# DEPARTMENT OF TRANSPORTATION INSPECTOR GENERAL TOP MANAGEMENT CHALLENGES FOR FISCAL YEAR 2014

## FEDERAL AVIATION ADMINISTRATION

## ACTION PLANS

# TABLE OF CONTENTS

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 1: Improving FAA's Oversight of the Aviation Industry and the Operations of the National Airspace System** | |
| Issue: | **Advancing Initiatives To Improve Pilot Training, Mentoring, and Record Keeping**<br><br>In August 2010, Congress passed the Airline Safety and FAA Extension Act, which directed the FAA through legislation to change requirements to improve pilot rest requirements, establishing better processes for managing safety risks and advancing voluntary safety programs. While the Act directed the FAA's rulemaking activities, it did not exempt it from the statutory requirements of rulemaking such as regulatory evaluation, economic analysis and approval by other Federal agencies. The FAA is making steady progress towards completion and enhancement of safety through improved qualification standards and training for pilots in part 121.<br><br>For example, the FAA published its final rule for Pilot Certification and Qualification Requirements in July 2013.<br><br>Additionally, the FAA published its final rule for Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers in November 2013.<br><br>The Act further directed FAA to convene an aviation rulemaking committee to develop procedures for each part 121 air carrier to establish flight crewmember mentoring programs and create professional development committees to oversee the mentoring programs to assist flight crewmembers to reach their maximum potential as safe, seasoned, and proficient flight crewmembers.<br><br>The Act also directs FAA to establish a "FAA Pilot Records Database" (PRD) that must contain information collected by the FAA, air carriers and other employers of pilots, and the National driver register records. Air Carriers will be required to access and evaluate a pilot's record before allowing an individual to begin service as a pilot. This will improve upon the timeliness of the existing paper based share data instituted by the Pilot Record Improvement Act (PRIA) of 1996.<br><br>In February 2012, Congress passed the FAA Modernization and Reform Act of 2012, which directed the FAA through legislation to conduct additional rulemaking projects to improve aviation safety, including the safety of flight crewmembers, medical personnel, and passengers onboard helicopter air ambulance operations and the safety of flight crewmembers and passengers in commercial aviation. |
| **ACTION PLAN** | |
| Cognizant Organization: | Aviation Safety/Flight Standards Service |

| | | |
|---|---|---|
| Tools to be Used to Resolve the Issue: | • Rulemaking<br>• Guidance to inspectors and operators (Notices, Orders Information for Operators, Safety Alerts for Operators, Advisory Circulars) | |
| Time Needed to Resolve the Issue: | Current rulemaking projects are in various stages of the process. The rulemaking process is complex and lengthy as the FAA considers all aspects of impact and the input of stakeholders. The FAA was challenged in completing the requirements of the Airline Safety and FAA Extension Act by short timelines, requirements between sections, and the need for coordination with industry and other agencies before proposing a final rule.<br><br>The FAA continues to make progress on the Pilot Records Database (PRD) despite the complexity associated with this project (as noted in DOT OIG Report AV-2013-037 dated January 31, 2013). The PRD rulemaking team has begun drafting the NPRM document, which is scheduled for publication in Spring 2015. | |
| Specific steps to be taken in FY 2014: | Publish final rule for Air Ambulance and Commercial Helicopter Operations; Safety Initiatives and Miscellaneous Amendments | Estimated February 2014 |
| | Publish final rule for Safety Management Systems for Part 121 Certificate Holders | Estimated May 2014 |
| | Publish notice of proposed rulemaking for Flight Crewmember Mentoring, Leadership and Professional Development | Estimated March 2014 |
| | Publish notice of proposed rulemaking for Flight Simulation Training Device (FSTD) Qualification Standards for Extended Envelope and Adverse Weather Event Training | Estimated May 2014 |
| | Publish notice of proposed rulemaking for Prohibition of Tail End Ferry in Part 121 | Estimated June 2014 |
| | Publish notice of proposed rulemaking for Pilot Records Database | Estimated May 2015 |
| | Publishing new testing materials for Pilot Certification and Qualification (FOQ), made final in July 2013. | Estimated August 2014 |

| | |
|---|---|
| Expected Results, this year and in the future: | The FAA expects that publication of the above-referenced rules and complementary guidance material will increase the qualifications of flight and other crewmembers, reducing aviation incidents and accidents and, thus, increasing public safety and confidence in the aviation industry. |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 1: Improving FAA's Oversight of the Aviation Industry and the Operations of the National Airspace System** | |
| Issue: | **Improving Air Traffic Controller Training, Scheduling, and Performance**<br><br>Controller Training<br>The FAA Air Traffic Organization (ATO) is experiencing a large number of air traffic controller retirements; and, training to replace retirees is a key priority. The Office of Safety and Technical Training is responsible for training the replacements.<br><br>Fatigue<br>The FAA has made policy changes to address controller fatigue. An additional air traffic controller has been placed on the midnight shift at certain facilities. In addition, policy now mandates 9 hours off between evening and day shifts. |
| **ACTION PLAN** | |
| Cognizant Organization(s): | Air Traffic Organization (ATO): Safety and Technical Training (AJI)<br>Director, Safety, AJI-1;<br>Manager, Fatigue Risk Management Team, AJI-155 |
| Tools to be Used to Resolve the Issue: | Controller Training<br>In order to resolve the controller training issues, the Technical Training Directorate will employ the following tools:<br>• Technical Training will implement a policy to identify and measure training initiatives in an AJI Order.<br>• Collect data from agency training data systems such as National Training Database (NTD), Training and Proficiency Record (TRAX), Quota Management and Resource Tool (QMART), Comprehensive Electronic Data Analysis and Reporting (CEDAR), Electronic Learning Management System (eLMS), and Federal Personnel Payroll System (FPPS).<br>Fatigue<br>The FAA ATO operates a Fatigue Risk Management System (FRMS) directed by a collaborative management/Labor Fatigue Safety Steering Committee (FSSC). The FRMS is responsible for ensuring that certain activities are completed to include:<br>• Fatigue related policy and documentation is developed, |

