



**Federal Aviation
Administration**

NextGen

Fiscal Year 2012 Business Plan



FY2012 ANG - NextGen Business Plan

The Air Traffic Organization (ATO) NextGen & Operations Planning (AJP) Service Unit's mission is to realize the future vision of aviation by providing integrated strategies and solutions that achieve national and international goals. The organization provides the ATO with strategic and tactical planning which results in a well-defined picture of where we want to go and a roadmap showing how to get there. AJP includes research and development, technology development, performance analysis and system engineering. The convergence of these disciplines within the planning process along with the interaction of key customers and suppliers allows the FAA and ATO to execute its mission.

Next Level of Safety

NextGen & Operations Planning supports Destination 2025 Safety Outcomes through the development of human factors methods to understand and mitigate the causes of human error in the operation and maintenance of the National Airspace System. Through the William J. Hughes Technical Center, NextGen & Operations Planning provides an aviation research and development, and test and evaluation facility. Technical Center programs include testing and evaluation in air traffic control, communications, navigation, airports, aircraft safety, and security. Continued coordination with our customers through such organizations, as RTCA will ensure the success of both aviation and operational performance standards, which is critical to the safe deployment of new technology.

Strategic Measure: Commercial Air Carrier Fatality Rate

Reduce the commercial air carrier fatalities per 100 million persons on board by 24 percent over 9-year period (2010-2018). No more than 6.2 in 2018. FY 2012 Target: 7.6

Strategic Initiative: Hazardous Materials Safety

Improve the safety of transporting hazardous materials by air.

Strategic Activity: Hazardous Materials Safety Support

Support the Office of Hazardous Materials Safety by conducting lithium battery fire tests.

Activity Target 1:

Evaluate the effectiveness of intumescent paint and Halon 1301 in preventing the propagation of

thermal runaway in bulk shipment of lithium batteries. Due September 30, 2012

Strategic Initiative: Human Factors

Continue research to identify human factors that may contribute to accidents. Develop and implement strategies, methods, and technologies that reduce safety risk.

Strategic Activity: Human Factors considerations for the design and evaluation of traffic information and alerts on surface moving maps for the flight deck

Provide human factors guidelines for the design and evaluation of surface moving map displays that show ownership and traffic, including runway incursion alerting.

Activity Target 1:

Draft report documenting human factors issues associated with alert location for integration of traffic information on surface moving maps and a list of recommendations Due June 30, 2012

Activity Target 2:

Draft report documenting traffic symbology issues. Due August 31, 2012

Strategic Initiative: Aviation Safety Information Analysis and Sharing

Collect safety data at a national level and consolidate the data under the Aviation Safety Information Analysis and Sharing (ASIAS) program.

Strategic Activity: Automated Tools for ASIAS

Support the ASIAS initiative by coordinating integration of internal FAA databases into ASIAS.

Activity Target 1:

Develop a user interface and trend analysis prototype capability that monitors NAS equipment performance with respect to failures, risk, and other off-nominal occurrences. Due September 30, 2012

Strategic Initiative: Aeronautical Information Dissemination

Provide pilots with safe access to the NAS by analyzing and disseminating aeronautical and meteorological

information to pilots and controllers through innovative systems.

Strategic Activity: Standards for Weather Products

Establish standards for weather products to be data linked to the cockpit.

Activity Target 1:

Produce a roadmap for the development and demonstration of mobile applications of a ground based aviation weather data service. Due March 31, 2012

Activity Target 2:

Develop a Concept of Operations for the use of selected aviation weather data service mobile applications. Due August 31, 2012

Strategic Measure: General Aviation Fatal Accident Rate

Reduce the general aviation fatal accident rate to no more than 1 fatal accident per 100,000 flight hours by 2018. FY 2012 Target: 1.07

Strategic Initiative: Human Factors

Continue research to identify human factors that may contribute to accidents. Develop and implement strategies, methods, and technologies that reduce safety risk.

Strategic Activity: Human Factors Guidelines for Design and Evaluation of Surface moving Map Displays.

Using a flight simulator, develop recommendations that include training and technological countermeasures to task overload and workload breakdowns for single-pilots flying very light jets.

Activity Target 1:

Report summarizing data focusing on pilot energy management and completion of procedures during the approach and landing phases of flight. Due March 30, 2012

Activity Target 2:

Report providing recommendations aimed at mitigating the impact of task overload and workload breakdowns on pilot performance. Due September 30, 2012

Strategic Measure: Information Systems Security

Ensure no cyber security event significantly degrades or disables a mission-critical FAA system. FY 2012 Target: 0

Strategic Initiative: NAS Enterprise Information System Security (NEISS) Architecture

Provide system engineering support services to achieve zero cyber security events by defining and implementing NAS Information System Security (NEISS) Architecture capabilities.

Strategic Activity: ANG-B Systems Engineering Support Services for NEISS Architecture

Provide Information System Security (ISS) services; develop enterprise-wide architecture products, requirements and standards to support NAS Enterprise Information System Security Architecture and capabilities; develop Enterprise Architecture views to support acquisition decisions in the development of NextGen programs.

Activity Target 1:

Complete update of final NAS Enterprise Architecture Information System Security views and overlays. Due August 31, 2012

Activity Target 2:

Establish enterprise verification and validation infrastructure to support development of Identity and Key Management (IKM) functionality. Due September 30, 2012

Core Measure: Assess Runway Safety Technology

Demonstrate a ground-movement safety infrastructure by 2013 that provides direct warning capability to pilots, drivers, and controllers to reduce the severity of Runway Incursions.

Core Initiative: Runway Incursion Reduction Program (RIRP) - ATDP - (S09.02-00) (CIP#:S09.02-01)

The Runway Incursion Reduction Program (RIRP) will continue to develop and mature technology solutions to reduce the likelihood of runway incidents and accidents. All research, development and test activity will be aligned to support the FAA's National Runway Safety Plan. Operational evaluation test beds will be established, sustained or enhanced to support continued data recording and analysis to facilitate capital investment decisions. When appropriate, runway incursion prevention devices and systems will be tested

and qualified with the objective of facilitating airport operator acquisition through the Airport Improvement Program.

Core Activity: Research and Development of Runway Incursion Prevention Technologies

Sustain or enhance the prototype operational evaluation test beds to support continued data recording and analysis facilitating capital investment decisions. Continue to assess and develop Runway Status Lights functionality for application at small to medium sized airports utilizing low-cost, commercially available radar surveillance systems and efficient "green" technologies.

Activity Target 1:

Publish the final feasibility study report on whether Low Cost Ground Surveillance can operate as a sensor to drive the activation of direct to pilot alerting safety logic. Due March 31, 2012

Activity Target 2:

Publish initial Cost Benefit Analysis (CBA) for BOS Runway Intersection Lights. Due September 30, 2012

Activity Target 3:

Publish Initial Requirements Document for Runway Intersection Lights. Due September 30, 2012

Activity Target 4:

Complete coordination for installation of LED fixtures and OpEval at San Diego Airport. Due March 31, 2012

Activity Target 5:

Install and implement eFAROS at DFW. Due June 30, 2012

Activity Target 6:

Initiate development of eFAROS communications interface for second prototype location. Due September 30, 2012

Activity Target 7:

Preliminary test report and briefing of HITL results to FAA interests due. Due September 30, 2012

Core Activity: Low Cost Ground Surveillance (LCGS) Systems

Support Federal Aviation Administration's procurement decision of low cost ground surveillance (LCGS) systems. The Federal Aviation Administration is considering procurement of low-cost, commercially

available radar surveillance systems that would reduce the risk of runway incursions at certain small and medium-sized airports. A low-cost system will reduce the risk of ground incidents or accidents, especially during periods of low visibility. We will install these systems at airports that do not have Airport Surface Detection Equipment (either ASDE-3 or ASDE-X).

Activity Target 1:

Complete quick look report on technical performance and user evaluations on the four pilot systems. Due April 30, 2012

Activity Target 2:

Publish technical performance and user evaluation report on the four pilot systems Due September 30, 2012

Activity Target 3:

Present LCGS Pilot Program findings to Executive Council Due September 30, 2012

Core Measure: Institutionalizing Safety Management Systems in ANG

By fiscal year FY2012, support the NextGen organization (ANG) and ensure compliance with the FAA's requirement for a Safety Management System (SMS) by developing ANG's SMS policy and implementation plan for ANG's Safety Management System (SMS) tailored to ANG.

Core Initiative: ANG Safety Management System (SMS)

Develop ANG's SMS by tailoring the ATO's air traffic management SMS to meet the needs of ANG. The ANG SMS will rely heavily on SMS processes and procedures defined by the ATO SMS and will only deviate where applicable due to organizational requirements.

Core Activity: SMS Sustaining Integration Support Activities

Review ATO SMS policies and practice for applicability and adoption to support ANG SMS policies and practices and to assure SMS compliance.

Activity Target 1:

Develop and issue initial ANG SMS policy. Due March 31, 2012

Activity Target 2:

Develop ANG SMS Implementation Plan. Due July 30, 2012

Activity Target 3:

Develop specific SRM guidance for ANG use to comply with the applicable requirements of the ATO SRM process. Due September 30, 2012

MOC covering enroute and super density airspace. Due May 15, 2012

Activity Target 2:

Complete allocation to NWS of appropriate NextGen MOC Weather Performance Requirements in support of TFM. Due August 31, 2012

Core Measure: Aviation Weather NextGen

Improve the quality of convective weather forecasts that support aviation strategic planning at 4 and 6 hour lead-times by reducing over and under forecasting by 5%, while also increasing the critical success index by 4%. By 2014, improve the quality of icing forecasts to mitigate the impact of significant icing on aircraft safety by increasing the volume efficiency by 5%.

Core Measure: Conduct Aircraft Safety Research and Development

By close of Fiscal Year 2012, formulate (for FY2014) and execute (for FY12) an aircraft safety R&D plan that supports FAA strategic goals, AVS mission needs, identified threats to aviation safety, introduction or application of new technologies, and maintains in-house core competencies and FAA safety research laboratories. Research plans are developed and executed in union with the three-year Congressional budget cycle. By FY2012, achieve 85% of the 27 activity targets associated with this measure.

Core Initiative: Scientific Advances (041-110)

Demonstrate the scientific advances required for advanced weather forecast products required by NextGen.

Core Activity: Scientific Advances

Demonstrate the scientific advances required for advanced weather forecast products required by NextGen.

Activity Target 1:

Establish Aviation Weather Development and Evaluation Environment at WJHTC to assess advanced weather forecast products. Due August 31, 2012

Activity Target 2:

Complete initial inflight icing forecast and analysis capability with severity. Due August 31, 2012

Core Initiative: Fire Research and Safety (061-110)

Reduce the number of accidents associates with aircraft fires and mitigate the effects of a post-crash ground fire.

Core Activity: Aircraft Safety Research and Development Plan-Fire Research and Safety

Near-term research focuses on improved fire test standards for interior and structural materials, improved fuel tank inserting systems and extended inserting applications, and new or improved fire detection and extinguishment systems; long-term research focuses on developing the enabling technology for a fireproof aircraft cabin constructed of ultra-fire resistant materials.

Activity Target 1:

Complete tests in engine fire simulator and operational aircraft engine to determine the fire extinguishing effectiveness and performance criteria for novel, environmentally friendly dry powder agent; and prepare a draft report. Due September 30, 2012

Activity Target 2:

Evaluate bulk lithium battery shipments and their impact on fire safety, compared to other cargo materials in Class C (halon fire suppression) and Class E (freighter) cargo compartments under full-

Core Initiative: National Airspace System Requirements Development - ATDP (CIP#:M08.27-01)

Complete selected segments of NAS and Domain Level Weather Requirements Database for NextGen FOC and MOC.

Core Activity: National Airspace System Requirements Development - ATDP (CIP#:M08.27-01)

Complete selected segments of NAS and Domain Level Weather Requirements Database for NextGen FOC and MOC.

Activity Target 1:

Complete NAS and Domain Level Weather Performance Requirements for NextGen FOC and

scale fire test conditions, and prepare draft report. Due September 30, 2012

Core Activity: Conduct Laboratory-Based Applied Research-Fire Safety Laboratories

Conduct full and small-scale fire tests to develop new flammability tests for aircraft materials in applications where regulatory requirements are currently nonexistent. In addition, conduct flammability tests and analyses in support of Transport Airplane Directorate (TAD) initiative Policy Statement on Flammability Testing of Interior Materials.

Activity Target 1:

Develop improved next generation burner test method for the fire worthiness of power plant components and prepare draft report. Due September 30, 2012

Activity Target 2:

Complete study of a statistical analysis of FAA fire test results and prepare draft report. Due June 30, 2012

Activity Target 3:

Evaluate the improvement in accuracy and repeatability of cabin material heat release measured in the FAA-required OSU apparatus using oxygen deficiency method, and prepare draft report. Due August 31, 2012

Activity Target 4:

Determine the effect of altitude on the burning rate of cabin and cargo materials and prepare draft report. Due September 30, 2012

Core Initiative: Propulsion and Fuel Systems (063-110)

Reduce the number of accidents associated with the failure of aircraft engines, components, and fuel systems.

Core Activity: Aircraft Safety Research and Development Plan-Propulsion and Fuel Systems

Ensure the structural integrity and durability of critical rotating engine parts in turbine engines throughout their service life by providing analytical tools to meet the requirements of Advisory Circular AC33.14-1, "Damage Tolerance for High Energy Turbine Engine Rotors" and support aircraft turbine engine manufacturers' ability access the risk of fracture and manage the life of rotor disks. Conduct research to improve understanding of other material factors and

manufacturing anomalies that can shorten the fatigue life of rotor disks.

Activity Target 1:

Continue the enhancement of the DARWIN probabilistic rotor design code. Due September 30, 2012

Core Initiative: Advanced Materials/Structural Safety (062-110\062-111)

Prevent accidents due to structural failure by assessing the safety implications of new and present day composites, alloys, and other materials, and associated structures and fabrication techniques.

Core Activity: Aircraft Safety Research and Development Plan- Advanced Materials/Structural Safety

Develop analytical and testing methods for standardization that improve the crashworthiness of airframes in the event of accidents. Research focuses on understanding how design, loading, and damage can affect the remaining life and strength of composite aircraft structures; developing maintenance and repair methods that are standardized and correlated with training and repair station capabilities; enhancing occupant survivability and reducing personal injury from accidents; and, improving crash characteristics of aircraft structures.

Activity Target 1:

Complete research on two 2-bay full scale panels and initiate fabrication of 4- or 5-bay full scale panels. Due September 30, 2012

Activity Target 2:

Evaluate aircraft configuration to provide data for design criteria for aircraft seat and or restraint systems in severe but survivable accidents. Due July 31, 2012

Activity Target 3:

Complete sandwich panel DA/DN damage growth testing for Mode I fracture toughness with room temperature dry conditions and develop test methodology for conditioned sandwich panels. Due March 31, 2012

Core Initiative: Atmospheric Hazards/Digital System Safety (064-110/064-111)

Reduce the number of accidents or potential accidents associated with aircraft icing and failures to software-based digital flight controls and avionics systems.

Core Activity: Aircraft Safety Research and Development Plan - Atmospheric Hazards/Digital System Safety

Develop and assess ways to ensure that airframes and engines can safely operate in atmospheric icing conditions, and ensure the proper operation of software, electronic hardware, and digital systems.

Activity Target 1:

Complete High Ice Water Content Field Campaign
Due April 30, 2012

Activity Target 2:

Continue software Development Techniques and Tools for verification of adaptive systems. Due September 30, 2012

Core Initiative: Continued Airworthiness (065-110)

Prevent, reduce, or mitigate accidents associated with failure of aircraft structure, engines, and systems as a function of their continued operation and usage.

Core Activity: Aircraft Safety Research and Development Plan -Continued Airworthiness

Understand and develop methods to counter the effects of age and usage on the airworthiness of an aircraft over its lifetime, including potential effects of modifications and repairs. Conduct research into developing technologies and processes and assess current practices to eliminate or mitigate the potential failures related to aircraft aging processes.

Activity Target 1:

Continue to develop technical data on regulatory issues for ongoing fly-by-wire and fly-by-light working groups. Due September 30, 2012

Activity Target 2:

Complete phase 1 of mock certification with direct load measurements of health usage monitoring system (HUMS) for installation and credit validation. Due September 30, 2012

Activity Target 3:

Continue to develop data to support a specification for industrial ultrasonic forging inspection. Due September 30, 2012

Core Activity: Full-scale Structural Test and Evaluation Facility (FASTER)

Conduct full-scale airframe structural testing that promotes the development of technologies and performance models to prevent accidents and

mitigate accident severity related to civil aircraft failures as a function of their continued operation and usage.

Activity Target 1:

In partnership with Boeing, reconfigure and modify the FASTER facility for Phase III efforts to assess environmental durability, damage tolerance capabilities, and long-term airworthiness of bonded repairs. Due September 30, 2012

Activity Target 2:

Provide data necessary towards update of Metallic Materials Properties Development and Standardization (MMPDS) manual. Due September 30, 2012

Core Initiative: Aircraft Catastrophic Failure Prevention Research (066-110)

Reduce the number of fatal accidents from engine failures.

Core Activity: Aircraft Safety Research and Development Plan - Aircraft Catastrophic Failure Prevention Research

The current focus of this research is engine containment/uncontainment research in the following areas: 1) develop a public tool with standardized generic models, user guides, training, software quality control process, and validated public material models that will allow FAA engineers to validate the proprietary tools, streamline the certification process, and help mitigate fatalities and injuries when these events occur; 2) develop data and methods for evaluation aircraft vulnerability to uncontained engine failures and provide analysis tools for protecting identified critical systems that may need shielding or relocation from uncontained engine debris.

