated with Research and Development programs. Maintaining a centralized core of test beds reduces the overall cost to the FAA and increases efficiency in testing and preparing new systems for operational use.

The Improvement of the System Support Laboratory Program includes reconfiguring laboratory space and upgrading and enhancing electrical and electronic equipment to allow testing of new or modified systems. It also procures unique equipment and systems that can interface and switch the various systems into multiple test and field support configurations. A centralized laboratory has the flexibility to test both individual systems and the interfaces between systems and avoid operating multiple test facilities for new equipment testing and support.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

This centralized testing facility serves as the FAA's research, development, testing, and field support infrastructure. With this system centralization, each Integrated Product Team/Business Unit need not establish and maintain separate infrastructure to support individual programs and fielded systems. It also enables the FAA to evaluate concepts and programs that span more than one domain of the NAS. This reduces the overall cost to FAA and improves the efficiency of testing new equipment and supporting operational facilities.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.1** – Be better stewards of public funds.

1A08, WILLIAM J. HUGHES TECHNICAL CENTER INFRASTRUCTURE SUSTAINMENT
FY 2008 Request \$4.2M

- William J. Hughes Technical Center Building and Plant Support, F16.00-00

Program Description

The FAA William J. Hughes Technical Center (WJHTC) owns and operates about 1.58 million square feet of test and evaluation, research and development, and administrative facilities, plus numerous project test sites. The value of the buildings and infrastructure is about \$190.1 million. These facilities require an annual program of capital improvements and modernization. Example projects include: (1) replacing old heating, ventilation, and air-conditioning systems; (2) upgrading the electrical distribution systems; and (3) upgrading fire-suppression systems to current life safety codes. The average annual expenditure to sustain the WJHTC is about 2.2 percent of the Center's value.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal** – Organizational Excellence
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

Infrastructure Sustainment at the WJHTC will control costs while delivering quality customer service by replacing old systems and equipment before serious problems occur. It will also reduce energy consumption on a per-square-foot basis, which contributes to reducing costs. This line item will update facilities and facility support systems to ensure that the laboratories and other facilities operate properly and can handle utility loads of the systems being tested. Since the WJHTC plays a key role in developing and testing new equipment that will be used in the NAS, it is critical that the facilities operate efficiently, because WJHTC effectiveness in testing and approving equipment can result in earlier installation and quicker reduction in air traffic delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.1** – Be better stewards of public funds.

Program Plans FY 2008 – Performance Output Goals

- Replacement of the Building 300 Atrium Handrail System.
- Building 301 Primary Mechanical Systems Renovation.
- Replacement of one Electrical Substation in Building 300.
- Remediation of Mechanical/Electrical Code and Safety Deficiencies in the R&D Area.

Program Plans FY 2009-2012 – Performance Output Goals

- Replace electrical substations in Building 300.
- Building Automation System Expansion (energy related).
- Water Plant Upgrades.
- Upgrade WJHTC motor control centers and electrical transformers.
- Install a solar heating system at the Airport Pavement Test Facility.

1A09, SYSTEM-WIDE INFORMATION MANAGEMENT (SWIM)

FY 2008 Request \$21.3M

- System Wide Information Management, A31.01-01

Program Description

Today's NAS is a complex grouping of information technology (IT) systems with custom designed, developed, and managed connections. The maintenance costs for these individual connections are significant. The hard-wired infrastructure cannot readily support the addition of new data, systems, data users, and/or decision makers. The Next Generation Air Transportation System (NextGen) requires a collaborative decision-making environment and depends on the right people getting the right information at the right time. In order to support operational efficiencies, NAS architecture and system infrastructure needs to be more agile.

The SWIM Program will meet this need by providing a secure NAS-wide information web to connect FAA systems to each other, and enable interaction with other members of the decision making community including other agencies, air navigation service providers, and airspace users. SWIM will develop policies and standards to support data management, along with the core services needed to enter data into the network, retrieve it, secure its integrity, and control its access and use. SWIM will leverage existing systems and networks to the extent practicable, and be based on technologies that have been proven in both operational and demonstration environments to reduce cost and risk. SWIM will be developed incrementally based upon the needs of various data communities, maturity of concepts of use, and segments that are right-sized to fit reasonable cost, schedule, and risk thresholds.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

SWIM will support a transition to network-enabled operations, providing the same high quality, timely data to many users and applications, therefore reducing the number of unique, point-to-point interfaces for application-to-application data exchange. SWIM will reduce redundancy of information (multiple instances of information adds cost and using slightly different information for similar decisions adds risk) and will facilitate horizontal (cross-federal) information-sharing. SWIM is a program for collaboration and consolidation through information technology. To the extent possible, SWIM will be built into existing NAS systems instead of being acquired as a new, standalone capability.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008 – Performance Output Goals

- Begin development of Segment 1.
- Continue X.25 to Internet Protocol version 6 (IPv6) protocol transition as early SWIM acquisition effort.

Program Plans FY 2009-2012 – Performance Output Goals

- Begin implementation of SWIM Segment 1 capabilities.
- Conduct investment analysis and requirements development for Segment 2 capabilities.
- Complete X.25 to IPv6 transition effort.

1A10, AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) – NATIONAL AIRSPACE SYSTEM (NAS) WIDE IMPLEMENTATION

FY 2008 Request \$85.7M

- ADS-B National Implementation Segment 1a, S10.04-01
- ADS-B National Implementation Segment 1b, S10.05-01
- ADS-B National Implementation Phases 2-4, S10.06-01

Program Description

The Surveillance and Broadcast Services (SBS) program office is responsible for the Automatic Dependent Surveillance Broadcast (ADS-B) NAS-wide implementation. With constantly increasing air travel, the FAA recognizes the need for more capable surveillance systems with faster update rates. The SBS program can deliver integrated surveillance and broadcast services, more scalable and cost-effective than existing systems, with improved capacity, efficiency, and safety. The SBS program improves pilot's situational awareness by delivering services through cockpit avionics such as: 1) Airport surface maps that portray traffic information to minimize the likelihood of runway incursions; 2) Enhanced views of nearby air traffic to assist pilots in preventing mid-air collisions; 3) Air traffic control (ATC) services in non-radar airspace. 4) Weather information to help pilots avoid severe weather and reduce the incidence of onboard injuries caused by turbulence.

SBS Segment #1, FY 2007 - FY 2011, with a planned contract award scheduled for July 2007, is the first step in the SBS plan to build the national ground infrastructure to support future surveillance and broadcast services. As part of implementing Segment 1, the SBS program office will begin developing a notice of proposed rulemaking (NPRM) to propose universal broadcast services avionics equipment be installed in aircraft. We will maintain a prototype test bed through FY 2008 and during Segment 1 the broadcast services capability will be expanded across parts of the NAS, with operational status planned for FY 2008. The SBS program office will also develop interfaces with four unique FAA automation platforms (Microprocessor En Route Automated Radar Tracking System, Host Computer System, Standard Terminal Automation Replacement System, Common Automated Radar Tracking System) to support an In Service Decision. A decision is planned for Feb. 2007 to implement Segment 2, FY 2009 - FY 2013, which will include NAS-wide deployment and the remaining three automation platforms that serve the NAS.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2 – Increase reliability and on-time performance of scheduled carriers.**
- **FAA Performance Target 1 – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.**

Relationship to Performance Target

The efficiency benefits include reductions in weather deviations, reduced taxi times via the use of surface moving maps, providing surveillance service in non-radar airspace such as the Gulf of Mexico, as well as additional aircraft to aircraft applications. The efficiency benefits translate to savings in both aircraft direct operating costs and passenger value of time.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.1** – Assure a sustainable and affordable air traffic system for the future.

Program Plans FY 2008 – Performance Output Goals

- Expansion of Broadcast Services inside Flight Information Service-Broadcast & Traffic Information Service-Broadcast coverage areas and their latency.
- Expansion of Broadcast Services: ADS-B service availability & latency.
- Expansion of Broadcast Services: Universal Access Transceiver equipped General Aviation fleet.
- Define additional Technical Performance Measures for traffic and weather information.

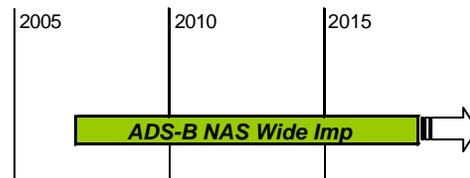
Program Plans FY 2009-2012 – Performance Output Goals

- Expansion of Broadcast Services: ADS-B latency.
- Cockpit Display of Traffic Information carrier operations: Airborne delay of equipped flights at Louisville International Airport during marginal visual instrument condition.
- Gulf of Mexico, Low-altitude: Availability of upgraded communications and weather stations in low altitude Gulf of Mexico sector.

System Implementation Schedule

Automatic Dependent Surveillance-Broadcast (ADS-B) National Airspace System (NAS) Wide Implementation

First site IOC: 2007 -- Last site IOC: TBD



1A11, NextGen Network Enabled Weather

FY 2008 Request \$7.0M

- Next Gen Weather – Next Gen Network Enabled Weather (NNEW), W11.01-01

Program Description

The Next Generation Air Transportation System (Next Gen) Network Enabled Weather (NNEW) is the core of the Next Gen weather support services. It enables widespread distribution of weather products to enable collaborative and dynamic NAS decision making. It provides network access to weather information from distributed weather information sources (e.g., General Weather Processor) by all users; and fusion and integration of weather information into Next Gen decision support systems.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship of Performance Target

NNEW is an enterprise service dissemination of common weather observations and forecasts to enable collaborative and dynamic NAS decision making. It enables integration of information from weather sources into all applicable Next Gen decision support systems. It fuses weather observations into a common virtual, continuously updated weather information data set available to all network users. Its value hinges on developing automated decision-support tools that help mitigate the effects of weather in the NAS.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure a Viable Future.
- **SMP Objective #4.2** – Deliver a future air transportation system that meets customers’ operational needs.

Program Plans FY 2008 – Performance Output Goals

- Develop Mission analysis.
- Develop Initial requirements document.
- Complete Trade studies.
- Develop Business case package to include all acquisition planning documents.

Program Plans FY 2009-2012 – Performance Output Goals

- Full Scale Development (FSD) of National Weather Flow Models.
- Implement Regional Traffic Models and Architecture Pockets of implementation of NNEW Repository.
- FSD of Weather SWIM Node.
- Conduct NNEW Systems Synthesis, Integration Test.
- Develop Required Total NNEW System Performance.
- Implement NNEW Oceanic and Offshore Precision Operations.
- Implement pockets of NNEW for network enabled operations.
- Achieve Initial Operational Capability of the NNEW.

1A12, DATA COMMUNICATION FOR TRAJECTORY BASED OPERATIONS (NEXTGEN)

FY 2008 Request \$7.4M

- Next Gen Data Communications, C27.01-01

Program Description

The Data Communications project in support of NextGen program will provide data communications between ground-based air traffic control facilities and aircraft. Data Communications will improve NAS operations in the following ways; Reduce controller workload by automating delivery of repetitive clearances, Improve NAS capacity by enabling existing controller staffing to handle increased traffic, Enhance safety by reducing operational errors associated with voice communications, and Enable many of the Next Gen operational improvements that require negotiation or exchange of information that cannot be efficiently delivered via voice. The Data Communications effort will augment the NAS by establishing the infrastructure necessary for data exchange between controllers and pilots, as well as between ground automation and aircraft systems.

The Data Communications’ project will be divided into three segments. Segment 1 will deliver the initial set of data communications services, and lays the foundation for a data-driven NAS. Segment 2 will enable the core set of advanced NextGen-enabling operations, which would not be possible without Data Communications. Segment 3 of the Data Communications effort will implement the final set of messaging functions, enabling the full transformation to the Next Gen.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship of Performance Target

The capacity of the NAS will be improved by data communications and the operations it enables. Initially, Data Communications will be used in conjunction with the current traffic control strategies and will reduce controller workload by automating repetitive exchanges. As controllers become more productive, sector capacity will grow without the need to assign additional resources. Data Communications benefits will be realized in En Route, TRACON, tower, and ground operations as controllers are freed up to spend more time moving traffic efficiently. The busiest positions, whether in en route feeder sectors in metro corridors, terminal approach sectors, or airport ground control at OEP airports, will see the most dramatic benefits.

New services enabled by Data Communications will contribute even more dramatically to air traffic capacity. Advanced 4 dimensional trajectories will enable more strategic operations that can ensure the most efficient use of airspace resources, with greatly reduced ground management oversight. More predictable traffic flows will yield better on-time performance, and minimize service impact associated with weather-related system disruptions. Many of these new services will have positive impact in other arenas: Continuous Descent Approaches, for example, will enable pilots to throttle back to idle on their descent to the airport, reducing noise, emissions and fuel consumption. Data Communications, by allowing exchange of data to carefully coordinate the aircraft's position in time and space, will allow the Agency to effectively employ these approaches even in congested airspace.

Data Communications will significantly improve the efficiency of current air traffic control operations, and will enable transformation to advanced air traffic management concepts. Using data messages to convey instructions and clearances has several inherent advantages over the current voice system: messages can be saved and reviewed, delivery is confirmed, and step-ons and read back errors are eliminated. This enhances air traffic safety by significantly reducing operational errors associated with communications.

From a pilot's perspective, Data Communications must work the same whether flying in the U.S. or abroad. The Data Communications effort will ensure the data messaging services and applications comply with international standards the FAA has long supported or led.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.1** – Assure a sustainable and affordable air traffic system for the future.

Program Plans FY 2008 – Performance Output Goals

- Initial Investment Decision, FY 2008.

Program Plans FY 2009-2012 – Performance Output Goals

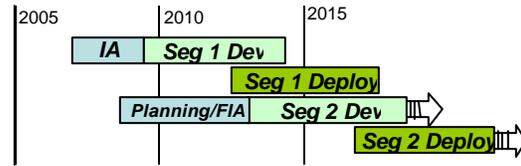
- Segment 1 Final Investment Decision, FY 2009.
- Segment 1 Contract Award(s), FY 2009.
- Segment 2 Project Planning and Industry Coordination, FY 2009.
- Segment 2 Submit Notice of Proposed Rule Making, FY 2010.
- Segment 2 Publish Final Rule, FY 2012.

System Implementation Schedule

Data Communications in Support of NextGen

Segment 1 IOC: 2012 - 2014

Segment 2 IOC: 2017 - 2019



1A13, NEXT GENERATION AIR TRANSPORTATION SYSTEM TECHNOLOGY

DEMONSTRATION

FY 2008 Request \$50.0M

- NextGen Demonstration & Infrastructure Development, M49.01-01

Program Description

The Joint Planning and Development Office (JPDO) demonstration programs are designed to provide information to further mature research solutions and demonstrate implementation alternatives to the National air transportation system demand and capacity issues. The demonstration initiatives will assist the FAA in validating technical, conceptual, procedural or other changes that may not be mature enough without demonstration during FY 2008 for implementation but could be implemented in FY 2009 and beyond as part of the Next Generation Air Transportation System (NextGen) planned capabilities. The demonstration initiatives will identify the key implementation issues that still must be completed, assist the FAA in developing its roadmaps to meet the next generation air transportation system goals and objectives, and assist with implementing initiatives in FY 2009 and beyond that have the potential to reduce delays, meet increasing demand, and increase the capacity, efficiency, safety, security and throughput of the air transportation system.

The Oceanic Four Dimensional (4D) Trajectory Management demonstration will be accomplished in harmonization with ATOP Ocean 21, thereby taking full advantage and validate the use of Advanced Technologies and Oceanic Procedures' (ATOP) enhanced 4-D Trajectory profiling, monitor-by-exception, data communications and conflict prediction capabilities as a platform for 4-D trajectory management in the oceanic environment - with potential evolution into high altitude domestic operations.

The En route 4-D Operations demonstration will increase the efficiency and the productivity in en route airspace by using cooperative clearances for managing aircraft subject to en route flow. The concept of 4-D trajectory assumes that the reliance on monitoring on glass is reduced. A complementary piece to this is the use of cooperative clearances where the aircraft operator with Automatic Dependent Surveillance-Broadcast and Cockpit Display of Traffic Information, can receive an instruction to merge behind and maintain spacing for en route flow, or an assignment to climb through and maintain spacing.

The high density airport area navigation/required navigation performance (RNAV/RNP) will demonstrate that the integration of several individually executed efficiency programs can provide for full, efficient use of the runways and airspace in high density airport/metropolitan environments – e.g. RNAV/RNP routings and Traffic Management Advisor. RNAV/RNP has shown to provide more efficient arrival and departure routings of aircraft within the terminal at reduced workload and increased productivity for the service provider as well as more fuel efficient operations for the aircraft operator. Traffic management advisor provides for more efficient assignment and use of runways by managing the flow of aircraft to metering points for airport/runways; any delay adjustments are taken at higher more cost-effective altitudes.

The Global Air Traffic Interoperability (GATI) demonstration is designed to help the FAA promote safe, affordable and rapidly implemented innovations into next-generation Air Traffic Management (ATM). GATI will use revenue-generating aircraft along oceanic routes that demonstrate and accelerate airline and

Air Navigation Service Providers efficiency improvements using existing systems and technologies. The flight trials development stage will include system architecture, design, hardware and software development (where applicable), procedures development, simulations, component/subsystems testing and certification, and system checkout.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2** – Increase reliability and on-time performance of scheduled carriers.
- **FAA Performance Target 1** – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.

Relationship of Performance Target

FY 2008 demonstration activities are planned to show both near-term delay relief strategy and long-term system capability enhancements. Oceanic 4D Trajectory Management, En Route 4D Operations, High Density Airport time-based RNAV/RNP, GATI Technical Development initiatives will identify key implementation issues, assist the FAA in developing its operational improvement plans to continually meet Next Gen goals and objectives, and assist with implementing initiatives in FY 2009 and beyond.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure a Viable Future.
- **SMP Objective #4.2** – Deliver a future air traffic system that meets customer's operational needs.

Program Plans FY 2008 – Performance Output Goals

- Conduct Tailored Arrival Demonstration.
- Conduct Way Point Management Oceanic Concept Demonstration.
- Conduct In Trail Procedures Demonstration.

Program Plans FY 2009-2012 – Performance Output Goals

- Begin integration of JPDO Next Gen concepts into performance-based operations.

ACTIVITY 2. PROCUREMENT AND MODERNIZATION OF AIR TRAFFIC CONTROL FACILITIES AND EQUIPMENT

A. EN ROUTE PROGRAMS

2A01, EN ROUTE AUTOMATION MODERNIZATION (ERAM)

FY 2008 Request \$368.8M

- En Route Automation Modernization (ERAM), A01.10-01
- En Route Automation Modernization (ERAM) – Tech Refresh, A01.10-03

Program Description

The ERAM program comprises four segments: Enhanced Backup Surveillance (EBUS), En Route Information Display System (ERIDS), ERAM Release 1, and ERAM Releases 2/3 (maintenance and upgrade releases). The first segment, EBUS was completed during FY 2006.

ERIDS – The En Route Information Display System (ERIDS) distributes important information such as Notices to Airmen, Pilot Reports, aeronautical charts and airport information, instrument approach and departure procedures, letters of agreement, and local procedures, to air traffic controllers electronically to improve productivity and efficiency. Additionally, ERIDS reduces, and in some cases eliminates, the time spent to process, print, manage, and distribute paper. Three prototype ERIDS systems were completed in FY 2003. National deployment of 20 systems began in FY 2006 and will be completed in FY 2008.

ERAM Release 1 – ERAM Release 1 replaces the current Host Computer System with new software and hardware to enable improvements in airspace capacity, efficiency, and safety that cannot be realized with the current system. Additionally, today's Host Computer hardware can only be maintained through 2012. Designed to handle traffic growth through the year 2020, ERAM enables controllers to better handle unplanned events, offers flexible routing options, and provides additional safety alerts to prevent collisions and congestion. Fully integrated with ERAM Release 1 is a technology refresh of the radar controller position display processors to bring them into line with ERAM's modern, redundant architecture. The current processors were deployed in 1998 and are reaching their end of service life. Their processing power is inadequate for advanced applications, and their resident graphics software language is both proprietary and outdated.

To further mitigate risk, ERAM is leveraging existing FAA products and lessons learned rather than building brand-new products. Specifically, the Display System Replacement forms the basis of ERAM radar controller display functionality; User Request Evaluation Tool forms the basis of the flight data processing and data controller display functionality; Standard Terminal Automation Replacement System radar data tracker provides a standard tracker, and Microprocessor En Route Automated Radar Tracking System forms the basis for ERAM separation assurance and safety functions. ERAM Release 1 will complete the delivery of a new automation system at each En Route Air Route Traffic Control Center in the continental United States. ERAM Release 1 national deployment begins in FY 2009 and concludes in FY 2011.

ERAM Release 2/3 – The first two ERAM maintenance and upgrade software releases are planned for 2009 and 2010 respectively. These releases are required for ERAM maintenance and will include incremental functional enhancements not available in ERAM Release 1.

The ERAM technology refresh project covers the anticipated future technology refresh development and procurement activities required to extend the service life of ERAM hardware and software. Anticipated technology refresh program will begin in FY 2012.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship of Performance Target

ERAM contributes to the FAA’s greater capacity goal by providing a fully redundant system with no loss of service when either the primary fails or during planned system maintenance, whereas the current Host Computer System has only limited backup functionality. This improved availability will preclude the need to impose restrictions on airspace users when the primary channel is not available. ERAM also increases the number of flight plans that can be stored to 7,080 (versus the current 2,600); provides flexibility in airspace configuration; and extends the radar coverage in all En Route Centers by increasing the number of radar feeds from 24 to 64. This reduces controller workload, increases productivity, and provides the necessary infrastructure to handle the anticipated growth and complexity of the NAS.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.4** – Manage airspace use and traffic optimally.

Program Plans FY 2008 – Performance Output Goals

- ERIDS Last Site Initial Operational Capability (cumulative 20 of 20 systems).
- ERAM Government Acceptance (WJHTC).
- ERAM equipment delivery (cumulative 26 of 26 systems).
- ERAM equipment installations (cumulative 12 of 26 systems).

Program Plans FY 2009-2012 – Performance Output Goals

- ERAM Key Site Government Acceptance.
- ERAM In-Service Decision.
- ERAM Key Site Operational Readiness Demonstration (ORD).
- ERAM Releases 2 and 3.
- ERAM Last Site ORD.

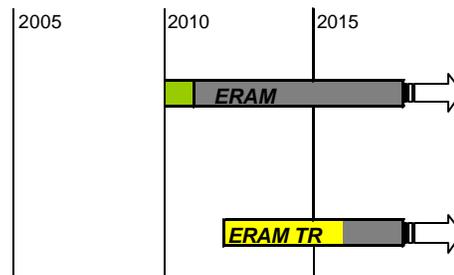
System Implementation Schedule

En Route Automation Modernization (ERAM)

First site ORD: December 2009 -- Last site ORD: December 2010

En Route Automation Modernization (ERAM) – Tech Refresh (TR)

Start TR Activities 2012 -- Complete TR Activities 2015



2A02, EN ROUTE COMMUNICATIONS GATEWAY (ECG)

FY 2008 Request \$4.0M

- En Route Communications Gateway – Technology Refresh, A01.12-02

Program Description

The En Route Communications Gateway (ECG) system, which replaced the legacy Peripheral Adapter Module Replacement Item, is a computer system that formats and conveys critical air traffic data to the Host Computer System and the Direct Access Radar Channel systems at the Air Route Traffic Control Centers (ARTCC). ECG increases the capacity and expandability of the NAS by enabling integration of new surveillance technology into current automation systems. Moreover, ECG introduces new interface standards and data formats—which are required for compatibility with International Civil Aviation Organization (ICAO) standards—and added capacity to process data from additional remote equipment such as radars. The ECG provides the automation system capacity and expandability to support anticipated increases in air traffic and changes in the operational environment. Installing the ECG was a prerequisite to deploying the ERAM software and hardware.

The ECG is fully operational and technology refresh will sustain the capability of the ECG system and provides for purposeful evolution when opportunity permits. The ECG system was designed to ensure that it was capable of incorporating new capabilities or functionality.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The ECG infrastructure provides the automation system capacity and extensibility to support anticipated increases in air traffic and changes in the operational environment. The ECG architecture is flexible and expandable and is designed to support the introduction of new services, systems, and capabilities within the NAS. For example, the ECG system provides the capacity to increase the quantity of surveillance sources monitored, eliminating possible areas of airspace where no backup surveillance capability exists.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Identify technology refresh and obsolescence issues.

Program Plans FY 2009-2012 – Performance Output Goals

- Develop, install, test, and implement technology solutions nationally.
- Deploy hardware changes to support ERAM at all ARTCC's.

2A03, EN ROUTE SYSTEMS MODIFICATIONS

FY 2008 Request \$4.3M

- En Route System Modification, A01.09-01

Program Description

The En Route System Modification program will replace and upgrade obsolete en route display system components at ARTCC's. This includes replacing the system processors; upgrading controller's displays and the infrastructure that supports them; and reconfiguring the consoles to accommodate additional processors. Replacing obsolete equipment will ensure reliability and maintainability of the display system. There are three phases: Phase 1: Upgrade main display monitor to flat panel (Console Reconfiguration Main Display Monitor Replacement) (completed); Phase 2: Upgrade D-side (Data Position Processors) due to end-of-life and to support future enhancements (completed); Phase 3: Console Modifications to accommodate equipment to support En Route Automation Modernization (ERAM).

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

This modification program replaces obsolete components of the en route display system to maintain NAS reliability. It also provides upgraded display system processors that support the User Request Evaluation Tool and ERAM programs. These upgrades support use of direct routes, which will maintain or reduce travel times between major metropolitan areas.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.4** – Manage airspace use and traffic optimally.

Program Plans FY 2008 – Performance Output Goals

- Complete delivery and installation of “A” Channel Technology Refresh hardware at 20 sites (centers).

Program Plans FY 2009-2012 – Performance Output Goals

- None - Program ends in FY 2008.

System Implementation Schedule

- Complete all current system modifications and upgrades by September 2008.

2A04, NEXT GENERATION WEATHER RADAR (NEXRAD)

FY 2008 Request \$3.0M

- Weather Radar Program – NEXRAD Open Systems Upgrades, W02.02-00

Program Description

This modern, long-range weather radar detects, analyzes, and provides the input data to display severe weather information on air traffic controllers' consoles. This helps controllers to determine the location, time of arrival, and severity of weather conditions to enhance both flight safety and airspace capacity. Currently there are 158 NEXRAD systems and one supplemental weather radar funded, owned and

operated jointly by the Tri-Agency partners— the National Weather Service (NWS), the Federal Aviation Administration, and the Department of Defense. The NWS is the lead agency for the NEXRAD program.

Open system upgrades to the NEXRAD processors and receiver will extend NEXRAD’s capabilities by improving data quality, detection ability, and increasing the number of data products generated. The Open System Upgrades incorporate advanced technology into the existing NEXRAD system to improve its detection capability, update rate, resolution and clear definition of additional types of weather conditions within discrete atmospheric regions. The Open Radar Data Acquisition production upgrade already has deployed new hardware to the 12 FAA owned sites in Alaska, Hawaii, and Puerto Rico, and to all the Network NEXRAD systems. The FAA, in partnership with Department of Commerce (DOC) and Department of Defence, will develop dual polarization technology upgrades for all NEXRAD sites.

The NWS collects and redistributes NEXRAD weather data nation-wide and creates forecasts that are used in all phases of flight. Terminal and En route air traffic control systems and the ATC Systems Command Center are able to use the NEXRAD products and services which are processed by the Weather and Radar Processor, Integrated Terminal Weather System, and the Corridor Integrated Weather System.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** - Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The NEXRAD program contributes to greater capacity goals by ensuring sustained operational availability of NEXRAD. NEXRAD measures precipitation intensity, storm motion, and weather echo tops, and provide this data in varied displays directly or indirectly to all OEP airports and most other air traffic control facilities in the continental United States.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Provide funding to the DOC/NWS (Lead Agency) for NEXRAD Product Improvement / Open Systems Upgrade.
- Update all NEXRAD systems with Super-resolution enhancements and Data Quality upgrades.

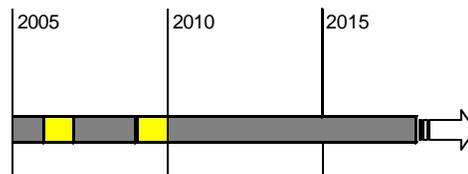
Program Plans FY 2009-2012 – Performance Output Goals

- Provide funding to DOC/NWS (Lead Agency) for NEXRAD Product Improvement / Open Systems Upgrade.
- Update all NEXRAD systems with Dual Polarization hardware and software modifications and Data Quality upgrades.

System implementation schedule and replacement system name

Next Generation Weather Radar (NEXRAD) - Open System Upgrades

Upgrade 1: 2006 -- Upgrade 2: 2009



2A05, ARTCC BUILDING IMPROVEMENTS/PLANT IMPROVEMENTS
FY 2008 Request \$52.9M

- ARTCC Plant Modernization/Expansion – ARTCC modernization, F06.01 -00

Program Description

The Air Route Traffic Control Center (ARTCC) Modernization and Expansion program supports En Route Air Traffic operations and service-level availability through facility lifecycle program management of the 21 ARTCCs and two Center Radar Approach Control (CERAP) facilities. This program expands and modernizes these facilities to accommodate growth in en route operations and new air traffic control equipment. It also renovates and upgrades en route centers to prevent outages that would delay air traffic.

The program began in the mid 80's, and is comprised of 13 standard projects that are implemented at all of the ARTCCs. To date, nine of these standard projects are complete at all the ARTCCs. ARTCCs and CERAPs must be modernized and sustained in order to support ATC operational requirements and to minimize ATC delays or outages caused by infrastructure failures. The program also includes facility sustainment funding, configuration management and numerous special projects.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The ARTCC Modernization/Expansion program contributes to the FAA's greater capacity goal by ensuring that buildings that house en route control equipment are modified, as necessary, to meet traffic growth and accept new equipment. The program also maintains these buildings in good condition to avoid air traffic control outages due to failures in such infrastructure systems as electrical distribution systems. The program maintains the integrity of 21 ARTCCs, and two CERAP facilities, as well as upgrades facilities for integration and transition of new NAS systems. Modernizing ARTCC and CERAP building infrastructure with such projects, such as electrical wiring, heating and ventilation systems, reduces the chances of outages, which can cause air traffic delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Fund Combination M-1/Auto Wing Rehabilitation project at Seattle, Jacksonville, and Albuquerque.
- Provide \$500,000 per ARTCC for repairs and upgrades.
- Conduct facility condition assessments at five ARTCCs.
- Update the national Facility Condition Assessment database.
- Fund equipment relocation as required.

Program Plans FY 2009-2012 – Performance Output Goals

- Fund Combination M-1/Automation Wing Rehabilitation project at Kansas City, Memphis, Atlanta, and Boston.
- Fund M-1 control room renovation project at Salt Lake, Denver, and Fort Worth.
- Fund Combination Host/Control Wing Basement project at Minneapolis, Los Angeles, Boston, Memphis, Chicago, Jacksonville, Seattle, Indianapolis, Fort Worth, Miami, Oakland, Cleveland, Albuquerque, Salt Lake, Kansas City, Denver, Atlanta, Washington, Houston, and New York.
- Fund Administration Wing Rehabilitation project at Fort Worth.
- Provide \$500,000 per year per ARTCC for repairs and upgrades.
- Conduct facility condition assessments at 10 ARTCCs.
- Fund Administrative Wing Rehabilitation project at one site.
- Update the national Facility Condition Assessment database.
- Fund equipment relocation as required.

2A06, AIR TRAFFIC MANAGEMENT (ATM)

FY 2008 Request \$90.6M

- Traffic Flow Management Infrastructure – Infrastructure Modernization, A05.01-06
- Collaborative Air Traffic Management Technologies (CATMT), A05.01-10
- Route Availability Planning Tool (RAPT), A05.05-01
- Departure Spacing Program (DSP), A05.03-06

Program Description

The Traffic Flow Management (TFM) system is the automation backbone for the Air Traffic Control System Command Center (ATCSCC) and for nationwide Traffic Management Units that assist the ATCSCC in strategic planning and management of air traffic. The TFM system is the nation's primary source for capturing and disseminating air traffic information and is the key information source for coordinating air traffic in the NAS. TFM hosts the software decision support systems that manage and meter air traffic to reduce delays and make maximum use of system capacity to balance growing flight demands with NAS capacity within a dynamic environment. The FAA collaborates with aviation customers to implement programs that reduce delays to ensure smooth and efficient traffic flow through FAA-controlled airspace, thereby saving the flying public and airlines millions of dollars. TFM's customers include the airlines, general aviation, U.S. Department of Defense (DoD), U.S. Department of Homeland Security, industry, and partner countries.

The TFM Modernization (TFM-M) component of the ATM budget line item modernizes the TFM infrastructure, which was fielded as a prototype in the 1980s. It has evolved through several generations of hardware and software, and the system is approaching functional obsolescence. The core system software has become increasingly difficult to maintain and to modify, and it will not support the emerging ATM structure and system requirements.

CATMT provides new decision-support tools to deliver additional user benefits and increase the effective capacity of the NAS. CATMT leverages the cooperative environment that was used in the Collaborative Decision Making Program. CATMT will incrementally develop and integrate decision support capabilities (both procedural and new tools to handle bad weather departures and landings) into the legacy TFM system, and then into the modernized system. CATMT capabilities will:

- Provide more accurate forecasting of system capacity and user demand.
- Improve modeling, evaluation and optimization of traffic management initiatives.
- Improve information dissemination, coordination and execution of traffic flow strategies.
- Minimize and equitably distribute delays across airports and users.
- Collect and process more performance data to define metrics and identify trends.

The Route Availability Planning Tool (RAPT) is a prototype system developed on behalf of the New York Port Authority for the New York airports and turned over to the FAA for evaluation. This tool helps to identify possible routes for departure during periods of severe weather. Further study of this prototype is being conducted at this time to decide whether it can and should be deployed operationally.

The Departure Spacing Program (DSP) has been operating in the New York and Philadelphia metropolitan areas since April 2000. DSP utilizes graphical user interfaces and near real-time electronic information exchange to evaluate aircraft flight plans, model projected aircraft demand, and provide departure window times to controllers at participating airports. The DSP servers and routers will no longer be supported by the manufacturer after December 2008.

Relationship of Program to FAA Strategic Goal, Objective and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2** – Increase reliability and on-time performance of scheduled carriers.
- **FAA Performance Target 1** – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.

Relationship to Performance Target

The ATM program will support the Greater Capacity goal through the use of automated systems that provide more accurate and timely information for all TFM system users, improve operator and passenger access to flight information, and reduce system delays. TFM-M will upgrade the existing TFM infrastructure and will increase integration and interoperability by establishing a robust, commercially-available, and standards-compliant system. This will accelerate development and implementation of technology and tools that will improve traffic management synchronization, traffic management flow, and information management services. CATMT and RAPT will develop and deploy critical add-on automation enhancements to help reduce airway and airport congestion. These enhancements will ultimately lead to improved passenger throughput, equitable allocation of capacity resources among users, and significant improvement in air traffic operations system performance metrics.