| | | |
|---|---|---|
| | documented and communicated to the field.<br>• Fatigue risk management is conducted to identify hazards and assess risks along with developing mitigation. | |
| Time Needed to Resolve the Issue: | <u>Controller Training</u><br>To affect real change for measuring air traffic controller improvement initiatives, the following must occur:<br>• Efficient, supportable measurement mechanisms need to be identified and established for each improvement initiative project<br>• The improvement initiative project itself needs to be completed and implemented<br>Data must be gathered over time using the established measurement mechanisms to determine the effectiveness/impact of the controller training improvement. Accounting initiatives will not be available until 2-3 years post implementation.<br><u>Fatigue</u><br>Several ATO offices are further clarifying wording to support the provisions of JO 7210.3X, "Facility Operation and Administration", paragraph 2-6-6. These changes will be incorporated into paragraph 2-6-7, and expect to be published in January 2015.<br>Also during FY15, measurement of implementation compliance with recent changes to JO 7210.3X, paragraphs 2-6-7 and 2-6-13 will be conducted under the Fatigue Safety Assurance process and the results will be briefed to the ATO FSSC for review and action planning. | |
| Specific steps to be Taken in FY 2014: | <u>Controller Training</u><br>Implement policy<br><br>Research and identify implemented or under development initiatives that may be candidates for measurement.<br><br>Identify and collect measurement data for each improvement initiative.<br><br><u>Fatigue</u><br>The ATO has taken action as a result of fatigue risk analysis recommended by the ATO FSSC. Actions amending single person midnight operations have already been implemented. Further action involving restrictions on the number of consecutive midnight shifts; ten hour midnight shifts, and early day shift start times prior to a midnight | September 2014<br><br>April to September 2014<br><br>Ongoing FY 2015<br><br>FY14, 4th Quarter |

| | | |
|---|---|---|
| | shift have also been implemented. | |
| Expected Results, this year and in the future. | <u>Controller Training</u><br>FY 2014:<br>Identification of measurement mechanisms for each controller training improvement initiative.<br>Future Years:<br>Data that illustrates the impact of the controller training improvement initiatives on the air traffic controller training, scheduling and performance.<br><br><u>Fatigue</u><br>A more comprehensive understanding of fatigue and how to minimize its impact on job performance. | |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 1: Improving FAA's Oversight of the Aviation Industry and the Operations of the National Airspace System** | |
| Issue: | **Implementing a Risk-Based Approach for Repair Station Oversight**<br><br>Since 2003, the DOT OIG has issued reports critical of FAA's surveillance of aircraft repair stations. The most recent one, "FAA Continues To Face Challenges In Implementing A Risk-Based Approach For Repair Station Oversight", dated May 1, 2013, identifies FAA's risk based oversight system as ineffective in targeting surveillance to areas of higher risk. It states FAA's oversight does not include accurate and timely risk assessments of domestic and foreign repair stations. The report indicates the FAA has yet to provide inspectors with comprehensive data needed for analytic reviews of repair stations performance. Instead, FAA inspectors rely on their personal knowledge of repair stations to conduct oversight, rather than using comprehensive and standardized procedures for conducting and communicating the results of inspections. Thus, FAA's oversight lacks consistency necessary to identify deficiencies and verify corrective actions. |
| **ACTION PLAN** | |
| Cognizant Organization: | Aviation Safety/Flight Standards Aircraft Maintenance Division, AFS-300 |
| Tools to be Used to Resolve the Issue: | The FAA is moving forward with the development of the next generation risk management oversight system called Safety Assurance System (SAS) for Title 14 Code of Federal Regulations (14 CFR) parts 121, 135, and 145. SAS is risk-based and incorporates data-supported decision making for oversight. The SAS encompasses the certification, surveillance and certificate management processes for air operators and agencies. It assesses the safety of 14 CFR parts 121, 135 and 145 operating systems using system safety principles, safety attributes, risk management, and structured system engineering practices. SAS also assesses the requirement to provide service at the highest level of safety in the public interest. The FAA is developing training to support the implementation of SAS. These courses will focus on the use of risk assessment tools and trending risk. SAS is scheduled to be fully implemented by August 2015.<br><br>In the interim of implementing SAS, the FAA established a team to review and focus on improvements to the current FAA risk-based oversight system. The team revised the FAA Order 8900.1 guidance and "FAA Certification and Surveillance of part 145 Repair Stations" training course to include the changes necessary that will provide more comprehensive and standardized procedures for conducting inspections and reporting findings. The FAA provided a briefing to the Flight Standards Regional managers, branch managers, field managers and inspectors on the OIG concerns and each recommendation detailed in their recent report. The FAA's oversight system and its application in FAA's oversight of part 145 repair |