Activity Target 1:

Continue FAA/NASA/industry sponsored quality control program for modeling aircraft problems in the manufacturer's supported finite element code (LSDYNA). Due September 30, 2012

Activity Target 2:

Continue development of a new material model for titanium in LSDYNA. Due September 30, 2012

Core Initiative: Aviation Safety Risk Analysis (060-110)

Support promotion and expansion of safety information sharing and safety risk management initiatives efforts.

Core Activity: Aircraft Safety Research and Development Plan-Aviation Safety Risk Analysis

Develop a secure safety information and analysis system that provides access to numerous databases, maintains their currency, enables interoperability across their different formats, provides the ability to identify future threats, conducts a causal analysis of those threats, and recommends solutions. Conduct operational research and analysis to maintain or improve terminal area safety and efficiency.

Activity Target 1:

Initiate the Transport Airplane Risk Analysis Evaluative Metrics research initiative. Due December 31, 2011

Activity Target 2:

Initiate development of a user interface and trend analysis capability that monitors NAS equipment operations with respect to failures, risk, and other off-nominal occurrences. Due January 31, 2012

Activity Target 3:

Complete initial evaluation regarding the connection of required navigation performance (RNP)/performance based navigation (PBN) paths for terminal area operations by using human-in-the-loop simulations. Due September 30, 2012

Core Initiative: NextGen Alternative fuels - General Aviation (111-160)

Address the use of alternative and renewable fuels for GA to lessen aviation environmental impacts to air and water quality.

Core Activity: Aircraft Safety Research and Development Plan - NextGen Alternative fuels - General Aviation

Investigate alternative fuels for general aviation aircraft that lower or eliminate lead while maintaining the airworthiness of aircraft engines and airframe fuel management systems.

Activity Target 1:

Evaluation of high-compression representative engine on reduced leaded and ultra-low leaded fuels. Due September 30, 2012

Core Measure: Conduct NextGen Flight Deck Human Factors Research and Development in

Air/Ground Integration and Self Separation

Conduct human factors research and deliver human factors research and development (R&D) products that support FAA strategic goals and AVS mission needs, mitigate identified threats to aviation safety, and support introduction or application of new technologies for NextGen. The NextGen Flight Deck Human Factors R&D program is executed in an integrated manner with focus areas in instrument procedures, separation assurance and collision avoidance, low visibility ground operations, automation and roles/responsibilities, data communications, risk and error management, trajectory based operations, training and personnel qualification, single pilot operations, and decision making/decision support. 90% of comments received from the research sponsors and the Research Engineering Development Advisory Committee (REDAC) will be reviewed and reconciled for incorporation into the NextGen Flight Deck Human Factors R&D plans.

Core Initiative: NextGen Air Ground Integration (111-110)

Conduct research and delivery human factors products that support FAA strategic goals and AVS mission needs, mitigate identified threats to aviation safety, and support introduction or application of new technologies for NextGen.

Core Activity: NextGen Flight Deck Human Factors Research and Development Plan- NextGen Air Ground Integration

Formulate and execute a NextGen Flight Deck Human Factors R&D plan. Plans are developed, implemented and executed throughout the two year budget cycle resulting in current and near term milestones being reported and updated in the National Aviation Research Plan (NARP). Primary focus areas are data communication, risk and error management, trajectory based operations, and decision making/decision support.

Activity Target 1:

FY2012 NextGen Flight Deck Human Factors R&D plan in coordination with NextGen Integration & Implementation Office (AJP-A), sponsor (AVS), and REDAC Subcommittee on Human Factors. Due April 30, 2012

Activity Target 2:

Complete execution of FY2012 NextGen Flight Deck Human Factors R&D plan and report milestone accomplishments. Due September 30, 2012

Core Initiative: NextGen Self Separation (111-120)

Conduct research and deliver human factors products that support FAA strategic goals and AVS mission needs, mitigate identified threats to aviation safety, and support introduction or application of new technologies for NextGen.

Core Activity: NextGen Flight Deck Human Factors Research and Development Plan- NextGen Self Separation

Formulate and execute a NextGen Flight Deck Human Factors R&D plan. Plans are developed, implemented and executed throughout the two year budget cycle resulting in current and near term milestones being reported and updated in the National Aviation Research Plan (NARP). Primary focus areas are instrument procedures, separation assurance and collision avoidance, low visibility ground operations, and automation.

Activity Target 1:

Develop FY2012 NextGen Flight Deck Human Factors R&D plan in coordination with NextGen Integration & Implementation Office (AJP-A), sponsor (AVS), and REDAC Subcommittee on Human Factors. Due April 30, 2012

Activity Target 2:

Complete execution of FY2012 NextGen Flight Deck Human Factors R&D plan and report milestone accomplishments. Due September 30, 2012

Core Measure: Conduct Human Factors Research and Development in Air Traffic Control/Airway Facilities

Conduct human factors research and deliver human factors research and development (R&D) products that support FAA strategic goals and assure that the human centered perspective and the human roles, responsibilities and capabilities are included in all concepts, designs, procedures and policies. For 2012 we will review and analyze 90% of the comments received from the research sponsors and the Research Engineering Development Advisory Committee (REDAC) for incorporation into the Air Traffic Control Human Factors R&D Plan.

Core Initiative: Air Traffic Control/Airway facilities Human Factors (082-110)

Conduct human factors research and deliver human factors research and development (R&D) products that support FAA strategic goals and assure that the human centered perspective and the human roles, responsibilities and capabilities are included in all concepts, designs, procedures and policies.

Core Activity: Air Traffic Control/Airways Facilities Human Factors Research and Development Plan

Formulate and execute an Air Traffic control and Airways Facilities Human Factors Research and Development Plan.

Activity Target 1:

Develop FY2012 Air Traffic Control and Airways Facilities Human Factors R&D Plan. Due April 30, 2012

Activity Target 2:

Complete execution of the FY2012 Air Traffic Control and Airways Facilities Human Factors R&D Plan and report milestone accomplishments. Due September 30, 2012

Core Measure: William J. Hughes Technical Center Laboratory Facility

The FAA William J. Hughes Technical Center will provide an integrated laboratory platform for the purpose of demonstrating operational procedures, defining human and system performance requirements, full-mission demonstrations integrating NextGen air and ground capabilities for pilot separation responsibility and controller efficiencies, and analysis, evaluation, and validation of R&D milestones.

Core Initiative: Technical Laboratory Facilities (011-140)

Provide specialized facilities to support R&D program goals for human factors projects including human-in-the-loop simulations.

Core Activity: Technical Laboratory Facilities (011-140)

Provide specialized facilities to support R&D program goals for human factors projects including human-in-the-loop simulations

Activity Target 1:
Monitor and Report Due September 30, 2012

Core Measure: Conduct Flight Deck/Maintenance/System Integration Human Factors Research

Conduct human factors research and deliver human factors products that support FAA guidelines, handbooks, advisory circulars (ACs), rules, and regulations that help to ensure the safety and efficiency of aircraft and maintenance operations. 90% of comments received from the research sponsors and the Research Engineering Development Advisory Committee (REDAC) will be reviewed and reconciled for incorporation into the NextGen Flight Deck Human Factors R&D plans.

Core Initiative: Deliver Flight Deck Human Factors Research Products (081-110)

Conduct research and delivery human factors products that support FAA strategic goals and AVS mission needs, mitigate identified threats to aviation safety, and support introduction or application of new technologies.

Core Activity: Flight Deck Human Factors Research and Development Plan

Formulate and execute a Flight Deck Human Factors R&D plan. Plans are developed, implemented and executed throughout the two year budget cycle resulting in current and near term milestones being reported and updated in the National Aviation Research Plan (NARP).

Activity Target 1:
Develop FY11 Flight Deck Human Factors R&D plan in coordination with Integration & Implementation Office (AJP-A), sponsor (AVS), and REDAC Subcommittee on Human Factors. Due April 30, 2012

Activity Target 2:
Complete execution of FY11 Flight Deck Human Factors R&D plan and report milestone accomplishments. Due September 30, 2012

Core Measure: RWI Reduced Weather Impact (G04W.03-01)

NextGen is a series of inter-linked programs, systems, and policies that implement advanced technologies and capabilities to dramatically change the way the current aviation system is operated. NextGen is satellite-based

and relies on a network to share information and digital communications so all users of the system are aware of other users' precise locations. The RWI solution set is a portfolio of research and development projects focused on improving efficiency of operations. It will improve weather predictions by supporting proactive planning operations rather than hurriedly adjusting for impacts after the weather has changed. Improvements include providing accurate, consistent, and integrated weather information to Air Traffic Management Specialists, other air traffic control facilities, airline flight operations centers (FOC), and the flight deck to support both tactical and strategic operational decision-making tools. Other refinements will be developed that improve weather observations, upgrade forecasts, and disseminate weather information to mitigate the severity of weather impacts on NAS operations. Improved forecasts will incorporate a better characterization of uncertainty and assist operators in safely planning and conducting four dimensional, gate-to-gate, trajectory-based operations to not only avoid storm hazards and provide comfortable flight conditions, but also to increase overall efficiency by improving routing/rerouting decision making. Decision support systems will directly incorporate weather data to aid decision makers in determining the impact of weather on NAS operations and the best response to potential weather-related operational effects, thus minimizing the level of traffic restrictions required in planning horizons that extend from 0--8 hours. We will upgrade four functional areas: expand weather sensing capability to provide better observations that support better forecasting; make weather processing more sophisticated and better tailor forecasts for users; integrate weather information into decision-support tools; and ensure users have access to all information. NextGen Network Enabled Weather (NNEW) will be the core of the NextGen weather support services. It will enable widespread distribution of weather products to enhance collaborative and dynamic NAS decision making. It will provide network access to weather information from many different sources (including the 4-D Wx Data Cube and SWIM).

Core Initiative: RWI Reduced Weather Impact (G04W.03-01) (CIP#:G04W.03-01)

The Weather Forecast Improvement program supports the need to improve weather decision-making and the use of weather information in the transformed National Airspace System (NAS). This includes integrating weather information tailored for Decision Support Tools (DSTs) and systems into NextGen operations; implementing improved forecasts through Research Transition (RT) of advanced forecast capabilities from aviation weather research; developing and using metrics to evaluate the effectiveness of weather improvements in the NAS; developing probabilistic forecasts that can be effectively used in air traffic and traffic flow management; and determining the most effective

solution for a processor architecture to support these capabilities. Reduce Weather Impact (RWI) will propose recommendations for near-, mid- and far- timeframes that will include a recommendation for the transition of FAA legacy systems. Collectively, the effect of the NextGen RWI portfolio will examine stand-alone weather displays, eliminate cognitive interpretation of weather and impact assessments, and significantly decrease impact delays. NextGen RWI will redesign weather information to integrate with and support decision-oriented automation abilities and human decision-making processes.

Core Activity: Weather Forecast Improvements (NWP) (CIP#: G04W.03-01)

The Weather Forecast Improvement program supports the need to improve weather decision-making and the use of weather information in the transformed National Airspace System (NAS). This includes integrating weather information tailored for Decision Support Tools (DSTs) and systems into NextGen operations; implementing improved forecasts through Research Transition (RT) of advanced forecast capabilities from aviation weather research; developing and using metrics to evaluate the effectiveness of weather improvements in the NAS; developing probabilistic forecasts that can be effectively used in air traffic and traffic flow management; and determining the most effective solution for a processor architecture to support these capabilities. Reduce Weather Impact (RWI) will propose recommendations for near-, mid- and far-timeframes that will include a recommendation for the transition of FAA legacy systems. Collectively, the effect of the NextGen RWI portfolio will examine stand-alone weather displays, eliminate cognitive interpretation of weather and impact assessments, and significantly decrease impact delays. NextGen RWI will redesign weather information to integrate with and support decision-oriented automation abilities and human decision-making processes.

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Activity: RWI Reduced Weather Impact - G04W.03-01

The Weather Forecast Improvement program supports the need to improve weather decision-making and the use of weather information in the transformed National Airspace System (NAS). This includes integrating weather information tailored for Decision Support Tools (DSTs) and systems into NextGen operations; implementing improved forecasts through Research Transition (RT) of advanced forecast capabilities from aviation weather research; developing and using metrics to evaluate

the effectiveness of weather improvements in the NAS; developing probabilistic forecasts that can be effectively used in air traffic and traffic flow management; and determining the most effective solution for a processor architecture to support these capabilities. Reduce Weather Impact (RWI) will propose recommendations for near-, mid- and far-timeframe that will include a recommendation for the transition of FAA legacy systems. Collectively, the effect of the NextGen RWI portfolio will examine stand-alone weather displays, eliminate cognitive interpretation of weather and impact assessments, and significantly decrease impact delays. NextGen RWI will redesign weather information to integrate with and support decision-oriented automation abilities and human decision-making processes.

Activity Target 1:

Develop the initial documentation to define the arrival Convective Weather Avoidance Models (CWAM) for phases of flight to improved safety during convective weather conditions. Due June 1, 2012

Activity Target 2:

Complete final report of the 2011 CoSPA Operational Suitability Assessment to gain stakeholder insight. Due July 1, 2012

Core Measure: Conduct Aircraft Safety Research and Development

By close of Fiscal Year 2012, formulate (for FY2014) and execute (for FY12) an aircraft safety R&D plan that supports FAA strategic goals, AVS mission needs, identified threats to aviation safety, introduction or application of new technologies, and maintains in-house core competencies and FAA safety research laboratories. Research plans are developed and executed in union with the three-year Congressional budget cycle. By FY2012, achieve 85% of the 27 activity targets associated with this measure.

Core Initiative: Unmanned Aircraft System (069-110)

Support establishment of regulatory standards on UAS design and performance characteristics while operating in the NAS.

Core Activity: Aircraft Safety Research and Development Plan-Unmanned Aircraft System

Develop airworthiness standards, devise operational requirements, establish maintenance procedures, and conduct safety oversight activities that safely integrate

UAS into the NAS. The program is structured into seven research areas: technology survey; system safety; detect, sense, and avoid (DSA); control, command, and communication (C3); flight termination, certification and airworthiness standards, and maintenance and continuing airworthiness issues.

Activity Target 1:

Initiate a study to identify the barriers for systems and equipment providing equivalent SAA capabilities. Due May 31, 2012

Activity Target 2:

Develop an engineering approach to define UAS control and communication system performance requirements such as latency, availability, integrity, and security and critical fly-by-wireless certification challenges. Due August 31, 2012

turbulence separation processes and help utilize the assessments in the design of the NextGen era operations. Provide funding as allocated by AJT to supporting organizations for the analysis, modeling, concept development, and data collection necessary to accomplish the FY12 Wake research agenda. Assist in the coordination of the wake turbulence mitigation development work with AJT and AFS-400 as the research progresses. Provide technical support in wake mitigation separation standards, procedures and processes discussions with ICAO, airports, air carriers, unions, and other stakeholders.

Activity Target 1:

Complete initial benefit analysis of the wind dependent wake mitigation decision support tool concept for reducing wake separations required for instrument approaches to single runways. Due July 27, 2012

Activity Target 2:

Determine requirements for enhancing air traffic control automation systems to implement wake mitigations for NextGen era operations. Due September 28, 2012

Aviation Access

NextGen & Operations Planning supports the Destination 2025 Aviation Access Outcomes with activities that include efforts in evaluating the effectiveness of weather information in reducing delays, coordinating cross-agency and with the aviation community to update the NextGen Implementation Plan annually, implementing the JPDO integrated plan for a Next Generation Air Transportation System, and improving operator and passenger access to the DOT Delay Reporting System.

Strategic Measure: Core Airports Throughput

Increase throughput at core airports by 12 percent to reduce delays by 27 percent using a 2009 operations baseline. FY 2012 Target: Finalize metric and Target

Strategic Initiative: Destination 2025 Core Airports Throughput Metric Development

Finalize development of Core Airports Throughput Metric.

Strategic Activity: Destination 2025 Core Airports Throughput Metric Development

Formulate cross Line of Business (LOB) team, define alternative metrics, and baseline alternative metrics.

Strategic Initiative: Arrival and Departure Rates

Conduct research to improve safety and increase throughput using wake turbulence monitoring, operational procedures, and controller tools.

Strategic Activity: Wake Turbulence Enhancement of Arrivals/Departures - Support

Support AJT in the domestic and international work groups looking at enhanced methods of providing wake turbulence mitigation utilizing available technology. Support the development of wake turbulence mitigation separation standards, procedures and processes for near-term, mid-term and far-term NextGen era operations. Assist in assessing the performance of the current wake

Activity Target 1:

Form cross LOB team. Due March 31, 2012

Activity Target 2:

Define alternative metrics. Due May 31, 2012

Activity Target 3:

Baseline alternative metrics. Due August 31, 2012

Activity Target 4:

Form cross LOB team. Due March 31, 2012

Activity Target 5:

Define alternative metrics. Due May 31, 2012

Activity Target 6:

Baseline alternative metrics. Due August 31, 2012

Strategic Measure: Major System Investments

Maintain 90 percent of major system investments within 10 percent variance of current baseline total budget at completion. FY 2012 Target: 90% within 10% variance of current baseline

Strategic Initiative: NextGen Implementation Plan (CIP#:X01.00-00)

Expand FAA's NextGen Implementation Plan to incorporate critical path decisions and milestones necessary to accomplish the Mid-Term commitments.

Strategic Activity: AJP-A NextGen Implementation Plan

Publish the Next Generation Implementation Plan reflecting the agency and aviation community priorities.