Strategic Management Process (SMP) Pathway and Objective

TFM-M, CATMT, & RAPT:

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.5** – Minimize impacts of weather on the operation.

Departure Spacing Program:

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.4** – Manage airspace use and traffic optimally.

Program Plans FY 2008 – Performance Output Goals

- Begin Initial Operating Capability (IOC) of the modernized TFM system.
- Update the business case for RAPT in New York.

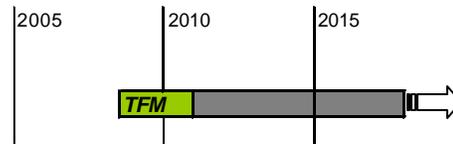
Program Plans FY 2009-2012 – Performance Output Goals

- Continue work on later phases of Airspace Flow Programs.
- Begin IOC of modernized Traffic Situation Display systems at TFM field sites.
- Deploy the Impact Assessment and Resolution capability.
- Technology Refresh of Departure Spacing Program.
- Refine the overall RAPT business case, determine an implementation strategy, and begin implementation.

System Implementation Schedule

Traffic Flow Management (TFM)

First site IOC: September 2008 -- Last site IOC: TBD



2A07, AIR/GROUND COMMUNICATIONS INFRASTRUCTURE

FY 2008 Request \$29.2M

- Radio Control Equipment (RCE) – Sustainment, C04.01-01
- Communications Facilities Enhancement – Expansion, C06.01.00
- Communications Facilities Enhancement – Air-to-Ground Communications Radio Frequency Interference Elimination, C06.03.00
- Communications Facilities Enhancement – Ultra High Frequency Radio Replacement, C06.04.00

Program Description

The Air-to-Ground (A/G) Communications Infrastructure Sustainment program enhances operational efficiency and effectiveness by replacing old radio equipment. This radio equipment is installed at remote sites that are designed to increase the distance between the facility and an aircraft over which radio communications are possible between pilots and controllers. The program also renovates buildings and improves site conditions and access for these remote radio sites.

The Communications Facilities Enhancements (CFE) program provides new or relocated radio control facilities to enhance the A/G communications between air traffic control and aircraft when there are gaps in coverage or new routes are adopted by aircraft flying through the facility’s airspace. The radio frequency interference elimination program provides modern communication and ancillary equipment at select remote communication facilities to eliminate interference from commercial or other radio frequency emissions and improve operational performance.

The Ultra High Frequency (UHF) radio replacement project replaces aging equipment used to communicate with Department of Defense aircraft.

The Backup Emergency Communications replacement program provides a dedicated channel/sector to be used if the primary radio channel fails. It replaces a 1970s technology system that is logistically unsupportable.

The Radio Control Equipment (RCE) program replaces obsolete radio signaling and control equipment which allows a controller to select and use a radio channel. It improves operational performance, and reduces maintenance costs. Due to the deferment of the Next Generation air/ground Communications system development program, funding is required for RCE Sustainment. RCE is required at control end sites, such as ARTCCs, TRACON facilities, ATCTs, CERAP, Radar Approach Control, and AFSSs. This equipment has also been used for controlling radio assets at radio control facilities such as, Remote Center Air/Ground facilities that serve centers, Remote Transmitter/Receiver facilities that serve terminal facilities, and Remote Communications Outlet facilities that serve flight service stations.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

This A/G Communications programs provide communications infrastructure that makes airspace restructuring feasible. It also will reduce the number of outages and enhance communications capacity by replacing aging and increasingly unreliable communications equipment with modern equipment. These programs improve and upgrade associated sites and facilities. In addition, they enable additional capacity by providing new communications sites to conform to new air traffic patterns.

Strategic Management Process (SMP) Pathway and Objective

RCE, CFE – Expansion, UHF Radio Replacement:

- SMP Pathway #3 – Increase capacity where needed.
- SMP Objective #3.3 – Implement airspace and airport capacity enhancements safely.

A/G Communication RFI Elimination:

- SMP Pathway #1 – Achieve Operational Excellence.
- SMP Objective #1.6 – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Procure and begin installation of 1,762 UHF Radios (6,518 total out of 9842-66%).
- Provide support to CFE critical sites.
- Procure 900 RCE units (3,300 out of 3,300 – 100%).

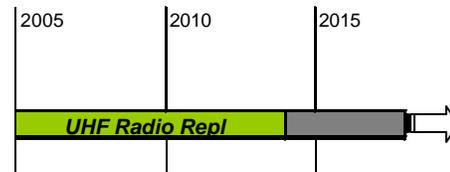
Program Plans FY 2009-2012 – Performance Output Goals

- Procure and begin installation of 3,324 UHF Radios (9842 total-100%).
- Provide support to CFE critical sites.
- Install RCE units for sustainment as required.

System Implementation Schedule

Communications Facilities Enhancement – Ultra High Frequency (UHF) Radio Replacement

First ORD: June 2004 -- Last ORD: September 2013



2A08, ATC BEACON INTERROGATOR (ATCBI) – REPLACEMENT

FY 2008 Request \$20.2M

- Secondary Surveillance – ATC Beacon Interrogator (ATCBI) Replacement, S02.03-00
- Air Traffic Control Beacon Interrogator Model 6 – Beacon Only Buildings, S02.03-02

Program Description

The Air Traffic Control Beacon Interrogator Replacement (ATCBI-6) is a secondary radar used for En Route and Oceanic air traffic control. The ATCBI-6 provides aircraft position information and identification to ATC facilities, for separation assurance and traffic management. The ATCBI-6, in conjunction with co-located primary long-range radar, also provides back-up radar approach surveillance service to numerous Terminal Radar Approach Control (TRACON) facilities in the case of lost terminal radar services and/or scheduled maintenance downtime. The ATCBI-6 system is a low-cost, highly reliable, very accurate, and more capable replacement for old, high-cost beacon interrogators with higher failure rates.

The ATCBI-6 sensors replace 30-year old ATCBI-4/5's systems, which employ transistor logic and integrated circuit technology. These ATCBI-4/5 systems are past their 20-year designed life span and many of the parts are obsolete. Replacement of these systems will provide improved system reliability and reduce operating costs.

The ATCBI-6 program will replace all existing en route ATCBI-4/5 systems and establish new beacon only sites. The original ATCBI-6 Replacement Program included 129 ATCBI-6 systems to replace existing operational beacons; establish support systems for training, testing, logistics, and operational support; and provide systems for three new sites. An additional 8 ATCBI-6 systems were added, due to Congressional establishments, agency cost share agreements, other government projects, and the need for additional support systems, for a total of 137 systems.

Performance data from ATCBI-6 systems already deployed shows increased mean time between outages and decreased time to restore service, which results in increased system availability and reduced maintenance staffing needs. The ATCBI-6 provides digital outputs that support other NAS modernization including Standard Terminal Automation Replacement System and common Automated Radar Tracking System user workstations.

The ATCBI-6 Beacon Only Sites (BOS) – Facility Establishment project establishes the infrastructure to support new beacon interrogators that will add radar coverage to areas that currently have none. Infrastructure to support these new systems includes property, buildings, antenna towers, power, and communications.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The ATCBI-6 systems provide aircraft position and identification data with significantly improved reliability and availability. This supports the performance target to sustain operational availability at 99.7 percent or better.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

ATCBI-6:

- Complete 7 ATCBI-6 systems deliveries from the Norfolk, VA staging facility to the sites.
- Complete IOC at 20 sites including the Beacon Only Facility Establishment at Redmond, OR.
- Procure & conduct additional maintenance training courses.
- Complete procurement of life cycle depot spares.
- Complete Rotary Joint Modification and installation.
- Complete infrastructure activities at Grand Turk, BWI and Pico Del Este, PR.

Beacon-Only Sites (BOS) Facility Establishment:

- Complete site construction at Freeport, BH.
- Begin site construction at Yakutat, AK.

Program Plans FY 2009-2012 – Performance Output Goals

ATCBI-6:

- Close out activities for the Prime Contractor, Raytheon.
- Complete remaining system delivery from Norfolk, VA staging facility to the Beacon Only Facility Establishment, Yakutat, AK
- Complete IOC at the remaining 13 sites including the Beacon Only Facility Establishments at Freeport, BH and Jackson Hole, WY and Yakutat, AK.
- Complete commissioning activities.

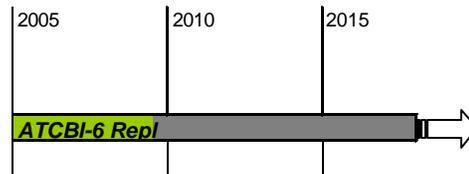
BOS Facility Establishment:

- Complete site construction at Yakutat, AK, last beacon -only facility establishment.

System Implementation Schedule

Air Traffic Control Beacon Interrogator - Model 6 (ATCBI-6) Replacement

First site ORD: July 2002 -- Last site ORD: August 2009



2A09, AIR TRAFFIC CONTROL EN ROUTE RADAR FACILITIES IMPROVEMENTS
FY 2008 Request \$5.3M

- Long Range Radar (LRR) Program – LRR Improvements – Infrastructure Upgrades/Sustain, S04.02-03

Program Description

The LRR infrastructure upgrades program sustains and improves the facilities where LRRs are installed to provide aircraft position information to FAA en route control centers and to other users (e.g., Departments of Defense and Homeland Security). These planned improvements support the installation and lifecycle support of the secondary beacons radars (Mode Select and Air Traffic Control Beacon Interrogator Replacement); both standalone and those co-located with the long-range primary radars. Secondary beacon radars often have their antennas mounted above the long range primary radar antennas, and the processors are installed in facilities that were constructed in the 1950's and 60's. Many of the en route secondary radar service outages can be directly linked to failing infrastructure. Multiple contracts are needed to do the necessary upgrades. Contracts are specific to the component being repaired and sometimes also specific to the site where the improvement is needed. This project finances upgrades to the antenna drive systems and improvements to the facility infrastructure systems, such as power systems; engine generators; environmental control systems; electrical systems; and lightning protection, grounding, bonding, and shielding systems.

LRR Infrastructure Upgrades consist of two phases:

Phase I – Short-Term Upgrades to Facility Infrastructure. These are limited to refurbishing Heating, Ventilation, and Air-Conditioning, Engine Generators, Uninterruptible Power Supply, and Lightning Protection, Grounding, Bonding, and Shielding Systems and minimum structural upgrades to support ATCBI-6 deployment.

Phase II – Long-Term Upgrades to Facility Infrastructure. These will replace critical infrastructure systems if required for en route secondary beacon operations. Requirements are being defined through Web-based surveys and site surveys.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase airport capacity to meet projected demand
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The LRR program is required to support the capacity performance goal in the NAS. This infrastructure upgrade project ensures that LRRs maintain high reliability and availability required to support the performance goal.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Upgrade the existing Heating, Ventilation & Air Conditioning (HVAC) systems and Uninterruptible Power Sources (UPS).
- Perform site condition assessments at all ARSR-3/4s.
- Continue support of the Improvement of Federal Building & Equipment Program.
- Continue upgrades to Lightning, Grounding, Bonding, and Shielding (LGBS) systems in accordance with FAA-STD-19E.
- Continue Phase II – Long-term upgrades to facility infrastructure.
- Perform en route in-service engineering.
- Continue program management support.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue Phase II – Long Term Upgrades to Facility Infrastructure.
- Perform en route radar in-service engineering.
- Continue program management support.
- Continue to perform site condition assessments.
- Select upgrades identified by the condition assessments.

2A10, VOICE SWITCHING AND CONTROL SYSTEM (VSCS)

FY 2008 Request \$15.7M

- Voice Switching and Control System (VSCS) – Tech Refresh – Phase 2, C01.02-03

Program Description

The VSCS Technology Refresh program will replace and upgrade hardware and software components for the voice switching systems in all 21 en route air traffic control centers (ARTCCs). The real time Field Maintenance/Testing System at the FAA William J. Hughes Technical Center (WJHTC) and the Training System at the FAA Academy will also be upgraded to perform the same as an operational site. These upgrades will ensure that the air-to-ground and ground-to-ground communications capabilities are reliable and available for separating aircraft, coordinating flight plans, and transferring information between air traffic control facilities in the en route environment. To date, this program has replaced all VSCS internal control systems. Equipment has been procured to replace the VSCS Traffic Simulation Unit at the FAA WJHTC. This test bed is being used to test the capabilities of the upgraded systems to determine if they meet the formal baseline requirements established for VSCS performance. Additional upgrades will be completed to ensure that the VSCS continues to provide reliable voice communications, which can support future en route operations.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The VSCS Technology Refresh program supports the greater capacity goal by improving the system reliability of en route voice communications for both current and future operations by replacing and upgrading components of the obsolete, non-supportable VSCS hardware and software. In addition, there are ongoing system expansions at specific ARTCCs to support greater capacity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Complete delivery of all Video Display Monitor Replacement systems.
- Continue design work on internal Local Area Network (LAN) modification.
- Continue design work on Programming Language for Microcomputers (PLM) to C software conversion.
- Continue design work on VSCS Training and Backup System (VTABS) Test Controller modification.
- Continue power supply refurbishment.
- Initiate procurement activities for depot test equipment replacement.

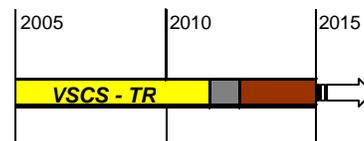
Program Plans FY 2009-2012 – Performance Output Goals

- Continue design work on internal LAN, PLM to C software conversion, depot test equipment, and VTABS Test Controller modification.
- Complete testing of internal LAN, PLM to C software, depot test equipment, and VTABS Test Controller modification.
- Initiate delivery of modifications that result from internal LAN, PLM to C conversion, depot test equipment, and VTABS Test Controller modification.
- Continue power supply refurbishment.

System Implementation Schedule

Voice Switching and Control System (VSCS) - Tech Refresh

First site IOC: 2002 -- Last site IOC: 2011



2A11, INTEGRATED TERMINAL WEATHER SYSTEM (ITWS)

FY 2008 Request \$13.2M

- Integrated Terminal Weather System (ITWS) – Development/Procurement/Pre-Planned Product Improvement (P3I), W07.01-00

Program Description

ITWS is an air traffic management tool that provides air traffic controllers and traffic manager's full-color graphic displays of essential weather information at major U.S. airports. The FAA developed ITWS to

provide air traffic managers, controllers, and airlines with a tool that integrates weather-related data from a number of sources and presents accurate, easy-to-understood, and useable weather information or "products" on a single display.

The system uses highly sophisticated meteorological algorithms to analyze data from multiple sensors, and to display highly accurate current, and 20-minute forecasts of, weather conditions and hazards in the terminal area. ITWS products include such weather information as windshears, microbursts, storm cell motion and speed, lightning, and terminal area winds aloft. The predictive products and the winds aloft are new technology introduced with ITWS. A Terminal Convective Weather Forecast (TCWF) capability will be added to ITWS in FY 2006 to increase the forecast period to 60 minutes, and provide additional data to enable controllers to more fully exploit the operational benefits of the information. ITWS products increase safety and capacity, and improve system efficiency, in the terminal environment.

The FAA will deploy the ITWS to 22 TRACONs, and it will provide weather information to 28 high-activity airports that have demonstrated a significant convective weather history. Integrating data and products from various FAA and NWS sensors and specially equipped aircraft (via the meteorological data collection and reporting system) gives ITWS the accuracy and sophisticated predictions that it must have to operate effectively.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

Traffic managers can use ITWS to plan traffic flow reconfiguration and to coordinate with personnel in the TRACONs, ATCTs, ARTCCs, and the ATCSCC to minimize cancellations and delays and sustain average daily capacity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.5** – Minimize impacts of weather on the operation.

Program Plans FY 2008 – Performance Output Goals

- Install ITWS with TCWF capability at Philadelphia, Salt Lake City, and Cleveland.
- Achieve IOC for ITWS at Phoenix, Philadelphia, Salt Lake City, and Cleveland.
- Commission ITWS at Detroit, Pittsburgh, Cincinnati, and Phoenix.
- Pending investment approval, production engineer and procure ITWS systems with TCWF capability for 12 deferred sites.
- Complete site surveys, order communications lines for, and install ITWS at up to 6 deferred sites.
- Initiate activities to evolve ITWS capabilities to be System-Wide Information Management (SWIM) and Next Gen compatible.

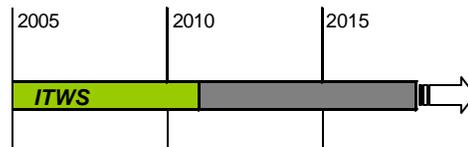
Program Plans FY 2009-2012 – Performance Output Goals

- Commission ITWS with TCWF capability at, Philadelphia, Salt Lake City, and Cleveland.
- Complete site surveys and installation of ITWS at all 12 deferred sites.
- Achieve IOC and commission ITWS at the 12 deferred sites: Las Vegas, Nashville, Wichita, Raleigh-Durham, New Orleans, Indianapolis, Columbus, Tulsa, San Juan, Louisville, Oklahoma City, and Dayton.
- Demonstrate SWIM and NextGen-compatible ITWS capabilities.

System Implementation Schedule

Integrated Terminal Weather System (ITWS)

First ORD: October 2003 -- Last ORD: 2010



2A12, FAA TELECOMMUNICATIONS INFRASTRUCTURE (FTI)

FY 2008 Request \$8.5M

- FAA Telecommunications Infrastructure (FTI), C26.01-00

Program Description

This program will satisfy the need for increased telecommunications service and capacity at a lower cost than existing contracts. A new contract has been awarded to a single vendor to integrate the telecommunications needs of FAA facilities and provide systems to measure usage, so managers are aware of the cost and use of telecommunications services. It will enhance the FAA's ability to control costs by matching price to performance, while offering a broad range of telecommunications services. The program relies on a partnership between the FAA and a commercial service provider to obtain telecommunications services that meet FAA's performance specifications and provide necessary information security protections.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The FTI program supports the FAA's organizational excellence goal by lowering the cost of providing telecommunications services within the FAA's NAS and non-NAS infrastructures. FTI eliminates the need to manage and operate multiple sub-networks. The cost of provisioning, operating, and maintaining telecommunications services provided by FTI will be lower than the telecommunications cost of operating and maintaining the legacy systems. The prices for access and transport services are competitive and exhibit economies of scale regarding bandwidth. Technological improvements support bandwidth sharing. Combining the bandwidth needs of multiple end-users will increase the efficiency of bandwidth usage and decrease the cost. Additional efficiencies are gained with FTI's Integrated Business Systems interface for ordering, provisioning, and tracking telecommunications services.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008 – Performance Output Goals

- Complete FTI deployment of sites and services to support decommissioning of 14 A-nodes through the end of the 1st Qtr FY 2008.
- Complete FTI deployment of sites and services to support decommissioning of 16 A-nodes through the end of the 2nd Qtr FY 2008.
- Complete FTI deployment of sites and services to support decommissioning of 16 A-nodes through the end of the 3rd Qtr FY 2008.
- Complete FTI deployment of sites and services to support decommissioning of 16 A-nodes through the end of the 4th Qtr FY 2008

Program Plans FY 2009-2012 – Performance Output Goals

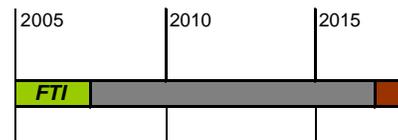
- Complete FTI deployment of sites and services to support decommissioning of 11 A-nodes through the end of the 1st Qtr FY 2009.
- Complete full transition of the FTI (~5,000 services).

System Implementation Schedule

- The FTI program will acquire telecommunications services for critical NAS operations and mission support functions over the next 12 years.

FAA Telecommunications Infrastructure (FTI)

First site IOC: February 2004 -- Last site IOC: September 2008



2A13, OCEANIC AUTOMATION PROGRAM

FY 2008 Request \$53.1M

- Advanced Technologies and Oceanic Procedures (ATOP), A10.03-00

Program Description

The ATOP program replaced oceanic air traffic control systems and procedures, and it will modernize the Oakland, New York, and Anchorage ARTCCs. Additionally, it will provide technology refresh for the automation equipment. ATOP fully integrates flight and radar data processing, detects conflicts between aircraft, provides data link and surveillance capabilities, and automates the previous manual processes. The program office will conduct modeling and simulations to forecast benefits, and now that ATOP is in operational use, will gather and document performance data and metrics to measure productivity, efficiency, and user satisfaction.

ATOP allows the FAA to discontinue the use of the difficult communications and intensively manual processes that limit controller flexibility in handling airline requests for more efficient tracks over long oceanic routes. The program provides the automation, Automatic Dependent Surveillance-Contract (ADS-C), and conflict resolution capability required to reduce aircraft separation from 100 nautical miles to 30 nautical miles.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2 – Increase on-time performance of scheduled carriers.**
- **FAA Performance Target 1 – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.**

Relationship to Performance Target

ATOP will allow properly equipped aircraft (i.e., ADS-C, Controller-Pilot Data Link Communication, Required Navigation Performance-4 nm) and qualified aircrews to operate using reduced oceanic separation criteria. This will enable more aircraft to fly optimal routes and enhance aircraft flight time (and fuel and payload efficiency) during oceanic legs of their flights. Reduced lateral (side-to-side) separation may provide space for additional routes between current locations or new direct markets. Reduced longitudinal (nose-to-tail) separation may provide more opportunities to add flights without delays (e.g., climbs, descents, reroutes, or speed penalties.) ATOP has been implemented at three ARTCCs. The data initially used to calculate the benefits is changing; therefore, there is a need to analyze this data and provide a baseline and a model to show the fuel savings from ATOP and provide a meaningful metric for FY 2007. Further development of the fuel burn model and metrics for FY 2008 and the out years, through the use of a comprehensive oceanic analysis, simulation and modeling capability, will be used to explore the contributing elements in fuel efficiency.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.4** – Refine separation standards.

Program Plans FY 2008 – Performance Output Goals

- Complete Anchorage ARTCC radar/procedural system Full Transition.
- Perform model enhancements of fuel burn and boundary crossing models to calculate baseline fuel efficiency for common market pairs.
- Conduct procedural system Independent Operational Test and Evaluation.
- Initiate and complete Phase B of facility modifications at Oakland Center.
- Continue providing support of the ATOP facilities with the implementation of the deferred design elements – Preplanned Product Improvements.
- Reduction of the separation standards in the U.S. controlled Pacific Ocean.
- Initiate Technology Refresh of the WJH Technical Center and Oakland ARTCC.

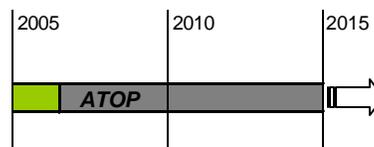
Program Plans FY 2009-2012 – Performance Output Goals

- Conduct radar system Independent Operational Test and Evaluation.
- Calculate baseline fuel efficiency for additional market pairs and for all Oakland, New York and Anchorage flights.
- Complete Hardware/ Technology refresh at the WHJTC, Oakland New York, and Anchorage ARTCC.
- Continue providing support of the ATOP facilities with the implementation of the deferred design elements.
- Reduce separation standards in the U.S. controlled Atlantic Ocean (WATRs).

System Implementation Schedule

Advanced Technologies and Oceanic Procedures (ATOP)

First site IOC: June 2004 -- Last site IOC: March 2006



2A14, AIR TRAFFIC OPERATIONS MANAGEMENT SYSTEM (ATOMS)

FY 2008 Request \$3.5M

- A, ATOMS Local Area/Wide Area Network, M29.00-00

Program Description

The ATOMS is an ATO Information Technology (IT) network consisting of local area networks, data receivers, and/or personal computers at over 500 field sites. It provides field facilities with a single integrated information system for business and operational data collection, and a means to transmit operational data to headquarters for inclusion in national databases and decision support systems. The data is essential to the accurate and complete analysis of air traffic systems' operation and the development and evaluation of system changes to improve system safety and efficiency. ATOMS supports an Operational Data Store that can be accessed by both field and headquarters personnel.

The ATOMS was created to meet Air Traffic's business information needs. Based on a multi-tiered enterprise architecture, it is designed to provide a series of integrated systems, infrastructure, and procedures that will coordinate the collection, storage, correlation, and delivery of enterprise and operational information to the ATO. This architecture is necessary to support standardized data gathering and dissemination from legacy systems, interactive web products and emerging financial, safety, and performance national systems such as Cru-Support/ Labor Distribution Reporting (LDR), ATO Resource Tool (ART), AT Quality Assurance, and the National Offload Program (NOP).

Among the Air Traffic performance measures captured via the ATOMS infrastructure are:

- NOP - Extracts critical business data from all NAS radar systems,
- LDR,
- Workforce Management Toolset,
- Facility Activities (Number of Visual Flight Rules and Instrument Flight Rules operations handled by AFSS, ARTCC, ATCT, and TRACON),
- Delays (by operator class, by cause),
- Deviations (air and surface),
- Errors (air and surface),
- Financials (total obligated dollars),
- Staffing (Total Work Force, Controller Work Force, Operations' Staff), and
- Unsatisfactory Condition Reports (Total open, new, closed).

Custom designed facility level applications employing techniques gained through the reengineering of administrative processes are needed to collect data to support the agency's cost accounting system, while at the same time reducing the current level of administrative workload. Data collection systems and a methodology for moving the data upstream will complete the distribution system. Accuracy and standardization will occur by collecting data only once, at the source (field facilities), and then efficiently sharing that data through the ATO Application Portal (AAP). Once data systems are established and distributed, effective analytical tools will be provided to assist the ATO in making business-based decisions for tomorrow's outcomes.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The ATOMS program provides an integrated enterprise information solution by consolidating and facilitating the collection, delivery, and analysis of the ATO's operational and business data. This solution provides a series of analytical views allowing for performance metrics to be analyzed and assessed for trends, predictability, etc. The most visible benefits ATOMS provides to the ATO workforce are the following:

- Consolidation of redundant information systems,
- Integrated information systems that are business and performance based,
- Systems that save time, workload, and resources,
- Data entry occurring in one place at one time only,
- Standardized data sets at all business sites, and
- Rapid access to information from these sites via a single enterprise portal.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.9** – Use financial information and tools to manage effectively.

2A15, CORRIDOR INTEGRATED WEATHER SYSTEM (CIWS)

FY 2008 Request \$2.1M

- Corridor Integrated Weather System (CIWS), W07.02-00

Program Description

CIWS will improve use of en route airspace capacity during adverse weather affecting the most heavily traveled corridors of U.S. airspace. The system uses data from weather radars to portray severe weather phenomena such as thunderstorms to help traffic management efforts to select the most efficient routes for aircraft to follow when direct routes are unavailable due to severe weather. Accurate and timely prediction of hazardous weather activity is essential.

The CIWS prototype demonstration began in 2001 and is being evaluated at 15 FAA locations in the congested northeastern quarter of the contiguous United States. CIWS also provides coverage over southern Canada to allow assessment of the usage of important Playbook routes during periods of significant convective weather. CIWS prototype displays currently operate at eight Air Route Traffic Control Centers (Cleveland, Washington, Chicago, Boston, New York, Indianapolis, Minneapolis, and Kansas City), the Air Traffic Control System Command Center, six major terminals (New York City, Chicago, Detroit, Pittsburgh, Cleveland, and Cincinnati), as well as several major airline operations centers.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departure per day by FY2008 and maintain through FY2011 at the 35 OEP airports.

Relationship to Performance Target

The CIWS will maximize the use of en route airspace capacity, when adverse weather is affecting operations, by providing more accurate and timely prediction of the present and future location of that weather. The CIWS prototype demonstration efforts have shown that finer positional and temporal resolution of storm location can improve use of airspace capacity in congested airspace. Air routes can be kept open longer before being impacted by weather and can be reopened earlier. Similarly, better knowledge of future storm position enables controllers to reroute pilots around storms more efficiently. Increased information on current and predicted storm heights allows users to identify opportunities to safely fly over storm areas. The CIWS prototype demonstration has also shown that providing more accurate and timely weather predictions to NAS users improves collaborative decision-making to minimize delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.5** – Minimize impacts of weather on the operation.

Program Plans FY 2008 – Performance Output Goals

- Continue operation and evaluation of CIWS prototypes.
- Complete Technology Transfer of CIWS products to FAA.
- Expand corridor geographic coverage of CIWS products.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue operation and evaluation of CIWS prototypes.
- Assessment of internal and external benefits along with metrics collection and validation.
- Implementation of advanced capabilities available from the research community.
- Participate in communities of interest defining CIWS user needs and implement technologies compatible with SWIM and the 4 Dimensional data base to foster interoperability with user communities.
- Coordinate with the Joint Program and Development Office to ensure the functionality of the system will comply with and support the Next Gen vision for 2025.

2A16, SAN JUAN RADAR APPROACH CONTROL (CERAP)

FY 2008 Request \$8.0M

- San Juan Facility Remediation, F08.01-01

Program Description

The San Juan Center Radar Approach Control (CERAP) was constructed in 1964 and was designed especially to resist hurricane forces. A structural evaluation completed in July 2005 identified significant seismic deficiencies for several of the onsite buildings. Extensive structural modifications are necessary to bring the facility into code compliance and to protect the occupants. The CERAP is located in a zone of high seismic activity where earthquakes exceeding a magnitude of 7.0 have a higher than average probability of occurrence. The soil beneath the facility has a medium to high likelihood to “liquefy” during a seismic event. This could cause a loss of load-bearing capacity in the foundation. The concrete beams,

girders, and columns that provide structural support for the buildings are nominally reinforced and do not meet modern seismic resistance standards.

Structural upgrades are required for the Administrative, Operations, Mechanical and Engine Generator Buildings to protect building occupants and to reduce the risk for disruption of air traffic operations that could occur after an earthquake

These structural upgrades will improve the ability of the existing buildings to withstand earthquake forces. They will bring the facility into code compliance, provide improved protection for building occupants, and reduce ATC operations risk associated with an earthquake.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

Mitigating seismic vulnerability at San Juan CERAP (ZSU) supports the FAA Flight Plan Capacity goal by providing structural upgrades to protect the integrity of the buildings during an earthquake and prevent serious disruption to air traffic following an earthquake.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Continue structural upgrades at the San Juan facility

Program Plans FY 2009-2012 – Performance Output Goals

- Complete structural upgrades at the San Juan facility in FY09

2A17, MILITARY OPERATIONS

FY 2008 Request \$1.6M

- Military Operations, A30.01-01

Program Description

The FAA works with the U.S. military services' airspace managers to manage U.S. national airspace most effectively and efficiently and to develop and coordinate agreements/procedures to support military flight operations. As a subsystem within the military operations network, the Special Use Airspace (SUA) Management System (SAMS) uses its operational database to securely display and record SUA used by the military and other types of airspace area transactions. Airspace transactions are normally actions taken to activate, pause, or terminate an SUA and other areas. Prior to the installation and implementation of SAMS, information on the availability of SUA for civilian flights was not timely or was limited to unrealistic announcements on availability. SAMS enhanced the accessibility of SUA schedule information and increases the transparency of the NAS to pilots and other airspace users.

Due to its "open systems" architecture, SAMS can interface easily with other FAA systems (e.g. Enhanced Traffic Management System and the United States Notice to Airman) to collect and disseminate data. Direct input of airspace management information by the military into SAMS will reduce the data entry workload at FAA facilities. Through its archive database, SAMS provides a means to collect and analyze SUA utilization data. SAMS will be an integral component of the free flight system.

This program provides a technology refresh of existing SAMS hardware and software to extend its service life. It modernizes aging Air Traffic Control (ATC) SUA/SAMS capabilities with an up-to-date distributed network of processors and displays. SAMS displays the SUA data to the en route traffic manager unit operators and flight service station users. Through hardware redundancy, software design, and primary and backup networks, SAMS provides highly reliable SUA information.

The SUA system is operational at 26 facilities, including the Air Traffic Control System Command Center (ATCSCC). Coordination with the U.S. military directly contributes to the safety of the NAS by providing information vital to the safe separation of aircraft in and around SUA and other types of constrained airspace (e.g. Air Traffic Control Alert Areas (ATCAA), Temporary Flight Restrictions (TFRs), etc). Future upgrades to this system will improve the timeliness of information and allow more use of SUA when it is not required for military operations.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2** – Increase reliability and on-time performance of scheduled carriers.
- **FAA Performance Target 1** – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.

Relationship to Performance Target

By providing information on SUA in a timely manner, military operations / SAMS allows more efficient use of airspace that is not being used by the military.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Technology Refresh of current system.

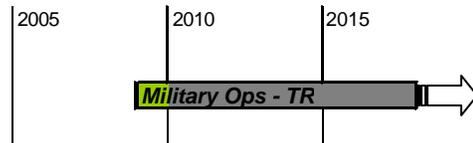
Program Plans FY 2009-2012 – Performance Output Goals

- Technology Refresh of current system.

Program Implementation Schedule

Military Operations - Tech Refresh

First site IOC: April 2009 -- Last site IOC: September 2009



2A18, AUTOMATED DETECTION AND PROCESSING TERMINAL (ADAPT)

FY 2008 Request \$1.0M

- Automated Detection & Processing Terminal (ADAPT), A29.01-01

Program Description

The ADAPT will be used to validate the identity and legitimacy of the aircraft operating within or entering the NAS.

For years the Air Traffic Control System has possessed a capability called Beacon Code Interrogator. The aircraft transmits a signal that identifies the aircraft call sign and altitude as just two of many sets of information that may be exchanged between the air and ground systems. Mode 3/A is the common military and civil mode for aircraft identification. This system is also called within the military and civilian application as IFF or Identification Friend or Foe.

This capability has supported identification of aircraft as they enter the NAS approaching the Air Defense Identification Zones (ADIZ). Since the attacks of 9/11, the focus or the “mission need” of identifying “friend or foe” is now required inside domestic airspace in addition to aircraft approaching an ADIZ.

ADAPT is a highly integrated set of database systems provided by FAA, Commerce, Department of Homeland Security and Transportation Security Administration of all aircraft approved or not approved to fly in the NAS. The database is integrated with the Enhanced Traffic Management System (ETMS) and the Aircraft Situation Display (ASD). Once flight plan data (Aircraft Call Sign/Registration) is entered into ETMS via the HOST/ERAM, the ADAPT database compares its data against the ETMS Beacon Code aircraft related data. If questionable data, data mismatches, or data unsubstantiated by any of the many integrated databases etc. are detected and associated with the interrogated aircraft operating within the system, the associated aircraft data block or beacon code color changes to red on the ASD.

This aircraft is now a “target of interest” and its red data block visually alerts specialists within the FAA and various security agencies (external to FAA) of a possible threat. This decision support tool then enables tracking, monitoring and analysis. Sensitivity towards the targets position and tracking to temporary flight restrictions, Restricted Areas, nuclear facilities, VIP movements, etc. will heighten the criticality and immediacy of decision processes towards the identified target.

ADAPT is currently a working prototype that is partially integrated into daily operations on a limited basis. The implementation goal is to fully integrate the capability into FAA en route control centers (ARTCC), the Air Traffic Control Systems Command Center (ATCSCC), and identified homeland security priority locations/facilities.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **DOT Strategic Goal – Homeland and National Security.**
- **DOT Strategic Outcome** – Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce.
- **DOT Strategy** – Support and implement U.S. security strategies and plans related to transportation.