| | | |
|---|---|---|
| | stations was also briefed to re-familiarize the inspector workforce in the use of the system as it was intended and to completely convey the expectations that all International Field Offices (IFO) are required to use these protocols. The problems and causes of each recommendation, along with the next steps to resolve the recommendations were also discussed in the briefing. The inspector web-based training course titled "Assessment and Planning Tools (APT) Transition Training for Airworthiness Inspectors" is required to be completed annually, pending the release of the SAS. The course provides instructions on the use of the risk-based oversight system tools and processes currently in place. It emphasizes the necessity to act upon identified risks until mitigation is complete. | |
| Time Needed to Resolve the Issue: | SAS is scheduled to begin on-sight deployment in fiscal year 2014; however it is expected to be fully deployed by August 2015. SAS training will be led by the SAS training team and provided to the Flight Standards Regional offices and FAA Flight Standards District Offices (FSDO) as scheduled for SAS deployment.<br><br>In the interim to the deployment of SAS, action items on the current FAA risk-based oversight system are as follows: Guidance revisions will be published by the end of March 2014. The "FAA Certification and Surveillance of part 145 Repair Stations" training course will be available for inspectors by the end of April 2014. The web-based training course titled "Assessment and Planning Tool (APT) Transition Training for Airworthiness Inspectors" was required to be completed by inspectors by the end of December 2013 and annually thereafter, pending the transition to SAS. | |
| Specific steps to be taken in FY 2014: | <u>Long Term Steps:</u><br><br>Complete development of SAS.<br><br>SAS training revisions that instruct inspectors to evaluate a repair stations using the improved risk-based oversight system.<br><br>The "Introduction to SAS" web-based training course is available to all Flight Standards managers and inspectors.<br><br>Begin SAS on-site training.<br><br><u>Short Term Steps pending SAS full deployment:</u><br><br>Brief OIG on the status of FAA's action plan of the OIG recommendations<br><br>Brief Flight Standards | <br><br>February 2014.<br><br>September 30, 2014.<br><br>Prior to SAS deployment, all are required to complete this course.<br><br>May 2014.<br><br><br><br>January 15, 2014.<br><br>Completed in September, 2013. |

| | | |
|---|---|---|
| | airworthiness regional managers, field managers and inspectors on the current risk management tools and processes.<br><br>Publish Interim guidance revisions.<br><br>Revisions to the "FAA Certification and Surveillance of part 145 Repair Stations" training course.<br><br>Required training for inspectors of the web-based training course titled "Assessment and Planning Tools (APT) Transition Training for Airworthiness Inspectors". | <br><br><br><br>March 2014.<br><br>Available to inspectors by the end of April 2014.<br><br>December 31, 2013. Added to all airworthiness inspectors training profile and to be completed annually, pending the transition to the Safety Assurance System (SAS). |
| Expected Results, this year and in the future: | FAA will achieve a risk-based oversight system that is more refined and provides a comprehensive, effective oversight for all U.S. repair stations. This will be accomplished through the use of revised guidance and oversight tools; improved inspector training; and standardized procedures for reporting audit findings. These enhancements will result in more consistent inspection practices that will improve the detection of systemic deficiencies and increase the effectiveness of repair station safety oversight of those facilities most at risk. Positive changes will be more apparent through the completion of each inspection cycle. | |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 1: Improving FAA's Oversight of the Aviation Industry and the Operations of the National Airspace System** | |
| Issue: | **Enhancing Runway Safety**<br><br>FAA's Runway Safety Program Office tracks all reported runway incursions and categorizes them in terms of risk. FAA met its goal to reduce the rate of serious runway incursions (Category A and B)—those in which a collision was barely avoided—for fiscal year 2012. However, between fiscal years 2010 and 2012, the number of serious incursions tripled—from 6 to 18. Additionally, the total number of all runway incursions increased by 21 percent (954 to 1,150) between fiscal years 2011 and 2012, and continues to rise, despite a slight decline in total air traffic operations. While FAA recently reorganized its Runway Safety Office and changed the way it reports runway incursions, it has not assessed the impact of these changes.<br><br>Airport Surface Detection Equipment-Model X (ASDE-X)<br>FAA is also working to deploy technology that could help prevent collisions on runways. For example, in fiscal year 2011, FAA completed deployment of the ASDE-X system at 35 major airports, which provides detailed information to air traffic controllers regarding aircraft operations on runways and taxiways. While ASDE-X is a step in the right direction, it does not provide alerts directly to pilots, a longstanding National Transportation Safety Board (NTSB) recommendation. To address this shortcoming, FAA is integrating ASDE-X with two other systems—Runway Status Lights (RWSL) and Automatic Dependent Surveillance-Broadcast (ADS-B)—to simultaneously alert controllers and pilots of potential ground collisions. However, progress toward these enhancements depends on a number of other actions, such as establishing requirements for technical upgrades, testing system integrity, and determining whether ASDE-X capabilities will meet FAA's goals of increasing capacity while improving safety. |
| **ACTION PLAN** | |
| Cognizant Organization: | Air Traffic Organization (ATO) Safety and Technical Training (AJI) and ATO Program Management Office (PMO) |
| Tools to be Used to Resolve the Issue: | Enhancing Runway Safety<br><br>It is important to note that the number of serious incursions declined from 18 in 2012, to 11 in 2013. The FAA ATO Office of Runway Safety works in collaboration with FAA stakeholders, industry, and the NTSB to assess risk and promote risk based mitigation strategies. This model of collaboration is shared with the International Civil Aviation Organization Air Traffic Service Providers. It is very important to note that Airport surface safety was not on the 2014 NTSB Most Wanted List. The Most Wanted List represents the NTSB's advocacy priorities. It is designed to increase awareness of, |