Activity Target 1:

Working through the cross-agency workgroup, develop key messages and annotated outline for incorporation into the NextGen Implementation Plan for approval by FAA executives. Due October 14, 2011

Activity Target 2:

Working through the cross-agency workgroup, develop, review, and provide comments on draft 1 NextGen Implementation Plan Due December 16, 2011

Activity Target 3:

Working through the cross-agency workgroup, develop, review, provide comments, and resolve comments on draft 2 NextGen Implementation Plan. Due February 6, 2012

Activity Target 4:

Publish NextGen Implementation Plan on FAA website thirty days after the President's budget submission. Due March 12, 2012

Strategic Activity: AJP-E NextGen Implementation Plan

Publish the Next Generation Implementation Plan reflecting the agency and aviation community priorities.

Activity Target 1:

Working through the cross-agency workgroup, develop key messages and annotated outline for incorporation into the NextGen Implementation

Plan for approval by FAA executives. Due October 14, 2011

Activity Target 2:

Working through the cross-agency workgroup, develop, review and provide comments on draft 1 NextGen Implementation Plan. Due December 16, 2011

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Activity Target 4:

Publish NextGen Implementation Plan on FAA website thirty days after the President's budget submission. Due March 12, 2012

Strategic Initiative: NextGen Segment Implementation Plan

Identify NextGen critical decisions and supporting research, capital and implementation activities required to fulfill FAA NextGen commitments and meet 90 percent of the commitments.

Strategic Activity: NextGen Milestones

Provide the management discipline and infrastructure for tracking, monitoring completions across Lines of Business.

Activity Target 1:

Establish FY12 list of initiatives including, Research Demos and selected milestones. Due January 31, 2012

Activity Target 2:

Monitor and report monthly on established program schedule activities and dates. Due September 30, 2012

Strategic Activity: AJP-1 Support for NextGen Implementation Plan Milestones

Systems Engineering & Safety (SES) provides annual updates to Enterprise Architecture (EA) roadmaps which include identification of critical NextGen decisions that are incorporated into the NextGen Implementation Plan.

Activity Target 1:

Complete draft EA roadmaps. Due November 30, 2011

Activity Target 2:

EA roadmap approval. Due January 31, 2012

Strategic Measure: Adverse Weather Throughput

Improve throughput at core airports during adverse weather by 14 percent by 2018. FY 2018 Target: Finalize metric and Target

Strategic Initiative: Destination 2025 Adverse Weather Throughput Metric Development

Finalize development of Adverse Weather Throughput Metric.

Strategic Activity: Destination 2025 Adverse Weather Throughput Metric Development

Formulate cross Line of Business (LOB) team, define alternative metrics, and baseline alternative metrics.

Activity Target 1:

Form cross LOB team. Due March 31, 2012

Activity Target 2:

Define alternative metrics. Due May 31, 2012

Activity Target 3:

Baseline alternative metrics. Due August 31, 2012

Activity Target 4:

Form cross LOB team. Due March 31, 2012

Activity Target 5:

Define alternative metrics. Due May 31, 2012

Activity Target 6:

Baseline alternative metrics. Due August 31, 2012

Strategic Measure: Flight Predictability

Improve flight predictability by reducing variances in flying time between core airports based on a 2012 baseline. FY 2012 Target: Finalize metric and Target

Strategic Initiative: Destination 2025 Flight Predictability Metric Development

Finalize development of Flight Predictability Metric.

Strategic Activity: Destination 2025 Flight Predictability Metric Development

Receive RTCA inputs and form cross Line of Business (LOB) team, define alternative metrics, and baseline alternative metrics.

Activity Target 1:

Receive RTCA Input. Due March 31, 2012

Activity Target 2:

Form cross LOB team. Due April 30, 2012

Activity Target 3:

Define alternative metrics. Due May 31, 2012

Activity Target 4:

Baseline alternative metrics. Due August 31, 2012

Activity Target 5:

Receive RTCA Input. Due March 31, 2012

Activity Target 6:

Form cross LOB team. Due April 30, 2012

Activity Target 7:

Define alternative metrics. Due May 31, 2012

Activity Target 8:

Baseline alternative metrics. Due August 31, 2012

Core Measure: Sustain Terminal Equipment Operational Availability

Sustain adjusted operational availability of select terminal equipment at 99.7 percent for the reportable facilities that support the Core Airports through FY 2012. (FY12 Target = 99.7% adjusted equipment availability for selected systems assigned to ATO Terminal Services for budget formulation).

Core Initiative: Major Strategic Capital Investment - Terminal Automation Modernization / Replacement (TAMR) Phase 3 (CIP#:A04.07-01)

This Initiative highlights the alignment between the Terminal Automation Modernization / Replacement (TAMR) Phase 3 program budget submission and the FAA Flight Plan for Terminal Services OMB Exhibit 300 Programs by ensuring that all Capacity focused FAA Major Investments (Exhibit 300 Programs) are identified in the Flight Plan. The FY2008 Budget Submission and associated FY2008 -- FY2012 Capital Investment Plan identifies these Exhibit 300 Programs as Strategic Investments.

Core Activity: Terminal Automation Modernization / Replacement (TAMR) Phase 3

Upon coordination/approval of FY-12 Program Directive, AJP-7A commits to providing stated test and evaluation support.

Activity Target 1:

Provide oversight for the contractor Acceptance Test for a software build. Due March 31, 2012

Activity Target 2:

Provide oversight for the contractor Acceptance Test for additional software build. Due August 31, 2012

Core Initiative: Major Strategic Capital Investment - Terminal Automation Modernization - STARS - Terminal Enhancements (TAMR Phase 1) (CIP#:A04.01-02)

This Initiative highlights the alignment between the Standard Terminal Automation Replacement System (STARS) Terminal Enhancements program budget submission and the FAA Flight Plan for Terminal Services OMB Exhibit 300 Programs by ensuring that all Capacity focused FAA Major Investments (Exhibit 300 Programs) are identified in the Flight Plan. The FY2008 Budget Submission and associated FY2008 -- FY2012 Capital Investment Plan identifies these Exhibit 300 Programs as Strategic Investments. The Standard Terminal Automation Replacement System (STARS) is a digital radar/flight data processing and display system for use by terminal air traffic controllers to ensure the safe separation of military and civilian aircraft throughout the nation's airspace. STARS technology is open, expandable and able to accommodate future growth as well as new hardware and software. STARS investment replaces the aging air traffic control equipment at 47 sites (43 Automated Radar Terminal Systems (ARTS) IIIA sites and 4 ARTS IIE sites) of our nations terminal radar approach control facilities (TRACONs) and airport traffic control towers (ATCT). STARS bridges the performance gap and makes a major contribution to the agency's strategic goals in two specific areas: increased capacity through the deployment of higher availability systems; and improved safety through the deployment of a more secure automation system. In order to support the operational availability, improved safety, and support the automation infrastructure on which to build the NextGen operational initiatives, provide software enhancements and refinements twice a year.

Core Activity: Terminal Automation Modernization - STARS - Terminal Enhancements (TAMR Phase 1)

Upon coordination/approval of FY-12 Program Directive and personnel resources, AJP-7A, contingently accepts stated test and evaluation support.

Activity Target 1:

Provide oversight for the contractor Acceptance Test for a software build. Due May 31, 2012

Activity Target 2:

Provide oversight for the contractor Acceptance Test for additional software build. Due September 30, 2012

Core Measure: Improve Fast-Time Modeling Capabilities

Improve computers' modeling capabilities to resolve their limitations and to support NextGen planning activities.

Core Initiative: Improve Fast-Time Modeling Capabilities (CIP#:M46.01-01)

Improve computers' modeling capabilities to resolve their limitations and to support NextGen planning activities.

Core Activity: Improve Fast-Time Modeling Capabilities

Develop and apply enhancements to the System-Wide Analysis Capability (SWAC) model and the Airfield Delay Simulation Model (ADSIM+).

Activity Target 1:

Develop initial SWAC Monte Carlo capability Due February 29, 2012

Activity Target 2:

Incorporate airport database in ADSIM+ Due April 30, 2012

Activity Target 3:

Incorporate probabilistic (i.e. forecast) weather capability in SWAC. Due September 30, 2012

Core Measure: NextGen Trajectory Based Operations

Implement key work plans in support of delivering the NextGen mid-term operational vision for trajectory based operations. This solution set will provide the capabilities,

decision-support tools and automation to manage aircraft movement by trajectory.

Core Initiative: Separation Management - Modern Procedures (CIP#:G01A.01-01) (CIP#:G01A.01-01)

Separation Management automation enhancements include concepts and technologies, performance enhancements to existing automation functions identified through development, deployment, and operational use of ERAM and predecessor systems. Pre-implementation activities include operational and technical risk reduction, and acquisition artifact development. Separation Management includes ATC automation capabilities that assist controllers in maintaining safe aircraft separation while optimizing use of airspace capacity.

Core Activity: Separation Management - Modern Procedures

The performance-based concept calls for separation standards to vary according to aircraft capabilities and pilot training. This effort will result in a set of separation standards requirements and algorithms to implement them. This includes changes to automation, procedures, and training. This also funds an analysis of performance-based data processing to see if it is appropriate for lowering separation minima. Performance-based data processing is a way to integrate all information about an aircraft's path and location to provide full situational awareness and predict possible problems. Developing new automation Conflict Alert (CA) and Conflict Probe (CP) algorithms and changing the controller workstations to support the new information are on the critical path of many NextGen technologies.

Activity Target 1:

Monitor and report quarterly on established milestones Due September 30, 2012

Core Initiative: Trajectory Management - Oceanic Tactical Trajectory Management (CIP#:G01A.02-02) (CIP#:G01A.02-02)

The Oceanic Tactical Trajectory Management program is a critical NextGen capability that addresses current performance gaps in the areas of capacity, productivity, efficiency, safety, and environmental impacts in the oceanic environment. FY12 will be used to address the three initial Oceanic TBO initiatives: Automatic Dependent Surveillance (ADS) Climb and Descent Procedures (CDP), Pre-Departure and Web-Enabled CTP, and In-Flight Operations. Based on the results of the FY11 work, FY12 will be used to expand these

initiatives to other geographical areas, perform operational trials, further refine longer-term objectives, include new initiatives to investigate separation assurance systems using Automatic Dependent Surveillance (ADS) technology, and begin concept development activities for Oceanic Airspace Management, Trajectory Managed, Autonomous, and Mixed Classic Airspace.

Core Activity: Trajectory Management - Oceanic Tactical Trajectory Management (CIP#: G01A.02-02)

The Oceanic Tactical Trajectory Management program is a critical NextGen capability that addresses current performance gaps in the areas of capacity, productivity, efficiency, safety, and environmental impacts in the oceanic environment. FY12 will be used to address the three initial Oceanic TBO initiatives: Automatic Dependent Surveillance (ADS) Climb and Descent Procedures (CDP), Pre-Departure and Web-Enabled CTP, and In-Flight Operations. Based on the results of the FY11 work, FY12 will be used to expand these initiatives to other geographical areas, perform operational trials, further refine longer-term objectives, include new initiatives to investigate separation assurance systems using Automatic Dependent Surveillance (ADS) technology, and begin concept development activities for Oceanic Airspace Management, Trajectory Managed, Autonomous, and Mixed Classic Airspace.

Activity Target 1:

Initiate operational evaluation of the Oceanic Conflict Advisory Trial (OCAT) and exchange digital information with the AOC to support flight reroute. Due September 1, 2012

Activity Target 2:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Measure: NextGen Flexibility in Terminal Environment

Implement key work plans in support of delivering the NextGen mid-term operational vision for flexible terminals and airports. This solution set provides capabilities necessary to increase access to and manage the separation of aircraft in the terminal environment at and around all airports -- large and small.

Core Initiative: Surface/Tower/Terminal Systems

Engineering (TFDM) (CIP#:G06A.02-01) (CIP#:G06A.02-01)

The primary goal of this activity is to provide engineering analyses, evaluations, and benefit assessments that will support terminal NextGen capabilities. A concept engineering analysis of proposed Terminal Radar Approach Control (TRACON) and Tower and Surface traffic management capabilities will be performed to determine which concepts are most beneficial to safely increase capacity, reduce traffic delays, lower costs, and reduce impact on the surrounding environment. The expected outcome of these efforts will result in enhanced capabilities that provide more efficient, safer movement and control of air traffic in the terminal domain. This will also ensure smoother transition into and out of the terminal airspace in support of consolidation of airspace and provide guidance for implementing projects as part of the NextGen Concept of Operations. In previous years, the enabling technologies/information was assessed and methods developed for gathering data, integrating information (i.e., flight data object, clearance (taxi/takeoff) information, surveillance information, user (aircraft/pilot/airport operators)) and receipt/acceptance of that data. Based on these capabilities, a series of decision support tools were identified. These tools will enhance/optimize airport surface traffic management efficiency, mitigate risk of safety related incidents, and support the overall movement of air traffic in the terminal environment.

Core Activity: Surface/Tower/Terminal Systems Engineering (TFDM) (CIP#:G06A.02-01)

The primary goal of this activity is to provide engineering analyses, evaluations, and benefit assessments that will support terminal NextGen capabilities. A concept engineering analysis of proposed Terminal Radar Approach Control (TRACON) and Tower and Surface traffic management capabilities will be performed to determine which concepts are most beneficial to safely increase capacity, reduce traffic delays, lower costs, and reduce impact on the surrounding environment. The expected outcome of these efforts will result in enhanced capabilities that provide more efficient, safer movement and control of air traffic in the terminal domain. This will also ensure smoother transition into and out of the terminal airspace in support of consolidation of airspace and provide guidance for implementing projects as part of the NextGen Concept of Operations. In previous years, the enabling technologies/information was assessed and methods developed for gathering data, integrating information (i.e., flight data object, clearance (taxi/takeoff) information, surveillance information, user (aircraft/pilot/airport operators)) and receipt/acceptance of that data. Based on these

capabilities, a series of decision support tools were identified. These tools will enhance/optimize airport surface traffic management efficiency, mitigate risk of safety related incidents, and support the overall movement of air traffic in the terminal environment.

Activity Target 1:

Monitor and report monthly on established milestones in PLA Due September 30, 2012

Core Initiative: Separation Management - Approaches, Ground Based Augmentation System (CIP#:G06N.01-01) (CIP#:G06N.01-01)

The Local Area Augmentation System (LAAS) is the United States system that meets internationally accepted standards for a Ground Based Augmentation System (GBAS). GBAS augments the current Global Positioning System (GPS) service for terminal, non-precision, and precision approaches in the National Airspace System (NAS). GBAS is the only cost effective alternative to Instrument Landing System (ILS) for Category II/III operations because a single facility can serve an entire airport versus multiple ILS facilities (one at each runway end). The FAA identified GBAS as an "Enabler" for NextGen.

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Activity Target 2:

Complete modification and evaluation report development of the Ground Based Augmentation System at Newark airport to combat radio frequency interference (RFI). Due September 30, 2012

Core Initiative: Separation Management - Approaches, Optimize Navigation Technology (CIP#:G06N.01-04) (CIP#:G06N.01-04)

This program supports developing new technology for existing navigation systems that improve reliability and lower the cost of operations. Improvements will include all existing approach lighting systems, other lighted navigation aids, precision and non-precision approach systems, and terminal and en route navigation systems. The new technology efforts will include analyses of the physical, electrical (electronic), and economic characteristics of these systems to determine what type of technology insertion or changes in the system would result in improved efficiency. Two of the initiatives will focus on the current Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). The first initiative is to replace the existing incandescent lamps with Light Emitting Diode (LED) technology, without modifying the rest of the MALSR system. The second initiative is to redesign the entire MALSR system to include LED technology, solid state switching, and electrical distribution technology. LED lamps have been under prototype development for some time. In order to gain the full benefits of modernizing the MALSR, the second initiative for a complete MALSR redesign of the power and control system is needed to optimize efficiency and reliability.

Core Activity: Separation Management - Approaches, Optimize Navigation Technology (CIP#:G06N.01-04)

This program supports developing new technology for existing navigation systems that improve reliability and lower the cost of operations. Improvements will include all existing approach lighting systems, other lighted navigation aids, precision and non-precision approach systems, and terminal and en route navigation systems. The new technology efforts will include analyses of the physical, electrical (electronic), and economic characteristics of these systems to determine what type of technology insertion or changes in the system would result in improved efficiency. Two of the initiatives will focus on the current Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). The first initiative is to replace the existing incandescent lamps with Light Emitting Diode (LED) technology, without modifying the rest of the MALSR system. The second initiative is to redesign the entire MALSR system to include LED technology, solid state switching, and electrical distribution technology. LED lamps have been under prototype development for some time. In order to gain the full benefits of modernizing the MALSR, the second initiative for a complete MALSR redesign of the power and control system is needed to optimize efficiency and reliability.

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Separation Management - Approaches, NextGen Navigation Initiatives (CIP#:G06N.01-03) (CIP#:G06N.01-03)

This program supports maintaining/improving capacity during Instrument Meteorological Conditions (IMC), and focuses on improvements supporting both the terminal and approach phases of flight as well as improving situational awareness on the airport surface. The main program element supports low visibility enhanced operations by lowering required Runway Visual Range (RVR)-defined minimums during IMC. This work allows a greater number of takeoffs and landings when visibility is limited. This effort is in the implementation phase and will have near-term NextGen operational benefits by increasing National Airspace System (NAS) capacity and throughput. Part of this program will leverage the capabilities of existing systems to the extent possible and explore how new pilot-avionics interfaces may be used to deliver service to the cockpit.