Relationship to Performance Target

ADAPT provides a new capability for homeland and national security by identifying suspect aircraft prior to entering and within the NAS. This capability improves national security and directly supports the FAA's role in that mission.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.7** – Support national aviation security needs.

Program Plans FY 2008 – Performance Output Goals

- Program Plans are being developed.

Program Plans FY 2009-2012 – Performance Output Goals

- Program Plans are being developed.

2A19, ATCSCC INFRASTRUCTURE PLANNING

FY 2008 Request \$2.5M

- ATCSCC – Infrastructure Planning, F28.01-01

Program Description

The Air Traffic Control System Command Center (ATCSCC) Infrastructure Planning program will carry out the planning and finance the relocation of the command center from its present location in Herndon, VA. For the past thirteen years the facility has been housed in commercially leased space with a current cost in excess of four million dollars annually. The long-term lease expires on September 30, 2009.

The FAA ATCSCC is responsible for monitoring air traffic flows nationwide and implementing programs to reduce delays and to allow aircraft to avoid severe weather areas on a daily basis. It plays a key role in the safe and efficient operation of the NAS. In addition, it also plays a key national security role.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal** – Organizational Excellence
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

This project will collocate the ATCSCC with another FAA facility, offering lower life cycle costs. Collocation will lower capital and operating costs by eliminating the need for continuing the current lease, eliminating the need for land acquisition, reducing the amount of site preparation, and significantly reducing the need for additional backup power and utility systems.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY2008 – Performance Output Goals

- Complete facility design (May 2008).
- Award construction contract (Oct 2008).
- Commence construction (Dec 2008).

Program Plans FY 2009-2012 – Performance Output Goals

- Complete installation of equipment (Jan 2011).
- Commissioning (Mar 2011).

2A20, VOLCANO MONITORING

FY 2008 Request \$1.0M

- Volcano Monitoring, M08.10-00

Program Description

Volcanoes continue to pose a potential threat to aircraft flying through Alaskan airspace. For example, Mt. St. Augustine, a volcano near Homer, Alaska, has erupted several times in 2006 and has the potential of disrupting air travel for thousands of airline passengers. Twenty-five thousand people traverse Alaska's skies every day, and Anchorage is a major US airfreight hub. Between Anchorage and Tokyo, 100 volcanoes are capable of producing ash plumes that reach flight levels. Volcanic ash has been proven to severely damage and erode critical aircraft parts with potentially fatal results.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

Volcano Monitoring maps to FAA goal of increased safety by monitoring and alerting Alaskan airspace users to volcanic related aviation disruptions.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.1** – Ensure airspace system is safe and efficient.

2A21X, GENERAL WEATHER PROCESSOR (GWP)
FY 2008 Request \$0.0M

- General Weather Processor (GWP), W12.01-01

Program Description

The GWP is required to provide a single source of high-quality en route weather products needed for the next generation air transportation system, and to replace existing aging en route weather product generation and distribution infrastructure products that do not meet those future requirements. The GWP is consistent with the NAS weather architecture/road map and the Next Generation Air Transport system (NextGen) as defined by the Joint Planning and Development Office (JPDO). The GWP will use open system architecture design concepts to promote rapid integration of new capabilities in the future, which will reduce future system operations and maintenance costs.

The GWP will provide automated, accurate, timely, high-resolution and reliable, current and forecast weather products, to air traffic controllers, traffic management specialists, center meteorologists and airlines for collaboration. This weather information allows the FAA to provide timely weather advisories to pilots and to accomplish the mission of insuring safe and efficient management of the NAS. The GWP will provide weather data to NAS systems such as En Route Automation Modernization (ERAM), ERAM Conflict Probe, Advanced Technologies & Oceanic Procedures (ATOP), Dynamic Oceanic Tracking System (DOTS), and the Enhanced Traffic Management System (ETMS).

Currently en route weather automation and Traffic Flow Management is provided by the Weather and Radar Processor (WARP) and the Corridor Integrated Weather System (CIWS) prototype. The plans are to conduct a single acquisition to replace both WARP and CIWS with the implementation of the GWP. The GWP project is currently conducting an investment analysis for deployment of GWP in the NAS and plans to seek an investment decision to baseline the GWP program for a deployment starting in FY 2012. This will include plans for a final investment decision in FY 2008 and contract award in FY 2009.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1 -** Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1 –** Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

In order to increase capacity to meet projected demand and reduce congestion, the GWP strategy is to improve weather departure and landing rates by using new technologies and procedures.

Specifically, GWP will provide air-traffic controllers and traffic management unit (TMU) specialists with automated, accurate, timely, high-resolution and reliable, current and forecast weather products. More detailed, real-time, predictive, and strategic weather information presented in an integrated manner in the En route environment:

1. Allows efficient use of impacted air routes by re-opening them as soon as possible after severe weather has moved away and keeping them open as long as possible before it occurs,
2. Allows more direct flight paths since the pilots are provided optimal routes to avoid bad weather and they don't have to make erratic or last minute changes,
3. Allows a greater number of airplanes to use impacted airspace by determining route availability earlier in the daily flight planning process, and
4. Provides a forecast of the future location of hazardous weather allowing the TMU to improve route management.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure a Viable Future.
- **SMP Objective #4.2** – Deliver a future air transportation system that meets customers’ operational needs.

Program Plans FY 2008 – Performance Output Goals

- Complete final investment decision for the GWP acquisition.
- Release Screening Information Request.

Program Plans FY 2009-2012 – Performance Output Goals

- Contract Award (GWP).
- Complete Preliminary Design Review.
- Complete Critical Design Review.
- Complete Factory Acceptance Test/Site Acceptance Test.
- Conduct Operational Test and Evaluation.
- Achieve Initial Operating Capability.

System Implementation Schedule

General Weather Processor (GWP)

First site IOC: May 2012 -- Last site IOC: May 2014



B. TERMINAL PROGRAMS

2B01, AIRPORT SURFACE DETECTION EQUIPMENT – MODEL X (ASDE-X)

FY 2008 Request \$37.9M

- Airport Surface Detection Equipment – Model X (ASDE-X), S09.01-00
- Airport Surface Detection Equipment – Model X – Tech Refresh & Disposition, S09-01-01

Program Description

ASDE-X is a modular surface surveillance system that processes multiple radar sources, multilateration, and Automatic Dependent Surveillance-Broadcast (ADS-B) sensor data to provide seamless airport movement area coverage and aircraft identification to local airport air traffic controllers. There are 3 types of ASDE-X installations: new establishments (airports with no current surface surveillance capability), replacements (airports where existing ASDE-3/ Airport Movement Area Safety System (AMASS) systems will be replaced with ASDE-X), and ASDE-X Upgrade sites (airports where the ASDE-3/AMASS systems will be upgraded with ASDE-X capability). The main difference between the ASDE-X and ASDE-X Upgrade configurations is the surface surveillance transmitter/radar antenna. ASDE-X uses the new Surface Movement Radar while the ASDE-X Upgrade uses the existing operational ASDE-3 radar. ASDE-X is planned for deployment to 35 operational sites (10 new establishments, 4 replacements, and 21 ASDE-X Upgrades) and three support systems.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 3** – Reduce the risk of runway incursions.
- **FAA Performance Target 1** – By FY 2010, reduce Category A and B (most serious) runway incursions to a rate of no more than 0.450 per million operations and maintain through FY 2011.

Relationship to Performance Target

The ASDE-X system provides air traffic controllers with a visual representation of the traffic situation on the airport surface movement area and arrival corridors, including aircraft and vehicle position information and flight identifications or call signs. This increased awareness of the situation on the airport surface movement area is essential in reducing runway collision risks and critical Category A & B runway incursions. ASDE-X Safety Logic is an enhancement that uses surveillance information from ASDE-X to determine if the current and/or projected positions and movement characteristics of tracked aircraft and vehicles present a potential collision situation. Visual and audible alerts are provided to the controllers, which include critical information about the targets involved, such as ID and surface occupied.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Achieve Initial Operating Capability (IOC) at 2 out of 24 ASDE-X sites.
- Deliver 6 out of 20 undelivered ASDE-X systems.

Program Plans FY 2009-2012 – Performance Output Goals

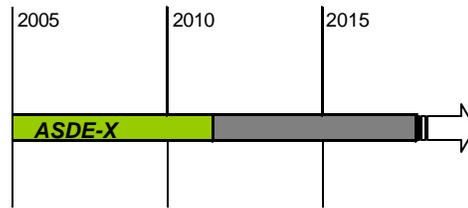
- Deliver last 14 ASDE-X systems.
- Achieve dual ASDE-3 radar IOC at Los Angeles airport (LAX), CA.
- Achieve IOC at last 22 ASDE-X sites.

System Implementation Schedule

Airport Surface Detection Equipment – Model X (ASDE-X)

First IOC: June 2003, First ORD Oct 2003 -- Last ORD: May 2011

First Site Decom: October 2028 -- Last Site Decom: September 2029



2B02, TERMINAL DOPPLER WEATHER RADAR (TDWR) – PROVIDE

FY 2008 Request \$8.0M

- Terminal Doppler Weather Radar – Service Life Extension Program, W03.03-01

Program Description

The primary mission of the TDWR is to enhance the safety of air travel through timely detection, reporting, and display of hazardous weather conditions—wind-shear events, microburst and gust fronts, and thunderstorms—in and near an airport’s terminal approach and departure zone. TDWRs are installed at higher-density airports with high occurrences of thunderstorms, and provide controllers current information on severe weather so that they can issue warnings to pilots. TDWRs are operational at 46 airports. TDWR weather data is also fed downstream to FAA automation systems that benefit capacity, and to an increasing number of National Weather Service weather forecast offices.

The TDWRs were installed in the 1990s, and many of the components of the existing system require replacement to ensure these radars are available during severe weather conditions. The antenna drive systems need rebuilding; the computer processors are out of date; and several other components need to be upgraded and modernized. The planned upgrades in this service life extension program are scheduled to be completed in 2013.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1 –** Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1 –** Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The TDWR SLEP contributes to safety goals by continuing TDWR service, improving TDWR software architecture integration, and replacing old components with more reliable components, all of which will enable the TDWR to reliably operate nearer to the end of service life goal (2025).

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1 –** Achieve Operational Excellence.
- **SMP Objective #1.6 –** Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Install TDWR Radar Data Acquisition (RDA) Retrofit Units at 9 operational sites.
- Install TDWR Elevation Gears, Bearings and Lube Stations at 6 operational sites.
- Install TDWR Brushless Antenna Drive Motors at 5 operational sites.

Program Plans FY 2009-2012 – Performance Output Goals

- FY2009 – Modify 18 sites with production RDA mod kits. Modify 6 sites with new elevation bearings and lube stations. Procure last 27 (includes 4 for depot spares) production antenna drive systems and install 10 of them.
- FY2010 – Modify 18 sites with RDA production mod kits; modify 6 sites with new elevation bearings and lube stations; install 10 antenna drive systems.
- FY2011– Modify 6 sites with new elevation bearings and lube stations; install 10 antenna drive systems; install last two RDA production mod kits.
- FY2012 – Modify 6 sites with new elevation bearings and lube stations; install 10 production antenna drive systems.

System Implementation Schedule

- RDA Retrofit
 - Complete last modification in FY2011
- Elevation Drive Enhancement
 - Complete last modification in FY2013
- Brushless Drive Motors and controllers
 - Complete last modification in FY2013

2B03, STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS) (TAMR PHASE 1)

FY 2008 Request \$31.2M

- Standard Terminal Automation Replacement System – Technical Refresh, A04.01-01
- Standard Terminal Automation Replacement System – Terminal Enhancements, A04.01-02

Program Description

The STARS is a joint Department of Defense and Department of Transportation (FAA) program to modernize our nation’s terminal air traffic control systems. The STARS is a digital processing and display system that replaces the aging air traffic control equipment at our Automated Radar Terminal System (ARTS) IIIA and other high activity Terminal Radar Approach Control (TRACON) facilities and airport air traffic control towers. Air traffic controllers use the STARS automation and displays to ensure the safe separation of military and civilian aircraft, at several airports within the nation’s airspace. This investment is part of a phased approach to modernizing our terminal air traffic control equipment. The program updates existing TRACONs and towers with state-of-the-art systems featuring large-screen, high-resolution, color displays, and is expandable to accommodate future air traffic growth and new hardware and software. STARS addresses technology, mobility, and security gaps with the existing systems.

As in any commercial-off-the-shelf (COTS)-based system, an aggressive hardware “technology refreshment” program is absolutely essential. Planning for technology refreshment enables identification and qualification of affected components before they become inoperable due to obsolescence. For example, the processor currently used in STARS is no longer available from the manufacturer. The consequences of obsolescence have collateral implications in the areas of engineering, training, maintenance and many other disciplines.

On April 20, 2004, the FAA Joint Resources Council (JRC) directed a phased approach to terminal automation modernization. The JRC approved STARS as a replacement for 47 critical site systems within three years. Thus, the current scope of the STARS program is to deploy systems to the remaining designated sites, and sustain and enhance those systems at the 47 sites.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

As of June 30, 2006, STARS had an adjusted equipment availability of 99.998% at all 43 operational sites. (Source: National Outage Database) STARS is fully operational at 16 (out of a total of 35) OEP airports, with plans to deploy to 3 additional sites during FY 2007. In addition to high availability, STARS has an improved controller data display and data manipulation capabilities, enabling controllers to increase aircraft density without compromising safety.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- By the end of FY 2008, at least 46 of the 47 STARS will be operational within the NAS. (Note: 1 site deployment is still pending availability of new facility.)
- Complete initial phase of the system processor and peripheral equipment qualification and purchase.
- Complete path finding and qualification for a terminal controller workstation display monitor replacement, tower controller monitor replacement, and to eliminate costly inter-dependency of the system processors and operating system.
- Complete qualification of “pop-up” end of life hardware items.
- Develop STARS software enhancements to improve system performance, efficiency, ease of use, and support.

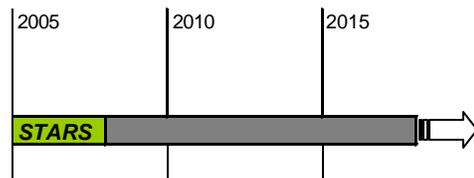
Program Plans FY 2008 – 2011 - Performance Output Goals

- Continue to sustain and enhance the operational STARS systems and implement technology refreshment as necessary.

System Implementation Schedule

Standard Terminal Automation Replacement System (STARS)

First site IOC: October 2002 -- Last site IOC: September 2007



2B04, TERMINAL AUTOMATION MODERNIZATION/ REPLACEMENT PROGRAM (TAMR PHASE 2)

FY 2008 Request \$6.8M

- Terminal Automation Modernization Replacement (TAMR) – Phase 2, A04.05-00
- Terminal Automation Modernization Replacement (TAMR) – Phase 2 Tech Refresh, A04.05-02
- Terminal Automation Modernization/Replacement (TAMR) – Phase 3, A04.07-01

Program Description

Terminal automation systems are essential for supporting the fast tempo of operations at our nation's busiest airports. The automation systems rely on information from radar and weather sensors, along with flight plan information for each aircraft to safely and efficiently maintain aircraft separation at or near airports.

The Terminal Automation Modernization and Replacement program provides a phased approach to modernizing the automation systems at the FAA's Terminal Radar Approach Control (TRACON) facilities and their associated Air Traffic Control Towers (ATCT) throughout the NAS. Phase 2 of the TAMR Program addresses the operational shortfalls at nine (9) sites. This Phase includes: replacement of Automated Radar Terminal System (ARTS) IIE systems with STARS at 5 sites - West Palm Beach, FL; Pensacola, FL; Anchorage, AK; Corpus Christi, TX; and, Wichita, KS; and, modernization of outmoded Full Digital Automation Displays (FDAD) at 4 ARTS IIIIE sites - Chicago, IL; Denver, CO; Minneapolis/St. Paul, MN; and, St. Louis, MO. Upon completion of this Phase, the replaced/modernized systems will provide state-of-the-art digital radar and flight data processing as well as color display systems that will provide additional functionality and support the projected growth in air traffic capacity demands. Color displays provide a significant improvement for air traffic controllers in determining weather intensity.

TAMR Phase 3, when approved, would begin the modernization/replacement of automation systems at the remaining 106 TRACONS not being addressed by the investments in other phases of the program. The FAA will continue to sustain the automation systems at these sites while monitoring system performance to identify any deterioration in service for these systems. Planning and business case development for TAMR Phase 3 will begin in 2009 with future activities pending a JRC decision.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to FAA Performance Target

By providing state-of-the-art equipment, outages are reduced, thereby reducing delays at four (4) ARTS IIIIE sites and the associated airports.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Complete deployment of hardware and software to the four ARTS IIIIE, FDAD sites in Chicago, Denver, Minneapolis, and St. Louis.
- Complete deployment of replacement automation systems to the five ARTS IIE sites.

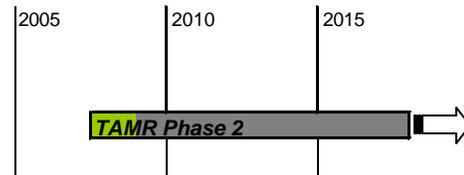
Program Plans FY 2009-2012 – Performance Output Goals

- Transition all nine sites to Operations budget.
- Begin planning, investment analysis, and business case development activities for Phase 3 to address performance shortfalls at the remaining 106 ARTS sites.
- Develop acquisition strategy and award contract(s) to perform a technology refresh of the system hardware/software.
- Complete design/development of technology refresh solutions and begin deployment to the nine sites.

System Implementation Schedule

Terminal Automation Modernization/Replacement (TAMR Phase 2)

First site IOC: 2007 -- Last site IOC: 2008



2B05, TERMINAL AUTOMATION PROGRAM
FY 2008 Request \$2.3M

- Flight Data Input/Output (FDIO) Replacement, A01.11-01

Program Description

Flight Data Input/Output (FDIO) equipment provides standardized flight plan data, safety related data, and other information to Air Traffic controllers at Terminal Radar Approach Control (TRACON) and Air Traffic Control Tower (ATCT) facilities. FDIO prints flight data information on paper strips to assist controllers in tracking aircraft and anticipating the arrival of aircraft in the sector under their control.

The FDIO equipment operates on older 1980s technology that is becoming unsupportable. Over 500 ATCTs and TRACON facilities have FDIO equipment. The on-going FDIO Replacement program replaces the end-of-life/obsolete/near obsolete FDIO equipment with fully compatible (form/fit/function) commercial off-the-shelf (COTS) equipment. The FDIO Replacement configuration provides redundancy by installing 2 Remote Control Units (RCUs). New thermal printers replace the aging 9 pin dot matrix printers. It also includes an extensive lightning protection configuration that provides grounding for all FDIO peripherals, which prevents damage to the FDIO system.

Additionally, the FAA FDIO Replacement program provides acquisition and engineering support to Department of Defense (DOD) facilities with FDIO equipment in accordance with memoranda of agreement.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2010.

Relationship to Performance Target

The FDIO program replaces end-of-life, obsolete FDIO equipment with modern COTS equipment, thereby reducing potential outages and delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Continue to procure hardware and software for 30 systems to replace equipment in the field.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue to procure hardware and software for FDIO systems.

2B06, TERMINAL AIR TRAFFIC CONTROL FACILITIES – REPLACE

FY 2008 Request \$150.6M

- Airport Traffic Control Tower (ATCT)/Terminal Radar Approach Control (TRACON) Establish/Sustain/Replace – ATCT/TRACON Replacement, F01.02.00

Program Description

The FAA provides air traffic control services from more than 500 ATCT and TRACON facilities and must continually replace these buildings to ensure an acceptable level of air traffic control services and to meet current and future operational requirements. The average age of control towers is 27 years, and some are 60 years old. As the volume and complexity of terminal air traffic control increases, so does the need to have additional positions in the ATCT/TRACON facilities (i.e., helicopter positions, Visual Flight Rule traffic advisories, runway monitors, etc.). Control towers built 20 years ago often do not meet today's operational requirements. In addition, terminal facilities must conform to current building codes and design standards.

ATCT/TRACON facilities that cannot meet present-day operational requirements are being replaced. New facilities will accommodate future growth, current building codes, and design standards. The FAA will fund terminal facility replacement programs in six phases to provide sound financial management of these projects. Phase 0 includes investment analysis and requirements development; phase I includes site selection and advanced engineering; phase II incorporates facility equipment design and procurement, environmental studies, and site adaptation; phase III is facility construction; phase IV continues funding for equipment installation and utilities installation; and phase V funds demolition of the old tower or TRACON being replaced and restoration of the old site.

Relationship of Program to FAA Strategic Goal, Objective and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The Terminal Air Traffic Control Facilities program contributes to the FAA greater capacity goal by replacing ATCTs and TRACONs to meet current and future operational requirements. Some replacements are required to accommodate growth in air traffic; others are needed to provide added space for new equipment; and, in some cases, the tower must be replaced to ensure that controllers have an unobstructed view of the runways and taxiways. The average control tower is 27 years old, and as volume and complexity of terminal air traffic control increases, so does the requirement for additional positions in ATCT/TRACON facilities.

New and replacement facilities support the FAA capacity goal: to provide a system that meets or exceeds air traffic demand. Strategic location, adequate height, and cab size of an airport traffic control tower will provide an efficient working environment, enable controllers to achieve an aerial view of the airport, and enable them to see aircraft at the outer aircraft movement areas.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Complete planning and design at seven sites.
- Start construction at six sites.
- Continue construction at thirteen sites.
- Equipment installation and commissioning six sites.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue siting studies, design, site work, construction, electronic design, electronic installation, and decommission and restoration.
- Provide Other Transaction Agreement support. [The FAA recommends that an airport sponsor construct a usable facility with funds provided through the Other Transactions Agreements (OTA) process. The OTA process allows the FAA to turn over the project management – and the funds appropriated for the project – to the airport sponsor for execution of the proposed facility.]

2B07, ATCT/TERMINAL RADAR APPROACH CONTROL (TRACON) FACILITIES – IMPROVE

FY 2008 Request \$47.0M

- A, ATCT/TRACON Establish/Sustain/Replace – ATCT/TRACON Modernization, F01.01-00
- B, Advanced Facility Planning, F02.10-00

A, ATCT/TRACON ESTABLISH/SUSTAIN/REPLACE – ATCT/TRACON MODERNIZATION, F01.01-00

Program Description

The FAA must continually upgrade and improve terminal facilities and equipment to provide an acceptable level of service and to meet current and future operational requirements. Improvements include replacing facility components that are deteriorating such as: roofs, air conditioners, tower cab consoles; undersized generators and environmental equipment. In addition to the renovation projects, modernization includes facility upgrades such as adding operating positions for controllers and training space, rehabilitating administrative and equipment space to accommodate facility expansion, and expanding base-buildings to support current and future demand.

ATCT/TRACON facilities have also had to be modernized to address additional operational and safety requirements, including upgraded visibility of the entire airport surface, accessibility, hazardous materials, seismic, and security requirements that didn't exist when they were constructed. Facility improvements must be completed with minimal impact on existing operations. An initial evaluation by the U.S. Army Corps of Engineers found that a number of FAA ATCT/TRACON facilities do not meet current seismic code criteria. This program has initiated building improvements to bring the facilities up to a level to withstand a seismic event by complying with Executive Order 12941 that mandates compliance with the Interagency Committee on Seismic Safety in Construction seismic standards and the "DOT Policy for Seismic Safety of New and Existing DOT Owned or Leased Buildings".

Relationship of Program to FAA Strategic Goal, Objective and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The ATCT/TRACON Modernization program upgrades and improves facilities to support the NAS. This program will enable facilities to meet current operational, environmental, and safety needs economically instead of replacing or relocating the entire facility. This effort will result in a smooth and orderly transition of new equipment into FAA terminal facilities, minimizing disruption of the operating system. This program will also improve the operational efficiency and environmental systems of obsolete and deteriorated ATCT/TRACON facilities. The improvements to facility infrastructure such as electrical distribution systems, heating and air-conditioning, and structural problems would extend service life of facilities and minimize outages that would delay air traffic.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Conduct planning projects (e.g., Life Cycle Assessments, Conditions Assessments, etc.) to determine requirements.
- Initiate 65 new projects to improve, repair, and sustain infrastructure at ATCT/TRACON facilities.
- Conduct analysis on the longer-term plans for facilities.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue facility sustainment, repair, and modernization work within available funding.
- Initiate 65 modernization related projects in FY 2009.
- Initiate 65 modernization related projects in FY 2010.
- Initiate 70 modernization related projects in FY 2011.
- Initiate 70 modernization related projects in FY 2012.

B, ADVANCED FACILITY PLANNING, F02.10-00

Program Description

The Advanced Facility Planning program provides funding for studies to identify operational needs and opportunities for modernization, expansion, replacement, or consolidation of terminal air traffic control facilities.

These funds are used for cost/benefit analyses, cost effectiveness analyses, environmental, human resource requirement studies, and studies to determine solutions to capacity and delay issues and contractor support and services in support of these studies.

This program analyzes the mapping/right sizing of the NAS facilities. Currently the FAA infrastructure costs are crowding out investments in expanded and more efficient facilities. Not just physical plant alternatives need to be studied, but also organization of workload distribution and location of new facilities. This program does the upfront analysis to determine the correct configuration of a facility, (separate new, refurbish old; collocate with other facility, consolidation) using considerations such as risk to service. Identifying the correct investment alternative can reduce costs and improve efficiency.

Relationship of Program to FAA Strategic Goal, Objective and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

These activities identify opportunities for reallocation of air traffic roles and responsibilities resulting in increased productivity. Additional activities are focused on decreasing infrastructure costs thus directly improving the cost efficiency metric.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008 – Performance Output Goals

- Investment analysis/staff studies for facility replacement/co-location/consolidation as required.
- Facilities Evolution – Conduct analysis of standard controller workstation based on the changes in service providers' roles.
- Conduct Business Continuity Planning analysis for terminal operations.

Program Plans FY 2009-2012 – Performance Output Goals

- Investment analysis/staff studies for facility replacement/co-location/consolidation as required.
- Facilities Evolution – Continue analysis of standard controller workstation based on the changes in service providers' roles.
- Expand Business Continuity Planning analysis.

2B08, TERMINAL VOICE SWITCH REPLACEMENT (TVSR)/ENHANCED TERMINAL VOICE SWITCH (ETVS)

FY 2008 Request \$12.3M

- Voice Switches – Terminal Voice Switch Replacement (TVSR), C05.02-00

Program Description

The ongoing TVSR program involves replacing the aging, obsolete voice switches in the Air Traffic Control Towers and Terminal Radar Approach Control facilities. Voice switches enable air traffic controllers to communicate with aircraft as well as other air traffic control facilities. The TVSR program ensures that controllers continue to have reliable voice communications in the terminal environment. The program consists of several multiyear equipment contracts for voice switches, including; Small-Tower Voice Switches, Enhanced Terminal Voice Switches, Rapid Deployment Voice Switches model IIA, Voice Switch Bypass Systems, and Interim Voice Switch Replacement. To date, this program has replaced 368 (189 small and 179 large) of 421 terminal switches throughout the NAS. The program also provides the contract vehicles for the FAA to procure voice switch equipment for new and modernized terminal facilities.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The TVSR program supports the greater capacity goal by improving system reliability of terminal voice communications by replacing aging electronic switches with modern digital equipment. This reduces outages and prevents delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Deliver 10 new voice switches to terminal facilities.

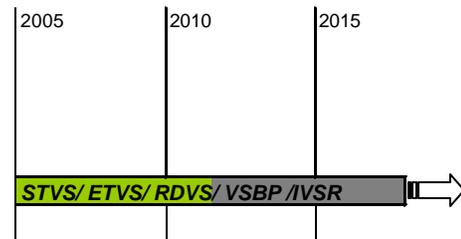
Program Plans FY 2009-2012 – Performance Output Goals

- Deliver terminal voice switches at the rate of 10 per year to various FAA terminal facilities until program total reached.

System Implementation Schedule

Small-Tower Voice Switches (STVS), Enhanced Terminal Voice Switches (ETVS), Rapid Deployment Voice Switches (RDVS) model IIA, Voice Switch Bypass Systems (VSBP), and Interim Voice Switch Replacement (IVSR)

First site IOC: 1994 (2006) -- Last site IOC: 2011



2B09, NAS FACILITIES OSHA AND ENVIRONMENTAL STANDARDS COMPLIANCE

FY 2008 Request \$26.0M

- NAS Facilities OSHA & Environmental Standards Compliance - NAS Facilities OSHA, F13.03-00
- Environmental and Occupational Safety and Health Compliance and Fire/Life Safety for Airport Traffic Control Towers, F13.03-00

Program Description

Safety and health concerns at FAA facilities have resulted in regulatory actions against the FAA and disruptions to NAS operations. Monthly, there are about ten to twenty disruptions of NAS operations reported to the National Operations Control Center involving environmental and occupational safety and health (EOSH) issues. In 2003, the Environmental Protection Agency (EPA) fined the Mike Monroney Aeronautical Center \$67,210 for Resource Conservation and Recovery Act violations related to hazardous waste handling. In addition, EPA imposed a \$99,000 fine on the William J. Hughes Technical Center for Clean Air Act violations. The FAA Administrator signed an agreement with OSHA to upgrade 385 airport traffic control towers by FY 2009 to meet OSHA standards of fire/life safety. One of the drivers of the program as promoted in the Agency's strategic plan, "The FAA Flight Plan" is to reduce injury and illness

cases by 3% per year from the 2003 baseline. This program implements Executive Orders 12088 and 12196, 32 public laws and negotiated labor agreements in occupational safety and health, environmental and fire/life safety in accordance with Executive Order 12902 and the 1992 Energy Policy Act. The result of fully compliant EOSH programs will be a safe, healthful, and environmentally sound work place.

The Fire/Life Safety program implements fire/life safety upgrades at Airport Traffic Control Towers. Additionally, it develops fire prevention plans and trains tower occupants, resident engineers, maintenance technicians and employees on maintenance requirements for new systems.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 1** – Make the organization more effective with stronger leadership, increased commitment of individual workers to fulfill organization-wide goals, and a better prepared, better trained, safer, diverse workforce.
- **FAA Performance Target 3** – Reduce the total workplace injury and illness case rate to no more than 2.76 per 100 employees by the end of FY 2007, representing a cumulative 3 percent annual reduction from the FY 2003 baseline (3.12) set in the Safety, Health and Return to Employment (SHARE) Presidential Initiative.

Relationship to Performance Target

This program supports the Organizational Excellence goal by implementing Executive Orders, public laws, and negotiated labor agreements that address occupational safety and health, environmental issues and fire/life safety requirements.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Initiate fire/life safety upgrades for 24 ATCTs.
- Perform system hazard analysis on at least one new/emerging NAS system.
- Support acquisition management organizations by providing Occupational Safety and Health (OSH) and environmental technical assistance on five systems.
- Finalize existing EOSH training standards into uniform course titles.
- Establish consistent annual OSH inspection information for selected NAS facilities.
- Develop national Arc Flash analysis and implementation guidance.
- Develop implementation guidance for fall protection program with respect to rescue from heights.
- Conduct at least one field review for hearing conservation program.
- Conduct at least one indoor air quality program field review.
- Conduct at least one environmental compliance program field review.
- Continue to perform safety hazard analyses on NAS in-service equipment.
- Continue implementing written safety programs.
- Conduct quality assurance/quality control evaluation of EOSH Program implementation in at least one Service Area.

Program Plans FY 2009-2012 – Performance Output Goals

- Initiate fire life safety upgrades for 100 ATCTs.
- Perform system hazard analysis on at least one new/emerging NAS system per year.
- Support acquisition management organizations by providing OSH and environmental technical assistance on five systems per year.
- Prepare course materials for at least one EOSH course with a uniform course title per year.
- Establish consistent annual environmental inspection information for selected NAS facilities.
- Implement national Arc Flash analysis implementation guidance.
- Implement implementation guidance for fall protection program with respect to rescue from heights.
- Conduct at least one field review for hearing conservation program per year.
- Conduct at least one indoor air quality program field review per year.
- Conduct at least one environmental compliance program field review per year.
- Continue to perform safety hazard analyses on NAS in-service equipment.
- Continue implementing written safety programs.
- Conduct quality assurance/quality control evaluation of EOSH Program implementation in at least one Service Area per year.

2B10, AIRPORT SURVEILLANCE RADAR (ASR-9)

FY 2008 Request \$6.3M

- Terminal Radar (ASR) Program – ASR-9/Mode S SLEP, Phase 1A, S03.01-04
- Terminal Radar (ASR) Program – ASR-9/Mode S SLEP, Phase 1B, S03.01-05

Program Description

The ASR-9 and Mode S surveillance systems were designed and fielded in the 80's/90's and are quickly reaching the end of their service life. Studies conducted in 2000 – 2003 revealed that continued investment is required to sustain the current level of surveillance services provided by these systems. The results of an investment analysis conducted in November 2003 indicated that a Service Life Extension Program (SLEP) for both systems was the preferred solution. The FAA developed a multi-phased strategy that addresses critical, near-term sustainment issues, identified as those elements that represent immediate, serious risk to this service (Phase 1).

The first phase has been further segregated into two segments: Phase 1, Segment A; and Phase 1, Segment B. A final investment decision was approved for Phase 1, Segment A in September 2004, which will implement modifications to the ASR-9 antenna at selected sites to mitigate the risk of structural collapse, while addressing OSHA issues and replacing the obsolete control and monitoring equipment at all sites. A final investment decision was approved for Phase 1, Segment B in June 2005, which will implement modifications to the ASR-9 transmitter at all sites to improve the reliability and maintainability of these systems.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The ASR program contributes to the goal of greater capacity by maintaining existing airport capacity and meeting future air traffic demands. The ASR-9 serves the airports with high activity levels and will not be replaced by the ASR-11. The Sustainment projects being performed will address the most critical

performance issues in order to improve system reliability, thus preventing delays due to radar outages at the high activity airports.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

Phase 1A

- Continue installation of external antenna modification kits at ASR-9 operational sites.

Phase 1B

- Complete operational testing and evaluation of the ASR-9 transmitter modification.
- Commence installation of the ASR-9 transmitter modification at operational sites.

Program Plans FY 2009-2012 – Performance Output Goals

Phase 1A

- Complete installation of external antenna modification kits at ASR-9 operational sites.

Phase 1B

- Continue and complete ASR-9 transmitter modification installations.

System Implementation Schedule

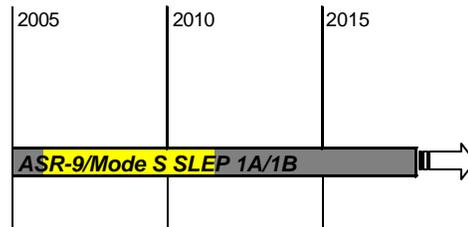
Phase 1A: ASR-9/Mode S External Modifications.

Phase 1B: ASR-9 Transmitter Modification.