| | |
|---|---|
| | and support for, the most critical changes needed to reduce transportation accidents and save lives.<br><br>Additionally, the FAA has established the Surface Safety Initiatives Team (SSIT) to improve collaboration between lines of business and provide a process to assess options and prioritize surface safety initiatives. The goal is to improve coordination between all stakeholders to identify and implement technology and procedural solutions that are right-sized, affordable, and mitigate hazards associated with airport surface operations in areas of the highest risk.<br><br>The SSIT will have oversight of the Comprehensive Airport Review and Assessment (CARA) teams. In an effort to decrease the risks associated with surface incidents, runway incursions and/or runway excursions, the CARA teams will be tasked to produce the Comprehensive Airport Review Plan (CARP), which will identify, validate, and prioritize root cause operational issues that contribute to runway safety shortfalls at each of the sites within the purview of the SSIT and will identify and understand hazards and their root causes. The SSIT will review and assess the CARP to ensure that procedures, practices and documentation are being applied in accordance with applicable requirements.<br><br>The Surface Risk Analysis Process (SRAP) tool is being developed to evaluate and score selected surface events. This new tool introduces data driven scoring methods for event assessment and will add other functionalities to accommodate National Airspace System (NAS) requirements. The SRAP tool factors in the effects of proximity, closure rates, barriers and other systemic and non-systemic factors to determine severity, controllability and repeatability of an Runway Incursion event.<br><br>*ASDE-X:*<br>The Federal Aviation Administration (FAA) has undertaken a significant development effort and investment in airport safety through the use of FAA surface surveillance systems. An obsolescence study was conducted in FY12 to identify sustainment risks to the ASDE-X system. A cost analysis was performed to identify cost effective solutions to address the identified obsolescence issues.<br><br>*Airport Surface Surveillance Capability (ASSC):*<br>The FAA's Surveillance and Broadcast Services program will implement a new surface technology, Airport Surface Surveillance Capability (ASSC), at ASDE-3/AMASS sites that did not receive an ASDE-X system. ASSC will bring enhanced surface situational awareness and advanced warning of potential runway incursions to nine U.S. airports for increased safety and efficiency. (Anchorage, Andrews AFB, Cincinnati/Northern Kentucky, Cleveland, Kansas City International, New Orleans, Pittsburgh, Portland, San Francisco – there are options for additional sites).<br><br>Each ASSC deployment will incorporate a number of sensors (ADS-B and multilateration, but not primary radar which is used for non-cooperative vehicles/aircraft) and software for a single, fused view of the airport runways and taxiways. The flexible nature of the ASSC |

| | |
|---|---|
| | system architecture enables future airport surface safety enhancements, such as Runway Status Lights (RWSL), and airport surface movement data distribution to other approved systems and users.<br><br>*Surveillance and Broadcast Services / ADS-B:*<br>In addition, the SBS system introduced an enhancement to the ASDE-X system to perform multi-lateration surveillance on the Universal Access Transfer data link. This upgraded capability provides a layered approach for surveillance of 978MHz equipped aircraft and vehicles and was completed in 2013.<br><br>Lastly, ADS-B provides the additional surveillance layer for surface operations with both aircraft and vehicles and enables advanced cockpit applications and improved data sharing for surface management. The deployment and integration of the ADS-B system in the surface domain will be completed in 2014 at ASDE-X sites and in 2017 at ASSC sites.<br><br>*Runway Status Lights:*<br>RWSL integrates airport lighting equipment with approach and surface surveillance systems to provide a visual signal to pilots and vehicle operators indicating that it is unsafe to enter, cross, or begin takeoff on a runway<br><br>In July 2013, the Joint Resources Council (JRC) made the decision to reduce the quantity of airports that would receive a RWSL system from 23 to 17. All IOCs and Operational Readiness Demonstrations at these 17 sites are scheduled to be complete by FY2017. The remaining sites will be addressed in a second phase of the program in which the agency will analyze technology and non-technology alternatives to directly address runway incursions at any future airport sites.<br><br>Since the program re-baseline, the RWSL program has made steady progress with the implementation of the system. The Orlando key site commissioned in August 2013 and Initial Operating Capability (IOC) has been achieved at four additional sites (Dulles, Phoenix, Minneapolis, and Houston Intercontinental). |
| Time Needed to Resolve the Issue: | Enhancing Runway Safety<br><br>The current process of classifying events using Severity Categories will continue and will be conducted concurrently with SRAP while this tool is being further developed and refined. When the SRAP tool matures and meets it is shown to meet the needs and requirements of the ATO, the legacy process will be discontinued.<br><br>The SSIT will form CARA teams to examine selected airports and produce a CARP for each airport. The SSIT will then assess solution alternatives and define business cases for possible solutions. Site specific plans with implementation schedules will be developed for each airport. The SSIT and CARA work for the selected airports will be completed at the end of FY 2015.<br><br>The resulting ASDE-X Technical Refresh program will deploy the |

| | | |
|---|---|---|
| | recommended solutions to ensure the continued operation of the ASDE-X System. The ASDE-X Technical Refresh Program will deploy parts replacements from FY14 thru FY18*. ASDE-X*<br><br>These surface technologies will be deployed by the FY2017 timeframe. | |
| Specific steps to be taken in FY 2014: | Enhancing Runway Safety<br><br>Initial development of the SRAP prototype tool<br><br>Verification and validation of the SRAP prototype tool<br><br>SSIT Charter finalized<br><br>SRAP Beta version completion<br><br>Initial CARA Teams formed<br><br>Verification and validation of the SRAP web-based tool<br><br>*ASDE-X*<br>Begin Site Acceptance Test for ASSC at the San Francisco key site<br><br>Achieve IOC for ADS-B Surface Advisory Services at the 35 ASDE-X airports. As of February 2014 this milestone has been achieved at 29 of 35 sites.<br><br>Achieve IOC at 2 additional RWSL sites. As of February 2014, this milestone has been achieved at one of two sites (Minneapolis) | <br><br>Completed 12/2013<br><br>3/2014<br><br>Completed 2/2014<br><br>5/2014<br><br>6/2014<br><br>9/2014<br><br><br>*May 2014*<br><br>*September 2014*<br><br>*September 2014* |
| Expected Results, this year and in the future: | Enhancing Runway Safety<br><br>In FY14, the completion of the web-based SRAP tool will allow the concurrent use of the legacy system and the SRAP tool to simultaneously assess surface events.<br><br>In future years, the SRAP tool will be used by all three ATO Service Areas to accomplish coherent and expeditious assessment of surface events across the National Airspace System.<br><br>Additional SRAP functionalities will be developed and implemented in future years to allow for analysis of other surface events such as taxiway landings or departures, wrong runway landings, runway excursions, etc. (FY15 and beyond).<br><br>The SSIT will oversee the development of a concept of operations, program requirements, alternatives analysis and benefits cases for site specific solutions (both business and technical), based on the operational shortfalls and priorities identified by the CARA teams. | |