Core Activity: Separation Management - Approaches, NextGen Navigation Initiatives (CIP#:G06N.01-03)

This program supports maintaining/improving capacity during Instrument Meteorological Conditions (IMC), and focuses on improvements supporting both the terminal and approach phases of flight as well as improving situational awareness on the airport surface. The main program element supports low visibility enhanced operations by lowering required Runway Visual Range (RVR)-defined minimums during IMC. This work allows a greater number of takeoffs and landings when visibility is limited. This effort is in the implementation phase and will have near-term NextGen operational benefits by increasing National Airspace System (NAS) capacity and throughput. Part of this program will leverage the capabilities of existing systems to the extent possible and explore how new pilot-avionics interfaces may be used to deliver service to the cockpit.

Activity Target 1:

Monitor and report quarterly on established milestones Due September 30, 2012

Core Initiative: Flight and State Data Management - Future Communications Infrastructure (CIP#:G06C.01-01) (CIP#:G06C.01-01)

The Future Communications Infrastructure program contains communications projects in both the C and L bands. The C-band program of Future Communications will evaluate selected mobile and fixed applications of the Aeronautical Mobile Airport Communications System (AeroMACS) communication network in the National Aeronautics and Space Administration - Cleveland Hopkins International Airport (NASA-CLE) airport test bed for future provisioning of both safety critical and advisory services. The program will also validate that the proposed AeroMACS can provide the required capabilities for a selected mobile application (e.g., loading Flight Management System (FMS) at the gate), and a fixed application (e.g., migration of point-to-point links to the AeroMACS).

Core Activity: Flight and State Data Management - Future Communications Infrastructure (CIP#:G06C.01-01)

The Future Communications Infrastructure program contains communications projects in both the C and L bands. The C-band program of Future Communications will evaluate selected mobile and fixed applications of the Aeronautical Mobile Airport Communications System (AeroMACS) communication network in the National Aeronautics and Space Administration - Cleveland Hopkins International Airport (NASA-CLE) airport test bed for future provisioning of both safety critical and advisory services. The program will also validate that the proposed AeroMACS can provide the required capabilities for a selected mobile application (e.g., loading Flight Management System (FMS) at the gate), and a fixed application (e.g., migration of point-to-point links to the AeroMACS).

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Activity Target 2:

Conduct analysis of segregation and transport alternatives for ATC and AOC data which will provide opportunities to reduce the infrastructure needs for digital communications on the ground. Due September 30, 2012

Core Initiative: Separation Management - Wake Turbulence Mitigation for Departures (WTMD) (CIP#:G06A.01-01) (CIP#:G06A.01-01)

The Wake Turbulence Mitigation for Departures (WTMD) decision support tool will enhance air traffic wake mitigation separation service capabilities. Air Traffic Control (ATC) wake turbulence mitigation procedures are a major constraint on the departure

operations at airports which use closely spaced parallel runways for departing 757 and heavier aircraft. Presently, aircraft must wait a minimum of two minutes to depart after the departure of a 757 or heavier aircraft on the adjacent closely spaced parallel runway and must wait a minimum of three minutes if the departure thresholds of the closely spaced parallel runways are staggered more than 500 feet. The WTMD decision support tool will provide tower controllers notification when they can safely allow departures on an airport's closely spaced parallel runways without the mandatory two to three minute wait time following a 757 or heavier aircraft departure on the adjacent runway.

Core Activity: Separation Management - Wake Turbulence Mitigation for Departures (WTMD) (CIP#:G06A.01-01)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Separation Management - Wake Turbulence Mitigation for Arrivals (WTMA) (CIP#:G06A.01-02) (CIP#:G06A.01-02)

The Wake Turbulence Mitigation for Arrivals (WTMA) program will evaluate air traffic control decision support tool concept feasibility prototypes as possible enablers to safely meet the predicted NextGen demand for additional flights in the nation's air transportation system. If these prototypes are successful, more flights can be accommodated in the existing airspace because the required wake mitigation separations between aircraft can be safely reduced. This program is taking the results of technology research and development and new wake separation concept modeling and simulation

efforts and is evaluating the resulting concept feasibility prototypes for flight safety and impact on the NAS capability for meeting the demand for more flights. Evaluation of the prototype WTMA decision support tool will continue and requirements for implementing the WTMA capability will be developed. The FY12 evaluation of WTMA will lead to an FAA decision in FY13 to transform the capabilities of the prototype software tool into a functioning decision support tool integrated into the terminal automation system for use by the FAA air traffic controllers. First operational benefit will be realized during FY15 when the WTMA controller decision support tool capability is fielded as part of a software release to a FAA terminal automation system.

Core Activity: Separation Management - Wake Turbulence Mitigation for Arrivals (WTMA) (CIP#:G06A.01-02)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Separation Management - Closely Spaced Parallel Runway Operations (CSPO) (CIP#:G06N.01-02) (CIP#:G06N.01-02)

The Separation Management - Closely Spaced Parallel Runway Operations (CSPO) initiative will accelerate

activities to provide increased arrival, departure, and taxi operations to airports with closely spaced parallel runways in all weather conditions. This initiative will enhance procedures that allow dependent operations to closely spaced parallel runways or converging approaches to runways closer than 2,500 feet, as well as support independent operations to parallel runways between 2,500 and 4,300 feet.

Core Activity: Separation Management - Closely Spaced Parallel Runway Operations (CSPO) (CIP#:G06N.01-02)

The Separation Management - Closely Spaced Parallel Runway Operations (CSPO) initiative will accelerate activities to provide increased arrival, departure, and taxi operations to airports with closely spaced parallel runways in all weather conditions. This initiative will enhance procedures that allow dependent operations to closely spaced parallel runways or converging approaches to runways closer than 2,500 feet, as well as support independent operations to parallel runways between 2,500 and 4,300 feet.

Activity Target 1:

Conduct site specific examinations to determine airport operational considerations (combination of ground infrastructure, aircraft characteristics, and operational conditions) that may lead to reduction in lateral runway separation standards. Due September 30, 2012

Activity Target 2:

Monitor and report quarterly on established milestones Due September 30, 2012

Core Initiative: Trajectory Management - Arrivals (CIP#:G06N.02-01) (CIP#:G06N.02-01)

The enablers for Trajectory Management ((Area Navigation (RNAV)/Required Navigation Performance (RNP) with 3D and Required Time of Arrival) will ensure the safe and efficient transition of aircraft from en route to terminal airspace with appropriate sequencing and spacing. Metered times at key merge points will be used by air traffic managers. For this type of operation, an aircraft's Meter Point Time (MPT) is assigned to determine when it enters into the Terminal Radar Approach Control (TRACON) airspace so it can be efficiently routed to the assigned runway. Metering will take into account runway load balancing and will serve to reduce (not eliminate) the need for delay absorption needed for aircraft inside the TRACON airspace. As the FAA transitions to NextGen, aircraft will increasingly be assigned to RNP/RNAV routes and have modern avionics that include Flight Management Systems (FMS)

capable of executing Required Time of Arrival (RTA) instructions. The RTA capability provides a time-based control mechanism that supports the trajectory-based operations concept. RTAs will be used for the management of arrival traffic to an airport. The use of RTAs will take advantage of existing capabilities expected to become more widespread throughout the fleet. The FMS in the aircraft computes the most efficient change to the original trajectory to meet the RTA. In addition, the FMS can "independently self deliver" to the RTA, thus reducing significantly the coordination needed between the user and ATC. Since the FMS actively and directly "controls" the aircraft to meet the RTA, very accurate arrival is possible with minimal human intervention.

Core Activity: Trajectory Management - Arrivals (CIP#:G06N.02-01)

The enablers for Trajectory Management ((Area Navigation (RNAV)/Required Navigation Performance (RNP) with 3D and Required Time of Arrival) will ensure the safe and efficient transition of aircraft from en route to terminal airspace with appropriate sequencing and spacing. Metered times at key merge points will be used by air traffic managers. For this type of operation, an aircraft's Meter Point Time (MPT) is assigned to determine when it enters into the Terminal Radar Approach Control (TRACON) airspace so it can be efficiently routed to the assigned runway. Metering will take into account runway load balancing and will serve to reduce (not eliminate) the need for delay absorption needed for aircraft inside the TRACON airspace. As the FAA transitions to NextGen, aircraft will increasingly be assigned to RNP/RNAV routes and have modern avionics that include Flight Management Systems (FMS) capable of executing Required Time of Arrival (RTA) instructions. The RTA capability provides a time-based control mechanism that supports the trajectory-based operations concept. RTAs will be used for the management of arrival traffic to an airport. The use of RTAs will take advantage of existing capabilities expected to become more widespread throughout the fleet. The FMS in the aircraft computes the most efficient change to the original trajectory to meet the RTA. In addition, the FMS can "independently self-deliver" to the RTA, thus reducing significantly the coordination needed between the user and ATC. Since the FMS actively and directly "controls" the aircraft to meet the RTA, very accurate arrival is possible with minimal human intervention.

Activity Target 1:

Conduct an expanded Required Time of Arrival Demonstration to determine the feasibility of the RTA capabilities using current technologies in the NAS. Due April 30, 2012

Activity Target 2:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Trajectory Management - Reduced Runway Visual Range (RVR) Minima (CIP#:G06N.02-02) (CIP#:G06N.02-02)

Weather causes numerous flight delays and schedule interruptions each year. Weather conditions create low visibility conditions that require Instrument Flight Rules (IFR) to go into effect. Even for those aircraft with suitably trained crew and equipment, conditions may worsen, causing flight diversion, flight cancellation, or flight delays, each of which can result in a cascading ripple effect that can spread throughout the National Airspace System (NAS), even to areas where weather is not an issue. There are periods of low visibility when the aircraft cannot takeoff or land at their desired airport resulting in the following conditions: decreased numbers of arrivals/departures at high density airports; increased flight delays, cancellations, and/or diversions under IFR low visibility conditions; decreased capacity for airlines to schedule flights in marginal weather conditions (since both the primary and alternate routes must be approved within the flight plan); and decreased flexibility/potential congestion in the terminal environment. These problems can limit or prevent access to airports in IFR conditions, resulting in congestion and delay in the NAS. Even under Visual Flight Rules (VFR), access to airports and utilization of airspace can be made more flexible, particularly in the terminal environment. Therefore, lowering required RVR minima will improve capacity during low visibility operations by allowing runways that would otherwise be unusable to continue to support airport operations.

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airlines to schedule flights in marginal weather conditions (since both the primary and alternate routes must be approved within the flight plan); and decreased flexibility/potential congestion in the terminal environment. These problems can limit or prevent access to airports in IFR conditions, resulting in congestion and delay in the NAS. Even under Visual Flight Rules (VFR), access to airports and utilization of airspace can be made more flexible, particularly in the terminal environment. Therefore, lowering required RVR minima will improve capacity during low visibility operations by allowing runways that would otherwise be unusable to continue to support airport operations.

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Measure: NextGen Collaborative Air Traffic Management

Implement key work plans in support of delivering the NextGen mid-term operational vision for collaborative air traffic management. This solution set provides capabilities to improve traffic flow management system-wide as well as at the tactical, or location-based, level.

Core Initiative: Flow Control - Strategic Flow Management Integration (CIP#:G05A.01-01)

Flight planners or an operator's flight planning automation system interact with a common flow strategy and trajectory analysis service, available to all National Airspace System (NAS) stakeholders, that enables common situational awareness of current and projected NAS status and constraints. In addition to having common services to understand the potential effects on a trajectory or the effects of a flow strategy, operators and the Air Navigation Service Provider (ANSP) can collaborate on the selection of both capacity management and flow contingency management strategies that balance NAS performance objectives with flight operator goals. A transparent set of strategies is in place to achieve overall performance objectives, including airspace management to maximize capacity when demand is high, and flow management initiatives to ensure that safe levels of traffic are not exceeded when capacity limits are reached. Strategic Flow Management Integration (Execution of Flow Strategies into Controller Tools) implements the En Route Automation Modernization (ERAM) modifications needed to receive/process the Traffic Management Initiatives (TMI) in the ERAM baseline timeframe (releases 2 and 3). These improvements include

automatic identification to controllers of aircraft affected by Traffic Flow Management (TFM) TMIs, electronic communication of the TMI information in a timely manner to the relevant ATC operational positions, tools that help monitor how well aircraft are conforming to the TMI, and tools that suggest controller actions to achieve the flow strategy.

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Flow Control - Strategic Flow Enhancement (CIP#:G05A.01-02)

Currently, flow strategies developed from the various decision support tools used by the Traffic Management Units (TMUs) are manually intensive because the tools are not integrated. Traffic Management specialists have determined the impacts of multiple Traffic Management Initiatives (TMIs) and the solutions may not be optimal because the current tools do not support analyzing the

linkages between multiple TMIs. This project would allow TMU specialists to automatically explore various reroute options and the impact of multiple TMIs and how they fit with efforts to accommodate National Airspace System (NAS) customer preferences. By automating this process, more rapid flight reroutes can be developed, which would lead to fewer delays and less congestion. The primary goal of Air Traffic Management (ATM) is addressing demand/capacity imbalances within the NAS.

Core Activity: Strategic Flow Enhancement

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Flight & State Data Mgmt - Common Status and Structural Data (Separation, Tactical, Strategic Trajectory Management (CIP#:G05A.02-01)

The Common Status and Structural Data program will address gaps within aeronautical information to achieve the NextGen shared situational awareness and trajectory based operations vision. Program activities will focus on five NextGen operational improvements.

Core Activity: Common Status & Structure Data

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Flight & State Data Mgmt - Advanced Methods (CIP#:G05A.02-02)

NextGen will benefit from a number of infrastructure enhancements, procedural changes, and system improvements that will enhance capacity and alleviate congestion. These include improvements in the flight deck and avionics, vehicle performance, communications, navigation, and air traffic control and management service provider capabilities. In the area of advanced methods for Traffic Flow Management (TFM), tools will be developed in this program, such as a common indexing of National Airspace System (NAS) resources. These tools will help solve the problem of how to guide flights in capacity-constrained

Core Activity: Advanced Methods

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Flight and State Data Management - Flight Object (CIP#:G05A.02-03) (CIP#:G05A.02-03)

An information sharing mechanism, such as the Flight Object, needs to be developed in order to enable information sharing among various users and stakeholders in the National Airspace System (NAS). This allows for better coordination, situational awareness, and collaborative decision-making. Flight Object supports trajectory based operation objectives to improve capacity, efficiency, safety, and cost. Flight Object will provide standard information to be shared across flight domains and user systems, and is envisioned to support more integrated and coordinated flow planning to ensure collaboration throughout the flight. Key parts of the Flight Object are the information contained in the filed flight plan; the converted

(expanded) route with applied restrictions, routes, etc.; the flight plan trajectory (the 4D path the flight intends to follow), which includes crossing key aeronautical elements, such as restrictions and volumes of airspace; the aircraft actual trajectory (the 4D path the flight has been observed to follow thus far along with maneuvers it might take to get back to flying according to the original, filed intent); the Mode-S address or beacon code allocated to the flight; the pairing information (to a track); the control information (current Flight Information Region (FIR) controlling, current local sector controlling, stages of handoff/ transfer of control, and point-out information); and interim altitude assignments, holds, and intent information.

Core Activity: Flight and State Data Management - Flight Object (CIP#:G05A.02-03)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Flight & State Data Mgmt- Concept Development for Integrated NAS and Procedure Planning (CIP#:G05A.02-04)

The Integrated National Airspace Design and Procedure Planning program will enable the FAA to develop the infrastructure and framework to assess and develop an integrated airspace and procedure implementation plan based on "Best Equipped, Best Served." "Best Equipped, Best Served" or "Better Capability, Better Service" (JPDO paper) refers to the concept that better service can accrue to operators and to the National Airspace System (NAS) as more NextGen capabilities, enabled by technology, policies and procedures, are introduced. The Integrated National Airspace and Procedure Implementation Plan will align with NextGen mid-term capabilities and the FAA strategic plan. The initiative focuses on maximizing benefits and facilitating the development of the business case for industry investment with the goal for the operators to be able to have better access to the NAS by virtue of having the ability to fly in more sophisticated (not necessarily more complex) and efficient ways through the system.

Core Activity: Flight and State Data Management - Concept Development for Integrated National Airspace Design and Procedure Planning

The Integrated National Airspace Design and Procedure Planning program will enable the FAA to develop the infrastructure and framework to assess and develop an integrated airspace and procedure implementation plan based on "Best Equipped, Best Served." "Best Equipped, Best Served" or "Better Capability, Better Service" (JPDO paper) refers to the concept that better service can accrue to operators and to the National Airspace System (NAS) as more NextGen capabilities, enabled by technology, policies and procedures, are introduced. The Integrated National Airspace and Procedure Implementation Plan will align with NextGen mid-term capabilities and the FAA strategic plan. The initiative focuses on maximizing benefits and facilitating the development of the business case for industry investment with the goal for the operators to be able to have better access to the NAS by virtue of having the ability to fly in more sophisticated (not necessarily more complex) and efficient ways through the system.

Activity Target 1:

Develop the Greener Skies research plan to identify scenarios, performance capabilities and associated ATC rules for modeling and simulation. Due September 30, 2012

Activity Target 2:

Conduct analysis to determine integration and dependency challenges for policy implementation "Best Equipped, Best Served". Due September 30, 2012

Activity Target 3:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: CATM Flight & State Data Mgmt- AIM Segment 2, G05A.02-05 (CIP#:G05A.02-05)

The program objective is to establish a systematic approach for NAS wide airspace procedure development to support NextGen's best equipped best serve concept of operations that provides enhanced services to those aircraft equipped with the avionics compatible with NextGen capabilities.

Core Activity: CATM Flight & State Data Mgmt - AIM Segment 2, G05A.02-05

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Activity: Flight & State Data Management - AIM Segment 2

The program objective is to establish a systematic approach for NAS wide airspace procedure development to support NextGen's best equipped best serve concept of operations that provides enhanced services to those aircraft equipped with the avionics compatible with NextGen capabilities.