Airport Surveillance Radar - Model 9 (ASR-9) / Mode Select (Mode S) Service Life Extension Program (SLEP) Phase 1A/1B

Phase 1A: First site ORD: January 2006 -- Last site ORD: January 2009

Phase 1B: First site ORD: March 2008 -- Last site ORD: February 2011



2B11, TERMINAL DIGITAL RADAR (ASR-11)

FY 2008 Request \$20.3M

- Terminal Radar (ASR) Program – ASR-11 – ASR-7/ASR-8 Replacement, DoD Takeover, New Establishments, S03.02-01
- Terminal Radar (ASR) Program – ASR-11 – Tech Refresh, S03.02-04

Program Description

The ASR-11 radar system replaces the aging ASR-7/8s and Air Traffic Control Beacon Interrogator (ATCBI) - Model 4/5s with a single, integrated digital primary and secondary radar system. The ASR-11 radar interfaces with legacy automation systems, as well as digital automation systems.

The ASR-11 radar system also provides six-level National Weather Service calibrated weather capability. This six-level weather data presented on air traffic control displays will result in significant improvement in situational awareness for both controllers and pilots for weather in the proximity of the airport. This weather capability is not available with the existing ASR-7/8 radar systems.

The ASR-11 radar program will also replace the aging infrastructure with new radar support equipment and building modifications, including advanced grounding/bonding and lightning protection systems, digital or fiber optic telecommunications, emergency backup power supplies, and enhanced physical security.

Beginning in FY 2009 the Technology Refresh effort will start replacing and upgrading known obsolete ASR-11 commercial off-the-self (COTS) hardware and software to ensure the continued operation of the radar system through its designated lifecycle. The effort will replace the obsolete hardware cards within the signal data processing card rack with the Advanced Signal Data Processor (ASDP). The ASDP reduces the number of processing cards from 14 to 3.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to FAA Performance Target

The ASR-11 radar system provides improved reliability and maintainability compared to existing legacy ASR-7/8 systems. The ASR-11 system provides technology that will improve mean time to repair and mean time between outage performances over the existing ASR-7/8 and ATCBI-4/5 systems. The resulting improvement in operational availability, due to the reduced number of occurrences and duration of outages, will reduce aircraft delays that result from these outages. The reduction in aircraft delays will in turn reduce the cost to the airlines and flying public.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Deliver 6 ASR-11 systems.
- Complete Initial Operating Capability of systems at 12 sites.
- Procure 3 site constructions.
- Procure 13 demolitions/restorations.
- Start demolition/restorations at 13 legacy ASR-7/8 system sites.

Program Plans FY 2009-2012 – Performance Output Goals

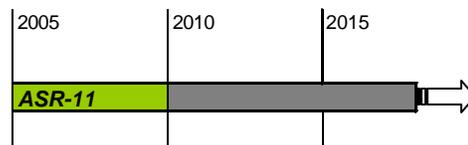
- Complete Initial Operating Capability of ASR-11 systems at 14 sites.
- Procure 13 demolition/restorations.
- Start demolition/restorations at 22 legacy ASR-7/8 system sites.
- Begin procurement and installation of 66 ASDP retrofit kits.

System Implementation Schedule

Airport Surveillance Radar - Model 11 (ASR-11)

First site ORD: December 2003 -- Last site ORD: September 2009

First Site Decom: December 2023 -- Last Site Decom: September 2029



2B12, DoD/FAA FACILITIES TRANSFER

FY 2008 Request \$1.3M

- DoD/FAA ATC Facility Transfer/Modernization – Original Program, F04.01-00

Program Description

This program takes the necessary steps to accept transfers of Department of Defense (DoD) airspace and military air traffic control facilities to the FAA. Modernization of legacy military systems is essential to ensure they meet NAS requirements. For each transfer/modernization, the FAA must engineer, construct, install, certify, and commission existing and modernized NAS systems. Types of systems modernized by the program include: communications, weather surveillance, navigation, power, automation, and security. For example, ongoing project activities at El Toro, California include:

- Relocate Emergency Communications System to another site;
- Relocate Data Distribution Hub, Engine Generator, and Uninterruptible Power Supply to another site;
- Replace the Fiber Optic Transmission System and FAA owned copper cable with a Federal Telecommunications Infrastructure (FTI) Minimum Point Of Entry system;
- Replace the FAA owned copper cable with a new Federal Telecommunications Infrastructure (FTI) Minimum Point Of Entry. Replace 1 mile of FAA owned power poles with 400 feet of below ground electrical power conduits; and
- Decommission FAA owned power poles and power cables after transfer to commercial power service grid.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

This program increases capacity to the air traveling community and enhances the reliability of legacy air traffic control (NAS) equipment acquired by facility transfers. It also provides modernization of legacy military systems in the NAS, and sustains adjusted operational availability for the reportable facilities that support the 35 OEP airports.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plan FY2008 – Performance Output Goals

- Continue engineering and installation of a new power distribution system at El Toro, California.
- Execute a flight inspection at Bermuda per the FAA/Government of Bermuda memorandum of cooperation, AIA/CA-79.

Program Plan FY2009-2012 – Performance Output Goals

- Continue El Toro, California modernizations.

2B13, PRECISION RUNWAY MONITOR

FY 2008 Request \$9.0M

- Precision Runway Monitor (PRM) – Multilateration Technology, S08.01-01

Program Description

The PRM system is a highly accurate electronic scan (e-scan) radar that tracks and processes aircraft targets at a 1-second update rate (as opposed to 4.8 seconds with conventional radars). The PRM system provides controllers with automatic alerts and high-resolution displays that, in conjunction with specific procedures, enables pilots to fly simultaneous independent approaches to parallel runways spaced less than 4,300 feet apart during Instrument Meteorological Conditions. Without PRM, these closely-spaced parallel runways can be used for simultaneous independent approaches only during Visual Meteorological Conditions. The inability of pilots to conduct such approaches during adverse weather reduces throughput and increases delays.

Initially, five candidate airports with closely spaced (750 feet to 4,300 feet) parallel runways were selected to receive production PRM systems. The contract was awarded in March 1992 for five production PRM systems, associated site and depot spares, and site installations. To date, all the systems have been manufactured and procured under this contract. The City of San Francisco procured a sixth system for the San Francisco International Airport. PRM systems have been installed and commissioned at Minneapolis, St. Louis, Philadelphia, New York, San Francisco, and Cleveland. Due to operational issues, the New York system was removed and used to resolve supportability issues with the other five systems. The Cleveland PRM installation, as well as three additional system installations for Atlanta, Detroit, and another airport site yet to be determined, was mandated by Congress in FY 2003. To support the Atlanta Hartsfield airport triple approach operation planned for FY 2007, the FAA awarded Raytheon in January 29, 2005 a new contract to procure, install, and checkout one additional PRM system.

PRM-A is an integration of PRM with two other existing NAS systems: Airport Surface Detection Equipment—Model X (ASDE-X) and Standard Terminal Automation Replacement System (STARS). The basic purpose is to integrate airport surface and arrival management by controllers in a fully coordinated, safe and efficient system. Since 2003 Congress has provided language and funding (starting in 2005) for the FAA to “develop and implement the multilateration technology at [Detroit Metro Wayne County Airport (DTW)] on an accelerated basis.” The FAA also determined that an operational need for precision runway monitoring to support triple simultaneous approaches exists at DTW. In 2005, the FAA Joint Resources Council recommended approval of the plan to install ASDE-X at 35 airports, including DTW, and in November 2005, the FAA issued a press release including DTW as one of 14 major airports to receive ASDE-X. Accordingly, in December 2005, the ASDE-X and PRM Program Offices announced that DTW will be a coordinated ASDE-X implementation with PRM enhancement.

Relationship of Program to FAA Strategic Goal, Objective, and Performance

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1 -** Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1 –** Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

The PRM program supports the FAA greater capacity goal by allowing more aircraft to land during Instrument Meteorological Conditions at airports with closely spaced parallel runways. Normally, the capacity of an airport to handle arriving aircraft is reduced when visibility is restricted, which results in delays. PRM provides a high update rate radar capability that feeds a very accurate display of respective aircraft positions, enabling controllers to ensure that simultaneous independent approaches to parallel runways less than 4,300 feet apart are safe during low visibility conditions. Aircraft approaching an airport

without PRM during low visibility conditions must be alternated along parallel approach paths, which diminishes the airport's effective capacity and causes delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Complete Detroit PRM-A Site Acceptance Test.

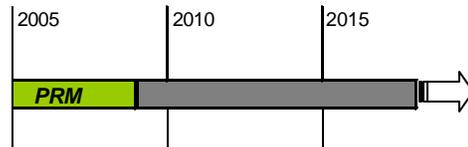
Program Plan FY 2009-2012 – Performance Output Goals

- Complete Detroit PRM-A Operational Test.
- Achieve IOC, ORD, and Commissioning of Detroit PRM-A.

System Implementation Schedule

Precision Runway Monitor (PRM)

First site IOC: 1997 -- Last site IOC: 2008



2B14, RUNWAY STATUS LIGHTS (RWSL)

FY 2008 Request \$5.3M

- Runway Status Lights (RWSL), S11.01-01

Program Description

The RWSL use airport surveillance sensors (ASDE-X, ASDE-3, and ASR-9) and safety logic to improve pilot situational awareness in the airport operating areas. The system includes two types of in-pavement lighting indicators to improve situational awareness. The first type of lighting indicators are Runway Entrance Lights which advise pilots when the runway is unsafe for entry or crossing at that location. The second type of lighting indicators are Take-off Hold Lights which advise pilots when the runway is unsafe for take-off due to traffic on the runway or about to enter the runway.

Relationship of Program to FAA Strategic Goal, Objective, and Performance

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 3** - Reduce the risk of runway incursions.
- **FAA Performance Target 1** – By FY 2010, reduce Category A and B (most serious) runway incursions to a rate of no more than 0.450 per million operations and maintain through FY 2011.

Relationship to Performance Target

The FY 2004 reported number of A and B incursions - 28 – represents a rate of 0.440 per million operations. FY 2005 runway incursion status reporting shows 27 category A and B incursions through August 31 – this equates to a rate of 0.470 per million operations. The overall year to date trend suggests an increasing rather than decreasing rate and while the numbers are not statistically conclusive their volatility suggests that additional effort is required to ensure that the Flight Plan performance target is achieved. The establishment of additional installations to accrue incremental RWSL functionality will contribute toward the accomplishment of the Flight Plan performance target.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Continue the implementation at the 5 sites.

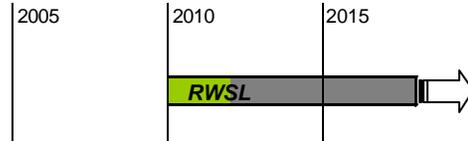
Program Plan FY 2008-2011 – Performance Output Goals

- Continue implementation.

System Implementation Schedule

Runway Status Lights (RWSL)

First site IOC: 2010 -- Last site IOC: TBD



2B15, NATIONAL AIRSPACE SYSTEM VOICE SWITCH (NVS)

FY 2008 Request \$3.0M

- National Airspace System (NAS) Voice Switch, C05.03-01

Program Description

The NAS Voice Switch (NVS) will be a real-time, critical part of the ATC infrastructure that provides the connectivity for efficient communications among air traffic controllers, pilots, and ground personnel. ATC communications service affects safety, traffic flow capacity, and efficiency. The NVS will replace the service that is currently provided by 17 different voice switch system configurations. The focus will be on designing a replacement switch with standardized components that will reduce duplication of functions and existing costs among the many systems providing ATC communications. A common architecture platform is currently being developed to reduce maintenance and parts inventory costs.

The current switch technology will not support the expected future NAS operations of either reduced facilities or such concepts as dynamic re-sectorization and off-loading during non-peak operations. The NVS will support current and future ATC operations as envisioned by both government and industry forecasters.

Relationship of Program to FAA Strategic Goal, Objective, and Performance

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

Voice switches provide a critical function to ATC communications by configuring and controlling communications between and among ATC service providers and users. ATC communications service affects safety, traffic flow capacity, and efficiency. The NVS program supports the greater capacity goal by improving the system reliability of voice communications for both current and future operations by replacing and upgrading the obsolete, non-supportable hardware and software. The NVS program will also be capable of being flexible to support reduction of the number of facilities and the resulting work load adjustments.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure viable future.
- **SMP Objective #4.2** – Deliver a future air traffic system that meets customer’s operational needs.

Program Plans FY 2008 – Performance Output Goals

- Complete investment analysis activities.
- Achieve executive decision to initiate program.

Program Plans FY 2009-2012 – Performance Output Goals

- Initiate industry prototyping.
- Finalize solution analysis and costing.
- Achieve JRC decision to proceed with program.
- Start source selection.
- Complete industry prototyping.
- Award contract.
- Initiate development of system.

2B16, WEATHER SYSTEMS PROCESSOR (WSP)

FY 2008 Request \$4.1M

- ASR Weather Systems Processor (ASR-WSP) – Technology Refresh/Product Improvement W09.01-00

Program Description

The Airport Surveillance Radar (ASR) WSP improves safety by providing wind shear and severe weather alerts for ATC tower and TRACON controllers. WSP uses the ASR-9 search radar for weather information. It generates microburst and windshear alerts, detects precipitation, and predicts gust fronts and storm-cell motion before they impact runway/flight operations. The FAA installed WSPs at 34 medium-sized, ASR-9 equipped airports in lieu of the more expensive Terminal Doppler Weather Radar. All 34 WSPs became operational between 1999 and FY 2005. After seven years of service life, many commercial components of the WSP have been discontinued. Replenishment studies estimate service will be lost due to a lack of spare parts within three years unless new commercial sources of spares are qualified, additional parts procured and computer technology refreshed. The first phase of the technology refresh program begins in FY 2007 and will replace failing and obsolete hardware, enabling the system to operate until 2013. Completion of Phase I is expected in FY10. Phase II will address the remainder of WSP service life issues.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011

Relationship to Performance Target

Wind shear is a known cause of fatal aviation accidents. The WSP warns air traffic controllers of wind shear and microburst events throughout the terminal area so that pilots can be informed and take action to avoid them in the air, on arrival and upon departure. Additional benefits to safety and capacity accrue through WSP gust front and storm motion predictions that allow both ATC tower and TRACON to coordinate responses to traffic flow changes during hazardous weather.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Implement Phase I Technology Refresh at 17 sites (plus five support sites).

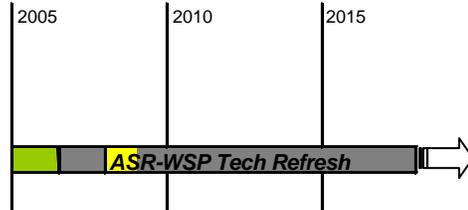
Program Plans FY 2009-2012 – Performance Output Goals

- Complete Phase I Technology Refresh at the balance of 17 sites.

System implementation schedule and replacement system name

Airport Surveillance Radar (ASR) Weather Systems Processor (ASR-WSP) – Technology Refresh/Product Improvement

First site ORD: 2008 -- Last site ORD: 2009



2B17, VOICE RECORDER REPLACEMENT PROGRAM (VRRP)

FY 2008 Request \$5.9M

- Voice Recorder – Next Generation Voice Recorder Replacement Program (NGVRRP), C23.01-00

Program Description

The NAS System Requirements Document (NAS-SR-1000) requires that both air-to-ground (A/G) and ground-to-ground (G/G) communications be recorded and stored for later retrieval. This applies to all ATC domains, including Air Traffic Control Towers (ATCT), Terminal Radar Approach Control (TRACON) facilities, Air Route Traffic Control Centers (ARTCC), Automated Flight Service Stations (AFSS), and the FAA’s Air Traffic Control System Command Center. FAA Order 7210.3T *Facility Operation and Administration* requires that ATC facilities “record operational communications to the maximum extent practicable.”

The voice recorder provides the legal recording capability for conversations between air traffic controllers, pilots, and ground-based air traffic facilities in all ATC domains and is used in the investigation of accidents and incidents and routine evaluation of ATC operations.

The VRRP digital voice recorder replacement began deployment in 1995. As the voice recorder technology has continued to evolve, early digital voice recorders have experienced obsolescence and supportability issues. These digital recording systems are reaching the end of their service life utilizing obsolete operating systems and parts that are no longer manufactured.

The NGVRRP will replace the obsolete digital voice recorders and any remaining analog recorders and provide digital voice recording functionality at new facilities. The replacement of aging voice recorders will reduce operational costs.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The NGVRRP voice recording system will support the goal of sustaining operational availability by replacing aging and obsolete equipment currently in the field. System outages and downtime for repair will be significantly reduced due to the higher availability and improved operational technology of the next generation of voice recorders. While digital voice recorder technology has continued to evolve, there is evidence that the early Digital Voice Recorder System is becoming obsolete.

Strategic Management Process (SMP) Pathway and Objective

- SMP Pathway #1 – Achieve Operational Excellence.
- SMP Objective #1.6 – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Deliver voice recorders to 85 sites.

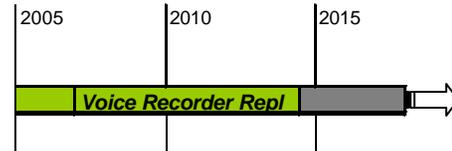
Program Plans FY 2009-2012 – Performance Output Goals

- Deliver voice recorders at the rate of 85 per year to various FAA facilities.

System implementation schedule

Voice Recorder Replacement

First site IOC: 2007 -- Last site IOC: 2014



2B18, HOUSTON AREA AIR TRAFFIC SYSTEM (HAATS)

FY 2008 Request \$4.0M

- Large TRACONs – Houston Area Air Traffic System (HAATS), F02.11-01

Program Description

The HAATS program’s objective is to be the focal point and provides resources for all the FAA activities associated with implementing the new airspace in the Houston area. The Operational Evolution Plan (OEP) identifies the redesign of the Houston, TX, terminal airspace as both a mid-and long-term project under the National Airspace Redesign Program. The HAATS program will implement the new airspace design by providing the infrastructure, national airspace improvements, and by publishing new procedures. The HAATS program, along with the associated expanded TRACON project, will ensure that the FAA is able to meet the capacity increase identified in the OEP. Realization of the capacity increases stemming from expansion projects of George Bush Intercontinental, William P. Hobby, and Ellington Field Airports will provide significant benefits to the entire NAS.

The city of Houston, initiated a \$3-Billion-plus expansion effort for the city-owned airports, which are George Bush Intercontinental, William P. Hobby, and Ellington Field. The increases in airport capacity created by the initial airport expansions of George Bush Intercontinental and William P. Hobby Airports cannot be supported by the existing airspace design or FAA facilities and equipment. In addition, future expansion of these airports will significantly increase the complexity for the air traffic system to accommodate the arrival and departure capacities of the airports. Therefore, the city must upgrade and expand several existing FAA facilities and/or install new systems to support expansion of the airspace.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increase Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 2** – Commission as many as six new runway projects, increasing the annual service volume of the 35 OEP airports by at least 1 percent annually, measured as a five-year moving average, through FY 2011.

Relationship to Performance Target

The HAATS program contributes to the FAA greater capacity goal by the expansion of the en route and terminal airspace. The HAATS program will provide the infrastructure, system improvements, and implementation of the new en route and terminal procedures associated with the redesigned airspace. New and replacement facilities support the FAA capacity goal: to provide a system that meets or exceeds air traffic demand.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Complete construction of new facilities to support the expanded airspace including; Airport Surveillance Radar (ASR), Air Route Surveillance Radar (ARSR), Very High Frequency Omnidirectional Range (VOR) system, Remote Center Air/Ground (RCAG) facilities, Terminal Remote Transmitter/Receivers, a communications network, and one new sector at the Houston ARTCC.
- Open the new 5th departure route out of Houston.

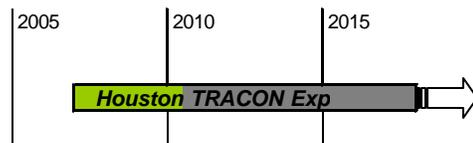
Program Plans FY 2009-2012 – Performance Output Goals

- Continue developing charts procedures to support implementation of the new airspace.
- Begin installing modifications to various computer automation programs to accommodate the new airspace and procedures.
- Continue construction, certification and commissioning of new facilities to support expanded airspace and procedures modifications including; ASRs, ARSRs, VORs, RCAGs, Remote Transmitter/Receivers, a communications network, and two new sectors at the Houston ARTCC.

System implementation schedule

Houston TRACON Expansion/Sustainment

First site IOC: March 2006 -- Last site IOC: June 2010



C. FLIGHT SERVICE PROGRAMS

2C01, AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)

FY 2008 Request \$5.0M

- Automated Surface Weather Observation Network (ASWON) – ASOS – Pre-Planned Product Improvements (P3I), W01.02-02

Program Description

The ASWON is an umbrella program that consists of the following surface weather sensor systems: the Automated Surface Observing System (ASOS), Automated Weather Observing System (AWOS), Automated Weather Sensors Systems (AWSS), and Stand Alone Weather Sensors (SAWS).

These systems are located at airports and measure and report weather conditions such as temperature, barometric pressure, visibility and wind velocity. This program upgrades and modernizes the sensors that detect weather conditions. ASOS preplanned product improvements (P3I) upgrade/sustain the performance of 571 ASOS with enhanced equipment/service.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The ASWON program supports the FAA greater capacity goal by supplying automated surface weather observations at over nine hundred airports to meet the needs of pilots, operators, air traffic personnel, downstream automation systems and terminal forecast. ASWON includes the surface weather sensors AWOS, ASOS, AWSS, and SAWS.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.5** – Minimize impacts of weather on the operation.

Program Plans FY 2008 – Performance Output Goals

- Procure the remaining 239 Enhanced Precipitation Identification sensors for ASOS.
- Complete development of ceilometers to determine the cloud height and amount over the airport.
- Complete the ceilometer operational acceptance test.
- Procure the first 37 ceilometers as part of the ASOS P3I project.

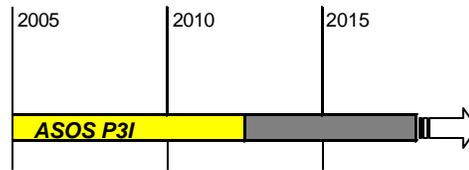
Program Plans FY 2009-2012 – Performance Output Goals

- Deploy the last 248 Enhanced Precipitation Identification sensors in FY09.
- Procure 223 ceilometers in FY09, 163 in FY10, and last 148 in FY11 as part of the ASOS P3I project.
- Deploy 37 ceilometers in FY09, 223 in FY10, 163 in FY11, and the last 123 in FY12.

System Implementation Schedule

Automated Surface Observing System (ASOS) - Pre Planned Product Improvement (P3I)

First site ORD: 2005 -- Last site ORD: 2012



2C02, FLIGHT SERVICE STATION (FSS) MODERNIZATION

FY 2008 Request \$5.1M

- Flight Services Facilities – Alaska FSS Modernization, F05.04-01

Program Description

The Alaska Flight Service Modernization and the Alaska Flight Service Sustainment programs are combined beginning in FY08. The purpose of the sustainment program is to maintain the serviceability of the 17 flight service facilities in Alaska. The program will complete projects to correct facility deficiencies. The highest priorities will be given to correction of safety, security and Americans with Disabilities Act (ADA) accessibility issues.

The primary objective of the Alaska Flight Service Modernization Program is to maintain parity with services provided in the continental United States, Hawaii, and Puerto Rico. Other objectives of the Alaska Flight Service Modernization Program are to increase the margin of General Aviation safety in Alaska through modernization of the systems and facilities, providing capacity to meet growing air traffic technology/modernization demands, expanding accessibility of service to Alaska aviation users, providing productivity increases, and reducing operational costs.

The Alaskan Flight Service Modernization solution will ultimately replace and integrate functionality that the three separate, different operational systems currently provide today. The modernization system will introduce a single set of software and hardware that result in increased productivity and improved quality of service through: integrating systems; automatically populating masks; providing the ability to multi-task operations; improving the computer-human interface (CHI), coupled with increasing processing speed; and producing the ability to integrate new functionality into the system. Internet access will increase the accessibility of flight planning data and contribute to a safer flying environment.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2 –** Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 2 –** By FY 2009, reduce accidents in Alaska for general aviation and all Part 135 operations from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year.

Relationship to Performance Target

The Alaska Flight Service Modernization program system will directly contribute to the FAA’s increased safety goal by increasing the availability and capabilities of the current flight service systems. The current systems, such as Model One Full Capacity (M1FC), do not meet modern operational requirements or general aviation needs. The Alaska Flight Service Modernization program system and facilities upgrade will provide timely and accurate weather and aeronautical information. It will also be capable of enhanced flight plan capabilities with support to international and local flight plans. The Alaska Flight Service Modernization program system will provide Internet access through the World Wide Web and through a series of remote briefing terminals throughout the state. This will increase a pilot’s situational awareness by giving them access to the same products used by the flight service specialists.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.3** – Ensure aircraft safety and separation.

Program Plans FY 2008 – Performance Output Goals

- Begin acquisition efforts for the selected solution.
- Perform site surveys to determine specific facility upgrade needs.
- Prepare source selection requirements and initial screening information request documents.

Program Plans FY 2009-2012 – Performance Output Goals

- Award acquisition contracts for system acquisition and facility upgrades.
- Begin development and test efforts for the Alaska Flight Service Modernization program system.
- Begin design and construction efforts for flight service facilities.
- Complete system development, implementation and deployment.
- Complete facility upgrades.
- Continue facility sustainment activities.

D. LANDING AND NAVIGATIONAL AIDS PROGRAMS

2D01, VHF OMNIDIRECTIONAL RADIO RANGE (VOR) WITH DISTANCE MEASURING EQUIPMENT (DME)

FY 2008 Request \$5.0M

- Very High Frequency Omni-Directional Range (VOR) Collocated with Tactical Air Navigation (VORTAC), N06.00-00

Program Description

This program replaces, relocates, or converts VOR and VORTAC facilities to improve NAS efficiency and capacity. VOR, Tactical Air Navigation (TACAN), and VORTAC (combination VOR and TACAN) systems provide navigational guidance for civilian and military aircraft in both the en route and terminal areas. The FAA navigation roadmap indicates the decisions will be made in 2007(VOR) and 2015 (TACAN) regarding whether these systems will remain in service or be shut down. If they are retained, they will continue to provide satellite navigation backup and define VOR routes and procedures for legacy users. Currently VORTAC supports the transition to both Area Navigation (RNAV) and the Next Generation Air Transportation Systems (NextGen) by maintaining the present level of en route and terminal navigation service. If the VORTACs remain in service indefinitely into the future, they must be relocated, technologically refreshed, or replaced. Currently 60% of the VORTAC systems are beyond their service life. It is projected that within 10 -15 years all existing VORTAC systems will be beyond their service life.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

Replacing, relocating, or converting VOR and VORTAC facilities increases NAS system efficiency. These facilities are experiencing signal deterioration due to various environmental factors and parts obsolescence, which negatively impacts system efficiency.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Convert approximately three VOR systems to Doppler VOR.
- Relocate one VOR Antenna System.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue to convert VOR systems to Doppler VORs.
- Continue to relocate VOR Antenna Systems.
- Continue facility relocations, retrofits, and upgrade as required.

2D02, INSTRUMENT LANDING SYSTEMS (ILS) – ESTABLISH

FY 2008 Request \$9.0M

- Instrument Landing Systems (ILS), N03.01-00

Program Description

The ILS program buys and installs partial and full Category I, II, and III instrument landing systems and associated precision approach equipment at qualified airports. An ILS precision approach relies on navigation devices (i.e., localizers, glide slopes, distance measuring equipment, etc.) and ancillary aids (i.e., approach lighting systems, runway visual range indicators, etc.) to provide landing approach guidance and visual aid information. This capability enables aircraft to land in weather conditions where visibility is very limited.

The ILS along with required Approach Lighting Systems (Approach Lighting System with Sequenced Flashing Lights Model 2 (ALSF-2) and Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)), directly impact both system safety and capacity at equipped runways by providing the only approved, widely used, precision approach method in the U.S. of landing aircraft in adverse weather conditions. The ILS provides vertical and horizontal guidance information to the pilot to allow safe landings to touchdown and rollout. The approach lighting provides visual cues for the pilot to safely land an aircraft when conducting an instrument approach. The ability to land aircraft in Instrument Meteorological Conditions allows increased capacity to runways equipped with ILS precision approach.

The ILS and associated equipment enables a pilot approaching a runway to access precision guidance (horizontal, vertical, and distance) information. This information, in conjunction with visual navigational aids, helps guide the pilot to the runway. These systems are critical to an all-weather aviation system because they allow aircraft to approach and land in low-visibility conditions and during adverse weather conditions.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

Establishing ILS precision approach capability allows lower visual minimums for landings and helps to maximize NAS use. Lowering visual minimums helps to maximize the use of the runways, which, in effect, is the same as an increase in airport capacity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #3** – Increase capacity where needed.
- **SMP Objective #3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Install one Category I ILS/MALSR.
- Install one Category II ILS/ALSF-2.
- Replace/Sustain 1 Category I (ILS Localizer only) facility.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue to procure and install Category I ILS/MALSRs.
- Continue to procure install Category II/III ILS/ALSF-2s.
- Continue to sustain/replace ILSs.

2D03, WIDE AREA AUGMENTATION SYSTEM (WAAS) FOR GPS

FY 2008 Request \$115.9M

- A, Wide Area Augmentation System (WAAS) – LPV Segment, N12.01-00 and WAAS – GLS Segment, N12.01-05
- B, Wide Area Augmentation System (WAAS) – Surveys and Procedures, N12.01-06

A, WIDE AREA AUGMENTATION SYSTEM (WAAS) – LPV SEGMENT, N12.01-00 AND WAAS – GLS SEGMENT, N12.01 05

Program Description

The WAAS is an extremely accurate navigation system developed by the FAA for civil aviation. The WAAS system uses signals from a set of government-maintained satellites, known as the Global Positioning System (GPS), to determine a precise navigation solution. The GPS alone is sufficient for aviation en route and non-precision approach uses. However, to use the GPS for vertical guidance and precision approach, civil aviation requires higher accuracy and real time notification of errors in the signal provided by the GPS. WAAS technology allows user equipment to correct errors in the computation of the GPS-derived position estimate, and it provides reports on the integrity and reliability of the satellites used for flight operations. Aircraft that are properly equipped can also use the WAAS for more efficient arrival, en route, and departure operations.

The WAAS consists of a network of precisely located ground reference stations that monitor GPS satellite signals. These sites are distributed across the continental U.S. and Alaska, with four additional locations in Canada and five in Mexico. Information from these reference stations is collected and processed, and an

augmentation message is generated every second. The message is broadcast to users across the U.S. and the Caribbean via leased communications transponders on geostationary satellites. It improves GPS-derived position accuracy from about 20 meters to 1.5 to 2 meters in both the horizontal and vertical dimensions. The WAAS also provides timely notification of unreliable GPS or WAAS data.

FAA is currently working with Canada and Mexico to install WAAS reference stations to support a North American WAAS capability. The new international reference stations will be operational in 2007 and 2008. In addition, the WAAS team is actively working with Japan and India through cooperative agreements to certify their respective WAAS-type systems.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2** – Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 1** – By FY 2009, reduce the number of general aviation and nonscheduled Part 135 fatal accidents to no more than 319 (from 385, which represents the average number of fatal accidents for the baseline period of 1996-1998)

Relationship to Performance Target

The WAAS will increase safety by providing accurate navigation information for en route flights and more exact approach guidance during reduced visibility conditions at airports that do not have an instrument landing system. Broader low altitude navigation coverage and improved approach guidance will reduce general aviation accident rates. The WAAS program plans to provide precision approach capability for the entire continental U.S and most of Alaska. The Reference Stations in Alaska are operational and provide additional coverage in 2006, which will contribute to meeting the performance target to reduce accidents in Alaska for general aviation and all Part 135 operations from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.1** – Ensure airspace system is safe and efficient.

Program Plans FY 2008 – Performance Output Goals

- Complete WAAS signal availability expansion in Canada and Mexico by September 2008.
- Complete Operations and Maintenance enhancements upgrade on the WAAS system by May 2008.
- Implement software performance build improvements by September 2008.

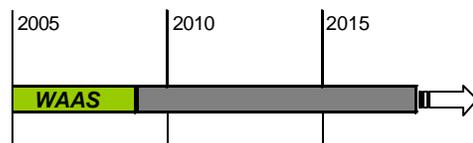
Program Plans FY 2009-2012 – Performance Output Goals

- Complete WAAS full Lateral Precision with Vertical (LPV) guidance development by December 2008.
- Begin work for the next segment of WAAS (dependent on JRC decision) in FY 2009.

System Implementation Schedule

Wide Area Augmentation System (WAAS)

Commissioned July 2003 -- Full Precision: December 2008



B, WIDE AREA AUGMENTATION SYSTEM (WAAS) – SURVEYS AND PROCEDURES, N12.01 06

Program Description

In order to develop an LPV (Lateral Precision with Vertical guidance) airport approach procedure, a survey is required. This survey is specific to the approach and provides detailed obstacle information used to establish minimum altitudes for flying the LPV. Additionally, the survey information can be used for other purposes such as development of other instrument approach procedures (Required Navigation Performance (RNP), Lateral Navigation / Vertical Navigation (LNAV/VNAV), Lateral Navigation (LNAV), etc.). Survey data provides valuable information about the existing surroundings of an airport. Because of the unknowns before the survey data is collected, not all surveys will yield an LPV approach. Historical data suggest 20 – 30% of surveyed approaches will not be capable of supporting an LPV. This number will likely be higher in the future years because the good candidates get selected first, leaving airports with less data available to determine feasibility, as the only remaining candidates.

Development of LPV procedures contributes to a significant part of the benefits case for WAAS. The FAA Flight Plan goals call for development of 300 new LPV procedures in FY 2007 and FY 2008. Based on the historical data, it is estimated that 450 – 500 approach surveys will be required to support this production. LPV procedures developed in the current fiscal year use surveys from the previous year. Hence, surveys completed in FY 2007 will be used to support procedure development in FY 2008.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2** – Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 1** – By FY 2009, reduce the number of general aviation and nonscheduled Part 135 fatal accidents to no more than 319 (from 385, which represents the average number of fatal accidents for the baseline period of 1996-1998)

Relationship to Performance Target

The WAAS will increase safety by reducing general aviation accident rates. To accomplish this, the FAA plans to publish 300 new LPV guidance procedures to non-ILS runway ends in FY 2008 and FY 2009. This will provide increased access and improved safety to the NAS. Additionally, new procedures developed in Alaska will aid the WAAS in accomplishing the performance target to reduce accidents in Alaska for general aviation and all Part 135 operations by 24 percent by FY 2008 (from the 2000-2002 average of 130 accidents per year to no more than 99 accidents per year). Studies show that the number of accidents is less at airports with approach guidance than at airports with none.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence
- **SMP Objective #1.3** – Ensure aircraft safety and separation.

Program Plans FY 2008 – Performance Output Goals

- Complete enough airport obstruction surveys to develop 300 LPV procedures for non-ILS runway ends in FY 2009.

Program Plans FY 2009-2012 – Performance Output Goals

- Complete enough airport obstruction surveys each year to allow development of 300 LPV procedures for non-ILS runway ends the following year.