| | |
|---|---|
| | The SSIT will review (for quality and consistency), comment, and ultimately put forward a joint recommendation across the selected sites to FAA leadership for addressing operational shortfalls with (likely) a combination of business and technology investments.<br><br>By the end of FY14, validation of the sustainment solution will be completed. In FY15-FY18, the FAA will implement the proven solution into all ASDE-X sites.<br><br>*ASDE-X*<br>ASSC will increase safety and efficiency and will introduce a new capability to drive the RSWL at San Francisco. The ASDE-X Technical Refresh Program will ensure operational effectiveness of systems currently in operation. |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 1: Improving FAA's Oversight of the Aviation Industry and the Operations of the National Airspace System** | |
| Issue: | **Improving Data Collection and Analysis To Identify and Mitigate Risks With Aircraft Separation Losses and Air Carrier Operations**<br><br>At any given time, there are roughly 7,000 aircraft occupying U.S. airspace. To help maintain safe distances between aircraft, while under the control of air traffic controllers, FAA established minimum separation standards based on the aircraft's phase of flight and size. Controllers are responsible for providing instructions to pilots.<br><br>The OIG has been reporting on separation losses for over a decade. Historically, FAA's oversight of operational error self-reporting has been problematic. Our previous work (see exhibit C) on operational errors has repeatedly raised concerns that nearly 300 FAA terminal facilities relied solely on controllers to self-report errors. In some cases, we found that the self-reporting process was subject to intentional manipulation.<br><br>In response to OIG reports, the FAA has undertaken a number of efforts to provide better oversight of and minimize separation losses. |
| **ACTION PLAN** | |
| Cognizant Organization: | Air Traffic Organization (ATO): Safety and Technical Training (AJI) |
| Tools to be Used to Resolve the Issue: | In order to improve data collection, analysis and the identification of risk safety trends, the FAA fully implemented the Traffic Analysis and Review Program (TARP); which electronically captures quantitative data relating to all occurrences that involve losses of airborne separation. TARP was fully implemented in terminal radar facilities in September 2012 and in July 2013 for all En Route Facilities.<br><br>The tools include: the Comprehensive Electronic Data Analysis and Reporting (CEDAR) tool, the FALCON 3 radar playback tool, Compliance Verification (CV) Tool, Terminal Area Regeneration Evaluation and Target Simulation (TARGETS) and TARP. We also utilize the Risk Analysis Process (RAP) to analyze airborne losses of separation in which less than 2/3 of required separation is maintained. In FY14 the ATO added loss of surface separation and the Technical Operations Service Integrity analyses into the RAP. The RAP identifies the severity and likelihood of systemic risks which are the primary data source that drive the ATO's Annual Top 5 High Risk Hazard mitigation and corrective action program. Detailed analysis conducted to aggregate the data and identify significant and common hazards that contribute to risk in the NAS.<br><br>Additionally, the ATO has established FAA and Industry Summit Forums creating collaborative efforts to reduce identified safety risk while addressing the concerns of air carrier and other NAS operators. |

| | | |
|---|---|---|
| | During FY14, the ATO's data collecting processes continue to mature and improve the oversight of separation loss data collection and analysis. These improvements will be accomplished through the implementation of quality management system (QMS) standards to the Quality Assurance (QA) Standard Operating Procedures, the development of a Quality Control (QC) Program Handbook and/or Safety Guidance, the development of a National QA/QC Training Course and through the published revisions to the ATO QA and QC Orders (JO 7210.633, "Air Traffic Organization Quality Assurance Program" and JO 7210.634, "Air Traffic Organization Quality Control"). | |
| Time Needed to Resolve the Issue: | With the full implementation of our reporting systems we have recognized a significant increase in safety data and are working diligently to share this unprecedented level of reported information with employees and industry to include air carrier and other stakeholders. While constant improvements will continue each year, the ATO anticipates major improvements throughout 2014. | |
| Specific steps to be taken in FY 2014: | • Continue to host FAA/Industry Forums to collaboratively address identified safety risks. | |
| | • Continued Mandatory Occurrence Report (MOR)/Electronic Occurrence Report (EOR) reviews at the AJI Service Area Offices to identify high risk hazards, trends, and systemic issues within the NAS | Bi-annually<br>Ongoing/Daily |
| | • Continued use of the RAP to identify causal factors that contribute to the most severe airborne and surface losses of separation and system integrity degradations. | Weekly |
| | • Revise QA SOP to comply with QMS requirements | Mar 2014 |
| | • Develop QC Program Handbook and/or Safety Guidance to help field facilities develop and implement effective local quality control programs. | Apr 2014 |
| | • Coordinate revisions to QC, QA and occurrence reporting guidance | Aug 2014<br>Sept 2014 |
| | • Development and implementation of a National QA/QC Training Course. | |
| Expected Results, this year and in the future: | Following our Safety Management System which requires continuous improvement of our processes, the ATO is making improvements to our safety programs, such as Quality Assurance and Quality Control, as well as sharing the ATO's safety data with Aviation Safety Information Analysis | |