Activity Target 1:

Deliver SIR to contracting office for AIMM S2 development contract to reach a final investment decision for AIMM S2. Due August 30, 2012

Core Measure: NextGen System Development

Implement key projects that have broad applicability across the solution sets and to NextGen overall. Such projects include work in support of safety management systems, environment and energy management systems, as well as human factors research and testing and computer modeling aimed at validating operational concepts.

Core Initiative: SSE SD Operational Assessments G07M.02.02 (CIP#:G07M.02-02)

The transition to NextGen requires NAS operational assessments to ensure that safety, environmental, and system performance considerations are addressed throughout the integration and implementation of NextGen.

Core Activity: SSE SD Operational Assessments G07M.02.02

The Operational Assessment project focuses on three areas: Systems Analysis, Environmental Analysis, and Safety Assessments. In the Systems Analysis area, an initial concept of use has been developed and the stakeholder RTCA Trajectory Operations sub-work group has been formed under the RTCA ATMAC (Air Traffic Management Advisory Committee) Requirement and Planning Work Group. This group is to deliver a Concept of Use for Trajectory-Based Operations by April 2010. This Concept of Use will form the starting point from which ATM requirements for trajectory modeling will be derived. The Environmental Analysis program enables NextGen by providing comprehensive NextGen local to NAS-wide environmental assessment of the aviation system, analyzing the benefits of environmental impacts mitigation options and providing the guidance on environmentally effective and optimally cost-beneficial solutions to reduce the environmental constraints that might otherwise hinder capacity increases. NextGen environmental analyses require that external forecasts of operations, such as the FAA Terminal Area Forecast (TAF), be combined with fleet technology assumptions to generate future year fleet and operations sequences. The plan is to develop a fleet and operations sequence (FOS) module that is leveraged for U.S. NextGen analysis and compatible with Aviation Environmental Design Tool (AEDT) Regional and Aviation Portfolio Management Tool (APMT) Economics analysis requirements. This would include compatibility with the FAA TAF U.S. city-pair structure; and, once completed, would support the FAA Aviation Environmental Tools Suite and other aviation analysis tools. This Safety Assessments project will continue to conduct system safety assessments, environmental-specific assessments, system performance evaluations, and risk management activities. This research will include initial NAS-wide assessment of methods to mitigate NextGen environmental impact and developing cost-beneficial options to support decision making. This research will also continue to explore integration of advanced performance assessment capability with NAS models for other NextGen programs.

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Activity: SSE SD Operational Assessments G07M.02-02

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Activity Target 1:

Update NextGen Cost and Benefits Estimates.
Due June 30, 2012

Core Initiative: Environment & Energy, Environmental Management System (EMS) and Noise Reduction (CIP#:G06M.02-01)

Robust aviation growth could cause commensurate increases in aircraft noise, fuel burn, and emissions. Environmental impacts could restrict capacity growth and prevent full realization of NextGen. NextGen environmental goals are to reduce the system wide aviation environmental impacts in absolute terms notwithstanding the growth of aviation. The solution is to reduce the increased environmental impacts of aviation through new operational procedures, technologies, alternative fuels, policies, environmental standards and market based options to allow the desired increase in capacity. The environmental and energy development efforts under this program will lead to assessment of solutions to reduce emissions, fuel burn, and noise towards achieving NextGen environmental goals. The effort specifically focuses on explorations, simple demonstrations as well as methods to integrate these environmental impact mitigation and energy efficiency options with the NextGen infrastructure in a cost-beneficial and verifiable manner. There are two environmental projects that support this program: Environmental Management System (EMS) and Environment and Energy. The EMS will manage, mitigate and verify progress towards achieving the environmental goals in an iterative manner based on planning, implementing, measuring the effects of, and adjusting solutions that are based on well-developed and demonstrated environmental impacts metrics. The EMS approach will allow optimization of advance options for noise, fuel burn, and emissions reduction to enable the air traffic system to handle growth in demand. Environment and Energy - Advanced Noise and Emission Reductions: This program will employ proven capabilities as well as NAS-wide implementation of mitigation solutions through advanced aircraft (both engine and airframe) technologies, alternative aviation fuels and improved environmental and energy efficient operational procedures. These are the keys to reduce significant environmental impacts while improving the energy efficiency of the system

Core Activity: Environment & Energy

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Systems Safety Mgmt Transformation (CIP#:G07M.02-01)

This program provides research leading to a comprehensive and proactive approach to aviation safety in conjunction with implementation of NextGen capacity and efficiency capabilities. The implementation of these capabilities will require changes in the process of safety management, the definition and implementation of risk management systems, and management of the overall transformation process to ensure that safety is not only maintained but improved. A core foundation of the system safety transformation is the introduction of system-wide access and sharing of aviation safety data and analysis tools within the aviation community, providing safety resources that are integrated with operations of aviation industry stakeholders. Capabilities to merge and analyze diverse sets of aviation information will be provided to expose and track precursors to incidents/accidents, allowing safety analysts within the FAA and aviation industry to understand emerging risks before they become potential safety issues. This research also enables safety

assessments of proposed NextGen concepts, algorithms, and technologies and provides system knowledge to understand economic (including implementation) and operational and performance impacts (with respect to safety) of NextGen system alternatives. A demonstration will be conducted at a National Level. System Safety Assessment working prototype that will proactively identify emerging risks as NextGen capabilities are defined and implemented.

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: TBO SD New ATM Requirements G01M.02-02 (CIP#:G01M.02-02)

The New ATM Requirements Program addresses FAA's goal for capacity and the DOT reduced Congestion Strategic Objective to "Advance accessible, efficient, inter-modal transportation for the movement of people and goods." Furthermore, this program fits the NextGen goal of expanding capacity by satisfying future growth in

demand (up to three times capacity) as well as reducing transit time. For FY 2012, new ATM requirements will focus on four areas: TCAS, Airborne SWIM, Weather/surveillance radar, and Trajectory modeling. TCAS had extraordinary success in reducing the risk of mid-air collisions. Now mandated on all large transport aircraft and installed on many smaller turbine powered aircraft, TCAS has been in operation for over a decade and has been credited with preventing several catastrophic accidents. TCAS is a critical decision-support system in the sense that it has been widely deployed (on more than 25,000 aircraft worldwide) and is continuously exposed to a high-tempo, complex air traffic system. TCAS is the product of carefully balancing and integrating sensor characteristics, tracker and aircraft dynamics, maneuver coordination, operational constraints, and human factors in time-critical situations. Missed or late threat detections can lead to collisions, and false alarms may cause pilots to lose trust in the system and ignore alerts, underscoring the need for a robust system design. NextGen airspace will have increased capacity due to decreased aircraft separation made possible by new technologies and new procedures, such as the increased use of RNAV/RNP routes and Closely Space Parallel Runways operations. As aircraft separation is decreased, it is critical that TCAS be made even more accurate and dependable to ensure continued pilot trust in the system. Airborne System-Wide Information Management (SWIM) - The current development of SWIM includes a gap in servicing airborne clients. European concepts of SWIM, built by SESAR, cover this. Thus there is a need for concepts that would harmonize the FAA and SESAR SWIM systems. There is a need to determine if airborne SWIM is a requirement or an optional feature. Airborne SWIM will identify performance and bandwidth requirements for airborne internet capability to support the exchange of ATM information such as weather, aeronautical information and flight information to support Traffic Flow Management. The program will develop standards and publish standards that will ensure harmonization with SESAR SWIM systems. Trajectory-based operations require multi-domain interaction with aircraft trajectories in the far-term future. As a step towards that end, trajectory operations (TOPs) have been defined to focus on the NextGen midterm. The TOPs activity defined an initial cross-stakeholder, common view of the utilization of Communications, Navigation and Surveillance (CNS) components related to TOPs in the midterm. The Trajectory modeling project will develop NAS-wide trajectory-related requirements for Mid-Term automation systems. System level requirements will then be developed and allocated across the automation systems. The project focuses on defining what trajectory information and exchange methods are required, which trajectory prediction types are required and what is required to achieve trajectory interoperability across multiple domains. The FAA plans to deploy Automated Dependent Surveillance-Broadcast

(ADS-B) critical services (ATC separation services) in the New York terminal areas and on the surface at LaGuardia, Kennedy, and Newark airports in FY 2011. To support operational validation, this activity will support accelerating the equipage of New York-based JetBlue Airways to validate the Best Equipped/Best Served concept in the New York metro area and along the East Coast. JetBlue will equip aircraft with DO-260B-compliant ACSS ADS-B "In" and ADS-G "Out" avionics, certify the system, and demonstrate the operational benefits in revenue service.

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Activity Target 1:

Complete the baseline requirements for future Traffic Collision and Avoidance Systems (TCAS) that define the operational and technical requirements underlying the present TCAS II equipment and standards. Due September 30, 2012

Activity Target 2:

Monitor and report quarterly on established milestones. Due September 30, 2012

Activity Target 3:

Finalize the integrated operational and technical requirements document for Airborne Access to SWIM to support the exchange of air traffic management information Due June 30, 2012

Core Initiative: Wake Turbulence Re-Categorization (CIP#:G06M.02-02)

This research and development program focuses on satisfying the capacity demands of future aviation growth. The 20 year old wake separation standards still provide safe separation of aircraft from each other's wakes but it no longer provides the most capacity efficient spacing and sequencing of aircraft in approach and en-route operations.

Core Activity: WAKE TURBULENCE RE-CATEGORIZATION

This program focuses on satisfying the capacity demands of future aviation growth. The last full review of wake separation standards used by air traffic control occurred nearly 20 years ago in the early 1990s. Since then, air carrier operations and fleet mix have changed dramatically, airport runway complexes have changed and new aircraft designs (A-380, very light jets, unmanned aircraft systems) have been introduced into the NAS. The 20 year old wake separation standards still provide safe separation of aircraft from each other's wakes but it no longer provides the most capacity efficient spacing and sequencing of aircraft in approach and en-route operations. This loss of efficient spacing is adding to the gap between demand and the capacity the NAS can provide. This program is part of a joint EUROCONTROL and FAA program that has reviewed the current required wake mitigation aircraft separations used in both the USA's and Europe's air traffic control processes and has determined the current standards can be safely modified to increase the operational capacity of airports and airspace that will have heavy operational demand in the NextGen era. Recently, work was done to accommodate the A380 class of aircraft and work continues to address introduction of other large aircraft into the NAS. This program builds on that joint work and is accomplishing a more general review to include regional jets, Unmanned Aerial Vehicles (UAVs), micro jets, etc. The next phase of the Wake Re-Categorization program is now underway. By 2014, this program will develop sets of tailored leader aircraft and follower aircraft wake separation standards whose application would depend on flight conditions and aircraft performance; resulting in being able to get more aircraft into and out of airports and in the same volume of airspace.

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Operations Concept Validation - Validation Modeling G01M.02-03 (CIP#:G01M.02-03)

The Operations Concept Validation Program addresses the development and validation of future end-to-end

(flight planning through arrival) operational concepts with special emphasis on researching changes in roles and responsibilities between the FAA and airspace users (e.g., pilots and airlines), as well as the role of the human versus systems, that will increase capacity and improve efficiency and throughput. It will identify procedures that can decrease workload and increase reliance on automation for routine tasking to increase efficiency of the NAS. Furthermore, this program works toward developing operational methods that will meet the NextGen goal of expanding capacity by satisfying future growth in demand as well as reducing transit time (reduce gate-to-gate transit times by 30 percent and increasing on-time arrival rate to 95 percent). The research will provide an end-to-end NAS Operational Concept and a complete set of scenarios that describe operational changes for NextGen solution sets including: Trajectory Based Operations (TBO); High Density Arrivals/Departures and Airports; Flexible Terminal and Airports; Collaborative Air Traffic Management; and Networked Facilities. These products will be developed first for the Midterm (2018) and subsequently for the NAS in 2025.

Core Activity: TBO Operations Concept Validation - Modeling G01M.02-03

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Activity Target 1:

Provide an annotated outline for revisions to the NextGen Mid Term Concept of Operations to help refine the future end-to-end operational concept
Due September 30, 2012

Core Activity: OPS CONCEPT VALIDATION MODELING G01M.02-03

The Operations Concept Validation Program addresses the development and validation of future end-to-end (flight planning through arrival) operational concepts with special emphasis on researching changes in roles and responsibilities between the FAA and airspace users (e.g., pilots and airlines), as well as the role of the human versus systems, that will increase capacity and improve efficiency and throughput. It will identify procedures that can decrease workload and increase reliance on automation for routine tasking to increase efficiency of the NAS. Furthermore, this program works toward developing operational methods that will meet the NextGen goal of expanding capacity by satisfying future growth in demand as well as reducing transit time (reduce gate-to-gate transit times by 30 percent and increasing on-time arrival rate to 95 percent). The research will provide an end-to-end NAS Operational Concept and a complete set of scenarios that describe operational changes for NextGen solution sets including: Trajectory Based Operations (TBO); High Density Arrivals/Departures and Airports; Flexible Terminal and Airports; Collaborative Air Traffic Management; and Networked Facilities. These products will be developed first for the Midterm (2018) and subsequently for the NAS in 2025. .

Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: NextGen Air Traffic Control/Technical Operations Human Factors (CIP#:G01M.02-01) (CIP#:G01M.02-01)

The significant features of this program are the development of a Human System Integration (HSI) Roadmap to complement the other roadmaps in the Enterprise Architecture, and a series of integrated workstations that deliver the required services. The HSI Roadmap will explain the roles and responsibilities of the actors in the NAS (air traffic controllers, pilots, dispatchers, traffic managers, etc.), their interactions with NextGen technologies, linkage to required changes to personnel selection, training, and required research and development activities in the human factors area that are needed to realize the NextGen vision. Research will examine the roles of controllers and facilities maintenance personnel to ensure safe operations at increased capacity levels and the way the roles would be best supported by allocation of functions between humans and automation. The success of new NextGen technologies hinge upon the actions of air traffic service providers using new decision support tools or automation to achieve the operational improvement. The

effectiveness of each of these solutions is contingent upon the proper human engineering of the new capability. This human engineering is not just the visible interface, but the characteristics of the tool and how the tool is used in the context of the work.

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Activity Target 1:

Conduct a demonstration of the Human Error/Safety Database for off-nominal NextGen conditions and collect information on opportunities for human error, the severity and likelihood of these errors. Due September 1, 2012

Core Activity: NextGen Air Traffic Control/Technical Operations Human Factors (CIP#:G01M.02-01)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Metroplex, Performance Based Navigation-Area Navigation (RNAV)/Required Navigation Performance (RNP) (CIP #G05N.01-01) (CIP#:G05N.01-01)

The Airspace Optimization Group will begin integrated airspace design and associated activities, including traffic flow analysis and facilitated design and procedures optimization. This will lay the framework for accelerating PBN initiatives, taking a systems approach for airspace design and procedure implementation. Airspace and procedure integration provides an important systems view that: utilizes additional transition access/egress points not tied to ground-based navigation aids; considers concurrent development and implementation of arrivals and departures, ensuring an integrated approach to procedural optimization; decouples operations between primary and secondary/satellite airports serviced by complex terminal airspace; and develops high altitude routes through congested airspace better connecting major metropolitan areas. Implementation of RNAV and RNP routes and procedures will continue to address the RTCA Task Force 5 recommendations, maximizing benefits, and accelerating NextGen concepts. Airspace redesign and procedure development will be accomplished with a Metroplex focus, targeting specific Metroplex areas that have been designated as high priority using quantitative and qualitative metrics. Results from Study Teams will be used to implement those improvements yielding the highest benefits and lead to design work that will include analyses and simulations, assessments of alternatives, and modeling of projected airspace and procedures benefits. The program integrates the safety requirements, through all

phases of implementation, to ensure successful implementation.

Core Activity: Metroplex, Performance Based Navigation-Area Navigation (RNAV)/Required Navigation Performance (RNP) (CIP #G05N.01-01)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Measure: NextGen Tech Demonstration & Infrastructure Dev (Demo)

Serve as the Agency's NextGen Demonstrations focal point. Ensure 90 percent of each demonstration plan's comments and recommendations received by July 31, 2012 from service units and external agencies are responded to and or resolved within 60 days of receipt to ensure each NextGen Demonstration is consistent with the NextGen Concept of Operations.

Core Initiative: Test Bed/Demonstration Sites (CIP#:G03M.03-01) (CIP#:G03M.03-01)

The NextGen Test Bed provides an environment to rapidly integrate prototype technologies and perform demonstrations and evaluations of NextGen concepts. Three primary test bed facilities will be connected to integrate individual flight domains and allow multi-domain demonstrations and evaluations. In addition, the Test Bed sites will allow the integration of new and emerging technologies or applications into existing or planned NAS enhancements while fostering government partnerships. One of the main purposes of the Test Bed is to provide an environment that allows open access for industry users and vendors such that new capabilities can be more rapidly harnessed.

Core Activity: Test Bed/Demonstration Sites (CIP#:G03M.03-01)

The demonstrations at the NextGen Test Bed/Demonstration Sites are envisioned to facilitate development and implementation of NextGen. NextGen procedures and technologies are intended to transform air transportation by the year 2025. These new procedures and technologies are associated with solution sets and capabilities, which include: High Altitude TBO, High Density Airports, Networked Facilities, Reduced Weather Impact, Collaborative Air Traffic Management (ATM), Flexible Terminal and Airspace Safety, Security, Environment, New emerging technologies, as they are developed, will be tested and demonstrated to allow the FAA to meet the NextGen mid-term goals and objectives. Established as a scalable, expandable, cost-effective and repeatable process and architecture, the Test Bed sites are envisioned as a single thread or non-redundant automation, communications, and display system and facilities for the surface, terminal, en route and oceanic domains that mirror the current NAS. The Test Bed is envisioned to be physically distributed in order to allow for gate-to-gate demonstration of NextGen components. Specifically, the following three sites are planned: NASA NTX is located near the Dallas/Fort Worth Airport (DFW), WJHTC located near Atlantic City, NJ, Daytona Beach International Airport (DAB) located in Daytona Beach, FL.