2D04, RUNWAY VISUAL RANGE (RVR)

FY 2008 Request \$5.0M

- Runway Visual Range – Replacement/Establishment – N08.02-00

Program Description

The Runway Visual Range (RVR) provides pilots and air traffic controllers with a measured value for the horizontal visibility at key points along a runway, and that data is used to decide whether it is safe to take off or land during limited visibility conditions. The new-generation RVR is also safer because the equipment is mounted on frangible, low-impact-resistant structures that break away if hit by aircraft during takeoff or landing. Replacement decisions are prioritized based on the level of activity at the airport where they are located and life-cycle issues (such as Reliability, Availability and Maintainability). This project also provides the equipment for new sites, including new runways and existing runways that have recently qualified for an Instrument Landing System installation.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The RVR decreases diversions and delays at an airport by providing a more exact measure of the runway visibility. With a better measure of visibility, pilots are more informed in making choices about whether conditions at an airport are suitable for attempting a landing. The RVR information is also valuable in determining whether it is feasible to attempt a landing when all or some components of an ILS are not working. If only a portion of the ILS is working, the minimum visibility needed for an approach and landing are increased to non-precision levels. The RVR information also affects airline scheduling decisions and air traffic management decisions regarding whether flight plans should be approved for an aircraft to fly to an airport with low visibility.

Older RVR systems are maintenance intensive, resulting in excessive downtime, which negatively affects airport traffic flow capacity and reduces adjusted operational availability. The replacement or upgraded equipment requires less maintenance and repair time, which reduces system downtime, consequently improves traffic flow capacity, and improves adjusted operational availability.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.5** – Minimize impacts of weather on the operation.

Program Plans FY 2008 – Performance Output Goals

- Procure eight (8) RVR systems.
- Complete the implementation of seven (7) RVR projects.
- Start the implementation of seven (7) new RVR projects.

Program Plans FY 2009-2012 – Performance Output Goals

- Procure and install 31 RVR systems.

2D05, APPROACH LIGHTING SYSTEM IMPROVEMENT PROGRAM(ALSIP)
FY 2008 Request \$15.0M

- Visual Nav aids – Approach Lighting System Improvement Program Continuation, N04.03-00

Program Description

The intent of the program is to bring approach lighting systems, built before 1975, up to current standards and to reduce the severity of landing accidents by retrofitting rigid structures with lightweight and low-impact resistant structures that collapse or break apart upon impact. High Intensity Approach Lighting System with Sequenced Flashing Lights Model 2 (ALSF-2) provides visual information on runway alignment, height perception, roll guidance, and horizontal reference for Category II and III Precision Approaches. Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) provides visual information on runway alignment, height perception, roll guidance, and horizontal references for Category I Precision Approaches.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The ALSIP replaces rigid approach lighting structures with lightweight and low-impact resistant structures that collapse or break apart upon impact. This reduces damage to aircraft that may strike these structures during departure or landing, which directly affects the goal of reducing aircraft fatal accidents.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Complete the implementation of ten (10) MALSR and two (2) ALSF-2 carryover projects.
- Start the implementation of ten (10) new MALSR replacement projects.

Program Plans FY 2009-2012 – Performance Output Goals

- Install 32 previously procured MALSR systems.

2D06, DISTANCE MEASURING EQUIPMENT (DME)
FY 2008 Request \$5.0M

- Distance Measuring Equipment (DME), N09.00-00

Program Description

The DME program replaces obsolete, tube-type DME with modern technology electronics that will improve operations and facility performance. Replacement equipment reduces maintenance expense and repair downtime required for DME systems. Low Power DME (LPDME) will replace older marker beacons at existing Instrument Landing System (ILS) locations and be implemented at new ILS established locations. DME provides the distance component of navigation information that pilots use to determine aircraft position.

To support the Commercial Aviation Safety Team (CAST) recommendations, the DME program is procuring and installing DME systems at recommended sites. These systems will support the reduction of controlled-flight-into-terrain accidents at the most vulnerable locations in the NAS. There are 451 identified CAST DME sites. However, the FAA recommends implementing 177. This number would cover 80 percent of all operations. For safety reasons, the industry wants to discontinue using step-down or “dive-and-drive” non-precision approach procedures whenever possible. Using DME supports this operational goal for older, less equipped aircraft until they are outfitted with more advanced equipment.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 1** – Achieve an average daily airport capacity of 104,338 arrivals and departures per day by FY 2008 and maintain through FY 2011 at the 35 OEP airports.

Relationship to Performance Target

The LPDME can provide distance information to more than 100 aircraft simultaneously, compared to the capacity of older systems of less than 50 aircraft, thus increasing the number of aircraft that can simultaneously approach a runway for landing. This program will replace older LPDME with new solid state LPDMEs. Availability of the new LPDME is greater than 99.95%.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Install approximately 25 LPDME Systems .

Program Plans FY 2009-2012 – Performance Output Goals

- Install approximately 220 LPDME Systems .

2D07, VISUAL NAVAIDS – ESTABLISH/EXPAND

FY 2008 Request \$3.5M

- Visual Navaids – Visual Navaids for New Qualifiers, N04.01-00

Program Description

This program supports the procurement, installation and commissioning of Precision Approach Path Indicator (PAPI) systems and of Runway End Identification Light (REIL) systems. A PAPI provides visual approach glide slope information to pilots and enables them to make a stabilized descent with a safe margin of approach clearance over obstructions. The PAPI consists of four (4) lamp housing assemblies arranged perpendicular to the edge of the runway. The PAPI projects a pattern of red and white lights along the desired glide slope so a pilot can tell whether or not he is on the glide slope. A REIL is a non-precision visual aid that provides rapid and positive identification of the approach end of a runway to the pilot. The REIL is a system consisting of two simultaneously flashing white lights, one on each side of the runway landing threshold.

The implementation of PAPI systems satisfies Commercial Aviation Safety Team (CAST) and Land and Hold Short Operations (LAHSO) requirements.

- There are 781 identified CAST requirements to implement a precision-like approach capability at runways served by air carriers. The precision-like approach capability will reduce the possibility of a controlled flight into terrain accident during approach and landing. The FAA plans to implement only

the 170 highest priority PAPI installations. This number would cover 80% of commercial airline operations.

- LAHSO is an air traffic control tool used to increase airport capacity by allowing simultaneous approaches on intersecting runways. PAPI lights are required at airports when they are approved for LAHSO.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increase safety.**
- **FAA Objective 1** – Reduce commercial air carrier fatal accident rate
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 fatal accidents per 100,000 departures.

Relationship to Performance Target

Installing PAPI lights at CAST locations will enhance system safety by reducing the probability of a Controlled Flight into Terrain accident during approach and landing. Installing the REIL system will reduce accidents because the system clearly identifies the runway's end to the pilot.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Procure 16 REIL systems.
- Complete the implementation of seven (7) PAPI and two (2) REIL carryover projects.
- Start the implementation of four (4) new PAPI projects.
- Start the implementation of four (4) new start REIL projects.

Program Plans FY 2009-2012 – Performance Output Goals

- Procure 14 and install 38 PAPI systems.
- Procure 28 and install 26 REIL systems.

2D08, INSTRUMENT APPROACH PROCEDURES AUTOMATION (IAPA)

FY 2008 Request \$17.8M

- Instrument Flight Procedures Automation (IFPA), A14.02-01

Program Description

FAA's Aviation System Standards group maintains more than 14,000 instrument flight procedures in use at over 4,000 paved airport runways, accommodating requirements for both precision and non-precision approaches and departures. Maximizing implementation and use of Instrument Landing Systems (ILS), Microwave Landing System, Global Positioning System Area Navigation (GPS/RNAV), and Wide Area Augmentation System (WAAS) will increase the capacity of the NAS and requires development of new and revised instrument flight procedures.

The existing IAPA system, which provides the basis for instrument flight procedure development and maintenance, has been heavily modified since being developed in the early 1970s and does not meet all of today's functional or integration requirements. The current IAPA system is barely able to support the existing inventory of 14,000 instrument flight procedures. A modern integrated system is needed to accommodate the expected growth of the NAS. Aviation System Standards has identified technological opportunities to replace IAPA and consequently increase functional capabilities, which raises the organization's ability to meet current and expected future demand for instrument flight procedures within

the NAS. The CIP will fund the acquisition of a new software application suite, to be called Instrument Flight Procedure Automation (IFPA), will be more efficient and encompassing to support instrument flight procedures development. It will include functionality for approaches, missed approaches, circling, Standard Terminal Arrival Routes (STAR), airways, and departures. In addition, IFPA will contain an integrated obstacle evaluation application, replacing a mostly manual process. Along with development of the new IFPA tools, integration across three Aviation System Standards organizations will be accomplished—the National Flight Procedures Office, Flight Inspections Operations Office, and the National Aeronautical Charting Office—eliminating manual effort and duplication of data. New commercial off-the-shelf (COTS) standard desktop workstations and COTS server upgrades are also included in the CIP funding.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The IFPA system ensures continued progress toward providing instrument flight procedures for all 35 OEP airports. This means adding vertical guidance procedures with lower visual minimums and supporting new initiatives such as Required Navigation Performance (RNP), RNAV, Lateral Precision with Vertical Guidance, WAAS, Distance Measuring Equipment (DME) /DME, RNAV Standard Instrument Departure (SID), and STAR. Upgrading automation systems allows for efficiency and time and cost savings in development of instrument procedures for approaching and departing an airport.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway 2** – Enhance Financial Discipline.
- **SMP Objective 2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008 – Performance Output Goals

- Produce 685 new instrument flight procedures, which includes up to 500 RNAV instrument approach procedures with vertical guidance to support WAAS.
- Produce additional RNAV SIDs and STARs to support RNP, and additional RNP Special Aircrew and Aircraft Authorization Required procedures.
- Support the Alaska Capstone program with RNAV routes and procedures.
- Produce new flight procedures to support OEP new runways, runway extensions, and equipment additions.
- Instrument Procedures Development System (IPDS) Module 1 will be operational.
- Instrument Flight Procedure modules for Radar, Departures and STARs will be operational.

Program Plans FY 2009-2012 – Performance Output Goals

- Produce 685 new instrument flight procedures, which includes up to 500 RNAV instrument approach procedures with vertical guidance to support WAAS.
- Produce additional RNAV SIDs and STARs to support RNP, and additional RNP Special Aircrew and Aircraft Authorization Required procedures.
- Support the Alaska Capstone program with RNAV routes and procedures.
- Produce new flight procedures to support OEP new runways, runway extensions, and equipment additions.

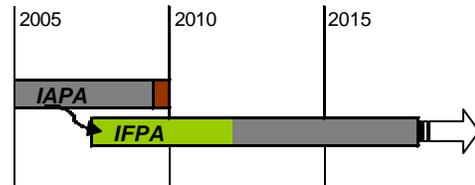
- IPDS Module 2 & 3 will be operational.
- Instrument Flight Procedure modules for En Route will be operational.
- Airports and Navigational Aids module will be operational.

System Implementation Schedule

Instrument Flight Procedures Automation (IFPA)

Last site Decom: November 2010

First site IOC: June 2007 -- Last site IOC: September 2011



2D09, NAVIGATION AND LANDING AIDS – SERVICE LIFE EXTENSION PROGRAM (SLEP)

FY 2008 Request \$5.0M

- Visual Navaids – Sustain, Replace, Relocate, N04.04-00

Program Description

This program modernizes and replaces Visual navigation aids (NAVAIDS) at sites where reliability availability and maintainability are trending below FAA standards for precision approach systems. Visual NAVAIDS include: Medium Intensity Approach Lighting Systems with Runway Alignment Indicator Lights (MALSR) for Category I approaches, High Intensity Approach Lighting System with Sequenced Flashing Lights (ALSF-2) for Category II/III approaches, and Precision Approach Path Indicator (PAPI) Lights and Runway End Identifier Lights (REIL).

This program also modernizes and replaces Instrument Landing Systems (ILS) which are not performing to FAA standards. An ILS has several components including electronic equipment such as: localizers, glides slopes, distance measuring equipment, etc.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The older electronic guidance and visual NAVAIDS are maintenance intensive, resulting in excessive downtime, which negatively impacts airport traffic flow capacity. The replacement or upgraded equipment will require less maintenance and repair time, which reduces system downtime and consequently improves traffic flow capacity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Install thirty-six (36) REILS.
- Install eleven (11) MALSR.
- Install one (1) ALSF.
- Replace four (4) Remote Radio Control System.
- Replace one (1) MALSR tower.
- Replace four (4) Localizer antenna tower.
- Replace one (1) Glideslope Wooden Tower.
- Replace one (1) Generator.
- Replace two (2) Distance Measuring Equipment antenna mounting pedestals.

Program Plans FY 2009-2012 – Performance Output Goals

- Install three (3) MALSRs.
- Install one (1) ALSF-2.
- Relocate four (4) navigation equipments.
- Replace one (1) glideslope tower.
- Replace two (2) light station wires.
- Replace four localizer antenna platforms.

**2D10, VASI REPLACEMENT – REPLACE WITH PRECISION APPROACH PATH INDICATOR
FY 2008 Request \$3.0M**

- Visual Navaids – Replace Visual Approach Slope Indicator (VASI) with Precision Approach Path Indicator (PAPI), N04.02-00

Program Description

The International Civil Aeronautical Organization (ICAO) has recommended that all International airports replace the Visual Approach Slope Indicator (VASI) lights with Precision Approach Path Indicators (PAPI) lights to standardize on the visual vertical guidance information. This program supports the procurement, installation and commissioning of PAPI systems in order to comply with this ICAO recommendation.

At the inception of this program, there were approximately 1,387 older (pre-1970's) VASI at international and other validated locations requiring replacement. The first phase of the program addresses replacement of VASI systems at approximately 207 ICAO runways. The remaining complement of VASI systems in the NAS will be addressed after the ICAO requirement is fulfilled. As of July 31, 2005 we have completed approximately 107 ICAO VASI replacements and approximately 443 Non-ICAO VASI replacements.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2** – Increase reliability and on-time performance of scheduled carriers.
- **FAA Performance Target 1** – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.

Relationship to Performance Target

Replacing VASI with PAPI improves on-time performance by improving availability of the approach slope guidance systems used to help pilots touch down at the appropriate location on the runway. When these older VASI approach slope indicators fail, air traffic controllers cannot use certain procedures such as Land and Hold Short to increase airport capacity and prevent aircraft delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Complete the implementation of 14 VASI replacement carryover projects.
- Start the implementation of 12 new VASI replacement projects.

Program Plans FY 2009-2012 – Performance Output Goals

- Procure 70 PAPI systems.
- Install 112 PAPI systems.

E. OTHER ATC FACILITIES PROGRAMS

2E01, FUEL STORAGE TANK REPLACEMENT AND MONITORING

FY 2008 Request \$5.9M

- NAS Facilities OSHA & Environmental Standards Compliance – Fuel Storage Tanks, F13.01-00

Program Description

The FAA Fuel Storage Tank (FST) program designs, fields, and sustains fuel storage systems that support critical FAA operations across the NAS. The FST systems include the storage tank (both above ground and underground tanks containing a variety of liquids: gasoline, diesel, propane, oils, glycol, etc.); the flow control devices (pipe, hoses, pumps, valves, etc.); electronic leak detection and inventory control devices; and electronic/electrical system operation devices (control boards, technician operations stations, switched relays, etc.). The FST program active inventory includes over 3,000 FST systems and historical data is retained on over 1,400 previously closed/removed systems.

The majority of FAA storage tanks are used for emergency electrical generator operations. The emergency generators provide NAS facilities with an alternative power supply during periods of commercial power company outages. A loss of integrity on any FST component will affect the operational capacity of the emergency generator systems and may ultimately result in a total facility failure.

Storage tanks have historically contained materials that could cause an adverse environmental impact or result in personal injury if accidentally released. In response to the risk of accidental release, the federal government, the various State legislatures, local county governments and city jurisdictions have all passed statutes specifying the minimum requirements for the construction, installation, removal, and operations of storage tank systems. Additional regulations affecting storage tank system operations have been established under the jurisdiction of state and local building codes, fire protection codes, airport operating authority requirements, and occupational safety and health acts.

This program encompasses all aspects of life-cycle management required through FAA's ownership and operation of storage tank systems. These aspects include system replacement and sustainment; FST inspections and operational readiness audits; required permitting, licensing, and spill prevention documentation; certifications for system operation; and contaminated soil remediation among others. To assure that fielded systems achieve the goals, the FST program, (in consultation with numerous companion stakeholder FAA programs, En Route, Power Systems, Terminal, Second-level Engineering, etc.), develops, promotes, and revises baseline standards for all FAA FST systems (FAA Orders, policies, template-style plans, etc.). Baseline standards are enhanced to accommodate local and site specific irregularities.

Relationship of Program to DOT Strategic Goal, Objective, & Performance Target

- **DOT Strategic Goal – Environmental Stewardship.**
- **DOT Outcome** – Reduce pollution and other adverse effects of transportation and transportation facilities.
- **DOT Strategy** – Adopt transportation policies and promote technologies that reduce or eliminate environmental degradation.

Relationship to Performance Target

The FST Replacement and Monitoring project supports the environmental stewardship goal by developing, promoting, and executing FST environmental compliance strategies and designing/fielding system components and methods of system operation that reduce the risk of leaking FST systems and minimize adverse impacts to personal and environmental safety.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Continue ARTCC/TRACON FST Upgrade initiative.
- Continue lifecycle replacement/sustainment of FST systems.
- Continue remediation efforts due to FST systems spills and leaks.

Program Plans FY 2008- 2011 – Performance Output Goals

- Continue ARTCC/TRACON FST Upgrade initiative.
- Continue lifecycle replacement/sustainment of FST systems.
- Continue remediation efforts due to FST systems spills and leaks.

2E02, FAA BUILDINGS AND EQUIPMENT

FY 2008 Request \$13.7M

- A, Improve FAA Buildings and Equipment Sustain Support – Unstaffed Infrastructure Sustainment, F12.00-00
- B, Seismic Safety Risk Mitigation, F12.01-01

A, IMPROVE FAA BUILDINGS AND EQUIPMENT SUSTAIN SUPPORT– UNSTAFFED INFRASTRUCTURE SUSTAINMENT, F12.00-00

Program Description

The Unstaffed Infrastructure Sustainment (UIS) Program renovates the infrastructure supporting NAS equipment to enable it to prevent damage to equipment and system outages. It includes NAS real property improvements and structures which are normally not staffed. The UIS includes:

- FAA property improvements: access roads, grounds, fencing, storm water controls, parking lots, security lighting, and walkways.
- FAA facilities: buildings, shelters, roofs, sheds, fuel tanks (heating only), plumbing, heating, ventilating and air conditioning (HVAC) equipment, alarms and lighting.
- NAS antenna and equipment towers: structural repairs and refurbishment.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The FAA Unstaffed Infrastructure Sustainment Program supports the FAA's greater capacity goal by refurbishing existing FAA-owned unstaffed facilities and structures serving airports. These airports require reliable and continuous operation and condition reporting of surveillance, navigation, communication and weather equipment. In addition the infrastructure protects the electronic equipment from weather hazards, radio interference, and unauthorized entry. Failure of the infrastructure will result in NAS equipment failures directly reducing capacity of the NAS.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Sustain 5 Instrument Landing System (ILS) facilities at the benchmark OEP airports.
- Accomplish 30% of the directed unstaffed facility condition assessments.
- Refurbish 5 long-range radar facilities.
- Repair/improve 5 facility service roads.
- Upgrade/repair/replace air conditioning systems at 5 facilities.

Program Plans FY 2009-2012 – Performance Output Goals

- Sustain 10 ILS facilities at the benchmark airports.
- Complete directed facility condition assessments.
- Refurbish 10 long-range radar facilities.
- Repair/improve 10 facility service roads.
- Upgrade/repair/replace air conditioning systems at 10 facilities.

B, SEISMIC SAFETY RISK MITIGATION, F12.01-01

Program Description

The Seismic Safety Risk Mitigation Program complies with Executive Order 12941, DOT Seismic Policy SS-98-01, and Federal Emergency Management Administration and the National Institute of Standards and Technology Seismic Safety Standards by identifying and seeking mitigation of unacceptable seismic safety hazards at FAA- owned and -leased buildings. The program also acts as the agency Seismic Safety subject matter expert and informs FAA Product Teams, facility managers, building engineers, and real-estate contracting officers of required seismic safety standards.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The Seismic Safety Risk Mitigation program safeguards FAA personnel who operate and maintain the Air Traffic Control system and mitigates catastrophic failure of the NAS infrastructure in the event of an earthquake. Many FAA buildings face a 10 percent chance of a damaging earthquake and a two percent risk of a devastating earthquake during the next 50 years; whereas there is a 62 percent combined probability of a damaging or devastating earthquake striking somewhere in the San Francisco Bay area alone in the next 30 years.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Conduct seismic evaluations at 3 long range radars (LRR).
- Perform seismic technical trainings at 3 regions.
- Conduct geotechnical evaluations at one low seismic area ARTCC.

Program Plans FY 2009-2012 – Performance Output Goals

- Conduct soil report reviews at 5 low seismic zone ARTCCs.
- Conduct geotechnical evaluations and soil borings at three ARTCCs.
- Complete seismic evaluations of LRR facilities at high seismic areas.
- Revise technical training material to reflect changes in regulations.

2E03, AIR NAVIGATIONAL AIDS AND ATC FACILITIES (LOCAL PROJECTS)

FY 2008 Request \$3.0M

- Continued General support – Air Navigation Aids Facilities – Local Projects, M08.04-00

Program Description

Critical equipment outages require local emergency actions to restore communications, surveillance, weather information, and air traffic control equipment. In addition, the FAA must modify facilities and equipment to accommodate operational changes. The unplanned modifications include minor adjustments to air traffic control positions in air traffic control towers or air route traffic control centers; raising or relocating air/ground communications antennas to reduce frequency interference; correcting fire hazards; and improving minor security deficiencies. Also, local project funds are used to restore lost service caused by major storms, fires or other property or equipment damage.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

Emergency adjustments to NAS facilities mitigate costly long-term maintenance and safety incidents. They also reduce delays and flight cancellations.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

2E04, AIRCRAFT RELATED EQUIPMENT PROGRAM

FY 2008 Request \$9.8M

- A, Aircraft and Related Equipment (ARE) Program, M12.00-00
- B, Aircraft and Related Equipment Program – Boeing Simulator Replacement, M12.01-01

A, AIRCRAFT RELATED EQUIPMENT PROGRAM, M12.00-00

Program Description

The FAA operates a fleet of specially equipped flight inspection (FI) aircraft to certify flight procedures before publishing them for public use. FI aircraft conduct airborne evaluations of electronic signals used for aircraft departures, en-route and arrival flight procedures. In order to certify that these procedures and the navigational aids are safe to use FI aircraft must be equipped with an independent, onboard, truth system to precisely determine the aircraft's actual location in order to verify the accuracy of the measured navaid or procedure.

The Flight Inspection Flight Program System (FIFPS) has been developed to replace several individual projects, submitted for budget approval in previous years. All the individual projects have been combined into an Evolution Plan, which is a systematic program for upgrades to the FI aircraft and related systems, the operational and technical support infrastructure, and the mission specific equipment.

The FI fleet and its on-board technology continue to age and become more costly and labor intensive to maintain. Existing navigation and avionics systems are rapidly becoming obsolete. These systems must be upgraded and sustained to provide adequately equipped FI aircraft that are capable of sustaining the safety of both the existing ground-based and the emerging satellite-based NAVAIDS in the NAS.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The FAA improves air safety by ensuring that flight inspection aircraft and systems are equipped and modified to validate and certify the accuracy of navigational aid electronic signals, as well as validate and certify the safety of approach/departure flight procedures and terminal routes at all airports within the NAS and at military facilities world wide.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Continue Beech 300 FI aircraft enhancement with the installation of Proline 21 navigation flight management systems.
- Procure Next Generation Flight Inspection System (NAFIS) PC's Displays, Test Equipment, Training and Documentation
- Begin installation of NAFIS in FI aircraft.
- Purchase equipment, integrate multi-mode receivers and install progressively on FI aircraft.
- Purchase further airborne transceivers and complete non-recurring engineering development for global satellite communication and data system.
- Start Hawker aircraft sustainment.

Program Plans FY 2009-2012 – Performance Output Goals

- Complete Beech 300 Enhancement and installation of Proline 21 navigation flight management systems.
- Continue progressive installation of NAFIS in FI aircraft.
- Continue installation of global satellite communication and data systems on FAA FI aircraft
- Purchase remaining airborne transceivers and start installation of global satellite communication and data systems on FAA FI aircraft.
- Continue Hawker aircraft sustainment
- Begin Challenger 601 technology refresh. This includes avionics and interior
- Begin Next Generation Air Traffic System Surveillance and Broadcast Services equipage.
- Begin Controller Pilot Data Link Communications equipage.

**B, AIRCRAFT RELATED EQUIPMENT PROGRAM – BOEING SIMULATOR REPLACEMENT,
M12.01-01**

Program Description

The Boeing Simulator Replacement Program procured a new, advanced Boeing 737 (B737) aircraft simulator that is configured similar to aircraft in the commercial airline fleet. Technology refresh of some of the simulator's components is needed. The simulator enables the FAA to perform meaningful and relevant evaluations of projects affecting the large transport aircraft category. The simulator can be used for operational evaluation of the latest aviation technologies, equipment, and procedures using flight simulation rather than actual flight hours, which are very costly. Moreover, it is much safer to simulate certain hazardous events (e.g., loss of power) than to perform these events in an actual aircraft. Data gathered from flight simulation activities are used to support safety investigations as well as to develop regulations and flight procedures. The FAA awarded the simulator contract in March 2003.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline accident rate.
- **FAA Performance Target 1** – Maintain the three year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The B737 simulator improves air safety by providing the FAA with the capability to conduct operational evaluation programs on conventional aircraft designs. Regulatory guidance resulting from increased R&D, plus findings from accident investigation simulations, will contribute to the reduction of the fatal accident rate for air carriers. The timeliness capability provided by the simulator will result in more use of the simulator to analyze black box data from accident investigation.

Program Plans FY 2008 – Performance Output Goals

- Technology refresh to update visual system liquid crystal display.
- Issue single maintenance contract for B737-800 and Airbus simulators.

Program Plans FY 2009-2012 – Performance Output Goals

- Initiate study for new simulator to support critical safety research programs.
- Perform technical refresh and peripheral/software updates.

2E05, COMPUTER AIDED ENGINEERING AND GRAPHICS (CAEG) – MODERNIZATION
FY 2008 Request \$1.5M

- Computer Aided Engineering and Graphics (CAEG) Replacement, F17.00-00

Program Description

The CAEG program provides computer tools to generate, manipulate, store, and retrieve engineering drawings. Every program in the CIP uses the CAEG to analyze, manage, and integrate its products into the NAS. The CAEG's analytical capabilities and the underlying repository of data provide the information necessary to precisely plan for changes to buildings, supporting infrastructure such as electrical service and communications outlets, and other changes needed to install new equipment. This capability also allows overlaying radio frequency coverage patterns, political boundaries, sector boundaries, flight trajectories, and other data to determine the impacts of the planned changes to the NAS architecture within minutes.

Various vintages of hardware and software deployed nationally provide this support. The CAEG program continues to sustain existing hardware and provide technical refresh of hardware and specialized and commercial off-the-shelf software. These products are critical to support the engineering requirements of various FAA program offices involved in the NAS modernization effort, including spectrum management, safety enhancement, and improved air traffic capacity.

The CAEG system can quickly isolate radio frequency interference sources that impede air traffic services. The CAEG program engineering drawing repositories help prevent the incidence of implementation errors and expedite joint acceptance inspection, which permits the FAA to accept and operate the installed NAS equipment.

The CAEG system also contains a repository of facility critical power panel schedules to assist program offices in planning for NAS equipment implementations without incidences of power outages.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The CAEG program contributes to the FAA's organizational excellence goal by providing labor-saving, engineering services to the existing FAA and contract workforce to plan, implement, and maintain NAS modernization efforts. The CAEG program also provides analytical engineering decision support tools to assist facility power management, site selection and planning, radio frequency coverage, and interference

analysis as well as the repository of engineering designs. This enhances workforce efficiency and avoids the cost of hiring additional engineers to perform these functions manually.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008 – Performance Output Goals

- Phase in replacement hardware and software systems.
- Provide enhancements to the Radio Coverage Analysis System and transition the system to a totally web-based application to improve application performance.
- Update the engineering drawing library with 3,000 drawing file images and metadata, leaving 6,950 to be done.
- Provide the tools and methodology to implement building information modeling.

Program Plans FY 2009-2012 – Performance Output Goals

- Provide technical refresh for the CAEG System and enhance existing specialized applications to provide improved analysis capabilities.

2E06, AIRPORT CABLE LOOP SYSTEMS – SUSTAINED SUPPORT

FY 2008 Request \$5.0M

- Airport Cable Loop Systems – Sustained Support, F10.00-00

Program Description

This program will replace existing on-airport, copper-based, signal/control cable lines that have deteriorated. The primary focus will be on projects at airports with high traffic counts and enplanements. The obsolete underground telecommunications cable infrastructure systems are vulnerable to failure and could cause flight delays related to outages. These lines feed airport surveillance radar, air/ground communications, and landing systems data and information to the tower, and operational and maintenance information to FAA-staffed facilities. Where cost-effective, the program will install fiber-optic cable in a ring formation to provide redundancy and communications diversity. The airport cable loop program takes advantage of opportunities to save cost by coordinating projects with major construction projects (e.g. tower relocations, and runway projects).

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The Airport Cable Loop Systems Sustained Support Program will reduce potential failures, delays, and outages by replacing obsolete underground cable infrastructure systems. The program improves signaling and communications primarily at large airports with high traffic counts and enplanements.

Strategic Management Plan (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Complete construction and system installation at Detroit, Atlanta, Las Vegas, and Phoenix international Airports.
- Begin Phase I Cable loop construction at Portland International Airport, Charlotte Douglas, and Covington Northern Kentucky (Cincinnati) Airports.
- Complete fiber-optic system upgrade at Los Angeles International Airport.
- Begin construction and equipment installation at Minneapolis -St. Paul, Boston-Logan Phase 2, and begin advanced engineering at Denver International Airport.
- Begin Replacement of old Fiber optics equipment at Dallas-Ft. Worth and Austin Airports.
- Begin Planning and Design Phase for Salt Lake City, San Diego, and Seattle International Airports.

Program Plans FY 2009-2012 – Performance Output Goals

- Complete installations at Minneapolis -St. Paul, Boston-Logan Phase 2 airports, and the Design phase at Oakland International Airport.
- Complete Chicago Midway installation Activity.
- Complete Denver international airport Cable Loop reconfiguration project.
- Continue reconfiguration and equipment installation at Dallas-Ft. Worth and Austin International Airports.
- Complete development of engineering packages for La Guardia, Ronald Reagan Washington National, Pittsburgh, and Baltimore/Washington International Airports.
- Begin fiber-optic system upgrade planning at San Francisco International Airport.
- Begin or complete construction and equipment installation at the following airports;
 - LaGuardia, Washington Dulles International, Ronald Reagan Washington National, Pittsburgh, and Baltimore/Washington International.

2E07, ALASKAN NAS INTERFACILITY COMMUNICATIONS SYSTEM (ANICS)
FY 2008 Request \$2.0M

- Establish Alaskan NAS Interfacility Communications System (ANICS) Satellite Network – ANICS Modernization – Phase I, C17.02-01

Program Description

In Alaska, commercial communications are out of service an average of eight days per year per provider. FAA requires essential telecommunications service 99.9% of the time – less than ½ day of outage per year. The ANICS network is an FAA-owned satellite-based infrastructure – a network that carries reliable voice/data communications to and from the Air Route Traffic Control Center (ARTCC), Air Traffic Control Towers (ATCT), and Automated Flight Service Stations (AFSS).

ANICS replaces leased commercial communications circuits in Alaska with FAA-owned satellite earth stations and leased satellite transponders to provide reliable telecommunication services at locations where the FAA has experienced poor telecommunications performance.

ANICS Phase I facilities provide communications that are available 99.99% of the time (no more than 53 minutes of service outage a year) by using two sets of equipment and two satellites in parallel. This level of service redundancy is used for communications with en-route aircraft and for transporting radar data showing aircraft location and separation.

System aging, equipment obsolescence, and extreme Alaskan weather impacts FAA facilities and results in a need to modernize ANICS facilities.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

ANICS Modernization will sustain operational availability by minimizing outages for critical and essential communications between pilots and air traffic controllers. Reliable communications between FAA facilities improves the coordination of air traffic movements, improves the availability of weather information, and provides higher reliability in transmitting radar data to control facilities. ANICS allows maintenance personnel to monitor and control FAA air navigation equipment spread out across the 570,370 square miles of the largest state in the union.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Continue to replace the SATCOM Multiplexer (MUX) and the Network Monitoring and Control Systems (NMCS).
- Replace modems and upgrade radio frequency (RF) equipment at 13 facilities.
- Follow-on procurement & implementation on the software development for the new controller.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue MUX/NMCS replace / modems & RF upgrades at 39 facilities.
- Follow-on procurement & implementation.
- Modernization Phase I Program completed in FY2016.

2E08, FACILITIES DECOMMISSIONING

FY 2008 Request \$8.0M

- Decommissioning, F26.01-01

Program Description

The June 2005 GAO report entitled *Air Traffic Operations, The Federal Aviation Administration Needs To Address Major Air Traffic Operating Cost Control Challenges*, states that the FAA needs to expand its efforts to cut operational costs to address an expected gap between budget forecasts and expenses. Recommendations include speeding up the decommissioning of ground-based navigational aids.

In recent years the FAA has decommissioned many redundant or underutilized facilities, but funding to effect any environmental testing, property restoration, and equipment disposal has not been identified. This line item will be used to begin redress of that shortfall.

Decommissioning activities are defined to include:

- Termination environmental due diligence audits,
- Testing for environmental clean-up/hazmat abatement, and disposal,
- Non-hazmat real property site restoration, demolition, and disposal,
- Lease termination liabilities,
- Equipment (personal property) removal, reuse, and disposal,
- Removing telecommunications systems, services, and circuits,

- Frequency spectrum reallocation,
- Modification of the National Airspace System Resources (NASR) database, aeronautical charts, and terminal procedures publications, and
- Addressing cultural and historic preservation and natural resource protection issues.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

By providing funds for the final disposition of structures, equipment, and real estate that are no longer required by the FAA, this program will eliminate the on-going costs for maintaining assets no longer required by the agency.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

2E09, ELECTRICAL POWER SYSTEMS – SUSTAIN/SUPPORT

FY 2008 Request \$41.0M

- Power Systems Sustained Support, F11.00-00

Program Description

The Power Systems Sustain Support (Power) program is an infrastructure renewal program. NAS ATC programs fund the initial purchase and installation of components of backup power systems and power regulation and protection equipment. These systems are necessary to allow continued operation of air traffic control facilities when there is an interruption in commercial power sources. These power systems also protect sensitive electronic equipment from commercial power surges and fluctuations. After new equipment/facilities have been commissioned, the Power program replaces, renews, and upgrades components of the existing \$2.47B power system infrastructure when necessary to maintain and improve the overall electrical power quality, reliability, and availability.