| | |
|---|---|
| | and Sharing (ASIAS) for analysis of air traffic control and aircraft data. FAA believes that combining air traffic and aircraft data offers opportunities to improve aviation safety with industry best practices.<br><br>As a result of the ATO's Quality Assurance safety risk trend analysis, the FAA has initiated national Corrective Action Requests (CARs) for procedures regarding Opposite Direction Operations and Converging Runway Operations. In addition, the FAA is currently developing a new Instructor led Quality Assurance/Quality Control course at the FAA Academy and developing Safety Guidance for facility Quality Control programs. |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 2: Identifying and Addressing Root Causes of Problems With NextGen and Setting Investment Priorities** | |
| Issue: | **Identifying and Addressing the Underlying Causes of Delays**<br><br>Over the next two decades, FAA expects air travel to increase substantially. To address this surge, FAA has been working to develop NextGen, which is expected to provide safer and more efficient air traffic management. NextGen involves a significant overhaul of the NAS to shift from ground-based radar air traffic management systems to more effective satellite-based systems. In 2003, Congress mandated that FAA establish the Joint Planning and Development Office (JPDO) to develop long term plans for NextGen through 2025 implemented by the FAA.<br><br>FAA's NAS EA—a key strategic planning tool for transforming the Nation's air traffic system—includes 14 roadmaps with numerous NextGen integration and investment decision points (DP). These decisions indicate FAA's approval of (1) a particular improvement/sustainment initiative, (2) an investment decision that must precede implementation of an improvement initiative, or (3) the research and/or analysis needed prior to an investment decision or implementation. The EA along with supporting roadmaps and decision points are approved annually by the Joint Resources Council (JRC). |
| **ACTION PLAN** | |
| Cognizant Organization: | NextGen Organization, ANG |
| Tools to be Used to Resolve the Issue: | NAS Enterprise Architecture (EA)<br>We have levels of planning in keeping with the maturity of the investment. The enterprise architecture provides a most likely path for the evolution of the NAS including the transformational programs. This path included projected milestones with schedules and cost based on engineering judgment for the long term investments. The plan provides an affordable estimate based on outyear guidance extrapolated into the future. For near-term investments the detail in the architecture is of higher fidelity since it reflects the baseline line decision made at the final investment. In between these two levels of maturity lie the investments that are in progress. These investments address validated shortfalls but the schedules are subject to both dependencies on the current and future schedule of legacy programs, as well as affordability for either higher cost derived through the investment process or budget guidance which may require moving the investment to the right. |

| | | |
|---|---|---|
| | <u>NextGen Segment Implementation Plan (NSIP)</u><br>To support this process of refinement, the FAA established the NextGen Segment Implementation Plan (NSIP) to ensure all programs and capabilities are implemented in a structured environment, and that interdependencies amongst systems and capabilities are recognized. Segment Alpha, which covers the years 2011-2015, has been published and a planned Segment Bravo, which will cover the years 2016-2020, is being completed.<br><br><u>Portfolio Management Reviews (PfMRs)</u><br>We host regular Portfolio Management Reviews with multiple Lines of Business (LOB) within the FAA to ensure complete transparency on program interdependencies in the NAS. Portfolio updates are also briefed. The reviews are held on a bi-weekly basis. | |
| Time Needed to Resolve the Issue: | The deployment of NextGen capabilities is ongoing. The NSIP identifies all of the planned system and procedural changes scheduled for the next five years; identifies their interdependencies; and tracks their implementation. NextGen will continue to update key planning tools such as the NSIP and the NAS EA annually. | |
| Specific steps to be taken in FY 2014: | NSIP Annual Update<br><br>NAS EA Annual Update<br><br>PfMR Meetings | February 2014<br><br>February 2014<br><br>Bi-weekly through 2014 and beyond |
| Expected Results, this year and in the future: | As to the organizational changes, within the last year both a Deputy Administrator and a new Assistant Administrator for NextGen have been named. These individuals are very active in establishing the future course of NextGen including full engagement with the community through the NextGen Advisory Committee. Internally the establishment of the Program Management Office has supported improved program management practice and execution oversight. The agency continue to progress in these areas.<br><br>The FAA has applied an incremental, segmented approach toward developing and baselining its programs, and to managing its major capital acquisitions to reduce risk and implement some operational capabilities while others are being defined. We believe our segmented approach allows for proper requirements definition in the short to mid-term, which increases the likelihood that cost and schedule will be met and promised capabilities will be delivered. Segmenting large, complex programs is consistent with OMB's capital planning guidance and GAO best practices. As the OIG points out, requirements for the transformational programs continue to evolve, making clear end-state cost, schedule, and capability descriptions difficult. | |

| MANAGEMENT CHALLENGE | | |
|---|---|---|
| **Chapter 2: Identifying and Addressing Root Causes of Problems With NextGen and Setting Investment Priorities** | | |
| Issue: | **<u>Integrating New Performance-Based Navigation Routes To Maximize Near-Term Benefits and Gain User Support</u>**<br><br>The FAA's implementation and airlines' use of PBN procedures has been inconsistent. For example, according to preliminary RNP utilization data, RNP usage is high at some small to medium-sized airports, but the overall RNP usage is low at busy airports. Several obstacles undermine FAA's efforts to increase use of PBN procedures.<br><br>These include:<br><br>• Lack of updated PBN policies and procedures for controllers<br>• Lengthy flight procedure development process<br>• Lack of controller tools to manage and sequence aircraft | |
| **ACTION PLAN** | | |
| Cognizant Organization: | Air Traffic Organization, Mission Support, Airspace Services | |
| Tools to be Used to Resolve the Issue: | The FAA is in the final stages of developing a PBN Implementation Process Order as a standardized process for evaluating and prioritizing procedures. The FAA is also issuing directives, guidance and training for "Climb Via/Descend Via" to establish/reinforce procedures for enabling more consistent use of efficient flight profiles. FAA is revamping adaptation and training on existing and recently fielded enhancements to the TBFM (Time Based Flow Management) system and is working to implement a Terminal Spacing and Sequencing (TSS) to enable higher utilization of RNP procedures at higher volume airports. | |
| Time Needed to Resolve the Issue: | We expect the PBN Implementation Process Order to be effective by April 2014. The "Climb Via/Descend Via" changes will be effective in April 2014. Near term enhancements and training for TBFM will be accomplished by the fall of 2014. Longer term development and deployment of TSS will take several years. | |
| Specific steps to be taken in FY 2014: | FAA concurs that an improved and standardized process for evaluating and prioritizing procedures (regardless of whether it is a new procedure being proposed, or a revision) is vital to managing the development and maintenance of the PBN procedures currently in place. The PBN Policy and Support Group has been working diligently to enhance and update the process over the past years. FAA believes that the required | |