Activity Target 1:

Additional Florida Test Bed Infrastructure shall be provided to enhance demonstration capabilities. Due May 1, 2012

Activity Target 2:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Demonstration and Infrastructure Development - Future Planning (CIP#:G08M.01-01) (CIP#:G08M.01-01)

The NextGen Demonstrations and Infrastructure Development program is designated to integrate demonstration projects and programs, provide validation of mature solutions, and demonstrate implementation alternatives for the National Airspace System (NAS). This program provides agility and flexibility in demonstrating alternative technologies and concepts while supporting procedure and standards development, as well as providing for the integration of near-term emerging technologies, procedures and/or customer initiatives with ongoing demonstrations. The demonstration program leverages the individual project demonstrations and supports the integration of these individual projects into multiple domains designed to capture the synergies that are needed to provide timely NAS transformation.

Core Activity: Demonstration and Infrastructure Development - Future Planning (CIP#:G08M.01-01)

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Activity Target 1:

Identification of a Commercial Service Provider will be researched and identified for Airborne Access to SWIM demonstration that will aid in the evaluation of the feasibility for the transmission of information from the SWIM platform to the aircraft. Due September 30, 2012

Activity Target 2:

Develop a plan for Airborne Execution of Strategic Flows that will aid in the planning, development and evaluation of their feasibility within the NAS. Due September 30, 2012

Activity Target 3:

Conduct coordination of planning documentation for Ground Based Augmentation Systems in Guam with stakeholders in order to assure harmonization within the user community. Due September 30, 2012

Activity Target 4:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Staffed NextGen Towers (Surveillance Research) (CIP#: G03M-04.01) (CIP#:G03M.04-01)

With the expected increase in air traffic in the United States over the next several decades, there is a need for new, innovative ways to provide tower services. In response to this challenge, the Staffed NextGen Tower (SNT) concept provides for a shift from using the out-the-window (OTW) view as the primary means for providing tower control services to using surface surveillance approved for operational use. SNT is planned for high density airports as these airports are likely to have the surveillance infrastructure and most aircraft equipped with avionics that will support SNT operations. In the near-term, this project will provide the necessary requirements, operational procedures, and supporting documentation leading to a surface surveillance system approved for operational use. This will provide for improved safety and increased capacity at night and during periods of inclement weather when impaired visual observation from an air traffic control tower results in delays or a reduced level of access to the airport. The application of SNT for small and medium airports (SNT-SMA) is under concept exploration and development. The development of both SNT and SNT-SMA is planned as part of this project. In the out years, operationally approved surface surveillance may be leveraged to provide contingency operations in case of a limited duration, localized facility situation. Automated NextGen Towers (ANT), a companion vision to SNT, is planned for non-towered airports in the far-term.

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Activity Target 1:

Issue report from second Staffed NextGen Towers Field Demonstration. Due January 31, 2012

Activity Target 2:

Updated Staffed NextGen Towers Program Requirements Document. Due May 31, 2012

Activity Target 3:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Measure: NextGen Networked Facilities

Implement key work plans in support of delivering a network of integrated facilities designed to support the delivery of safer and more efficient operations system-wide

Core Initiative: Future Facilities Investment Planning G03F.01-01 (CIP#:G03F.01-01)

The NextGen Facilities Program plans for the transformation of FAA's air traffic facilities to make them flexible, scalable and maintainable. The FAA has adopted a segmented approach: the 1st segment is defined as the New York to Chicago corridor, including New England airspace. Segment 1 consists of 4 ARTCCs and 45 TRACONS and will contain 4 to 5 projects. Segment 1 Project 1 (S1P1) will address facilities, airspace redesign, and operational requirements in the NY / NJ / PHL area.

Core Activity: Future Facilities Investment Planning G03F.01-01

Preliminary development of engineering and investment analyses needed to transform FAA's air traffic control facilities to make them flexible, scalable, and maintainable (Segment 1).

Activity Target 1:

NextGen Facilities Segment 1 JRC Initial Investment Decision 11/2011 Due November 30, 2011

Activity Target 2:

NextGen Facilities Segment 1 Project 1 Site Selection Recommendation Due July 31, 2012

Activity Target 3:

NextGen Facilities Segment 1 Project 1 Business Case Analysis Due September 30, 2012

Activity Target 4:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Integration, Development, and Operations Analysis G03M.02-01 (CIP#:G03M.02-01)

This program continues the integration, development, and operations analysis capability to provide a real-time and flexible environment for the development and validation of the broad framework of concepts, technologies, and systems introduced by NextGen. It provides for the ongoing conduct of early evaluations, concept development, and/or demonstrations in a flexible, real-time NextGen integrated environment that is unencumbered by the NAS infrastructure. It also provides the capability for these activities to be developed and validated in parallel to ongoing NAS activities and research. The program enables the FAA to assess technologies and mature concepts in an integrated environment that supports low to high fidelity exercises. The integration, development, and operations analysis capability uses a rapid prototyping environment that interfaces with a high-fidelity capability in a controlled environment. The operations analysis capability emulates information flow and system performance characteristics, and is adaptable to illustrate and assess NextGen human-machine-interface concepts. An ongoing capability is required to conduct early concept validation and maturation, alternatives analyses, and requirements development. For FY 2011, \$3,000,000 is requested to continue to enhance, operate, and maintain the operations analysis capability to support the development of iterative designs to evaluate concepts and alternatives. The capability will

measure and validate human performance, usability, workload, and safety indications in a flexible integrated environment supporting the design and conduct of experiments. Products include the enhancement, integration, and validation of system prototypes and system analyses capabilities to define requirements while researching candidate solutions.

Core Activity: INTEGRATION, DEVELOPMENT, & OPERATIONS ANALYSIS CAPABILITY

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Activity Target 1:

Integrate System Wide Information Management (SWIM Segment 1) into the NextGen Integration and Evaluation Capability simulation environment. Due August 31, 2012

Activity Target 2:

Integrate the Traffic Flow Management (TFM) Auxiliary Platform into the Distributed Environment for Simulation Rapid Engineering and Experimentation (DESIREE). Due September 30, 2012

Activity Target 3:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Measure: NextGen Arrivals/Departures at High Density Airports

Implement key work plans in support of delivering the NextGen mid-term operational vision for high density airports. This solution set provides capabilities that improve arrival and departure capacity for multiple airports and runways in high demand airspace.

Core Initiative: Trajectory Management - Time-Based Flow Management (TBFM) Work Package III (CIP#: G02A.01-06) (CIP#:G02A.01-06)

The Time-Based Flow Management (TBFM) Work Package III effort will build upon the previous two segments to develop new NextGen capabilities and integrate these capabilities into an enterprise-oriented solution. Traffic Management Advisor (TMA), which TBFM builds upon, is a vital part of the National Airspace System (NAS) and enhances air traffic operations by reducing delays and increasing efficiency of air traffic operations. It is the only NAS-deployed decision support tool currently available for implementation of time-based metering. TMA was deployed to all twenty Air Route Traffic Control Centers (ARTCCs) and adapted for most of the major airports served by those ARTCCs over the past 10 years. The Time Based Flow Management Program is divided into three segments. Segment I, Initial TMA platform of capabilities, was completed in April 2009. Segment II, Current TBFM program, is a continuation of TMA that will fulfill operational user needs and NextGen goals. The TBFM program will incorporate NextGen concepts such as extended metering, weather integration, and metering with Area Navigation (RNAV)/Required Navigation Performance (RNP), while expanding the TMA core capabilities to additional locations in the NAS. Segment III, also known as TBFM Work Package III, will develop and implement additional NextGen.

Core Activity: Trajectory Management - Time-Based Flow Management (TBFM) Work Package III (CIP#: G02A.01-06)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Trajectory Management - Surface Conformance Monitoring (CIP#:G02A.01-02) (CIP#:G02A.01-02)

The Taxi Conformance Monitoring (TCM) effort is designed to show the potential safety and workload benefits that can be achieved through a comprehensive taxi route management and conformance monitoring capability. The end state would allow a precise, unambiguous taxi clearance to be generated by the Air Traffic Controller, communicated to the aircraft via data link and conformance to the clearance monitored by automation in the Air Traffic Control Tower (ATCT). An important consideration is the development and demonstration of user-friendly, minimal-workload methods for the controller to specify the taxi route. Conformance monitoring can be limited to route adherence only, or both route and timing through the incorporation of timed check points. By using a proactive approach to separation on the airport surface, taxiing aircraft can be "de-conflicted" with other aircraft in the taxi, landing, and takeoff phases of flight, resulting in safer ground operations.

Core Activity: Trajectory Management - Surface Conformance Monitoring (CIP#:G02A.01-02)

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Activity Target 1:

Conduct a Human-in-the-Loop (HITL) Simulation of Surface Conformance Monitoring with a focus on refining surface conformance algorithms to prepare for surface conformance field evaluations. Due September 30, 2012

Activity Target 2:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Initiative: Trajectory Management - Surface Tactical Flow (CIP#:G02A.01-01) (CIP#:G02A.01-01)

This project is focused on the development of trajectory-based surface operations in support of the NextGen initiative. It leverages the development efforts of the NASA Surface Management System (SMS) and provides guidelines for the development of a collaborative Surface Traffic Management (STM) system with the tools necessary to achieve a fully collaborative surface environment. This is required to safely improve the use of airport capacity which is necessary to enable trajectory-based operations on the airport surface. This project will demonstrate and document requirements for a series of capabilities that build to the NextGen vision for surface trajectory-based operations. The Surface Tactical Flow project will require changes to procedures in the flight operator and Air Traffic Control Tower (ATCT) environments. The concept and requirements development and acquisition process is designed to allow incremental steps toward the complete concept, providing benefits at each step of the way and remaining aligned with the introduction of other NextGen technologies.

Core Activity: Trajectory Management - Surface Tactical Flow (CIP#:G02A.01-01)

This project is focused on the development of trajectory-based surface operations in support of the NextGen initiative. It leverages the development efforts of the NASA Surface Management System (SMS) and provides guidelines for the development of

a collaborative Surface Traffic Management (STM) system with the tools necessary to achieve a fully collaborative surface environment. This is required to safely improve the use of airport capacity which is necessary to enable trajectory-based operations on the airport surface. This project will demonstrate and document requirements for a series of capabilities that build to the NextGen vision for surface trajectory-based operations. The Surface Tactical Flow project will require changes to procedures in the flight operator and Air Traffic Control Tower (ATCT) environments. The concept and requirements development and acquisition process is designed to allow incremental steps toward the complete concept, providing benefits at each step of the way and remaining aligned with the introduction of other NextGen technologies.

Activity Target 1:

Complete the evaluation report on the field assessment conducted in Orlando International Airport (MCO) and Memphis International Airport (MEM) conducted in 2011 on the feasibility of procedural changes in the surface tactical flow arena for flight operators and the ATCT. Due February 28, 2012

Activity Target 2:

Monitor and report monthly on established milestones in PLA Due September 30, 2012

Core Measure: Operational Concept Development

Serve as the agency NextGen focal point, ensure NextGen Operational Concepts are consistent with the NextGen Concept of Operations. Develop 2nd Level Concepts of Operations, analyses supporting concept validation, or requirements for NextGen programs.

Core Initiative: Conduct Analyses on NextGen Concepts in Support of Concept Validation and Infrastructure (M08.29-00) (CIP#:M08.29-00)

Conduct analyses to optimize ATC infrastructure and support applications of trajectory based operations.

Core Activity: Conduct Analyses on NextGen Concepts in Support of Concept Validation and Infrastructure

Conduct analyses to optimize ATC infrastructure and support applications of trajectory based operations.

Activity Target 1:

Develop an agent-based representation of an Air Traffic controller for use in NextGen validation activities. Due August 31, 2012

Activity Target 2:

Deliver report on SNT cognitive walkthrough. Due March 31, 2012

Core Measure: Meet 90% of the NextGen critical milestones for implementation.

Meet 90% of the NextGen critical milestones for implementation of near and mid-term capabilities on schedule and on budget.

Core Initiative: AJO/AJP-0 SENIOR VP NEXTGEN & OPS PLANNING (WA9Z100000) (CIP#:X01.00-00) (CIP#:X01.00-00)

Executes the mission of the NextGen Implementation and Reporting Group. Keeps senior management, Congress and the public informed of the program outcome performance and guides the NextGen program by providing outcome based metrics, analysis and risk mitigation required to meet the established goals.

Core Activity: Effective Executive Leadership

Provide executive leadership to oversee NextGen & Operations Planning. Executes the mission of the FAA, ATO, and NextGen & Operations Planning to include maintaining the NAS architecture to ensure it is meeting current and future service requirements as well as monitoring the formulation and execution of the NextGen Implementation Plan. Plans, analyzes, researches, and develops advanced concepts, new technologies and prototypes, and systems engineering to support initial and final investment decisions. Ensure the William J. Hughes Technical Center is available and meets the requirements of the ATO and external customers.

Activity Target 1:

Conduct assessments through program reviews for the quarterly monitoring of Group Director programmatic targets to ensure that activities are on schedule and meet ninety-five (95%) of the targeted goals. Due September 30, 2012

Core Measure: Tech Demonstration & Infrastructure Development (Demo)

Serve as the Agency's NextGen Demonstrations focal point. Ensure 90 percent of each demonstration plan's comments and recommendations received by July 31, 2012 from service units and external agencies are responded to and/or resolved within 60 days of receipt to ensure each NextGen Demonstration is consistent with the NextGen Concept of Operations.

Core Initiative: Characterization of NAS TCAS Performance (CIP#:A28.01-01)

Assessment and Characterization of NAS TCAS Performance

Core Activity: Assessment and Characterization of NAS TCAS Performance

Begin Performance Assessment

Activity Target 1:

Provide a report highlighting current TCAS performance with in the NAS. Due July 31, 2012

Core Measure: NextGen System Development

Implement key projects that have broad applicability across the solution sets and to NextGen overall. Such projects include work in support of safety management systems, environment and energy management systems, as well as human factors research and testing and computer modeling aimed at validating operational concepts.

Core Initiative: TBO SD New ATM Requirements G01M.02-02 (CIP#:G01M.02-02) (CIP#:G01M.02-02)

The New ATM Requirements Program addresses FAA's goal for capacity and the DOT reduced Congestion Strategic Objective to "Advance accessible, efficient, inter-modal transportation for the movement of people and goods." Furthermore, this program fits the NextGen goal of expanding capacity by satisfying future growth in demand (up to three times capacity) as well as reducing transit time. For FY 2012, new ATM requirements will focus on four areas: TCAS, Airborne SWIM, Weather/surveillance radar, and Trajectory modeling. TCAS had extraordinary success in reducing the risk of mid-air collisions. Now mandated on all large transport aircraft and installed on many smaller turbine powered

aircraft, TCAS has been in operation for over a decade and has been credited with preventing several catastrophic accidents. TCAS is a critical decision-support system in the sense that it has been widely deployed (on more than 25,000 aircraft worldwide) and is continuously exposed to a high-tempo, complex air traffic system. TCAS is the product of carefully balancing and integrating sensor characteristics, tracker and aircraft dynamics, maneuver coordination, operational constraints, and human factors in time-critical situations. Missed or late threat detections can lead to collisions, and false alarms may cause pilots to lose trust in the system and ignore alerts, underscoring the need for a robust system design. NextGen airspace will have increased capacity due to decreased aircraft separation made possible by new technologies and new procedures, such as the increased use of RNAV/RNP routes and Closely Space Parallel Runways operations. As aircraft separation is decreased, it is critical that TCAS be made even more accurate and dependable to ensure continued pilot trust in the system. Airborne System-Wide Information Management (SWIM) - The current development of SWIM includes a gap in servicing airborne clients. European concepts of SWIM, built by SESAR, cover this. Thus there is a need for concepts that would harmonize the FAA and SESAR SWIM systems. There is a need to determine if airborne SWIM is a requirement or an optional feature. Airborne SWIM will identify performance and bandwidth requirements for airborne internet capability to support the exchange of ATM information such as weather, aeronautical information and flight information to support Traffic Flow Management. The program will develop standards and publish standards that will ensure harmonization with SESAR SWIM systems. Trajectory-based operations require multi-domain interaction with aircraft trajectories in the far-term future. As a step towards that end, trajectory operations (TOps) have been defined to focus on the NextGen midterm. The TOps activity defined an initial cross-stakeholder, common view of the utilization of Communications, Navigation and Surveillance (CNS) components related to TOps in the midterm. The Trajectory modeling project will develop NAS-wide trajectory-related requirements for Mid-Term automation systems. System level requirements will then be developed and allocated across the automation systems. The project focuses on defining what trajectory information and exchange methods are required, which trajectory prediction types are required and what is required to achieve trajectory interoperability across multiple domains. The FAA plans to deploy Automated Dependent Surveillance-Broadcast (ADS-B) critical services (ATC separation services) in the New York terminal areas and on the surface at LaGuardia, Kennedy, and Newark airports in FY 2011. To support operational validation, this activity will support accelerating the equipage of New York-based JetBlue Airways to validate the Best Equipped/Best Served concept in the New York metro area and along

the East Coast. JetBlue will equip aircraft with DO-260B-compliant ACSS ADS-B "In" and ADS-G "Out" avionics, certify the system, and demonstrate the operational benefits in revenue service.