Program elements include replacing or sustaining the following: batteries in critical power and power-conditioning systems; uninterruptible power systems; engine generators; airport power cable; and lightning protection and grounding systems. Projects are programmed by using NAS metrics of capacity, demand, and passenger value along with specific expert information and aim to maintain NAS capacity, meet demand, and improve passenger value.

The Power program is critical to both maintaining and increasing NAS capacity by sustaining the reliability and availability of NAS electrical power equipment. These actions avoid power disruptions to NAS equipment that result in costly delays. Without reliable NAS power systems, air traffic control electronics cannot deliver their required availability and commercial power disruption results in flights being kept on the ground, placed in airborne holding patterns, or re-routing to other airports. The Power program exists

to sustain reliable and available NAS power, prevent expensive damage to critical air traffic control electronic equipment, and avoid resulting outages of NAS equipment that would produce costly delays.

Aging of the NAS power infrastructure and the continuing deterioration of commercial power quality are resulting in increased disruption of the proper functioning of modern NAS electronics. Increasingly complex hardware and associated software are experiencing extended service restart times when exposed to minimal power fluctuations. These factors result in the need for power systems with better, reliability, and availability.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The Power program is critical to maintaining and increasing air traffic capacity. All NAS facilities are dependant on the availability, reliability, and quality of NAS power. Planned electrical power equipment support and sustain activities minimizes disruption of air traffic, and maximizes availability and reliability of NAS systems. This supports the ATO objective to sustain airport capacity by providing power that reduces the incidence of NAS delays caused by equipment outages that would have occurred during commercial power disturbances. The program focuses on the FAA performance target of sustaining adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- Sustain existing NAS power systems by completing about 360 projects:
 - Replace failed batteries.
 - Replace obsolescent Uninterruptible Power System units.
 - Install cost efficient Direct Current power distribution systems as replacement for power backup.
 - Replace worn out engine generators.
 - Replace deteriorated and “at risk” power cables.
 - Refurbish ineffective lightning protection and grounding systems.
 - Sustain the reliability of ARTCC power distribution equipment.
 - Begin ARTCC reliability upgrades to address identified issues.

Program Plans FY 2009-2012 – Performance Output Goals

- Sustain existing NAS power systems by completing about 360 projects per year:
 - Replace failed batteries.
 - Replace obsolescent Uninterruptible Power System units.
 - Install cost efficient Direct Current power distribution bus systems as replacement for power backup.
 - Replace worn out engine generators.
 - Replace deteriorated and “at risk” power cables.
 - Refurbish ineffective lightning protection and grounding systems.
 - Sustain the reliability of ARTCC power distribution equipment.
 - Continue ARTCC reliability upgrades to address identified issues.

- Develop more proactive programs to sustain and support NAS power systems:
 - Improve management of NAS power systems inventory by better utilization of NAS databases.
 - Prioritize program effort by location identifiers, importance of the NAS facility supported and by ranked economic value.
 - Highlight “pop up” activities and develop incidence reduction strategies.
 - Expand the needs assessment process to provide guidance to the initiator.

2E10, AIRCRAFT FLEET MODERNIZATION

FY 2008 Request \$9.0M

- Flight Standards Inspector Aircraft Replacement, M11.02-00

Program Description

The FAA’s Office of Aviation Safety (AVS) is responsible for promoting aviation safety by regulating and overseeing the civil aviation industry. The Flight Standards Service (AFS) organization, which is a component of AVS, is responsible for regulating general aviation and air carriers.

AVS requires a fleet of aircraft for currency and proficiency flying exercises for nationally based Aviation Safety Inspectors (ASI) and also for the Initial and Recurrent Turboprop program. There are 640 ASI’s that need this performance and proficiency flying once a quarter. These proficiency flights are necessary to ensure that the ASI’s can accurately assess operator skill levels while accomplishing their regulatory checks. The ASI also needs sufficient proficiency to recover the aircraft should the operator/applicant get into an unsafe situation.

Proficiency depends on flying modern aircraft that are configured like the current commercial fleet, so that ASIs have experience in the types of aircraft operations they are checking. Inspectors must practice proper management of aircraft in highly congested airspace including operations in poor weather conditions. To obtain that experience, they must fly an aircraft rather than use a simulator.

This investment will be for nine aircraft configured to modernize the current fleet of aircraft.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1 –** Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1 –** Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

To provide the necessary level of performance and proficiency flying required to meet ASI's needs in regulatory requirements, new aircraft must be purchased to ensure ASIs are fully qualified to check flight operations of commercial operators. Currency of ASIs will sustain the high level of safety for general aviation and air carrier operators reduce fatal accidents.

Program Plans FY 2008 – Performance Output Goals

- Accept delivery of 3 aircraft for service.

Program Plans FY 2009-2012 – Performance Output Goals

- Accept delivery of 6 aircraft for service.

2E11, ENERGY MANAGEMENT

FY 2008 Request \$2.0M

- Energy Cost Savings, F13.04-01

Program Description

The ability of the NAS to provide reliable, maintainable, cost-effective services and facilities depends upon available, effective and sustainable NAS infrastructure. Given the current technology and performance of the equipment, systems and facilities that comprise the NAS, our ability to sustain the existing levels of activities and infrastructure-provided services effectively and efficiently will be greatly diminished unless an optimum mix of new efficient technologies combined with trained staff and building automation systems are integrated into the NAS. The Energy Policy Act of 2005 reinforces these aggressive energy efficiency and water conservation requirements for federal agencies already established by Executive Orders 13123 and 13212.

This program implements FAA Executive Orders 13123, for energy conservation, occupational safety and health, environmental, and fire life safety in accordance with FAA Executive Order 13212 and the Energy Policy Act of 2005 and other public laws and negotiated labor agreements. The result will be a safe, healthful, and environmentally sound work place. The Business benefits will be: 1) Reductions in energy consumption, Avoided Operations (OPS) costs; 2) Minimized F&E costs through optimization; 3) Innovative, reliable, risk management strategic planning; 4) Maximized asset utilization.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

Actions to comply with Energy Program mandates will improve operational sustainability, reduce cost and increase productivity. Savings in OPS costs are possible by optimizing energy technology and maintenance resources to advance sustainability and increase productivity. The estimated value of twenty year life cycle savings is more than \$1billion.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008-2012 – Performance Output Goals

- The objective is to emphasize life cycle cost-efficient technologies, measurement and verification and evaluation of emerging technologies.
 - Install Efficient Filters - Benefit:\$7,249,500/Cost:\$500,000
 - Install Chiller Free Cooling - Benefit:\$14,521,481/Cost:\$9,500,000

System Implementation Schedule

- Efficient Lighting
 - First site – Chicago Midway ATCT, November 2007
 - Last site – Greater Pittsburgh International ATCT, September 2008
- Efficient Filters
 - First site – Lambert St. Louis International ATCT, October 2007
 - Last site – San Francisco International ATCT, September 2011
- Controls
 - First site – Cincinnati International ATCT, December 2007
 - Last site – Orlando International ATCT, September 2007
- Chiller Free Cooling
 - First site – Boston Logan International ATCT, January 2007
 - Last site – Detroit Metro Wayne County ATCT, September 2011

2E12X, INTERNATIONAL FLIGHT INSPECTION AIRCRAFT

FY 2008 Request \$0.0M

- International Flight Inspection Aircraft, M11.03-00

Program Description

The FAA's Aviation System Standards (AVN) organization is responsible for the flight inspection of FAA operated air navigation facilities, facilities owned and operated by the Department of Defense (DoD), and certain foreign-owned facilities that are critical to the U.S. military mission. Significant changes are anticipated for airborne air navigation over the next 10-15 years. The changes include a migration to satellite based navigation systems. The flight inspection workload will also increase due to the runway incursion and National Aeronautics and Space Administration shuttle recovery program, and the expanding overseas DoD commitments related to the global war on terrorism.

The most demanding requirement is flight inspection of navigation aids (NAVAIDS) in our near hostile or war zone areas. Six (6) aircraft are required to support this critical mission. Initially, this was met by the use of six (6) C-29A Hawker 800 aircraft. However, the six Hawker aircraft do not have the necessary range, mission payload, or response time for current military and international requirements, and the avionics are inadequate for current and future requirements.

The most cost-effective replacement strategy is to acquire one (1) Bombardier Challenger 600 series aircraft and exchange three (3) British Aerospace Model Bae-800's to streamline and standardize the FAA international flight inspection fleet. The end international flight inspection fleet mix will be 6 Bombardier Challenger 600 series aircraft. The contract vehicle being used is a fixed-price contract for the purchase of a commercial-off-the-shelf (COTS) aircraft.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The FAA improves air safety by ensuring that flight inspection aircraft and systems are equipped and modified to validate and certify the accuracy of navigational aid electronic signals, as well as validate and certify the safety of approach/departure flight procedures and terminal routes at all airports within the NAS and at military facilities world wide.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operation Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

Program Plan FY2008 – Performance Output Goal

- N/A

Program Plans FY2009—2012 – Performance Output Goals

- Exercise contract option that has been awarded to Bombardier Corporation for one Challenger aircraft.
- Facilitate trade-in of three (3) British Aerospace Model Bae-800s.
- Monitor finishing process of Challenger 605 aircraft at Bombardier.
- Delivery/testing/acceptance of the International Flight Inspection Aircraft.

ACTIVITY 3. NON-AIR TRAFFIC CONTROL FACILITIES AND EQUIPMENT

A. SUPPORT EQUIPMENT

3A01, HAZARDOUS MATERIALS MANAGEMENT

FY 2008 Request \$18.2M

- NAS Facilities OSHA & Environmental Standards Compliance – Environmental Cleanup/HAZMAT, F13.02-00

Program Description

The FAA has identified more than 709 contaminated sites at 227 locations nationwide that require investigation, remediation, and closure activities. Environmental Cleanup site investigations have indicated that toxic contamination resulted from a variety of hazardous substances: cleaning solvents, fuels, pesticides, asbestos, polychlorinated biphenyls (PCBs), and heavy metals. FAA organizations, including the Mike Monroney Aeronautical Center and the William J. Hughes Technical Center, have mandatory remediation and monitoring schedules in place as part of negotiated agreements with regulatory agencies. These agreements require the FAA to remediate contaminated soil and groundwater. Extensive contamination at the FAA Technical Center prompted the Environmental Protection Agency (EPA) to place the site on the EPA National Priorities List, indicating its status as one of the Nation's most environmentally dangerous sites (i.e. Superfund site). In addition, contaminated sites and past noncompliance with requirements of the Hazardous Materials Management (HAZMAT) program account for a large portion of the unfunded environmental liabilities documented in the FAA's Financial Statement.

To clean up these contaminated sites and comply with applicable environmental regulations, the FAA developed the HAZMAT program. The FAA must continue mandated program activities to achieve compliance with all Federal, State and local environmental cleanup regulations, including the Resource Conservation and Recovery Act (RCRA) of 1976, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, and the Superfund Amendment and Reauthorization Act (SARA) of 1986. FAA program activities include: conducting site investigations; managing hazardous materials; including hazardous waste accumulation, handling and disposal; installing groundwater monitoring wells; remediating site contamination; and operating air pollution controls. The FAA performs assessment, remediation and closure activities as aggressively and proactively as funding will allow. Future planned efforts include conducting contaminant investigations, implementing site remediation projects and completing required regulatory closures. During FY2006, the FAA attained 93 percent "No Further Remedial Action Planned (NFRAP)" closure documentation for FAA sites listed on EPA's Federal Hazardous Waste Compliance Docket.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Environmental Stewardship.**
- **DOT Outcome** – Reduce pollution and other adverse effects of transportation and transportation facilities.
- **FAA Strategy** – Adopt transportation policies and promote technologies that reduce or eliminate environmental degradation.

Relationship to Performance Target

The HAZMAT program supports the environmental stewardship goal by conducting required cleanup activities for contaminated sites within existing NAS land and structures. The program achieves this objective through assessment, remediation, and closure activities for contaminated sites. These activities

result in a safe and environmentally sound workplace, and protection of the natural resources of surrounding communities. The program works to ensure continuing compliance with the Hazardous Materials Management program. Further, the program ensures that the FAA maintains compliance with the Department of Transportation's performance goal of achieving NFRAP status for 93 percent of all FAA sites listed on the EPA's Federal Hazardous Waste Compliance Docket.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Program Plans FY 2008 – Performance Output Goals

- Maintain 93 percent NFRAP for all sites listed on the EPA's Federal Hazardous Waste Compliance Docket.
- Reduce relative risk to human health and the environment at a minimum of 5% of the contaminated sites.
- Perform remediation activities for PCB and fuel contamination at the Bimini, Bahamas Very High Frequency Omnidirectional Radar (VOR) Maintenance Facility (MF) and the Non-Directional Beacon (NDB).
- Continue to negotiate a "De-minimus" settlement with the EPA and New Jersey Department of Environmental Protection for Area U and Area W at the FAA Technical Center near Atlantic City, New Jersey
- Continue to support the Decommissioning Program (F26.01-01) with technical assistance and funding for remediation of environmental contamination at these sites.
- Achieve regulatory closure of the Cape Yakataga (CYT) landfill, which is currently eroding into the Yakataga River.
- Achieve regulatory closure of the Skwentna, Alaska (SKW) landfill, and ensure the landfill is in post-operational monitoring.
- Attain the Closure-Long Term Monitoring phase for the Chlorinated Groundwater Plume at the Mike Monroney Center (AMC).

Program Plans FY 2009-2012 – Performance Output Goals

- Attain regulatory closure for the Omaha Ex Air Force Station.
- Negotiate a "De Minimis" settlement for the Kirksville, Air Route Surveillance Radar site with the EPA.
- Maintain 93 percent NFRAP for all sites listed on the EPA's Federal Hazardous Waste Compliance Docket.
- Reduce relative risk to human health and the environment at a minimum of 5% of the contaminated sites.
- Continue to support the Decommissioning Program (F26.01-01) with technical assistance and funding for remediation of environmental contamination at these sites.
- Ensure that 90% or more of currently identified environmental cleanup sites are in the remediation phase.
- Attain NFRAP for the Omaha Ex Air Force Station, and begin the process of delisting the site from the Federal Hazardous Waste Compliance Docket.
- Attain NFRAP for the AMC, and begin the process of delisting the site from the Federal Hazardous Waste Compliance Docket.

3A02, AVIATION SAFETY ANALYSIS SYSTEM (ASAS)

FY 2008 Request \$16.9M

- Aviation Safety Analysis System (ASAS), A17.00-00

Program Description

The ASAS program provides the automation hardware, software, and communication infrastructure to support aviation safety information databases and access to them by the increasingly mobile FAA safety work force. The workforce uses these databases to certify and regulate aircrews, airlines, and other licensed companies in aviation. Having information readily available improves the ability of safety personnel to develop safety regulations and oversee the civil aviation industry. The information technology infrastructure and software systems also enhance data and information sharing.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1 –** Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1 –** Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

Inspection and review of airline safety programs and practices are integral to the FAA safety program. The ASAS provides information on the safety record of an airline and the actions required to meet regulations and directives. Having this information allows the safety inspectors to determine if the airline is complying with good safety practices, which is essential to FAA's role in preventing accidents.

Program Plans FY 2008 – Performance Output Goals

- Deploy and support mobile devices with enhanced telecommunications services to 25% of the Office of Aviation Safety (AVS) Safety workforce.
- Continue transition to a centralized data storage and processing environment.
- Continue implementation of a services oriented architecture.
- Continue technology refreshment of legacy AVS infrastructure components in support of AVS national safety applications.
- Continue improvement of Aviation Medical Examiner workflow process under Document Imaging Workflow System (DIWS).
- Continue expansion of Covered Position Decision Support (CPDSS) systems to address processing of medical appeals cases and meet new reporting requirements.
- Continue expansion of Administration and Compliance Tracking in an Integrated Office Network Subsystem (ACTIONS) to provide an automated repository of compliance history data.
- Continue enhancements to the Compliance and Enforcement Tracking System (CETS).
- Analyze/revise application/user processes; develop training materials and conduct user training; analyze and develop web-based interface to replace legacy interface; enable external interfaces to commercial realm.
- Begin development of Integrated Accident and Incident data system to allow for consolidation of critical safety-related data analysis and reporting
- Complete re-hosting of mainframe application into web-based server environment.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue deployment and support of mobile devices with enhanced telecommunications services to the AVS Safety workforce.
- Continue transition to centralized data storage and processing environment.
- Continue implementation of services oriented architecture.

- Continue technology refreshment of legacy AVS infrastructure components in support of AVS national safety applications.
- Continue improvement of Aviation Medical Examiner workflow process under DIWS.
- Continue expansion of CPDSS systems to address processing of medical appeals cases and meet new reporting requirements.
- Continue expansion of ACTIONS to provide an automated repository of compliance history data.
- Continue enhancements to CETS.
- Design and develop new correspondence tools to create and maintain official communication; integrate Occupational Medical Surveillance Program; move airmen medical certification data to electronic media; and provide instant airman certification under CPDSS.
- Integrate CETS data with Decision Support System
- Develop additional enhancements for the ad hoc reporting capability, improve ability to upload photos, upgrade data collections software and improve remote access.
- Complete development of the Aviation Medical Examiner Information subsystem
- Complete development of Integrated Quality system to support AVS initiatives.
- Complete development of Integrated Air Traffic Oversight system to support AVS initiatives.

3A03, LOGISTICS SUPPORT SYSTEMS AND FACILITIES (LSSF)

FY 2008 Request \$6.3M

- Logistics Support Systems & Facilities (LSSF) – Logistics Center Support System (LCSS), M21.04-01

Program Description

LCSS will replace the Logistics and Inventory System (LIS) and improve FAA efficiencies, enhancing service to reduce inventory costs, increase inventory accuracy, and increase productivity.

LCSS will be a web-based system that uses state-of-the-art tools to extend and leverage the existing agency investment in LIS. The new tools will be based on object-driven open architecture and will allow interfaces to be integrated. LCSS will incorporate the use of COTS applications and enhancements to improve asset visibility, provide serial number tracking, warranty information, shop floor control and spares modeling. These functions will provide a more complete picture of the financial position of logistics within the agency.

The FAA Logistics Center (FAALC) manages the central NAS inventory warehouses and distribution facilities for the FAA. It provides routine and emergency logistics products and services to 8,000 FAA customers at 41,000 facilities and 28,000 sites, as well as to the Department of Defense (Air Force, Navy, Army), state agencies and foreign countries by providing 80,000 parts and services through its facilities. It supplies, tracks and accounts for F&E and Ops parts totaling \$1B.

Examples of NAS support that FAALC provides include:

- Annually issues over \$300M in assets to ATO-W technical operations specialists, and
- Satisfied over 110,000 NAS requirement transactions in FY 2004.

FAALC services include repair, fabrication, and overhaul of radar, navigation, landing, weather, communication, and automation equipment for the NAS. Services include diagnostic testing, engineering, fabrication, modification, overhaul, repair, and calibration of NAS system equipment and components. FAALC also provides emergency on-site repairs to the Air Route Surveillance Radar and Terminal Doppler Weather Radar, and other NAS systems with antennae arrays. The Logistics Center provides inventory management of stock levels, demand forecasting, contract management, customer assistance, and special project support for NAS installation and repair. They are an ISO 9001:2000 certified distribution, warehousing, and repair facility, and they are certified for the design, implementation, and maintenance of software systems in support of the NAS.

LIS is a 15-year-old customized mainframe system with an obsolete system design that is technically difficult and expensive to maintain. It is unable to incorporate technology and business changes to meet the accelerating growth in requirements of the National Airspace System.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The LCSS program will support enhanced cost-control measures and improved decision-making by:

- 1) Provide the right part, at the right time, to the right place. Metric: Issue Effectiveness: Target goal is 84% effectiveness.
- 2) Provide NAS components and parts that are not defective. Metric: Confirm defective products: Target goal is 14 defects per 1,000 issues.
- 3) Provide services that meet or exceed customer expectations. Metric: Customer satisfaction surveys: Target goal is 85% customer satisfaction.
- 4) Delivering parts and services on time and defect-free reduces potential air traffic system outages and avoids the cost of duplicate shipping and handling.

Program Plans FY 2008 – Performance Output Goals

- Assemble LCSS software solution, build internal and external interfaces to the FAA and DoD systems.
- Achieve interim development.

Program Plans FY 2009-2012 – Performance Output Goals

- Complete, test, and deploy complete LCSS software solution.
- Monitor LCSS implementation and continue COTS software upgrades/maintenance.

3A04, TEST EQUIPMENT – MAINTENANCE SUPPORT FOR REPLACEMENT FY 2008 Request \$2.5M

- Test Equipment Modernization / Replacement, M17.00-00

Program Description

The Test Equipment Modernization/Replacement project procures the test equipment needed to ensure reliable NAS operation. As the FAA modernizes the NAS, the new systems that are installed require specialized test equipment to determine if they are operating properly. In addition, as general use test equipment wears out, it must be replaced. With appropriate test equipment, systems can be repaired efficiently, and outage time can be shortened.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

Equipment outages often result in costly delays. Minimizing delays depends on having the appropriate equipment to diagnose the cause of the failure in order to reduce restoration time for both scheduled and unscheduled outages. New test equipment will enable the technicians to obtain accurate results when testing, repairing, and certifying NAS systems, and it will significantly reduce NAS system callbacks and recertification's stemming from misalignments due to test equipment failures. Inappropriate or inoperable test equipment can significantly impact operational availability and result in aircraft delays.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

3A05, NATIONAL AIRSPACE SYSTEM (NAS) RECOVERY COMMUNICATIONS (RCOM) FY 2008 Request \$10.0M

- Command and Control Communications (C3), C18.00-00

Program Description

The RCOM program gives the FAA the C3 capability to directly manage and operate the NAS during local, regional and national emergencies, when normal common-carrier communications are interrupted. The NAS C3 provides and enhances a variety of fixed-position, portable, and transportable C3 systems to support emergency operations. Such C3 systems include the automatic digital network/defense messaging system; secure telephone unit third generation/secure telephone equipment; secure facsimile; very high frequency (VHF)/Frequency Modulated (FM); high-frequency single-side band; satellite telephone network; wireless notification system; secure conferencing system; Emergency Operations Network (EON); and communications in emergency situations. These C3 systems enable the FAA and other Federal agencies to exchange classified and unclassified communications to promote national security. The RCOM program also supports the Washington Operations Center Complex and modernizes several FAA "continuity of operations" sites, which ensures FAA executives have command and communications during times of crisis.

Relationship of Program to DOT Strategic Goal, Objective, & Performance Target

- **DOT Strategic Goal – Homeland and National Security.**
- **DOT Outcome** - Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce.
- **DOT Strategy** – Support and implement U.S. security strategies and plans related to transportation.

Relationship to Performance Target

The RCOM program contributes to the FAA's security goal by ensuring that the FAA's C3 structure can provide time-critical public and NAS information for the FAA Administrator during emergencies. The FAA Administrator shares this information with staff members, key regional managers, the Secretary of Transportation, and other national-level executive personnel.

Program Plans FY 2008 – Performance Output Goals

- Procure and install VHF/FM equipment for Atlanta System Maintenance Office (SMO), Southern New England SMO, Tri-State Snow SMO, Independence SMO and Chicago SMO.
- Implement Phase III of Emergency Operations Network.
- Procure and install additional secure conferencing systems.
- Procure and install VHF/FM equipment for Chicago SMO and Independence SMO.
- Engineer system requirements for VHF/FM Pacific Northwest Mountain SMO, Tri-State Snow SMO, Gateway SMO, and Memphis SMO.
- Support Communication Support Team missions as required.
- Continue modernizing classified facilities.
- Commence modernization of Regional Operations Centers nationwide.
- Continue work on various classified projects.

Program Plans FY 2009-2012 – Performance Output Goals

- Procure and install additional secure facsimile units and secure conferencing systems.
- Procure and install VHF/FM equipment for the Pacific Northwest Mountain SMO, Columbia SMO, Gateway SMO, Memphis SMO, Pittsburgh SMO, Salt Lake City SMO, Lone Star SMO, Ohio SMO, Hawaii-Pacific SMO, Rocky Mountain SMO, Red River SMO, Rio Grande SMO, Superior SMO, Dakota-Minnesota SMO, and Great Plains SMO.
- Engineer system requirements for VHF/FM Pittsburgh SMO, Salt Lake City SMO, Lone Star SMO, Ohio SMO, Hawaii-Pacific SMO, Rocky Mountain SMO, Red River SMO, Rio Grande SMO, Superior SMO, Dakota-Minnesota SMO, and Great Plains SMO.
- Continue modernizing classified facilities.
- Support Communication Support Team missions as required.
- Deliver additional secure conferencing systems as required.
- Upgrade and enhance satellite telephone network system.
- Continue modernizing Regional Operations Centers nationwide.
- Continue efforts on various classified projects.

3A06, FACILITY SECURITY RISK MANAGEMENT

FY 2008 Request \$22.0M

- Facility Security Risk Management, F24.00-00

Program Description

The Facility Security Risk Management (FSRM) Program was established in response to Presidential Decision Directive 63, Critical Infrastructure Protection (later superceded by Homeland Security Presidential Directive 7, Critical Infrastructure Identification, Prioritization and Protection), which required all Federal agencies to assess the risks to their critical infrastructure and take steps to mitigate that risk. The program provides an integrated security system that includes access control, surveillance, x-ray machines, metal detection and intrusion detection. Other upgrades include adding guardhouses, visitor parking, fencing, and lighting.

Relationship of Program to DOT Strategic Goal, Objective, & Performance Target

- **DOT Strategic Goal – Homeland and National Security.**
- **DOT Outcome** – Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce.
- **DOT Strategy** – Support and implement U.S. security strategies and plans related to transportation.

Relationship to Performance Target

The FSRM Program provides the infrastructure enhancements needed to reduce risks to facilities critical to the NAS. These enhancements reduce the risk of unauthorized access and provide early identification of potential security problems.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.7** – Support national aviation security needs.

Program Plans FY 2008 – Performance Output Goals

- Upgrade and accredit 10 of 220 remaining facilities (4%).

Program Plans FY 2009-2012 – Performance Output Goals

- Upgrade and accredit 210 of 220 remaining facilities (100%).

3A07, INFORMATION SECURITY

FY 2008 Request \$8.0M

- NAS Information Security – Information Systems Security, M31.00-00

Program Description

The FAA is responsible for the management of the largest and most complex aviation system in the world. The FAA must ensure the integrity and availability of all its critical information systems, networks, and administrative systems under conditions of increased cyber terrorism and malicious activities by hackers and other unauthorized personnel. In the Homeland Security Presidential Directive/HSPD 7, FAA was directed to protect and ensure the integrity and availability of all National Airspace Information Systems and networks. To comply with this national policy, a plan for protecting the cyber critical infrastructure and key resources that they own or operate was submitted to OMB in FY 2004. The FAA must implement the cyber protection plan for the NAS and report progress on an annual basis.

The FAA Cyber Security program is a partnership between the FAA Chief Information Officer (CIO) organization and FAA lines of business and staff offices (LOBs/SOs) with a focus on protecting our information technology (IT) infrastructure. The program is comprised of the following areas: Computer Security Incident Response Center (CSIRC); IT and Information Systems Security (ISS) awareness and training; IT research and development (R&D); policy, standards, and requirements; program evaluations; and system certification and compliance. This comprehensive Cyber Security effort offers information security awareness training of the agency's key ISS personnel, development and evaluation of policies and standards, formulation of system requirements, certification of systems and ensures their compliance with federal regulations, protection of FAA's computer enterprise, and response to computer security incidents.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **DOT Strategic Goal – Homeland and National Security.**
- **DOT Strategic Goal -** Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce.
- **DOT Objective 1** – Support and implement U.S. security strategies and plans related to transportation.

Relationship to Performance Target

The FAA supports and implements security strategies and plans by: (1) ensuring effective preparedness, detection, response, and recovery regarding cyber attacks; (2) integrating information security efforts into

all acquisition and operation phases to protect FAA people, buildings, and information; and (3) supporting the nation's efforts to safeguard homeland security, in particular the aviation infrastructure and industry.

Program Plans FY 2008 – Performance Output Goals

- Correct NAS vulnerabilities discovered through the certification and authorization process.
- Certify and authorize spiral releases of complex systems and newly designed systems.
- Provide CSIRC enhancements to support NAS and the NAS Security Information Group.
- Enhance the NAS architecture regarding cyber security protection by developing cyber security requirements and reviewing certification and authorization work.
- Conduct initiatives to improve the reliability, availability, and integrity of NAS systems during various forms of cyber attack.
- Develop plans and provide management support to integrate the network connections from LOBs/SOs into the FAA IPV6 compliant backbone.

Program Plans FY 2009-2012 – Performance Output Goals

- Correct NAS vulnerabilities discovered through the certification and authorization process.
- Certify and authorize spiral releases of complex systems and newly designed systems.
- Provide CSIRC enhancements to support NAS and the NAS Security Information Group.
- Enhance the NAS architecture regarding cyber security protection by developing cyber security requirements and reviewing certification and authorization work.
- Conduct initiatives to improve the reliability, availability, and integrity of NAS systems during various forms of cyber attack.
- Complete concept of operation and implement strategy for automated recovery, which involves isolating those systems that have been affected by a virus, instituting the fix, and making sure that affected systems get back online as soon as possible.
- Develop architecture and engineering efforts for alternative solutions to secure new NAS systems.
- Monitor and take all actions necessary to ensure that the NAS information technology systems are not interrupted and are available at all times.
- Address vulnerabilities discovered through certifications and authorizations completed in prior years.
- Evaluate and acquire enhanced tools used by the CSIRC to address complex and rapidly changing cyber threats and vulnerabilities.

3A08, SYSTEM APPROACH FOR SAFETY OVERSIGHT (SASO)

FY 2008 Request \$11.3M

- System Approach for Safety Oversight (SASO), A25.01-00
- System Approach for Safety Oversight (SASO) Phase 2, A25.02-01

Program Description

SASO is an investment to increase aviation safety and control FAA costs by transforming the Flight Standards Service (AFS) and those segments of the aviation industry it regulates to a national standard of System Safety. Preventive System Safety oversight is universally recognized as the most effective and efficient way of preventing accidents. The SASO program will develop and implement a new proactive systems safety approach that significantly improves the FAA's ability to identify and address hazards and safety risks before they result in accidents. Since these risks exist in the operations of large and small air carriers, repair stations, pilot and mechanic schools, designee programs and other sectors of the aviation environment, SASO will re-engineer the oversight processes in each of these areas. Existing certification, inspection, designee oversight, and investigation procedures, as well as the current regulations, will be evaluated, and overhauled where necessary. New processes will be structured to focus on; collecting, analyzing, and disseminating critical safety data; identifying indicators of systemic and individual hazards; and eliminating those conditions that pose safety risk.

In addition, existing information systems and tools will be examined and assessed to determine their ability to support systems safety oriented oversight. Redundant applications will be consolidated. Obsolete and unsuitable systems will be removed and replaced with an integrated suite of databases and analysis tools that coincide with the new systems-based, risk management-oriented processes. Newly designed processes and information systems will encompass all necessary human factors considerations to ensure their effective implementation, and the workforce will be trained in their application. The new systems and analysis/decision support tools will consistently provide accurate, critical information needed to make timely safety decisions, and the newly engineered oversight processes will emphasize the use of this data by the FAA when making critical oversight decisions. Finally, the program will exchange information from these systems with national and international government and industry organizations throughout the aviation community to increase awareness of systemic safety risks and maximize levels of safety.

The users of SASO include the 4,800 FAA Aviation Safety employees in 9 regions and at more than 120 headquarters and field offices throughout the United States, Europe, and Asia. In addition, it will serve more than 25,000 aviation industry professionals managing safety throughout the United States and around the world.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 fatal accidents per 100,000 departures.

Relationship to Performance Target

SASO will contribute to a reduction in accident rates over the period FY 2003 through FY 2022. SASO proposes to achieve these results by reengineering oversight processes to system safety and automating system safety functions.

Program Plans FY 2008 – Performance Output Goals

- Complete commercial air carrier oversight system automation.
- Complete evaluation of commercial air carrier oversight system effectiveness and efficiency.
- Complete reengineering repair station oversight business processes.
- Complete reengineering air taxi and commuter oversight business processes.
- Complete AFS Enterprise Architecture and AFS Consolidated System Design.
- Receive SASO Phase II final investment decision approval.

Program Plans FY 2009-2012 – Performance Output Goals

- Complete repair station oversight system automation.
- Complete evaluation of repair station oversight system effectiveness and efficiency.
- Complete automation of air taxi and commuter oversight systems.
- Complete reengineering aerial applicator oversight business processes.
- Complete automation of aerial applicator oversight systems.
- Complete reengineering training center and school oversight business processes.
- Complete automation of training center and school oversight systems.
- Complete reengineering general aviation oversight business processes.
- Complete automation of general aviation oversight systems.
- Complete integration of commercial air carrier, air taxi, commuter, repair stations, training center, and school oversight systems.
- Complete SASO Phase I.
- Initiate SASO Phase II.

3A09, AVIATION SAFETY KNOWLEDGE MANAGEMENT ENVIRONMENT (ASKME)

FY 2008 Request \$4.0M

- Aviation Safety Knowledge Management Environment, A26.01-00

Program Description

The Aviation Safety Knowledge Management Environment (ASKME) is a suite of information technology (IT) tools designed to support and enable the FAA Aircraft Certification Service (AIR) to more efficiently certify new aircraft and modifications to existing aircraft. This system will electronically store FAA technical documentation and lessons learned from previous certifications that involved aircraft design and manufacturing safety issues so that they can be accessed and shared more easily. This technical data includes the rationale for design and production certification decisions, interpretations of rules and policies, and audits of aircraft industry manufacturers. In addition, ASKME will provide tools to improve the ability to identify potential unsafe conditions by analyzing this documentation along with safety information such as Service Difficulty Reports, National Transportation Safety Board safety recommendations and reports, accident reports, and Maintenance Difficulty Reports. Finally, ASKME will provide electronic tools for capturing key safety related data resulting from its standard business activities for rulemaking and policy development, airworthiness directives, design certification, production/manufacturing certification, airworthiness certification, designee management, evaluation and audit, external inquiries, enforcement, continued operational safety management, and international coordination.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline fatal accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The Aircraft Certification Service (AIR) is responsible for ensuring that civil aircraft are designed and manufactured to operate safely within the NAS. ASKME will provide the automated systems to conduct safety data analysis and data gathering, as well as the collection of lessons learned as it applies to AIR's safety-related responsibilities (e.g. aircraft certification and certificate management, regulatory development, designee supervision and oversight, and operational safety). ASKME will provide AIR with a comprehensive mechanism aimed at: 1) the early identification and resolution of accident precursors; 2) the promotion of systematic and structured risk assessment/risk management practices; and 3) the proactive management of safety issues throughout the lifecycle of an aircraft and its components. The projected savings over the life of the program is estimated at 174 avoided fatalities and a total savings of \$546.6M (then year dollars at 80% high confidence level).