| | | |
|---|---|---|
| | updates are addressed by the adoption of the streamlined “Five Phase Process”, detailed in the PBN Implementation Process Order. The “Five Phase Process” contains the spirit of the proposed RTCA checklists, while making it a more formal requirement throughout the breadth of the process. Key points from the checklists are already standard operating procedure proponents that will be required to identify rationale and benefits for each proposed procedure. The Baseline Analysis Report, required at the completion of the first phase, will provide more detailed expected benefits and potential issues that will be necessary prior to submission to the Regional Airspace Procedures Team (RAPT) and receiving a recommended priority. Finally, the Procedure Tracking Tool (PTT) is being refined and used to maintain project schedules and track status and progression of all procedure development. These items help address the recommendations regarding prioritization. Implementation is expected by April 2014.<br>The FAA is also developing standardized educational material for a national joint pilot/controller training effort. The FAA has completed draft training templates for ATC based on the “Climb Via” and “Descend Via” DCPs for the updated 7110.65 Handbook and has begun developing the pilot training component. Implementation is set for April 2014.<br><br>FAA acknowledges that there have been challenges in TBFM/TMA (Traffic Management Advisor) deployment and adaptation. Many facilities use TBFM/TMA differently, and local adaptations have not always been kept up to date with evolving airspace and procedures. Funds have been obtained and organizational planning is underway for a National TBFM training course, to include training for subject matter experts (SMEs) at Air Route Traffic Control Centers (ARTCCs) and the Air Traffic Control System Command Center (ATCSCC). Efforts are also underway to benchmark TBFM usage and identify best practices and utilization challenges. Expected completion is in the fall of 2015.<br><br>Planned enhancements, including more precise adaptation and scheduling on PBN procedures, extended metering, and Ground-Interval Management-Spacing (GIM-S), will | April 2014 |

| | | |
|---|---|---|
| | further improve the usability and performance of TBFM. The GIM-S and extended metering enhancements are currently planned for Initial Operating Capability (IOC) at Albuquerque Center (ZAB) in September 2014.<br><br>FAA is working to implement Terminal Sequencing and Spacing (TSS), a robust automation tool that supports sequencing and spacing in a mixed equipage terminal airspace environment. TSS is a set of advanced algorithms and visual aids for the terminal controller to support the routine use of PBN procedures. FAA and NASA have formed a team to work on developing the TSS concept and requirements. TSS is expected to reach the Joint Resources Council (JRC) for Final Investment Decision (FID) in December 2014. Once funding is established, earliest key site deployment is notionally scheduled for 2018. | September 2014<br><br>December 2014 |
| Expected Results, this year and in the future: | The implementation/publication of the Houston Metroplex procedures is planned for May 2014. The implementation/publication of the North Texas Metroplex procedures is planned for September 2014.<br>During calendar year 2015, procedures will be implemented for both the Washington Metroplex and the Northern California Metroplex. Several other Metroplex sites will implement in 2016.<br>In 2014, FAA will publish and implement RNAV Standard Instrument Departures (SIDs), RNAV Standard Terminal Arrival Routes (STARs), and RNP Approaches to meet goals outlined in H.R. 658 Sec. 213. FAA will also publish and implement High Altitude RNAV Q-Routes and Low Altitude RNAV T Routes to support transition from ground based infrastructure, to provide connectivity. | |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 2: Identifying and Addressing Root Causes of Problems With NextGen and Setting Investment Priorities** | |
| Issue: | **Implementing an Integrated Master Schedule for NextGen Programs**<br><br>FAA continues to develop an integrated master schedule for NextGen's transformational programs and related efforts. The integrated master schedule is a key tool for FAA and the Department to manage NextGen given the complex interdependencies between new NextGen technologies and existing air traffic systems. |
| **ACTION PLAN** | |
| Cognizant Organization: | NAS Systems Engineering Services ANG-B<br>NAS Lifecycle Integration Office, ANG-D<br>Program Management Organization, AJM-0 |
| Tools to be Used to Resolve the Issue: | NextGen Implementation Plan<br>The FAA publishes the NextGen Implementation Plan annually. Appendix B of the plan, entitled *Delivering NextGen*, contains schedule and programmatic information about the NextGen Segment Implementation Plan (NSIP) Portfolios (referred to in the document as Implementation Portfolios). The FAA is updating the 2014 version of this document to reflect the most recent version of the NSIP including preliminary plans for Segment Bravo through 2020.<br><br>NextGen Segment Implementation Plan (NSIP)<br>The NSIP serves as the Integrated Program Plan for implementation of NextGen capabilities. It describes plans for delivery of operational capabilities across two implementation timeframes – described as Segment Alpha (now through 2015) and Segment Bravo (2016 through 2020). NSIP 2014 (formerly NSIP 6.0) is expected to be ratified by the NextGen Management Board on February 24, 2014. Planned NextGen operational capabilities are described in each of the following NSIP 2014 Portfolios:<br><br>• Collaborative Air Traffic Management<br>• Improved Surface Operations<br>• Time-Based Flow Management<br>• Improved Multiple Runway Operations<br>• Improved Approaches and Low-Visibility Operations<br>• Performance-Based Navigation<br>• On-Demand NAS Information<br>• Separation Management<br>• NAS Infrastructure<br>• Environment and Energy<br>• System Safety Management<br><br>The NSIP schedule is developed relative to technology readiness, developmental bandwidth in key programs, and projected cost and budget availability. The costs are derived from the program investment documents where applicable and postulated cost for |