Core Activity: TBO New ATM Requirements G01M.02-02

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Activity Target 1:

Conduct a demonstration and technical interchange for stakeholders to analyze existing trajectory usage and define stakeholder requirements. Due September 30, 2012

Core Initiative: SSE SD Operational Assessments G07M.02.02 (CIP#:G07M.02-02) (CIP#:G07M.02-02)

The transition to NextGen requires NAS operational assessments to ensure that safety, environmental, and system performance considerations are addressed throughout the integration and implementation of NextGen.

Core Activity: SSE SD Operational Assessments G07M.02-02

The Operational Assessment project focuses on three areas: Systems Analysis, Environmental Analysis, and Safety Assessments. In the Systems Analysis area, an initial concept of use has been developed and the stakeholder RTCA Trajectory Operations sub-work group has been formed under the RTCA ATMAC (Air Traffic Management Advisory Committee) Requirement and Planning Work Group. This group is to deliver a Concept of Use for Trajectory-Based Operations by April 2010. This

Concept of Use will form the starting point from which ATM requirements for trajectory modeling will be derived. The Environmental Analysis program enables NextGen by providing comprehensive NextGen local to NAS-wide environmental assessment of the aviation system, analyzing the benefits of environmental impacts mitigation options and providing the guidance on environmentally effective and optimally cost-beneficial solutions to reduce the environmental constraints that might otherwise hinder capacity increases. NextGen environmental analyses require that external forecasts of operations, such as the FAA Terminal Area Forecast (TAF), be combined with fleet technology assumptions to generate future year fleet and operations sequences. The plan is to develop a fleet and operations sequence (FOS) module that is leveraged for U.S. NextGen analysis and compatible with Aviation Environmental Design Tool (AEDT) Regional and Aviation Portfolio Management Tool (APMT) Economics analysis requirements. This would include compatibility with the FAA TAF U.S. city-pair structure; and, once completed, would support the FAA Aviation Environmental Tools Suite and other aviation analysis tools. This Safety Assessments project will continue to conduct system safety assessments, environmental-specific assessments, system performance evaluations, and risk management activities. This research will include initial NAS-wide assessment of methods to mitigate NextGen environmental impact and developing cost-beneficial options to support decision making. This research will also continue to explore integration of advanced performance assessment capability with NAS models for other NextGen programs.

Activity Target 1:

Collect and analyze studies from constituent program offices to provide a comprehensive view of NextGen costs and benefits. Due September 30, 2012

Global Collaboration

NextGen & Operations Planning supports Destination 2025 Global Collaboration outcomes with activities that include efforts on exporting technologies, enhancing capacity, optimizing efficiencies, providing technical leadership to the international community, and providing expert guidance to the ATO service organizations on technical issues, international processes, and ICAO Standards and Recommended Practices (SARPs).

Core Measure: NextGen Interoperability

Ensure operational and technical harmonization of air traffic management technologies, procedures and

concepts with neighboring air navigation service providers (ANSPs) and key global partners.

Core Initiative: Optimize Efficiencies

Work with the Civil Air Navigation Services Organization (CANSO) and civil aviation authorities to improve global air navigation system efficiencies through beneficial partnerships such as AIRE and ASPIRE to promote systems, procedures and concepts that improve global interoperability, system harmonization, and support a reduction of aviation's environmental footprint.

Core Activity: AIRE Procedures and Test Demonstrations

Evaluate tools and procedures under the Atlantic Interoperability Initiative to Reduce Emissions (AIRE) and Asia and Pacific Initiative to Reduce Emissions (ASPIRE) Programs in order to minimize aviation's environmental footprint.

Activity Target 1:

Conduct the fifth annual Industry Day for the Atlantic Interoperability Initiative to Reduce Emissions program to status partners and stakeholders. Due July 30, 2012

Activity Target 2:

Continue to collect metrics and evaluate throughout FY12 to determine the amount of jet fuel and emissions being reduced by the AIRE partnership demonstrations. Due September 30, 2012

Workplace of Choice

NextGen & Operations Planning supports the Destination 2025 Workplace of Choice outcomes with activities that include efforts to align ATO revenues with costs, reduce the number of ATO plans, updating the NextGen Implementation Plan, reducing the management expenses associated with the RE&D program, measuring and reporting NextGen performance.

Core Measure: Small Business Goal and Corporate Citizenship

Award at least 25% of the total direct procurement dollars to small businesses, thereby promoting small business development and good corporate citizenship.

Core Initiative: FAA Small Business Program (CIP#:X01.00-00)

Support the FAA FY 2012 Small Business Goals.

Core Activity: FAA Small Business Goal and Good Corporate Citizenship

Participate in the agency's outreach and training to small business with special emphasis on disadvantaged, women-owned and service-disabled veteran-owned businesses. Also, assign a Small Business Liaison Representative to assist in identifying procurement opportunities suitable for set-aside.

Activity Target 1:

Participate in the Annual FAA National Small Business Procurement Opportunities Training Conference and Trade Show during June or July of each fiscal year. Due July 30, 2012

Activity Target 2:

Award at least 25% of the total direct procurement dollars to small business. Due September 30, 2012

Core Measure: AJP Contracts Management Services

AJP Contract Management Services has the responsibility of providing resource vehicles and services to ensure that NextGen and Operations Planning (AJP) and its customers have the resource support needed to meet their Destination 2025 Goals and initiatives in support of the Next Generation Air Transportation System. Implement process improvements and best practices to optimize and ensure AJP contracts are on-schedule and on-budget in FY2010.

Core Initiative: Contract Management Services; SETA/SE2020 (CIP#:M03.03-01)

AJP Contracts Management Services are dedicated to providing NextGen and Operations Planning (AJP) and other FAA organizations, with several technical and research support services contracts essential to the completion of their mission goals and flight plan responsibilities. AJP Contracts Management Services has the responsibility of providing resource vehicles and services to ensure that NextGen and Operations Planning (AJP) and its customers have the resource support needed to meet their Flight Plan Goals and initiatives in support of the Next Generation Air Transportation System..

Core Activity: Contract Management Services; SE2020

AJP Contracts Management Services support will ensure the availability of a variety of technical support and research contract vehicles to support AJP and other FAA organizations in support of FAA Flight Plan

goals and the Next Generation Air Transportation System.

Activity Target 1:

Establish management reporting and tracking system to manage contract resources assigned to AJP no later than June 2012. Due June 30, 2012

Activity Target 2:

Provide for proper staffing and establishment of management reporting systems for contracts within AJP no later than September 2012. Due September 30, 2012

Core Activity: AJP-1 Systems Engineering & Safety Products & Services

AJP-1 Systems Engineering & Safety will provide a variety of products and services to support systems engineering activities, processes, and initiatives supporting NextGen & Operations Planning, ATO, and FAA goals.

Activity Target 1:

Provide Information System Security (ISS) services; develop ISS architecture, including requirements, standards, guidance, and mid-(2018) and far-term (2025) Enterprise Architecture views to support acquisition decisions in the development of NextGen Programs. (1) Complete update and final ISS architecture views and overlays; (2) Complete update of SWIM (System-wide Information Management) Segment 2 enterprise integration prototype plan and procedures. (JChung, AJP-1910) Due September 30, 2012

Activity Target 2:

Provide systems engineering services for NextGen, develop requirements, functional architecture, and alternative analysis in support of the development of NextGen communications infrastructure. (1) Finalize data communications functional architecture iteration based on Segment 1 program advancements; (2) Complete draft Data Communications System Integration Plan in support of end-to-end system components integration. (CDudley-Thomas, AJP-1410) Due September 30, 2012

Activity Target 3:

Provide system engineering and technical support to develop enterprise-level NAS Enterprise Architecture mid-term and end-state views to provide the framework to guide acquisition decisions for programs leading to the NextGen end-state. (1) Update and maintain Enterprise

Architect views; (2) Complete training of employees on the System Architect tool. (VPatel, AJP-1510) Due September 30, 2012

Activity Target 4:

Develop an automated capability to generate an impact assessment to accommodate changing requirements at the NAS level, or at the investment level, on NAS services, portfolio or an individual program. (1) Demonstrate an initial capability for the purpose of refining requirements for the impact assessments; (2) Complete development of capability for critical NextGen Segment A/B requirements. (KGill, AJP-1400) Due September 30, 2012

Activity Target 5:

Develop the EA products necessary to describe the evolution of the National Airspace mission over time and include the results in the Air Traffic Organization (ATO) National Airspace System (NAS) Enterprise Architecture repository in order to ensure effective use of the NAS EA across the Agency. (1) Incorporate updates in FY2012 to develop and build out of EA DODAF "views" to support NextGen implementation and enterprise level architectural decisions; (2) Maintain alignment of the NAS EA with JPDO (Joint Program Development Office) artifacts, operational improvements (OIs) and capabilities; (3) Conduct outreach activities to enhance communications, awareness and knowledge of the NAS EA and continue to add new features to the NAS EA portal. (JWijntjes, AJP-1500) Due September 30, 2012

Activity Target 6:

Develop, enhance, and deploy an integrated model for the NAS EA enterprise and project level views and artifacts in the System Architect tool suite. (1) Migrate 100% of the existing NAS EA enterprise views into the System Architect tool suite; (2) Migrate 100% of the existing and planned NAS EA project level views into the System Architect tool suite. (JWijntjes, AJP-1500) Due September 30, 2012

Activity Target 7:

Develop automated business processes to support visibility, improve efficiency and metrics tracking of AMS products created by Systems Engineering and Safety. (1) Pilot the AJP-1 concurrence process in the Business Process Management System SAVVION to support metrics development; and improve accountability and visibility of products delivered under the Service Analysis and concept and Requirements Design phase of the Acquisition Management System

(AMS); (2) Implement the Systems Engineering & Safety (SE&S) Tool Change Control Board to provide governance, visibility, and financial awareness of SE&S information technology investments and capabilities. (REstrada-Cavallini, AJP-1C00) Due September 30, 2012

Activity Target 8:

Develop an outreach program in the Concept and Requirements Definition (CRD) group to provide information to decision makers on proposed investments; the outreach program, to be developed, will assist decision makers by ensuring the accuracy and completeness of the information provided for the Investment Analysis Readiness Decision. (1) Develop an outreach program for program managers to assist in completing and scheduling Investment Analysis Readiness Decisions (IARD); (2) Communicate the outreach program requirements to (Investment Decision Authority) IDA customers and assist in verifying and validating the accuracy and completeness of system engineering and economic products for Investment Analysis Readiness Decision. (TO'Hara, AJP-1A00) Due September 30, 2012

Core Initiative: Systems Engineering & Architecture- MITRE/CAASD (CIP#:M03.02-00)

CAASD is an FAA-sponsored Federally Funded Research and Development Center (FFRDC) operated under a Sponsoring Agreement with the MITRE Corporation. A Product Based Work Plan (PBWP) will be developed within the context of the FAA Flight Plan and the NextGeneration Air Transportation System (NextGen) Implementation Plan, NAS Enterprise Architecture, National Aviation Research Plan (NARP), other agency long-range plans, and the FAA CAASD Long Range Plan (FY 2010-2014). The CAASD PBWP and Long Range Plan, both 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 NextGen.

Core Activity: Product Based Work Plan/CAASD Long Range Plan

In FY12, the PBWP and Long-Range 2014 Plan will need to be formulated and completed

Activity Target 1:

Complete Product Based Work Plan Due September 30, 2012

Activity Target 2:

Complete 2014 Long Range Plan Due September 30, 2012

Core Measure: WJH Technical Center Operations (WJHTC)

Through facility management and support services create and maintain a safe, secure, professional, and environmentally compliant workplace for FAA employees, contractors, and tenant organizations at the William J. Hughes Technical Center. The performance targets are (1) Monitor drinking water to ensure compliance with Federal and State regulations (2) Complete the execution of the facility infrastructure sustainment capital improvement plan.

Core Initiative: Center Operations (WJHTC) (CIP#:F16.00-00)

Provide facility maintenance, engineering and support services for all properties located at the Technical Center including land, buildings, and infrastructure.

Core Activity: Maintain World Class Center Operations

Provide support services that efficiently and effectively meet the requirements of organizations residing within the Campus.

Activity Target 1:

Provide water quality assessment report to ensure maximum contaminate levels are not exceeded more than once per year. Due January 30, 2012

Activity Target 2:

Provide water quality assessment report to ensure maximum contaminate levels are not exceeded more than once per year. Due April 30, 2012

Activity Target 3:

Provide water quality assessment report to ensure maximum contaminate levels are not exceeded more than once per year. Due July 30, 2012

Activity Target 4:

Provide water quality assessment report to ensure maximum contaminate levels are not exceeded more than once per year. Due September 30, 2012

Activity Target 5:

Complete the transition of substations into operations by updating the Facility Operations and Maintenance contract with substation preventive maintenance schedules and inventories. Due February 28, 2012

Core Activity: William J. Hughes Technical Center Infrastructure Sustainment

Insure the availability, reliability, accessibility, and operability of Technical Center facilities through the implementation of infrastructure sustainment projects.

Activity Target 1:

Provide delivery and installation of three Building 300 substations. Due January 30, 2012

Activity Target 2:

Complete Phase 1 installation of Building 300 roof and skylight replacement. Due July 30, 2012

Core Measure: System Support Laboratory Sustained Support

FAA William J. Hughes Technical Center National Airspace System (NAS) Laboratories: Implement cost efficient initiatives that improve laboratory services and supporting infrastructure. By September 30, 2012, complete 90% of laboratory improvement initiatives targeted in the areas of LabNet, 20-Year Laboratory Master Plan, and the Cockpit Simulation Facility. These improvements will provide greater laboratory network security, improve the laboratory testbeds, and expand laboratory capabilities.

Core Initiative: Laboratory Infrastructure (CIP#:F14.00-00)

Implement cost efficient initiatives that improve laboratory services and supporting infrastructure to the WJHTC laboratory customers.

Core Activity: Laboratory Network Infrastructure (LabNet)

Provide a high performance, compartmentalized network security solution to laboratory customers that will meet the current and future goals of the NAS and NextGen programs.

Activity Target 1:

Create an implementation plan to integrate the Florida Test Bed into the WJHTC NextGen R&D Domain. Due April 30, 2012

Activity Target 2:

Integrate the Florida Test Bed into the WJHTC NextGen R&D Domain. Due September 30, 2012

Core Activity: Laboratory Infrastructure 20-Year Master Plan

Improve the supporting laboratory infrastructure by implementing recommendations outlined in the 20-

Year Master Plan for the NAS Laboratories developed in FY2010.

Activity Target 1:

Execute and complete a code compliance survey and design for the NAS laboratories. Due April 30, 2012

Activity Target 2:

Procure and install a Power/HVAC metering/monitoring system for the NAS Laboratories. Due September 30, 2012

Core Activity: Cockpit Simulation Facility

Develop complex human-in-the-loop, end-to-end airspace simulations for research, development, operational test and evaluation, and integration of NextGen into the NAS, including Trajectory Based Operations (TBO) development support.

Activity Target 1:

Install fifty percent (50%) of the required components essential for the completion of three cockpit simulators to full capability level: B737-800; A320-200; and Embraer 175. Due July 31, 2012

Activity Target 2:

Complete three cockpit simulators to Full Capability Level 3: B737-800, A320-200, and the Embraer 175. Due September 30, 2012

Core Measure: Verification and Validation Services

Verification and Validation (V&V) enables the agency to transform from the existing NAS to NextGen in a more efficient and effective way. A key component of the V&V services is Test and Evaluation (T&E). To achieve this transformation, ISO certification of the T&E services is a critical enabler. The application of ISO certification is unique to T&E services. These services are critical to ensure NextGen systems meet operational requirements. Five of six transformational NextGen programs identified in the FAA's March 2010 NextGen Implementation Plan are candidates for ISO Test and Evaluation services certification. The exception is Collaborative Air Traffic Management Technologies. In FY 2012, eighty percent (80%) of the candidate programs will be evaluated using the new ISO Certified Test and Evaluation processes with a FY 2010 baseline of twenty percent (20%).

Core Initiative: Quality Verification and Validation

Continuously improve the quality of test and evaluation services supporting NextGen through verification and validation.

Core Activity: Test and Evaluation Support

Continue and improve ISO test and evaluation processes in support of verification and validation activities.

Activity Target 1:

Achieve ISO registration in FY-2012, eighty percent (80%) of the candidate T&E Teams will achieve and/or maintain ISO certification. Due August 30, 2012

Core Activity: Verification and Validation Core Support

Create and advance core verification and validation concepts, methods, practices, and processes across the FAA's Acquisition Management System (AMS).

Activity Target 1:

Conduct analyses to verify that eighty-five percent (85%) of the NextGen and Operations Planning organization's test and evaluation plans and reports meet the standard processes established in the Test and Evaluation Handbook and document and report findings. Due September 30, 2012

Activity Target 2:

Conduct annual FAA Verification and Validation Summit. Due November 30, 2011

Core Measure: Federal Laboratory

Technical Partnerships and Information Exchange: During FY 2012, generate at least three new technical partnership opportunities and conduct six technical interchange meetings.

Core Initiative: Technology Transfer

Strengthen, renew, and expand cooperation among academia, Federal laboratories, labor, and industry, in such forms as technology transfer, personnel exchange, joint research projects, and others.

Core Activity: Cooperative Research and Development Agreements

Facilitate cooperative research and development agreements in accordance with the Stevenson-Wydler Technology Innovation Act of 1980.

Activity Target 1:

Provide Congress with fiscal year achievements for the FAA Technology Transfer Program by November. Due November 30, 2011

Activity Target 2:

Manage existing cooperative research and development agreements and implement new agreements when requested. Due September 30, 2012

Core Initiative: Information Exchange

Develop and strengthen relationships through meaningful information exchange with industry, other government agencies, academia, and community involvement.