Program Plans FY 2008 – Performance Output Goals

- Implement Historical Safety Document Scanning activities.
- Conduct system analysis and design for the Designee Supervision / Past Performance, Assimilate Lessons Learned, and DDS (DOA/DAS/SFAR-36) Technical Evaluations sub-functions.
- Complete development and implement Phase II of Monitor Safety Related Data.
- Finalize system functional requirements and initiate design and development activities for Work Tracking Software.

Program Plans FY 2009-2012 – Performance Output Goals

- Conduct system functional requirements gathering and analysis for the Engineering Design Approval, Airworthiness Directives Development, Standard and Special Airworthiness Certification, Compliance and Enforcement Action, Special Flight Authorizations, and Certification of Imported/Exported Products sub-functions.
- Implement Phase III of Monitor Safety Related Data
- Complete development and deployment of the following sub-functions:
 - Designee Supervision / Past Performance,
 - Assimilate Lessons Learned, and
 - DDS (DOA/DAS/SFAR-36) Technical Evaluations
- Design, develop, and implement the following sub-functions:
 - Engineering Design Approval,
 - Airworthiness Directives Development,
 - Standard and Special Airworthiness Certification,
 - Compliance and Enforcement Action,
 - Special Flight Authorizations, and
 - Certification of Imported/Exported Products

3A10, LOGICAL ACCESS CONTROL

FY 2008 Request \$7.0M

- Logical Access Control/Identity Management, M31.02-01

Program Description

On August 27, 2004, Homeland Security Presidential Directive (HSPD) 12 was issued. This directive set the policy for a Common Identification Standard and mandated government-wide implementation of secure and reliable forms of both physical and logical identification. In order to protect the integrity and availability of its critical information systems and networks and comply with HSPD 12, FAA is developing and setting standards and policy for Logical Access Control (LAC). A critical part of this plan is to ensure authentication of each person's identity (100,000 users) before granting access to agency information systems.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **DOT Strategic Goal – Homeland and National Security.**
- **DOT Strategic Goal -** Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce.
- **DOT Objective 1 –** Support and implement U.S. security strategies and plans related to transportation.

Relationship to Performance Target

The implementation of LAC will enable the agency to defend the FAA NAS information systems and networks against cyber terrorism and malicious activities by hackers and other unauthorized personnel. The implementation of LAC will also enable the agency to reduce identity fraud, protect personal privacy, keep sensitive information secure, support business continuity planning, respond rapidly and consistently to internal and external security threats, and improve the accountability and oversight of agency information and information systems. This effort will substantially increase the assurance of reliability, availability, and integrity of agency information and information systems.

Program Plans FY 2008 – Performance Output Goals

- Issue 100,000 ID cards provisioned for logical access that will reduce identity fraud, protect personal privacy and keep sensitive information secure.

Program Plans FY 2009-2012 – Performance Output Goals

- None at this time.

B. TRAINING, EQUIPMENT, AND FACILITIES

3B01, AERONAUTICAL CENTER INFRASTRUCTURE MODERNIZATION

FY 2008 Request \$5.4M

- Aeronautical Center Infrastructure Modernization, F18.00-00

Program Description

The Aeronautical Center Infrastructure Modernization program supports FAA Training, Logistics, Engineering, Research, and Regulation and Certification programs and business services. This program upgrades and/or renovates aging facilities and infrastructure at the Mike Monroney Aeronautical Center. The addition of new equipment to the FAA's inventory, coupled with existing NAS support requirements, increases the need to maintain suitable space at the Aeronautical Center to house NAS support functions. In addition to facilities, the related infrastructure – such as storm sewers, water lines, and telecommunications equipment – must be upgraded. The center has 117 buildings (85 owned by the FAA, 32 leased to the FAA by the Oklahoma City Airport Trust), and 31 other structures, for a total of approximately 3.2 million square feet under roof.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal** – Organizational Excellence
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The Aeronautical Center Infrastructure Modernization program improves efficiency and effectiveness by updating facilities and support infrastructure to meet the need of mission support organizations located at the Aeronautical Center. The Aeronautical Center supports ATO initiatives in training, logistics, and NAS engineering; provides consolidated accounting and business services for DOT and FAA; and hosts the FAA Civil Aerospace Medical Institute, FAA Flight Standards Training and Regulatory Support, and FAA Aviation Systems Standards organizations. This program's performance contributes to efficiencies in organizational effectiveness, reductions in environmental risk and facility operation cost.

Program Plan FY2008 – Performance Output Goals

- Renovation construction of the Multi-purpose building, second phase.
- Telecommunications equipment upgrades installations of: telephone system cabling, network equipment, and NORTEL telephone switch.

Program Plan FY2009-2012 – Performance Output Goals

- Design and construct Hangars 8 and 9 fire suppression systems to protect FAA aircraft.
- Design and renovation construction of Systems Training building to correct life safety issues.
- Renovation construction of the Multi-purpose building, third phase.
- Telecommunications upgrades; installation of telecom equipment.

System Implementation Schedule

The following buildings will be returned to service as phased renovation construction is completed:

- Flight Inspection Building, FY 2008
- Air Navigation Facility #2, FY 2008,
- Hangar 8 and 9 Fire suppression systems, FY 2009,
- Multi-purpose building, FY 2011, and
- Systems Training building, FY 2013.

3B02, NATIONAL AIRSPACE SYSTEM (NAS) TRAINING FACILITIES

FY 2008 Request \$1.9M

- NAS Training – Equipment Modernization, M20.00-00

Program Description

The FAA Academy conducts technical training for air traffic controllers, airway facilities technicians, aviation safety inspectors, and other specialists, and is responsible for internal training infrastructure. Training on new systems being installed as part of the NAS modernization requires updated simulators, training media, and communications equipment. To meet these needs, the Academy requires an Interactive Simulation Training System (ISTS), an integration of this equipment that will significantly cut training costs, creating a well-trained technical workforce. Following achievement of full operational capability in 2008, technology refresh will be required to continue the capability.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 1** – Make the organization more effective with stronger leadership, increased commitment of individual workers to fulfill organization-wide goals, and a better prepared, better trained, safer, diverse workforce.
- **FAA Performance Target 5** – Maintain air traffic controller annual hiring within 5 percent of the Air Traffic Controller Workforce Hiring Plan.

Relationship to Performance Target

The NAS Training Equipment Modernization program enhances operational/maintenance training for NAS systems by providing modern simulators, training media, and communication equipment. It also increases training efficiency by reducing the time it takes to train this workforce. This equates to less time spent in training and more time on position in the facility. The benefits of reduced training costs and a more effective workforce are reduced time and cost of operating and sustaining the NAS. Reducing training time is providing substantial benefits. Operational efficiency is improved because the Academy-trained technical workforce is applying the newly acquired skills to the operational elements of the NAS. In addition to significantly improving the efficiency and effectiveness of virtually all FAA Academy technical training, the ISTS will certainly help the FAA meet annual hiring goals established by the Air Traffic Controller Workforce Hiring Plan.

3B03, DISTANCE LEARNING

FY 2008 Request \$1.4M

- Distance Learning, M10.00-00

Program Description

The Distance Learning program will replace Computer-Based Instruction (CBI) Delivery Platforms at all CBI Learning Centers, increase connectivity, and upgrade network multimedia support and services. The system consists of about 1,400 Learning Centers located at virtually every FAA facility around the world. The FAA is replacing the platforms for two reasons: (1) to support high-performance media and simulations required in many lessons; and (2) because replacement parts for current platforms are becoming obsolete and hard to obtain.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2 –** Improve financial management while delivering quality customer service.
- **FAA Performance Target 2 –** Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The major benefit of distance learning is the substantial reduction in student time away from work, and student travel and per diem costs associated with resident-based training. In addition, distance learning delivery methods increase training effectiveness, increase training opportunities for all FAA employees, and provide flexibility in training schedules through local management control. The FAA CBI system must deliver initial operator, transition, and maintenance training for many NAS programs. By providing a standard training delivery and equipment simulation platform across all NAS programs, the need for such equipment and the space it would occupy is much reduced. All of these factors contribute to a reduction in the unit cost of service for en route, terminal, and flight service. This program contributes well over \$5M savings each year. All these efficiencies combine to produce a better prepared, better trained, safer diverse workforce. Such an improvement in working conditions and workforce skills preparation is expected to help increase the Employee Attitude Survey scores in the areas of management effectiveness and accountability by at least 5 percent.

3B04, NATIONAL AIRSPACE SYSTEM (NAS) TRAINING – SIMULATOR

FY 2008 Request \$14.6M

- NAS Training – Equipment Modernization – Training Simulators, M20.01-00

Program Description

The NAS Training Simulator project will acquire and deploy training simulators to selected air traffic facilities in the field. Similar technology implemented at the Academy and by the US Air Force has proven successful. This project focuses on using technology to assist FAA in training newly hired controllers during the next 10 years in response to projected staffing requirements. This program provides funding to acquire simulators for air traffic facilities, training media, and communications equipment.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 1** – Make the organization more effective with stronger leadership, increased commitment of individual workers to fulfill organization-wide goals, and a better prepared, better trained, safer, diverse workforce.
- **FAA Performance Target 5** – Maintain air traffic controller annual hiring within 5 percent of the Air Traffic Controller Workforce Hiring Plan.

Relationship to FAA Performance Target

Through the use of simulation at En Route and Terminal facilities, the FAA can further enhance training for air traffic controllers in a high fidelity, realistic environment. Not only will this reduce on-the-job training time, but also significantly reduce operational errors. Students need the simulated environment to reach the skill level necessary to become a fully proficient controller.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce unit cost of ATO operations.

Program Plans FY 2008 – Performance Output Goals

En Route:

- Acquire and deploy interim simulator systems at selected air route traffic control center locations.
- Conduct “train the trainer” training.
- Commence Stage III & IV new hire training at designated air route traffic control center locations.

Terminal:

- Continue the acquisition and installation of simulators at selected air traffic control tower hub locations.
- Continue the installation of simulator software databases for selected air traffic control tower hub and satellite locations.
- Continue air traffic instructor simulator training at selected hub locations.
- Continue the implementation of Contractor Logistic Services.
- Continue simulator training for new hires at hub locations.

Program Plans FY 2009-2012 – Performance Output Goals

En Route:

- Continue Stage III & IV new hire training.
- Training constraint relief begins.
- Interim systems program lifecycle ends in FY 2010.

Terminal:

- Complete installation of simulator software databases at selected air traffic control tower hubs.
- Complete air traffic instructor simulator training.
- Continue simulator training for new hires and expand training to include transfers, proficiency and skill enhancement, and recertification.
- Continue Contractor Logistic Services.
- Perform technology refresh on the deployed simulator systems

ACTIVITY 4. FACILITIES AND EQUIPMENT MISSION SUPPORT

4A01, SYSTEM ENGINEERING AND DEVELOPMENT SUPPORT

FY 2008 Request \$30.2M

- A, System Engineering and Development Support – SETA, M03.01-00
- B, Provide ANF/ATC Support (Quick Response), M08.01-00
- C, Web CM, M03.01-01

A, SYSTEM ENGINEERING AND DEVELOPMENT SUPPORT – SETA, M03.01-00

Program Description

This System Engineering and Development Support project allows the FAA to contract for critical expertise to assist in system engineering and other technical areas used to develop the NAS Architecture and key modernization projects. The System Engineering support provided works directly on four of the key modernization plans: the Flight Plan, NAS Operational Evolution Plan, Capital Investment Plan, and the NAS Aviation Research Plan. System engineering and integration are key to the NAS Architecture's success and to maintaining interface control between current systems and new systems.

Besides system engineering, the contracts under this program support the ATO for automation systems, communications contracts, navigation and landing aids, surveillance, and weather. Also provided are program management, financial management and investment analysis support to assist with planning, decision making, and budgetary oversight of the activities involved in implementing newly acquired systems, components, and equipment in existing operational NAS facilities.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The System Engineering and Development Support project contributes to organizational excellence by providing support for designing and managing NAS modernization. With contractor assistance, the FAA is able to plan, analyze, and manage NAS system improvements more effectively. In addition, financial management and investment analysis support helps the FAA track cost, balance competing budgetary resources, and make important decisions necessary to ensure that limited program dollars provide the greatest return on investment.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.5** – Develop alternative business concepts for the future.

B, PROVIDE ANF/ATC SUPPORT (QUICK RESPONSE), M08.01-00

Program Description

This program provides quick response support for ATO organizations to solve issues related to information technology and financial management systems. Examples include: providing additional ATO Cost Accounting Reports; installing an Information Technology (IT) link to support operations research; IT support for the DELPHI accounting system; and ensuring connectivity for automation systems in the multiple FAA buildings. It also provides emergency engineering response for unforeseen regional problems such as relocating an antenna for a remote communication facility and removing a decommissioned tower. These projects are unexpected and must be done swiftly.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

This project improves financial management by supporting the systems that generate financial baselines and track costs for individual projects. It allows financial management system problems to be corrected quickly so detailed cost and schedule information is available when needed. This allows managers to more quickly identify programs that are at risk and take corrective action. Quick action to resolve regional issues and sustain regional operations leads to a higher level of customer satisfaction.

Strategic Management Plan (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

C, WEB CM, M03.01-01

Program Description

Configuration Management (CM) is a vital component of the NAS life cycle systems management. FAA Order 1800.66 prescribes that CM shall apply to all NAS systems, subsystems, and components, including the documentation describing the NAS. WebCM is based on state of the art technology that replaces the labor-intensive functionality provided by the FAA's existing Document Control (DOCCON) system. The efficient management of CM information is critical to the operation of CM functions and activities as well as the management of FAA systems throughout their lifecycle. WebCM provides an automated, integrated capability to the Agency's CM community for managing the NAS CM processes.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:

- Strategic sourcing for selected products and services;
- Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
- Eliminating or reducing obsolete technology;
- Implementing Environmental Management Systems.

Relationship to Performance Target

WebCM provides an enterprise solution capability to managers, engineers, field technicians, and other personnel for managing, monitoring, and reporting on NAS systems. It is an agency-wide accessible tool that provides timely and accurate CM-related information as well as interfaces to related information systems. WebCM will reduce the NAS change control process cycle time during requirements, acquisition, and operational phases; and thereby provide long-term cost savings to the FAA.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.4** – Reduce unit cost of ATO operations.

4A02, PROGRAM SUPPORT LEASES

FY 2008 Request \$44.0M

- Program Support Leases, M08.06-00

Program Description

This program secures real property rights required to operate the NAS by providing the payments for approximately 2,395 land leases, 670 space leases, and 75 leases covering both land and space for operational facilities. It also funds the purchase of land when economically advantageous.

For FY 2008, the request will fund approximately 3,140 leases, other real estate requirements and will include:

- Payment of rents on approximately 3,140 land and/or space leases that directly support navigation, communication, weather, and air traffic control facilities;
- Costs associated with the rental and management of land and/or space for service/maintenance centers, deployment/development centers, laboratories, test beds, and other types of facilities that support the deployment and operation of technical facilities;
- Payments for condemnation of real property interests;
- Funds for conversion of existing leases to fee ownership;
- Costs for real estate appraisals, market surveys, title reports, and other costs associated with the acquisition and management of real property assets;
- Funds for the management and administration costs for establishing and maintaining a database of leases and owned facilities, for developing business tools to enhance logistics activities, and for implementing program efficiency practices; and
- Funding for certain costs associated with real property disposals with sale proceeds to be used to offset other direct and related program costs.
- Funding for costs associated with the termination of ATO leases or the re-use of vacated Automated Flight Service Station space for other ATO purposes.
- Funding for certain activities associated with consolidation of offices and facilities.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

The FAA Program Support Leases project contributes to the FAA's greater capacity goal by providing funding for existing leases for land and space that directly support NAS operational facilities for air traffic control, communications, air navigation, weather reporting and landing systems, and such critical NAS components as Air Traffic Control Towers (ATCT's), Technical Radar Approach Control facilities (TRACON's), and en route systems. The leases are contractual commitments and provide the legal right to locate, operate, and maintain critical ATC facilities essential for minimizing outages that result in delays and decreased capacity.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.6** – Optimize Service Availability.

4A03, LOGISTICS SUPPORT SERVICES (LSS)

FY 2008 Request \$7.5M

- NAS Regional/Center Logistics Support Services, M05.00-00

Program Description

The Logistics Support Services (LSS) program uses contractor-supplied services to perform real property acquisition, materiel management, and contracting activities in support of FAA CIP projects, and to conduct capitalization and property control-related activities. These services currently provide a significant portion of the workforce for acquisition, real estate, and materiel management in the regions and at air traffic control centers. The LSS program is instrumental in establishing new or upgraded facilities, including air traffic control towers and TRACONS throughout the NAS. LSS resources will also continue to be used for asset tracking and documentation efforts to obtain and maintain a clean audit opinion. The services support the FAA Facility Security Risk Management (FSRM) program.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to the Performance Target:

The program maintains documentation, suitable for independent audit, which is the basis for the accounting system's summary of the capital cost of facilities throughout the FAA. Having accurate accounting records

and improving cost controls for real property management improves efficiencies in acquisition, leasing and managing property.

4A04, MIKE MONRONEY AERONAUTICAL CENTER LEASES

FY 2008 Request \$13.5M

- Mike Monroney Aeronautical Center – Leases, F19.00-00

Program Description

The FAA and the Oklahoma City Airport Trust have a fixed-term lease agreement through 2012 for approximately 1,100 acres of land and 32 leased buildings, which comprise the Aeronautical Center. The Center requires large parcels of land as NAS test sites for surveillance radar, communications, weather, and navigation/landing systems, as well as warehouse, administrative office space, and training facilities for 5,500 employees and contractors, and 30,000 students annually. The Center supports air traffic training, aviation research, engineering support of NAS equipment, logistics supply and repair, aviation medical research, and other important aviation regulation, certification, and business functions.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

Aeronautical Center operations result in efficiencies in logistics support, aviation training, NAS engineering services, regulation and certification, aviation research, accounting and business services that translate to improved cost control and more effective support services to the FAA and DOT.

4A05, TRANSITION ENGINEERING SUPPORT

FY 2008 Request \$10.7M

- A, NAS Implementation Support Contract (NISC), M22.00-00
- B, NAS Implementation Support Contract (NISC) – Configuration Management, M22.01-01

A, NAS IMPLEMENTATION SUPPORT CONTRACT (NISC), M22.00-00

Program Description

The NISC supports integrated product teams responsible for deploying, implementing, and integrating many different NAS components and equipment. Work products that support transition, implementation, and integration activities include: transition plans and timelines, equipment waterfall schedules, engineering site preparation packages, site implementation plans, analysis of environmental impacts, test procedures, site test monitoring, and corporate work planning.

NISC supplements the agency's technical workforce in integrating CIP projects into the NAS. Highly skilled, experienced personnel are provided at cost-effective rates to support over 80 CIP projects within the NAS, including Standard Terminal Automation Replacement System, Capstone, En Route Automation, ATCT/TRACON Replacement, and Occupational Safety, Health, and Environmental projects.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The FAA's transition engineering support contract provides experienced personnel at cost effective rates to support regional and headquarters offices with the planning and coordination of NAS programs. It also provides support to key FAA program management functions. This support assists the FAA in the financial management of a variety of Facilities and Equipment (F&E) NAS modernization programs and projects.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.5** – Increase ATO productivity.

B, NAS IMPLEMENTATION SUPPORT CONTRACT (NISC) – CONFIGURATION MANAGEMENT, M22.01-01

Program Description

Configuration Management (CM) is a Systems Engineering Discipline ensuring the cross-organizational coordination of engineering designs, facility and equipment baselines, and development and implementation of engineering changes.

CM improves the safety, efficiency, and effectiveness of the NAS through the identification, documentation, and control of changes to the functional and physical characteristics of air traffic systems. It strengthens management of configuration documentation, the predictability of performance, control of logistics supply/support costs, and planning future requirements for NAS systems. CM must occur during acquisition, development, test, deployment, and in-service phases of a systems' life cycle.

CM establishes the methods and practices to be employed in accomplishing this mission in a cost efficient and effective manner. This Program purchases NISC contract support to perform CM of F&E activities in order to accomplish this mission.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

CM, as a systems engineering discipline, supports the FAA’s goal of organizational excellence ensuring the cross-organizational coordination of engineering designs, facility and equipment baselines, and development and implementation of engineering changes. CM establishes the methods and practices to be employed in accomplishing this mission in a cost effective efficient and effective manner.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.8** – Plan and execute well across organizational units.

4A06, FREQUENCY AND SPECTRUM ENGINEERING

FY 2008 Request \$3.4M

- A, NAS Spectrum Engineering Management – NAS Spectrum Engineering Sustained Support, M15.01-00 and Frequency Interference Support/Resolution, M15.02-00
- B, NAS Interference Detection, Locating and Mitigation (NAS IDLM), M43.01-00

A, NAS SPECTRUM ENGINEERING MANAGEMENT – NAS SPECTRUM ENGINEERING SUSTAINED SUPPORT, M15.01-00 AND FREQUENCY INTERFERENCE SUPPORT/RESOLUTION, M15.02-00

Program Description

These programs provide spectrum engineering and frequency management support for all FAA projects and facilities requiring the use of the radio spectrum. Prominent projects include:

- Ensuring spectrum availability to modernize the National Airspace System.
- Developing and coordinating the U.S. civil aviation position for the 2011 World Radio Communications Conference.
- Protecting the aviation frequency spectrum by conducting studies in collaboration with the International Civil Aviation Organization (ICAO). Ensuring protected frequency spectrum for aviation systems such as the Global Navigation Satellite System (GNSS).

Additionally, this program upgrades the automated frequency management system used by all the Headquarters and field Spectrum Managers and provides spectrum support to FAA personnel in national and international forums.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

This NAS Spectrum Engineering Management program supports Greater Capacity goal by ensuring 100 percent availability of the radio frequency spectrum required to install new or modified existing, communications, navigations, and surveillance systems in support of new runways and airspace redesign efforts.

Strategic Management Process (SMP) Pathway and Objective

NAS Spectrum Engineering Sustained Support:

- **SMP Pathway 1** – Achieve Operational Excellence.
- **SMP Objective 1.6** – Optimize service availability.

Frequency Interference Support / Resolution:

- **SMP Pathway 3** – Increase capacity where needed.
- **SMP Objective 3.3** – Implement airspace and airport capacity enhancements safely.

Program Plans FY 2008 – Performance Output Goals

- Engineer and assign 100% of frequencies needed to support new runways, the reduced vertical separation minima, and the national airspace redesign programs.
- Engineer 100% of the required Expanded Service Volumes to support Area Navigation (RNAV) approaches.
- Development of at least two new frequency engineering automation tools and the modernization of existing tools.
- Perform studies to develop future aeronautical spectrum requirements in accordance with International Telecommunications Union (ITU) recommendations.
- Provide initial analysis of the impact of the World Radiocommunication Conference (WRC) 2007 decisions.
- Provide initial input for the development of the U.S. aviation position for the 2011 WRC.
- Assess impacts on aeronautical systems by evolving technologies such as ultra-wideband.
- Assess the spectrum requirements of systems supporting the runway incursion program.

Program Plans FY 2009-2012 – Performance Output Goals

- Continue engineering 100% of frequencies needed to support new runways, the reduced vertical separation minima, and the national airspace redesign programs.
- Continue to engineer 100% of required Expanded Service Volumes to support Area Navigation (RNAV) approaches.
- Continue development and modernization of frequency engineering automation tools.
- Perform studies to develop future aeronautical spectrum requirements in accordance with International Telecommunications Union recommendations.
- Implement policy decisions from the 2007 WRC.
- Continue providing inputs in the development of the WRC 2011 aviation spectrum positions.
- Develop a spectrum transition plan for the next generation air-to-ground communication systems.

B, NAS INTERFERENCE DETECTION, LOCATING AND MITIGATION (NAS IDLM), M43.01-00

Program Description

Through an interagency agreement in 2005 between the Departments of Defense, Homeland Security, and Transportation, the FAA is tasked to develop national assets for enhanced interference detection and location capabilities to help mitigate the adverse impacts of radio frequency interference (RFI) on present and future U.S. radionavigation, surveillance, and communications systems, such as the Global Positioning System. The NAS IDLM program will provide frequency spectrum integrity by minimizing RFI impact on in the Communications, Navigation, and Surveillance (CNS) radio services throughout the NAS. The program will record user reports (i.e., air traffic controllers, pilots) to quickly investigate, identify, locate, and mitigate sources of radio interference. The IDLM system will incorporate fixed as well as airborne and ground mobile signal detection and location sensors throughout the National Aeronautics and Space Administration.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 1** – Increase capacity to meet projected demand and reduce congestion.
- **FAA Performance Target 3** – Sustain adjusted operational availability at 99.7 percent for the reportable facilities that support the 35 OEP airports through FY 2011.

Relationship to Performance Target

NAS IDLM supports sustaining operational availability by locating and mitigating radio frequency interference to any FAA communication, navigation or surveillance system to return it to service. This activity is critical to assuring that the critical radio transmissions for air traffic control are not blocked out by interference.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway 1** – Achieve Operational Excellence.
- **SMP Objective 1.6** – Optimize Service Availability.

Program Plans FY 2008 – Performance Output Goals

- NAS IDLM will return to service 98% of all ATC communication frequencies that are taken out of service by RFI.

Program Plans FY 2009-2012 – Performance Output Goals

- NAS IDLM will return to service 98% of all ATC communication frequencies that are taken out of service by RFI.

4A07, TECHNICAL SUPPORT SERVICES CONTRACT (TSSC)

FY 2008 Request \$20.0M

- Technical Support Services Contract, M02.00-00

Program Description

TSSC helps the FAA ensure timely installation of equipment for NAS modernization. Engineers and technicians, hired under this contract, oversee prime contractors and perform direct Facilities and Equipment project work. They perform site surveys, site preparation, and equipment installation, as well as several other contract functions. As a work force multiplier, the TSSC contract is the agency's primary

vehicle to provide a supplemental work force to install capital equipment to ensure that installation schedules will be met. Without this supplemental source of engineers and technical staff, installation and equipment modernization projects would be delayed.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

The TSSC contributes to cost control by helping the FAA install new equipment on a timely basis. This avoids added costs for holding and storing equipment and allows the FAA and the aviation industry to receive equipment and system modernization benefits on schedule. In a typical year, more than 3,700 separate projects are completed by FAA using the TSSC. Customers using TSSC support services benefit from high quality contractor labor support that is experienced, flexible, reliable, and cost effective, as substantiated by the consistently high customer satisfaction scores.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.5** – Increase ATO productivity.

4A08, RESOURCE TRACKING PROGRAM (RTP)

FY 2008 Request \$3.5M

- Resource Tracking Program (RTP), M08.14-00

Program Description

The RTP contributes to the success of the FAA's mission by providing the primary management software system (including hardware, software, development, training and support) used by the regions, Implementation Centers and Aeronautical Center for requirements identification, internal budget preparation, implementation planning, resource estimating, project tracking and performance measuring of projects. The RTP enables the sharing of the agencies project data in the various stages of implementation (i.e., planned, scheduled, funded, executed and closeout). The system provides the data necessary to plan and execute the Agency's Corporate Work Plan. The RTP system and its data are continuously utilized for reporting project metrics to various project managers, responsible engineers, program offices, and various other customer stakeholders.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 3** – Make decisions based on reliable data to improve our overall performance and customer satisfaction.
- **FAA Performance Target 2** – By FY 2008, 90 percent of major system acquisition investments are on schedule and maintain through FY 2011.

Relationship to Performance Target

The RTP contributes to the FAA organizational excellence goal by providing the enterprise level project management system. The antiquated legacy RTP systems currently operate in a distributed environment. The final steps in centralizing the system are underway. The centralized system will increase the quality of customer service. Both management and engineers will have up to date information on projects. Furthermore, the centralization effort will standardize reporting at all management levels allowing managers to better control overall project costs.

Strategic Management Plan (SMP) Pathway and Objective

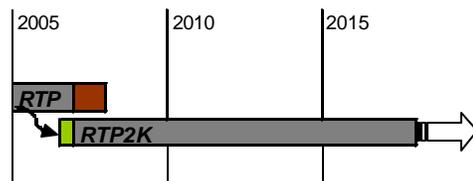
- **SMP Pathway #2** – Enhance Financial Discipline.
- **SMP Objective #2.2** – Make the NAS more effective.

System Implementation Schedule

Resource Tracking Program (RTP) 2K

First Site Decom: January 2007 -- Last Site Decom: December 2007

First site IOC: October 2006 -- Last site IOC: October 2006



4A09, CENTER FOR ADVANCED AVIATION SYSTEM DEVELOPMENT (CAASD)

FY 2008 Request \$74.2M

- CIP Systems Engineering & Technical Assistance – MITRE, M03.02-00

Program Description

The CAASD is an FAA-sponsored Federally Funded Research and Development Center (FFRDC) operated under a long-term Sponsoring Agreement with the MITRE Corporation. A Product Based Work Plan (PBWP) is developed within the context of the FAA Flight Plan, Next Generation Air Transportation System (NextGen) Integrated Plan, other agency long-range plans, and the FFRDC Long Range Plan (FY 2007-2011). The PBWP and FFRDC Long Range Plan, approved by the FAA's FFRDC Executive Board, define an outcome-based program of technically complex research, development, and system engineering assignments designed to support the goals and requirements of the NAS and the NextGen. CAASD activities include:

NAS and NextGen Systems Integration and Evolution. Develop and integrate the NextGen enterprise architecture, operational concepts, capability action plans and roadmaps to achieve an integrated NextGen vision and evolution strategy that is aligned with multiple agencies' (e.g., FAA, NASA) enterprise architectures; analyze NAS-wide strategic issues involving multiple outcomes to inform NAS transformation strategy for efficient investment and operational decisions; provide NAS enterprise architecture definition, structure and content to provide the necessary context for the optimal evolutionary path within the integrated NAS environment; develop operational concepts for safe, efficient, and compatible operation of Unmanned Aircraft Systems within the NAS; and assess and provide recommendations for harmonization of U.S. and international plans for flight data processing to improve NAS operations and global harmonization.

Performance Based Air Traffic Management (P-ATM). Continue research to evaluate the operational feasibility of the P-ATM concept - applying the use of integrated technology and other innovations to improve safety and capacity, enhance controller productivity, improve service, and meet NextGen requirements; refine the P-ATM concept and expand the assessment to address failure/exception conditions; conduct human-in-the-loop experiments with FAA operational supervisors to evaluate these key P-ATM concepts.

Communications Modernization. Conduct technical analyses that inform decision making on technical architecture alternatives; conduct engineering analysis, and network definition, and complete transition strategy studies to reduce the overall FAA costs while meeting the operational requirements of the NAS; work with the FAA's NextGen plan and with other Civil Aviation Authorities to develop the next generation system; and provide technical and operational insight into the implementation of data link services in the NAS.

Performance-Based NAS. Provide new concepts for achieving a performance-based NAS; develop algorithms and prototype performance case analysis to validate Flight Standards procedure development tools; evaluate RNAV and RNP criteria using computer tools and expertise; analyze all aspects of navigation assets, including Wide Area Augmentation System, Local Area Augmentation Systems, divestiture of navigation aides, and harmonization of Global Positioning Systems and Galileo.

En Route Evolution. Perform system engineering analyses for new technologies, capabilities, and procedures for the en route system architecture and operational applications; develop system requirements and transfer technology to the FAA to expedite the design of new capabilities; develop key en route performance metrics; assess and prioritize candidate en route extensible capabilities; develop and evaluate tools and capabilities to enable more effective system management, resource utilization, and execution of traffic flow strategies; and develop/demonstrate requirements for a simulation training prototype to enable efficiencies and provide more effective transition of automation/procedural advancements to operation use.

Terminal Operations and Evolution. Provide technical analyses and recommendations on architecture alternatives; provide technical/operational insight into systems that can safely reduce separation standards; and provide risk analyses to identify future wake turbulence mitigation procedures.

Airspace Design and Analysis. Perform technical analyses that inform the FAA and Industry on airspace design and management; develop modeling, simulation, and analysis capabilities facilitating airspace design; research issues that influence strategic policy in airspace management and design (e.g., sectorization concepts); and integrate all these efforts to provide a national, system-wide optimization of airspace.

NAS System Operations. Provide analytic information and operational strategies to manage emerging and chronic congestion; provide analyses to support customer responsiveness and improve traffic management strategies by modeling capacity, delay, predictability, ripple effects, and access issues; design, model, and assess new traffic management procedures; develop analysis techniques and data to improve information on en route/terminal controller workload; and develop/evaluate new metrics to measure overall NAS operational performance

Traffic-Flow Management Evolution. Analyze TFM system requirements and system design to ensure it meets operational needs; develop metrics that provide insight on the performance of the TFM domain; conduct operational feasibility/implementation risk analysis; advance the maturity of concepts to account for uncertainty (probabilistically) in predictions and decision making by developing algorithms and prototype capabilities and conducting human-in-the-loop evaluation; collaborate with the NAS users, TFM researchers, and FAA contractors on new capabilities, procedures, and priorities for evolving the TFM operations and assess the impact of extensible capabilities on the TFM-M system.

Future NAS Performance and Analysis. Assess the NAS-wide operational performance impacts of investment options and decisions; improve understanding of the future environment, including anticipated demand at airports and for airspace; anticipate the impact of planned improvements on future airport and airspace capacity; and perform analyses to understand the affordability and long-term economic implications of different investments, operational changes, or proposed policies

Aviation Safety. Perform technical analyses of NAS-wide runway incursion risk and prioritize implementation of appropriate operational/technological mitigations actions; develop metrics and processes that allow FAA to identify potential operational/architecture safety issues; use NAS-wide data to

proactively identify issues that may have a link to operational errors, and identify mechanisms to mitigate these factors to help reduce the number of operational errors; and identify/assess the feasibility of new or advanced capabilities that mitigate safety issues in the NAS.

Mission Oriented Investigation and Experimentation. Develop tools and techniques for studying NAS capacity, throughput, performance, system dynamics and adaptation to technology and policy-driven change; identify opportunities for innovative solutions to NAS problems and enhancements to capabilities and procedures through applied research and technology transfer.

NAS-Wide Information Security. Provide technical guidance on NAS engineering security capabilities that reduce overall cost, leverage shared services and build security into the underlying IT infrastructure; advise the FAA on creating an IT infrastructure that will be resilient, flexible, and adaptable, provide technical guidance on deploying network centric technologies within the NAS while maintaining information systems security defense-in-depth; and propose a solution to implement a standards-based Personal Identity Verification card, and to use this for physical and logical access control, as required by the Presidential Decision Directive.

Broadcast and Surveillance Services. Research and design Automatic Dependent Surveillance-Broadcast (ADS-B) ground and cockpit-based solutions to support deployment of ADS-B throughout the entire NAS; assess the impact of ADS-B on safety, capacity, and efficiency benefits; develop domestic/international requirements and engineering standards for future ADS-B applications in close coordination with the users and manufacturers as part of RTCA, the International Civil Aviation Organization, FAA, and Eurocontrol standards development activities; and develop ADS-B security solutions.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Greater Capacity.**
- **FAA Objective 2** – Increase reliability and on-time performance of scheduled carriers.
- **FAA Performance Target 1** – By FY 2011, achieve an 88.76 percent on-time arrival for all flights arriving at the 35 OEP airports, equal to no more than 15 minutes late due to NAS related delays.