Core Activity: Outreach Activities

Develop and strengthen the knowledge of aviation and the Technical Center's capabilities by performing outreach activities through the information center, aviation education program, speaker series program, as well as others.

Activity Target 1:

Generate at least three new technical partnership opportunities through outreach activities. Due September 30, 2012

Activity Target 2:

Conduct at least six meetings with academia, industry and other government through outreach activities to discuss common areas of technical interest. Due September 30, 2012

Core Measure: Systems Planning Mission Support

Strategically manages and coordinates FAA's R&D portfolio to support FAA strategic goals and mission needs and introduction or application of current and new technologies.

Core Initiative: System Planning and Resource Management (011-130)

Formulates, manages, and coordinates the FAA's research and development programs to include strategic planning and direction, , program assessments, collaborations and coordination with external and internal research organizations to support joint research and development projects and provides specialize research facilities to demonstrate operational procedures and performance requirements.

Core Activity: Research Planning and Coordination

Formulates, manages, and coordinates the FAA's research and development programs to include strategic planning and direction, program assessment and developments

Activity Target 1:

Manage R&D Portfolia, Conduct advisory committee reviews of R&D Programs and publish the National Aviation Research Plan. Due September 30, 2012

Core Initiative: Mission Support (086-110) (091-110) (111-150) (027-110)

Provide executive management over a variety of acquisitions needed to support research and technology development activities

Core Activity: Research, Engineering, and Development Program Support

Allocate financial resources as necessary to support the mission of the Research and Technology Development Office.

Activity Target 1:

Develop spend plan. Due March 30, 2012

Activity Target 2:

Obligate the approved resources. Due September 30, 2012

Core Measure: Acquisition Workforce Plan

Ensure FAA has the staffing and skill mix to successfully manage NextGen and other major acquisitions by implementing and annually updating FAA's Acquisition Workforce Plan and training, developing and certifying personnel in key acquisition disciplines. Publish annual update of FAA's Acquisition Workforce Plan by 30 September 2012. Track and analyze gains and losses and report to Acquisition Workforce Council monthly. Train, develop, and certify personnel in key acquisition disciplines, ensuring at least 95% of Acquisition Category (ACAT) 1 and 2 programs are managed by a level 3 certified program manager, 80% of Acquisition Category (ACAT) 3, 4, and 5 programs are managed by a program manager certified at Level II, and 80% of entry level contracting specialists achieve level 1 certification within 15 months of hire.

Core Initiative: Acquisition Workforce Planning and Development (CIP#:X01.00-00)

Ensure FAA has the staffing and skill mix to successfully manage NextGen and other major acquisitions by implementing and annually updating FAA's Acquisition Workforce Plan and training, developing, and certifying personnel in key acquisition disciplines.

Core Activity: Support to Acquisition Workforce Plan

Train, develop, and certify personnel in key acquisition disciplines to ensure FAA has sufficient numbers of skilled acquisition professionals (current and pipeline) to successfully manage acquisitions

Activity Target 1:

95% of Acquisition Category (ACAT) 1 and 2 programs are managed by a level 3 certified program manager. Due September 30, 2012

Activity Target 2:

80% of Acquisition Category (ACAT) 3, 4, and 5 programs are managed by a program manager certified at Level II. Due September 30, 2012

Core Measure: NextGen Staffing Plan

Update and implement the 5-Year NextGen Staffing plan that will lead to a workforce with the necessary skills and competencies to meet the challenges presented by NextGen.

Core Initiative: NextGen Staffing Plan

Finalize the 5-Year NextGen Staffing Plan and initiate implementation.

Core Activity: NextGen 5-Year Staffing Plan

Produce detailed, specific, coordinated and integrated action analysis that will continue or initiate processes that will formulate and implement the 5-Year NextGen Staffing Plan.

Activity Target 1:

Formulate 5 Year NextGen Staffing Plan (FY12-FY17) by obtaining required information from the other service units and lines of business Comptrollers. Data will be gathered in a structured template and format provided by AJP-9 Comptroller. Due June 30, 2012

Activity Target 2:

Conduct a review of the Draft NextGen Staffing

Plan to ensure its relevancy and update as necessary. Due September 30, 2012

Core Measure: WJH Tech Center- Technical Support Space Utilization Strategy

Throughout fiscal year 2012, the FAA William J. Hughes Technical Center Technical Support Space Utilization Strategy will provide site preparation and preliminary planning services for the provision of 24x7x365 availability/reliability support (i.e. power, cooling) for NAS/FAA operational systems such as Traffic Flow Management Production Center (TPC), FAA Telecommunications Infrastructure (FTI), Business Continuity Plan (BCP), and the Enterprise Data Centers that support FAA IT operations. The Technical Support Space Utilization Strategy objectives will incorporate all applicable regulatory protocols and construction codes as defined by state and federal entities. These efforts will increase laboratory and ancillary space at the WJHTC by thirty-percent (30%) in support of NextGen goals.

Core Initiative: F16.01-01 WJH Tech Center- Technical Support Space Utilization Strategy

The Technical Support Space Utilization Strategy Program identifies, evaluates, and develops facilities improvement projects based on customer requirements for current and future NAS support facilities, research, development, test and evaluation (RDT&E) facilities, IT data centers, and administrative support space at the FAA William J. Hughes Technical Center (WJHTC), Atlantic City, NJ.

Core Activity: Environmental Assessment and Facility Requirement Refinement

The WJHTC insures the availability, accessibility, and efficient use of Technical Center facility space through the implementation and procurement of space improvement projects necessary to satisfy the requirements outlined in the Technical Support Space Utilization Strategy. This aspect of the work would include management of current space and design of future space solutions.

Activity Target 1:

Establish a Technical Center space utilization Policy, Procedures and Committee. Due January 15, 2012

Activity Target 2:

Update the Technical Center's FY12 space requirements and develop a strategy for obtaining required additional space. Due August 1, 2012

Core Measure: NextGen Implementation Performance & Reporting

By the end of FY2012, publish and socialize NextGen Operational Performance Metrics Dashboard.

Core Initiative: NextGen Implementation Performance & Reporting

Establish NextGen Operational Performance Metrics with input from stakeholders and industry. Update, publish, and socialize NextGen Operational performance Metrics Dashboard.

Core Activity: NextGen Implementation Performance & Reporting

Establish, update, publish, and socialize NextGen Operational Performance Metrics Dashboard.

Activity Target 1:

Establish NextGen Operational Performance Metrics with input from stakeholders and industry. Due January 30, 2012

Activity Target 2:

Publish and socialize NextGen Operational Performance Metrics dashboard. Due March 30, 2012

Core Measure: Cost Control

Organizations throughout the agency will continue to implement cost efficiency initiatives in FY 2012. The FY 2012 Target: 90 percent of targeted savings.

Core Initiative: Productivity and Financial Metrics

Each FAA organization will develop, track, and report quarterly on a comprehensive measure of its operating efficiency or financial performance. These measures will include: ATO cost per controlled flight, staff office overhead rates and cost per accounting transaction.

Core Activity: ATO Efficiency Measure: System Planning and Resource Management Budget

Sustain FY 2012 System Planning and Resource Management budget at 2% or less of total RE&D budget.

Activity Target 1:

Report 4th quarter FY 2011 to ABA on results of

System Planning and Resource Management Budget. Due October 31, 2011

Activity Target 2:

Report quarterly to ABA on results of System Planning and Resource Management budget. Due January 31, 2012

Activity Target 3:

Report quarterly to ABA on results of System Planning and Resource Management budget. Due April 30, 2012

Activity Target 4:

Report quarterly to ABA on results of System Planning and Resource Management budget. Due July 31, 2012

Activity Target 5:

Provide updated FY 2013 template for review and approval in time to be included in the FY 2013 Business Plan. Due May 31, 2012

Core Activity: ATO Efficiency Measure: RE&D Management Workforce

Maintain an RE&D management workforce comprising no more than 10% of the overall RE&D workforce.

Activity Target 1:

Report 4th quarter FY 2011 result to ABA on the percentage of the management workforce comprising the overall RE&D workforce. Due October 31, 2011

Activity Target 2:

Report quarterly to ABA on the percentage of the management workforce comprising the overall RE&D workforce. Due January 31, 2012

Activity Target 3:

Report quarterly to ABA on the percentage of the management workforce comprising the overall RE&D workforce. Due April 30, 2012

Activity Target 4:

Report quarterly to ABA on the percentage of the management workforce comprising the overall RE&D workforce. Due July 31, 2012

Activity Target 5:

Provide updated FY 2013 template for review and approval in time to be included in the FY 2013 Business Plan. Due May 31, 2012

Core Measure: Test and Evaluation

Throughout FY 2012, provide quality in class Test & Evaluation (T&E) services by completing at least fifty-percent (50%) of the items delineated in the monthly status report that include but are not limited to: Complete Test for release 1 of the Wide Area Augmentation System follow on contract and Conduct key site evaluation of Airport Surface Detection Equipment/Automatic Dependent Surveillance-Broadcast universal access transceiver modification.

Core Initiative: Test and Evaluation (CIP#:X01.00-00)

Provide quality T&E services to ensure that current NAS and future air transportation systems are efficiently and comprehensively verified using best practices and quality standards. Provide technically and operationally sound, evaluations, analyses, data & services from comprehensive air transportation system, local airport, airspace, and use perspectives. Characterize performance of current system and effects of proposed NextGen changes on pilots, controllers, aircraft, and related system components.

Core Activity: NAS Test and Evaluation

Provide test & evaluation services to ensure current automation, communications, surveillance, and navigation programs and future air transportation systems are efficiently and comprehensively verified, validated, and integrated as indicated by approved corporate work plan/project scope agreement/program directive schedules. Examples of Strategic Links include ADS-B (10S2A), WAAS (10S3A), Runway Status Lights (10S4J), and ASDE-X ADS-B (10S105).

Activity Target 1:

Test and Evaluation Program Status Monthly T & E Program reports due monthly. Due September 30, 2012

Core Activity: Air Transportation Evaluations, Analyses, Data and Services

Provide technically and operationally sound evaluations, analyses, data and services from air transportation system, local airport, airspace, and user perspectives. Characterize performance of proposed NextGen changes.

Activity Target 1:

Generate and distribute reports of Navigational Signal Analysis of Existing and Proposed VOR Locations in March and September. Due September 30, 2012

Core Activity: Separation Standards

Provide analytical studies and related safety monitoring services in support of separation reductions in U.S. Sovereign Airspace, international airspaces where FAA has delegated authority to provide air traffic services and international airspaces where the U.S. and its citizens have safety-related interests (10C5I - Reduce Oceanic Separation).

Activity Target 1:

Conduct Biannual Review of the Performance of RVSM in North America (U.S., Canada and Mexico) Cast Against ICAO - Recommended Requirements FAA - Hosted meetings and assembly of Performance Data due in November and May. Due May 30, 2012

Activity Target 2:

ICAO Separation Standards related meetings review of progress ICAO Separations Standards Reports/Technical Working Papers due 12/11, 03/12, 06/12. Due September 30, 2012

Core Measure: Joint Planning & Development Office

JPDO will sponsor special studies and analyses conducted at the NGATS Institute as well as Support the multi-agency Joint Planning Environment that provides a transparent web-based view of Enterprise Architecture and Integrated Work Plan information.

Core Initiative: Joint Planning & Development Office

Refine NextGen Joint Planning Environment information: Concept of Operations, Enterprise Architecture, Integrated Work Plan, and Portfolio Analysis.

Core Activity: Refine NextGen Joint Planning Environment information: Concept of Operations, Enterprise Architecture, Integrated Work Plan, and Portfolio Analysis

Coordinate with aviation and aeronautics research programs to ensure that research results in decisions that influence the most effective investment and implementation decision-making.

Activity Target 1:

Identify and facilitate all pre-implementation activities to support identification and resolution of policy issues, optimized technology transfer, risk management and broad range of analysis to support decision making. Due March 30, 2012

Activity Target 2:

Develop FY11 Formulation Package to support NextGen resource planning and development of the NextGen portfolio analysis. Due June 30, 2012

Activity Target 3:

Coordinate and conduct demonstrations that will test operational concepts, address operational challenges, and provide alternatives for architectural trade-offs. Due September 30, 2012

Core Measure: AJP-1 Information System Security Service

Achieve zero cyber security events that disable or significantly degrade FAA services by defining and implementing NAS Information System Security (ISS) architecture capabilities through the completion of NAS Enterprise Architecture (EA) ISS views and overlays and the establishment of an enterprise verification and validation infrastructure to support Identity and Key Management (IKM) functionality.

Core Initiative: NAS Enterprise Information System Security (NEISS) Architecture (CIP#:M31.03-01)

Provide system engineering support services to achieve zero cyber security events by defining and implementing NAS Information System Security (NEISS) Architecture capabilities.

Core Activity: AJP-1 Systems Engineering Support Services for NEISS Architecture

Provide Information System Security (ISS) services; develop enterprise-wide architecture products, requirements and standards to support NAS Enterprise Information System Security Architecture and capabilities; develop Enterprise Architecture views to support acquisition decisions in the development of NextGen programs.

Activity Target 1:

Complete update of final NAS Enterprise Architecture Information System Security views and overlays. Due August 31, 2012

Activity Target 2:

Establish enterprise verification and validation infrastructure to support development of Identity and Key Management (IKM) functionality. Due September 30, 2012

Core Measure: SSE SD - Security Integrated Tool Set (SITS) (G07A.01-01)

SITS is an automated system used to identify airborne security threats in the NAS and communicate that information to the appropriate information system or agency.

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Core Activity: SSE SD - Security Integrated Tool Set (SITS) (G07A.01-01)

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Activity Target 1:

Monitor and report quarterly on established milestones. Due September 30, 2012

Core Measure: Systems Planning Mission Support

Strategically manages and coordinates FAA's R&D portfolio to support FAA strategic goals and mission needs and introduction or application of current and new technologies.

Core Initiative: System Planning and Resource Management (011-130)

Formulates, manages, and coordinates the FAA's research and development programs to include strategic planning and direction, , program assessments, collaborations and coordination with external and internal research organizations to support joint research and development projects and provides specialize research facilities to demonstrate operational procedures and performance requirements.

Core Activity: Research Collaboration with External Partners

Foster research opportunities in meeting FAA goals, including those for air transportation, and facilitate transfer of technology from research partners into the FAA. Manage FAA's research liaison positions with external partners

Activity Target 1:

Provide coordination of the programs, laboratories, and facilities of research partners to help meet the requirements of FAA's internal and external customers. Facilitate FAA research partnership agreements and using a data base management system (DBMS), track total dollar value and number of agreements. Due August 30, 2012

Activity Target 3:

Make quantifiable progress in completing Energy Independence and Security Act (EISA) 432 required evaluations at ACT covered facilities, document results in the EISA 432 Compliance Tracking System (CTS), and provide AEE with supporting documentation. Due June 29, 2012

Activity Target 4:

Make quantifiable progress in installing building level advanced gas, electric, and water meters at buildings included in ACT's EISA 432 covered facilities and/or those targeted to meet the Guiding Principles for High Performance Sustainable Buildings, and report progress to AEE. Due September 30, 2012

Activity Target 5:

Support efforts to enter ACT data related to meeting the Guiding Principles for High Performance Sustainable Buildings into Energy Star Portfolio Manager. Due September 30, 2012

Sustain our Future

NextGen & Operations Planning supports the Destination 2025 Sustaining our Future outcomes with activities that include efforts to develop appropriate policy approaches and economic incentives to foster integrated approach to planning, decision-making, regulatory compliance, and environmental cost-benefits of operating the NextGen system.

Core Measure: Energy Management

Provide guidance and coordinate FAA efforts to plan, implement, and document agency energy and environmental management activities to address national mandates.

Core Initiative: Implement elements of the FAA Greening Initiative and other sustainability and adaptation plans

Provide guidance and coordinate FAA efforts to plan, implement, and document agency energy and environmental management activities in accordance with Presidential Executive Order (EO) 13514 addressing national mandates without adverse effects on the national aviation system.

Core Activity: ACT support to implement elements of the FAA Greening Initiative

ACT support to implement elements of the FAA Greening Initiative

Activity Target 1:

Provide AEE with ACT data for the FAA FY 2011 Annual Energy Management and Greenhouse Gas Report. Due October 31, 2011

Activity Target 2:

Provide AEE with ACT data for sustainability performance reporting requests (e.g., Sustainability Reg Review Scorecard, OMB Scorecards) on a quarterly basis, based on agreed upon schedule. Due September 30, 2012

Core Measure: FAA Environmental Management Systems (EMS)

APL is leading the FAA in maintaining an effective Environmental Management System pursuant to Executive Orders 13423/13514 and developing the NextGen environmental framework. APL is providing technical direction, oversight and support to the FAA in meeting these EO and NextGen environmental goals. The FAA EMS Steering Committee is led by AEE and is composed of the appropriate LOB's and staff offices. AEE will provide support to LOBs and staff offices in meetings, targets, developing FAA-wide training, and coordinating EMS performance reporting.

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Core Activity: Tech Center Support for EMS

The ATO is fully committed to conducting all operations and activities in a manner that is protective of the environment. In keeping with this commitment, ACT management and staff work continuously to integrate environmental considerations into operations, conserve energy and resources, and to avoid or minimize the use of environmentally detrimental materials. This commitment extends to all FAA Technical Center facilities and operations and is implemented through an ACT-wide Environmental Management System.

Activity Target 1:

Conduct registration EMS audit and management review and report status to AEE. Due June 30, 2012

Activity Target 2:

Work with AEE to identify Greening Initiatives and NextGen-related environmental objectives that can be integrated into Environmental Management Plans, as appropriate. Due August 31, 2012