Relationship to Performance Target

The CAASD assists the FAA in analyzing and designing new systems to increase the efficiency and effectiveness of NAS systems. It performs analytical research, develops operational concepts, and tests new procedures. FAA adoption of these new systems and procedures for use in the NAS improves on-time performance, increases capacity, and provides a safer and more efficient air transportation system.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #4** – Ensure Viable Future.
- **SMP Objective #4.5** – Develop alternative business concepts for the future.

4A10, NOTAMS AND AERONAUTICAL INFORMATION PROGRAMS

FY 2008 Request \$9.0M

- A, NAS Aeronautical Information Management Enterprise System (NAIMES), A08.01-00
- B, NOTAMS Infrastructure / Distribution (NOTAM Distribution Program (NDP)), A08.01-01

A, NAS Aeronautical Information Management Enterprise System (NAIMES), A08.01-00

Program Description

The FAA has established NAIMES to provide worldwide sharing of aeronautical information. NAIMES is an ISO 9001:2000/Qualified Internet Communication Provider approved program that consists of a number of closely integrated systems that provides domestic, military, and international aviation users with secure real-time access to critical aeronautical information and other services that are essential for flight planning and aviation operations.

NAIMES enables the effective movement of aeronautical information including flight movement and NAS messages, NOTAMs, weather, special use airspace, and fixed asset data. NAIMES provides scalable, standards-based, high-reliability systems and network-centric services designed to provide legacy and future users with secure, real-time access to critical aeronautical information, essential for domestic, military, and international aviation operations.

NAIMES integrates, maintains, and operates the Joint Department of Defense (DoD) and FAA US Notices to Airmen (NOTAM) System (USNS) & Master Database, Defense Internet NOTAM Service (DINS), Aeronautical Information System Replacement (AISR), Central Altitude Reservation Function (CARF), Graphical Temporary Flight Restriction (GTFR) and Special Use Airspace (SUA) Display System, NOTAM Distribution System (NDS), FAA PilotWeb, NOTAM Entry System (NES), National Operational Data Archive (NODA), NAS Resources (NASR), eNASR, CAPSTONE/Wide Area Augmentation System (WAAS)/Global Positioning System (GPS) outage reporting system, Internet Access Point (IAP), and network information services.

NAIMES information management infrastructure development and improvement will be in accordance with Service Oriented Architecture guidance material. NAIMES will participate in the Aeronautical Information Management (AIM) Community of Interest to help develop that guidance.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 2** – Reduce the number of fatal accidents in general aviation.
- **FAA Performance Target 1** – By FY 2009, reduce the number of general aviation and nonscheduled Part 135 fatal accidents to no more than 325 (from 385, which represents the average number of fatal accidents for the baseline period of 1996-1998).

Relationship to Performance Target

The NAIMES program provides critical safety-related data, including NOTAMs and other aeronautical information, to FAA, industry, and general public stakeholders. For general aviation particularly, NAIMES is the only government-provided source of this data. The provision of this data contributes to the reduction in the number of general aviation and nonscheduled Part 135 fatal accidents.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Continue NAIMES enhancements and sustainment of system infrastructure, including the development of enhanced web services and digital NOTAM distribution.

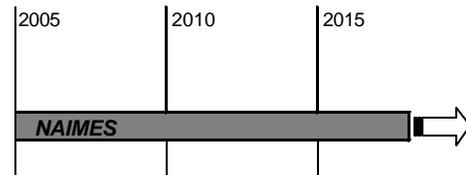
Program Plans FY 2009-2012 – Performance Output Goals

- Continue NAIMES enhancements and sustainment of system infrastructure, including the development of enhanced web services, geo-referenced aeronautical information, and improved delivery to customers.

Program Implementation Schedule

NAS Aeronautical Information Management Enterprise System (NAIMES)

First site IOC: 2000 -- Last site IOC: 2000



B, NOTAMS Infrastructure / Distribution (NOTAM Distribution Program (NDP)), A08.01-01

Program Description

The Notice to Airmen (NOTAM) Distribution Program (NDP) provides a standardized, automated NOTAM distribution system that ensures that NOTAMs are delivered to FAA ATC facilities in a timely, accurate, and reliable manner. NOTAMs inform pilots, controllers, and flight service specialists of changes in conditions in the NAS, such as runways closed for construction, restrictions on operations for special events, and other important changes. The program originated from numerous reports identifying weaknesses in the current NOTAM distribution methods to air traffic facilities, emphasizing the urgent need for a replacement system to help ensure that critical safety information reaches the pilot and air traffic controller.

The NDP will automate, standardize, and provide centralized NOTAMs dissemination to approximately 700 FAA facilities using reliable telecommunications provided by the FAA Telecommunications infrastructure (FTI) network. NOTAM data from the United States NOTAM System (USNS) central database in Herndon, Virginia will be transmitted to the FAA's Airport Traffic Control Towers (ATCTs), Terminal Radar Approach Controls (TRACONs), Air Route Traffic Control Centers (ARTCCs), Federal Contract Towers, and Flight Service Stations (FSSs). In addition, the system provides for NOTAM receipt acknowledgement and an evolutionary path for the eventual distribution of all classes of NOTAMs (Domestic, Flight Data Center, ICAO, Military and Local).

NDP information management infrastructure development and improvement will be in accordance with Service Oriented Architecture guidance material. NDP will participate in the Aeronautical Information Management (AIM) Community of Interest to help develop that guidance.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Increased Safety.**
- **FAA Objective 1** – Reduce the commercial airline accident rate.
- **FAA Performance Target 1** – Maintain the three-year rolling average fatal accident rate below 0.010 per 100,000 departures.

Relationship to Performance Target

The NDP modernizes the processing and distribution of critical NOTAM information to FAA ATC facilities in a timely and standardized format. This will contribute to the reduction in the commercial airline fatal accident rate.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #1** – Achieve Operational Excellence.
- **SMP Objective #1.3** – Ensure safety and aircraft separation.

Program Plans FY 2008 – Performance Output Goals

- Continue development, testing, hardware procurement, technology refresh, and deployment of NDP systems to 144 FAA Terminal and 8 ARTCC facilities.

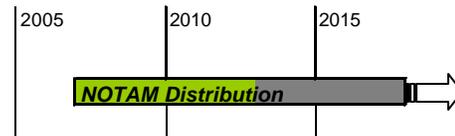
Program Plans FY 2009-2012 – Performance Output Goals

- Continue implementation of the solution to all remaining Terminal facilities.
- Update the Security Certification and Authorization Package.

Program Implementation Schedule

Notice to Airmen (NOTAM) Distribution

First site IOC: 2007 -- Last site IOC: 2012



4A11, PERMANENT CHANGE OF STATION (PCS) MOVES

FY 2008 Request \$1.0M

- Terminal PCS Moves, M51.01-01

Program Description

This project supports the Terminal Facilities Program by providing the required Permanent Change of Stations (PCS) funding to support projects that have been determined to be candidates for collocation rather than replacement. Whenever construction of a new airport traffic control tower is planned, collocation of adjacent TRACONS is considered. When TRACONS are collocated, the controllers at those facilities are relocated to the new facility. This project provides funding for the relocation expenses of key personnel who will need to move to the newly-collocated TRACON.

Relationship of Program to FAA Strategic Goal, Objective, and Performance Target

- **FAA Strategic Goal – Organizational Excellence.**
- **FAA Objective 2** – Improve financial management while delivering quality customer service.
- **FAA Performance Target 2** – Organizations throughout the agency will continue to implement cost efficiency initiatives including, but not limited to:
 - Strategic sourcing for selected products and services;
 - Consolidating facilities and services, such as service areas, real property management, help desks, and web services;
 - Eliminating or reducing obsolete technology;
 - Implementing Environmental Management Systems.

Relationship to Performance Target

Generally, collocating TRACONs whenever possible saves taxpayer money by eliminating the need for FAA to operate and maintain multiple facilities, automation systems, voice switches, and the overhead associated with the TRACON infrastructure.

In some cases of collocation, the FAA can provide more services to more locations with the same amount of money. In other cases, the agency will provide the same level of services as previously, but at much lower cost to taxpayers. Savings can be invested into modernization efforts to increase the safety and capacity of the national airspace system.

Strategic Management Process (SMP) Pathway and Objective

- **SMP Pathway #2** – Enhance Financial Services.
- **SMP Objective #2.4** – Reduce Unit Cost of ATO Operations.

Federal Aviation Administration

National Airspace System

Capital Investment Plan

Appendix C

Fiscal Years 2008 – 2012

OMB BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
Activity 1: Engineering, Development, Test, and Evaluation		\$290.2	\$778.2	\$1,077.8	\$1,382.8	\$1,486.6
1A01	Advanced Technology Development and Prototyping (ATDP)	\$37.8	\$31.9	\$31.9	\$29.2	\$23.2
1A02	Safe Flight 21 (SF-21)	\$17.0	\$20.0	\$20.0	\$20.0	\$13.3
1A03	Aeronautical Data Link (ADL) Applications	\$1.0	\$2.0	\$2.2	\$2.2	\$2.1
1A04	Next Generation VHF Air/Ground Communications System (NEXCOM)	\$30.4	\$63.4	\$88.7	\$106.4	\$184.7
1A05	Traffic Management Advisor (TMA)	\$15.4	\$3.7	\$0.0	\$0.0	\$0.0
1A06	NAS Improvement of System Support Laboratory	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0
1A07	William J. Hughes Technical Center Facilities	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
1A08	William J. Hughes Technical Center Infrastructure Sustainment	\$4.2	\$5.4	\$5.5	\$5.6	\$5.7
1A09	System-Wide Information Management (SWIM)	\$21.3	\$31.0	\$31.3	\$38.1	\$51.8
1A10	ADS-B NAS Wide Implementation	\$85.7	\$92.9	\$139.6	\$155.6	\$90.7
1A11	NextGen Network Enabled Weather	\$7.0	\$20.0	\$25.0	\$25.0	\$25.0
1A12	Data Communication for Trajectory Based Operations (NextGen)	\$7.4	\$14.9	\$28.6	\$36.7	\$38.1
1A13	Next Generation Air Transportation System Technology Demonstration	\$50.0	\$30.0	\$30.0	\$30.0	\$30.0
1A14X	Next Generation Air Transportation System System Development	\$0.0	\$102.0	\$102.0	\$105.0	\$107.0
1A15X	Next Generation Air Transportation System High Altitude Trajectory Based Operations	\$0.0	\$85.0	\$165.0	\$223.0	\$210.0
1A16X	Next Generation Air Transportation System High Density Airports	\$0.0	\$68.0	\$92.0	\$132.0	\$142.0
1A17X	Next Generation Air Transportation System Networked Facilities	\$0.0	\$88.0	\$173.0	\$316.0	\$375.0
1A18X	Next Generation Air Transportation System Cross-Cutting Infrastructure	\$0.0	\$107.0	\$130.0	\$145.0	\$175.0
Activity 2: Air Traffic Control Facilities and Equipment		\$1,365.0	\$1,328.3	\$1,153.4	\$1,033.2	\$1,081.5
A. En Route Programs		\$688.5	\$525.2	\$369.6	\$305.0	\$332.4
2A01	En Route Automation Modernization (ERAM)	\$368.8	\$202.2	\$170.9	\$131.5	\$183.2
2A02	En Route Communications Gateway (ECG)	\$4.0	\$10.7	\$12.6	\$13.0	\$19.8
2A03	En Route System Modification	\$4.3	\$0.0	\$0.0	\$0.0	\$0.0
2A04	Next Generation Weather Radar (NEXRAD)	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0
2A05	ARTCC Building Improvements/Plant Improvements	\$52.9	\$51.0	\$51.0	\$56.0	\$61.0
2A06	Air Traffic Management (ATM)	\$90.6	\$79.4	\$31.2	\$14.9	\$8.2
2A07	Air/Ground Communications Infrastructure	\$29.2	\$19.8	\$15.0	\$15.6	\$5.0
2A08	ATC Beacon Interrogator (ATCBI) - Replacement	\$20.2	\$24.2	\$0.0	\$0.0	\$0.0
2A09	Air Traffic Control En Route Radar Facilities Improvements	\$5.3	\$5.3	\$5.3	\$5.3	\$0.0
2A10	Voice Switching Control System (VSCS)	\$15.7	\$23.3	\$16.6	\$15.5	\$0.0
2A11	Integrated Terminal Weather System (ITWS)	\$13.2	\$9.1	\$5.6	\$0.0	\$0.0
2A12	FAA Telecommunications Infrastructure (FTI)	\$8.5	\$0.0	\$0.0	\$0.0	\$0.0

OMB BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
2A13	Oceanic Automation System	\$53.1	\$31.7	\$12.7	\$9.8	\$10.0
2A14	Air Traffic Operations Management System (ATOMS)	\$3.5	\$5.0	\$5.0	\$5.0	\$1.5
2A15	Corridor Integrated Weather System (CIWS)	\$2.1	\$4.0	\$4.0	\$4.0	\$4.0
2A16	San Juan Radar Approach Control (CERAP)	\$8.0	\$6.0	\$0.0	\$0.0	\$0.0
2A17	Military Operations	\$1.6	\$1.6	\$0.0	\$0.0	\$0.0
2A18	Automated Detection & Processing Terminal (ADAPT)	\$1.0	\$5.0	\$6.0	\$0.0	\$0.0
2A19	ATCSCC Infrastructure Planning	\$2.5	\$28.6	\$10.3	\$2.1	\$2.1
2A20	Volcano Monitoring	\$1.0	\$0.0	\$0.0	\$0.0	\$0.0
2A21X	General Weather Processor (GWP)	\$0.0	\$15.3	\$20.3	\$29.3	\$34.6
	B. Terminal Programs	\$381.3	\$416.4	\$423.3	\$417.4	\$460.1
2B01	Airport Surface Detection Equipment - Model X (ASDE-X)	\$37.9	\$26.0	\$13.1	\$5.0	\$8.4
2B02	Terminal Doppler Weather Radar (TDWR) - Provide	\$8.0	\$7.1	\$0.0	\$0.0	\$0.0
2B03	Standard Terminal Automation Replacement System (STARS) (TAMR Phase 1)	\$31.2	\$47.4	\$47.0	\$47.0	\$47.8
2B04	Terminal Automation Modernization/ Replacement Program (TAMR Phase 2)	\$6.8	\$42.0	\$51.7	\$51.1	\$82.4
2B05	Terminal Automation Program	\$2.3	\$2.3	\$2.4	\$2.4	\$2.5
2B06	Terminal Air Traffic Control Facilities - Replace	\$150.6	\$147.0	\$150.0	\$160.0	\$160.0
2B07	ATCT/Terminal Radar Approach Control (TRACON) Facilities - Improve	\$47.0	\$46.6	\$46.5	\$51.9	\$57.2
2B08	Terminal Voice Switch Replacement (TVSR)/ Enhancement Terminal Voice Switch (ETVS)	\$12.3	\$8.2	\$10.0	\$0.0	\$0.0
2B09	NAS Facilities OSHA and Environmental Standards Compliance	\$26.0	\$26.0	\$26.0	\$26.0	\$26.0
2B10	Airport Surveillance Radar (ASR-9)	\$6.3	\$4.0	\$2.1	\$0.0	\$0.0
2B11	Terminal Digital Radar (ASR-11)	\$20.3	\$15.8	\$12.6	\$4.4	\$4.4
2B12	DOD/FAA Facilities Transfer	\$1.3	\$1.4	\$1.4	\$1.4	\$1.5
2B13	Precision Runway Monitors	\$9.0	\$0.0	\$0.0	\$0.0	\$0.0
2B14	Runway Status Lights (RWSL)	\$5.3	\$10.0	\$10.0	\$10.0	\$10.0
2B15	National Airspace System Voice Switch (NVS)	\$3.0	\$14.0	\$40.0	\$50.0	\$50.0
2B16	Weather System Processor (WSP)	\$4.1	\$0.7	\$0.3	\$0.0	\$0.0
2B17	Voice Recorder Replacement Program (VRRP)	\$5.9	\$8.0	\$8.2	\$8.2	\$9.9
2B18	Houston Area Air Traffic System (HAATS)	\$4.0	\$10.0	\$2.0	\$0.0	\$0.0
	C. Flight Service Programs	\$10.1	\$15.6	\$12.7	\$8.7	\$3.3
2C01	Automated Surface Observing System (ASOS)	\$5.0	\$8.5	\$6.7	\$6.7	\$1.3
2C02	Flight Service Station (FSS) Modernization	\$5.1	\$7.1	\$6.0	\$2.0	\$2.0
	D. Landing and Navigation Aids Programs	\$184.2	\$227.0	\$217.3	\$182.9	\$165.5
2D01	VHF Omnidirectional Radio Range (VOR) with Distance Measuring Equipment (DME)	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0
2D02	Instrument Landing Systems (ILS) - Establish	\$9.0	\$10.3	\$21.8	\$5.0	\$5.0
2D03	Wide Area Augmentation System (WAAS) for GPS	\$115.9	\$158.0	\$146.8	\$143.5	\$127.4

OMB BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
2D04	Runway Visual Range (RVR)	\$5.0	\$7.0	\$5.0	\$5.0	\$5.0
2D05	Approach Lighting System Improvement Program (ALSIP)	\$15.0	\$15.0	\$5.0	\$5.0	\$5.0
2D06	Distance Measuring Equipment (DME)	\$5.0	\$6.0	\$8.0	\$1.0	\$0.0
2D07	Visual Nav aids - Establish/Expand	\$3.5	\$5.4	\$5.8	\$5.9	\$6.1
2D08	Instrument Approach Procedures Automation (IAPA)	\$17.8	\$10.9	\$7.9	\$0.5	\$0.0
2D09	Navigation and Landing Aids - Service Life Extension Program (SLEP)	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0
2D10	VASI Replacement - Replace with Precision Approach Path Indicator	\$3.0	\$4.4	\$7.0	\$7.0	\$7.0
	E. Other ATC Facilities Programs	\$100.9	\$144.1	\$130.5	\$119.2	\$120.1
2E01	Fuel Storage Tank Replacement and Monitoring	\$5.9	\$6.1	\$6.2	\$6.3	\$6.4
2E02	FAA Buildings and Equipment	\$13.7	\$13.4	\$13.8	\$14.3	\$14.9
2E03	Air Navigational Aids and ATC Facilities (Local Projects)	\$3.0	\$2.5	\$2.5	\$2.6	\$2.6
2E04	Aircraft Related Equipment Program	\$9.8	\$9.0	\$10.0	\$9.0	\$11.0
2E05	Computer Aided Engineering and Graphics (CAEG) - Modernization	\$1.5	\$0.0	\$0.0	\$0.0	\$0.0
2E06	Airport Cable Loop Systems - Sustained Support	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0
2E07	Alaskan NAS Interfacility Communications System (ANICS)	\$2.0	\$2.0	\$2.0	\$2.0	\$0.0
2E08	Facilities Decommissioning	\$8.0	\$5.0	\$5.0	\$5.0	\$5.0
2E09	Electrical Power Systems - Sustain/Support	\$41.0	\$60.0	\$60.0	\$60.0	\$60.0
2E10	Aircraft Fleet Modernization	\$9.0	\$9.0	\$9.0	\$0.0	\$0.0
2E11	Energy Management	\$2.0	\$10.0	\$10.0	\$10.0	\$10.0
2E12X	International Flight Inspection Aircraft	\$0.0	\$18.6	\$3.5	\$0.0	\$0.0
2E13X	Independent Operational Test/Evaluation - Outyear request	\$0.0	\$3.5	\$3.5	\$5.0	\$5.2
	Activity 3: Non-Air Traffic Control Facilities and Equipment	\$129.5	\$129.3	\$128.2	\$135.5	\$103.9
	A. Support Equipment	\$106.2	\$110.7	\$116.6	\$123.7	\$91.3
3A01	Hazardous Materials Management	\$18.2	\$20.0	\$20.0	\$20.0	\$20.0
3A02	Aviation Safety Analysis System (ASAS)	\$16.9	\$16.9	\$16.8	\$16.8	\$16.8
3A03	Logistics Support Systems and Facilities (LSSF)	\$6.3	\$0.0	\$0.0	\$0.0	\$0.0
3A04	Test Equipment - Maintenance Support for Replacement	\$2.5	\$3.0	\$3.0	\$3.0	\$3.0
3A05	National Airspace System (NAS) Recovery Communications (RCOM)	\$10.0	\$10.0	\$10.0	\$2.0	\$0.0
3A06	Facility Security Risk Management	\$22.0	\$30.0	\$40.0	\$38.4	\$8.0
3A07	Information Security	\$8.0	\$12.0	\$12.0	\$12.0	\$12.0
3A08	System Approach for Safety Oversight (SASO)	\$11.3	\$11.8	\$6.8	\$23.5	\$23.5
3A09	Aviation Safety Knowledge Management Environment (ASKME)	\$4.0	\$7.0	\$8.0	\$8.0	\$8.0
3A10	Logical Access Control	\$7.0	\$0.0	\$0.0	\$0.0	\$0.0

OMB BLI Number	Program Name	FY 2008 Budget	FY 2009	FY 2010	FY 2011	FY 2012
	B. Training, Equipment, and Facilities	\$23.3	\$18.6	\$11.6	\$11.8	\$12.6
3B01	Aeronautical Center Infrastructure Modernization	\$5.4	\$9.5	\$9.8	\$10.1	\$10.3
3B02	National Airspace System (NAS) Training Facilities	\$1.9	\$0.0	\$0.0	\$0.0	\$0.0
3B03	Distance Learning	\$1.4	\$1.5	\$1.5	\$1.0	\$1.0
3B04	National Airspace System (NAS) Training - Simulator	\$14.6	\$7.6	\$0.3	\$0.7	\$1.3
	Activity 4: Facilities and Equipment Mission Support	\$217.0	\$236.9	\$247.8	\$270.6	\$277.3
4A01	System Engineering and Development Support	\$30.2	\$31.0	\$31.7	\$32.3	\$32.9
4A02	Program Support Leases	\$44.0	\$45.9	\$47.6	\$49.1	\$50.5
4A03	Logistics Support Services (LSS)	\$7.5	\$7.9	\$8.0	\$8.5	\$8.5
4A04	Mike Monroney Aeronautical Center Leases	\$13.5	\$13.8	\$16.2	\$16.6	\$17.0
4A05	Transition Engineering Support	\$10.7	\$15.0	\$15.0	\$15.0	\$15.0
4A06	Frequency and Spectrum Engineering	\$3.4	\$2.3	\$3.3	\$3.3	\$3.4
4A07	Technical Support Services Contract (TSSC)	\$20.0	\$22.0	\$22.0	\$22.0	\$22.0
4A08	Resource Tracking Program (RTP)	\$3.5	\$4.0	\$4.0	\$4.0	\$4.0
4A09	Center for Advanced Aviation System Development (CAASD)	\$74.2	\$85.0	\$90.0	\$114.0	\$119.0
4A10	NOTAMS and Aeronautical Information Programs	\$9.0	\$10.0	\$10.0	\$5.8	\$0.0
4A11	Permanent Change of Station (PCS) Moves	\$1.0	\$0.0	\$0.0	\$0.0	\$5.0
	Activity 5: Personnel Compensation, Benefits, and Travel	\$460.0	\$486.0	\$507.6	\$531.0	\$557.1
5A01	Personnel and Related Expenses	\$460.0	\$486.0	\$507.6	\$531.0	\$557.1
	* BLI numbers with X represent outyear programs not requested in the FY 2008 President's Budget.					
	Total Year Funding	\$2,461.6	\$2,958.8	\$3,114.7	\$3,353.0	\$3,506.3
	Targets January 2007	\$2,461.6	\$2,958.8	\$3,114.7	\$3,353.0	\$3,506.3

Federal Aviation Administration

National Airspace System

Capital Investment Plan

Appendix D

Fiscal Years 2008 – 2012

LIST OF ACRONYMS AND ABBREVIATIONS

A	
A/G	air-to-ground
AAP	ATO Application Portal
ABAS	aircraft based augmentation system
ACE-IDS	automated surface observing system controller equipment information display system
ADA	Americans with Disabilities Act
ADAPT	automatic detection and processing terminal
ADAS	automated weather observation data acquisition system
ADIZ	air defense identification zone
ADL	aeronautical data link
ADS-B	automatic dependent surveillance-broadcast
ADS-C	automatic dependent surveillance-contract
AEFS	advanced electronic flight strip system
AFS	Office of Flight Standards Service
AFSS	automated flight service station
AIM	aeronautical information management
ALDARS	ASOS lightning detection and reporting system
ALSF-2	approach lighting system with sequenced flashing light model 2
ALSIP	approach lighting system improvement program
AMASS	airport movement area safety system
ANF	air navigation facilities
ANICS	Alaskan national airspace system interfacility communications system
ARE	aircraft and related equipment
ARMT	airport resource management tool
ARSR	air route surveillance radar
ART	ATO resource tool
ARTCC	air route traffic control center
ARTS	automated radar terminal system
ASAS	aviation safety analysis system
ASD	aircraft situation display
ASDE-3	airport surface detection equipment – model 3
ASDE-X	airport surface detection equipment – model x
ASDP	advanced signal data processor
ASKME	aviation system knowledge management environment
ASOS	automated surface observing system
ASR	airport surveillance radar
ASR-9	airport surveillance radar model 9
ASR-11	airport surveillance radar model 11
ASWON	automated surface weather observation network
ATC	air traffic control
ATCBI	air traffic control beacon interrogator
ATCBI-6	air traffic control beacon interrogator model 6
ATCSCC	air traffic control system command center
ATCT	airport traffic control tower
ATDP	advanced technology development prototyping
ATM	air traffic management
ATO	Air Traffic Organization
ATOMS	air traffic operations management system

ATOP	advanced technologies and oceanic procedures
AUTOMET	automated meteorological
AVS	Office of Aviation Safety
AWOS	automated weather observing system
AWS	automated weather systems
AWSS	automated weather sensor systems
B	
BLI	budget line item
BOS	beacon only sites
C	
C3	command, control, and communications
CAEG	computer aided engineering graphics
CAP	common automation platform
CARF	central altitude reservation facility
C-ARTS	common-automated radar tracking system
CAASD	Center for Advanced Aviation System Development
CAST	commercial aviation safety team
CAT	category – normally used to define visibility conditions necessary to attempt a landing
CATMT	collaborative air traffic management technologies
CBI	computer-based instruction
CDM	collaborative decision making
CDR	critical design review
CDTI	cockpit display of traffic information
CERAP	center radar approach control
CERCLA	Comprehensive Environmental Response and Liability Act
CETS	compliance and enforcement tracking subsystem
CFE	communications facilities enhancement
CHI	computer-human interface
CIO	chief information officer
CIP	capital investment plan
CIWS	corridor integrated weather system
CM	configuration management
CNS	communications, navigation and surveillance
COTS	commercial off-the-shelf
CPDSS	covered position decision support system
CSIRC	computer security incident response center
CWI	combined system for weather and radar processor and corridor integrated weather system
D	
DDH	data distribution hub
DFM	departure flow management
DHS	Department of Homeland Security
DINS	defense internet NOTAM service
DIWS	document imaging workflow system
DME	distance measuring equipment
DOCCON	document control
DoD	Department of Defense
DOT	Department of Transportation
DOTS	dynamic ocean tracking system
DSP	departure spacing program
DSR	display system replacement
E	
EBUS	enhanced backup surveillance
ECG	en route communication gateway

EFS	electronic flight strips
EFSTS	electronic flight strip system
EOSSH	environmental & occupational safety and health
EPA	Environmental Protection Agency
ERAM	en route automation modernization
ERIDS	en route information display
ETMS	enhanced traffic management system
ETVS	enhanced terminal voice switches
F	
F&E	facilities and equipment
FAA	Federal Aviation Administration
FAALC	FAA logistics center
FAROS	final approach runway occupancy signal
FAT	factory acceptance test
FBWTG	FAA bulk weather telecommunications gateway
FDAD	fully digital automation display
FDIO	flight data input/output
FDP	flight data processor
FFRDC	federally funded research and development center
FI	flight inspection
FIFPS	flight inspection flight program system
FIS	flight information service
FIS-B	flight information service – broadcast
FISDL	flight information services data link
FM	frequency modulated
FSD	full scale development
FSRM	facility security risk management
FSS	flight service station
FST	fuel storage tank
FTI	FAA telecommunications infrastructure
FY	fiscal year
G	
GA	general aviation
GATI	global air traffic interoperability
GBAS	ground based augmentation system – wide area augmentation system
GBT	ground based transceivers
GLS	GNSS landing system
GNSS	global navigation satellite system
GPS	global positioning system
GTFR	graphical temporary flight restriction
GWP	global weather processor
H	
HAATS	Houston area air traffic system
HADDS	host air traffic management data distribution system
HAZMAT	hazardous materials
HCS	host computer system
HSPD	Homeland Security Presidential Directive
HVAC	heating, ventilating, and air-conditioning
I	
IAPA	instrument approach procedures automation
ICAO	International Civil Aviation Organization
ID	identification
IDLML	interference detection, location and mitigation

IDS	information display system
IFF	identification friend or foe
IFPA	instrument flight procedures automation
IFR	instrument flight rule
ILS	instrument landing system
IOC	initial operating capability
IPDS	instrument procedures development system
IPT	integrated product team
IPv6	internet protocol version 6
ISO	international standards organization
ISS	information systems security
ISTS	interactive simulation training system
IT	information technology
ITU	International Telecommunications Union
ITWS	integrated terminal weather system
IVSR	interim voice switch replacement
J	
JAWS	Juneau airport wind system
JPDO	joint planning and development
JRC	joint resources council
L	
L5	additional frequency for GPS satellites
LAAS	local area augmentation system
LAC	logical access control
LAHSO	land and hold short operations
LAN	local area network
LCSS	logistical center support system
LCSS	low cost surveillance system
LDR	labor distribution reporting
LGBS	lightning, grounding, bonding and shielding system
LIS	logistics and inventory system
LLWAS	low-level wind shear alert system
LNAV	lateral navigation
LPDME	low power distance measuring equipment
LPV	lateral precision with vertical guidance
LRR	long-range radar
LSS	logistics support services
LSSC	logistics support services center
LSSF	logistics support system and facilities
LTM	long term monitoring
M	
M1FC	model one full capacity
MALSR	medium-intensity approach light system with runway alignment indicator lights
MDCRS	meteorological data collection and reporting system
MEARTS	microprocessor en route automated radar tracking system
MF	maintenance facility
MIAWS	medium intensity airport weather system
MIH	microphone in hand
MLAT	multilateration
MUX	multiplexer
N	
NAFIS	next generation flight inspection system
NAIMES	national airspace system aeronautical information management enterprise system

NAS	national airspace system
NASA	National Aeronautics and Space Administration
NASR	national airspace system resources
Nav aids	navigation aids
NDB	non-directional beacon
NDP	NOTAM distribution program
NDS	NOTAM distribution system
NES	NOTAM entry system
NEXCOM	next generation air/ground communications
NEXRAD	next generation weather radar
NextGen	next generation air transportation system
NFRAP	no further remedial action planned
NGVRRP	next generation voice recorder replacement program
NISC	national airspace system implementation support contract
NMCS	network monitoring and control system
NNEW	Next Gen network enabled weather
NODA	national operational data archive
NOP	national offload program
NOTAM	notice to airmen
NPRM	notice of proposed rulemaking
NTSB	National Transportation Safety Board
NVS	national airspace system voice switch
NWS	National Weather Service
O	
OEP	operational evolution partnership and/or plan
OFDPS	offshore flight data processing system
OMB	Office of Management and Budget
ORD	operational readiness demonstration
OSHA	Occupational Safety and Health Administration
OT&E	operational test and evaluation
P	
P3I	pre-planned product improvement
PAPI	precision approach path indicator
PBWP	product based work plan
PCB	polychlorinated biphenyl
PCS	permanent change of station
PDARS	performance data analysis and reporting system
PDR	preliminary design review
PIREPS	pilot reports
PLM	programming language for microcomputers
PRM	precision runway monitor
R	
R #	release number
RAPT	route availability planning tool
RCAG	remote center air/ground
RCE	radio control equipment
RCO	remote communication outlet
RCOM	recovery communications
RCRA	Resource Conservation and Recovery Act
RCU	remote control unit
RDA	radar data acquisition
RDVS	rapid deployment voice switch
REIL	runway end identifier lights

RF	radio frequency
RFI	radio frequency interference
RIRP	runway incursion reduction program
RNAV	area navigation
RNP	required navigation performance
RRCS	remote radio control system
RTP	resource tracking program
RVR	runway visual range
RWSL	runway status lights
S	
SAIDS	system Atlanta information display system
SAMS	special use airspace management system
SARA	Superfund Amendment and Reauthorization Act
SASO	system approach for safety oversight
SAT	site acceptance test
SATCOM	satellite communications
SAWS	standalone weather sensors
SBAS	space based augmentation system – local area augmentation system
SBS	surveillance and broadcast services
SDP	service delivery point
SETA	system engineering and technical assistance.
SF-21	safe flight 21
SHARE	safety, health and return to employment
SID	standard instrument departure
SLEP	service life extension program
SMO	system maintenance office
SMP	strategic management process
SR	system requirements
STAR	standard terminal arrival routes
STARS	standard terminal automation replacement system
STD	standard
STVS	small tower voice switch
SUA	special use airspace
SWIM	system-wide information management
T	
TACAN	tactical air navigation antenna
TAMDAR	tropospheric airborne meteorological data reporting
TAMR	terminal automation modernization replacement
TCAS	traffic alert and collision avoidance system
TCWF	terminal convective weather forecast
TDDS	terminal data distribution system
TDLS	tower data link service
TDWR	terminal Doppler weather radar
TFDM	tower flight data manager
TFM	traffic flow management
TFM-M	traffic flow management modernization
TFMS	traffic flow management system
TFR	temporary flight restriction
TIS	traffic information service
TIS-B	traffic information service-broadcast
TMA	traffic management advisor
TMA-SC	traffic management advisor - single center
TMU	traffic management unit

TR	technical refresh
TRACON	terminal radar approach control
TSA	Transportation Security Administration
TSSC	technical support services contract
TVS	terminal voice switch
TVSR	terminal voice switch replacement
TWIP	terminal weather information for pilots
U	
UAT	universal access transceiver
UHF	ultra high frequency
UIS	unstaffed infrastructure sustainment
URET	user request evaluation tool
USNS	U.S. Notices to Airmen system
V	
VASI	visual approach slope indicator
VHF	very high frequency
VLJ	very light jet
VNAV	vertical navigation
VOR	very high frequency omni-directional range
VORTAC	very high frequency omni-directional range collocated with tactical air navigation
VRRP	voice recorder replacement program
VSCS	voice switching and control system
VSR	voice switch replacement
VT	virtual tower
VTABS	VSCS training and backup system
W	
WAAS	wide area augmentation system
WARP	weather and radar processor
WINS	weather information network server
WJHTC	William J. Hughes Technical Center
WMSCR	weather message switching center replacement
WP	work package
WRC	world radiocommunication conference
WSP	weather systems processor
WX	weather