| | | |
|---|---|---|
| | future investments. As these future investments costs are developed, they are captured in the Enterprise Architecture framework.<br><br><u>NextGen Integrated Master Schedule (IMS)</u><br>The NextGen Integrated Master Schedule is a tool designed to capture and track the progress of key NextGen activities and milestones. The IMS captures program activity toward operational improvements specified in the NSIP. Presently, the IMS includes integrated schedules for activities that support delivery of operational capabilities in the Segment Alpha timeframe (now through 2015) and high level schedules for activities in the Segment Bravo timeframe. Additionally, the IMS captures pre-implementation activities. These activities are designed to mature operational capabilities plan for implementation beyond 2015. The FAA will demonstrate the capability of the IMS to show the linkages and dependencies among the NextGen programs by March 2014. In parallel, we will continue our effort to align the IMS as we update the NSIP; this alignment includes all the implementation activities through 2020.<br><br><u>NSIP Portfolio Management Reviews and Senior Leadership Reporting</u><br>Portfolio Management Review (PfMR) Teams have been established to review and manage the progress of each portfolio on a quarterly basis. The PfMRs serve as a cross agency forum to review each increments, activity and milestones within the portfolio, and document accomplishments, identify challenges and develop and manage mitigation strategies. The information from the PfMRs serves as the basis for cross agency information sharing and reporting to the NextGen Management Board (NMB). Status reports are provided to the NMB quarterly. | |
| Time Needed to Resolve the Issue: | End of Calendar Year 2014.<br>The existing content of the IMS continues to mature to align with the NSIP updates, including initial program plans for Segment Bravo increments. | |
| Specific steps to be taken in FY 2014: | <u>NSIP 2014 (formerly NSIP Version 6.0)</u><br><br>Phase 3: NSIP sections, such as Success Criteria, Portfolio Overview, Increment Descriptions, and Systems Interaction updated as part of the Portfolio Revalidation review.<br><br>Briefed ANG Leadership on the NSIP 2014 content and conducted a virtualization walkthrough.<br><br>Publish NSIP 2014 | Completed December 20, 2013<br><br>Completed February 4, 2014<br><br>Complete by February 28 2014 |
| | <u>NextGen Integrated Master Schedule (IMS)</u><br><br>Briefed IG and conducted IMS demonstration showing Separation | November 6, 2013 |

| | | |
|---|---|---|
| | Management portfolio schedule linkages to ATOP program.<br><br>Developed Draft Concept of Operations (living document)<br><br>Brief IG and conduct IMS demonstration showing portfolio schedules linked to NextGen programs.<br><br>Final Concept of Operations | December 2013<br><br>March 2014<br><br>March 2014 |
| | <u>NSIP Portfolio Management</u><br>Conduct quarterly Portfolio Management Reviews for the NSIP Portfolios, including<br>- Status a review and update of the IMS<br>- Status of key activities<br>- Review of accomplishments<br>- Identification of Challenges and mitigation strategies | 1st QTR FY 14 PfMR<br><br>Plenary session Nov.15, 2013<br><br>2nd QTR FY14 PfMR February 3-11 2014<br><br>3rd QTR FY 14 PfMR Schedule May 2014<br><br>4th QTR FY 14 PfMR Schedule August 2014 |
| | <u>NextGen Management Board (NMB)</u><br>Brief NMB member organizations separately on the NSIP 2014 content and conduct a virtualization walkthrough.<br><br>Review Progress quarterly of key NextGen Initiatives<br><br>Ratify NSIP 2014 | February 10 -17, 2014<br><br>NMB Monthly Status Report<br><br>February 24, 2014 |
| Expected Results, this year and in the future: | <u>CY 2013 - Accomplishments</u><br>The NSIP, the FAA's Integrated Program Plan for implementation activities through 2020, was updated to reflect the current program information. The NSIP update will be included in the 2014 version of the NGIP. The FAA expanded the existing NSIP Portfolio schedules to show dependencies between OI increments and programs. This information provides the basis for the enterprise level IMS for NextGen through 2020. The NSIP 2014 and the IMS in conjunction with the NAS Enterprise Architecture serve as the primary Enterprise Portfolio Management tools to manage the integration of NextGen initiatives | |

| | |
|---|---|
| | CY 2014<br>The existing content of the IMS will be updated to continue to align with the NSIP, including initial plans for Segment Bravo increments. Analysis will also continue to strengthen the relationships between increments within portfolios and across portfolios both for Segment Alpha and Bravo.<br><br>Out years<br>The FAA will use the Portfolio Management framework in the NSIP 2014 to manage NextGen Implementation. Using the Portfolio Management Teams as the subject matter expert community to work the details related to implementation of each OI. These Teams will continue to meet regularly using the IMS as the primary tool to support tracking and early identification of challenges. The teams directly support the Assistant Administrator for NextGen to manage the evolution of the NAS and to ensure the realization of NextGen benefits. |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 2: Identifying and Addressing Root Causes of Problems With NextGen and Setting Investment Priorities** | |
| Issue: | **Mitigating Implementation Risks With Key Automation Systems That Controllers Rely on To Manage Air Traffic**<br><br>Increasing airspace capacity and reducing flight delays depend on the successful implementation of the En Route Automation Modernization program (ERAM)—a $2.4 billion system to replace hardware and software at FAA's facilities that manage high-altitude traffic. FAA originally planned to complete ERAM by the end of 2010. However, software problems have impacted the system's ability to safely manage and separate aircraft and raised questions as to what capabilities ERAM will ultimately deliver. FAA rebaselined the program in 2011, which pushed its expected completion to 2014 and increased cost estimates by $330 million. FAA began to make progress deploying ERAM over the last two years, however, due to FY13 sequestration impacts, the program must now be carried longer than was originally anticipated, with a planned last-site Operational Readiness Date (ORD) date for Q2 FY2015. This created a 7-month delay in the program. FAA has taken steps to get ERAM on track and is using the system on either a full-time or part-time basis at 18 out of 20 planned sites —a significant step forward given the extensive software problems during testing at the two initial sites. Progress at sites has allowed FAA to phase out their legacy air traffic control systems. However, other facilities continue to identify software problems, and FAA will likely encounter these and other issues when it implements ERAM at some of the Nation's busiest facilities. If software problems persist, the program's cost growth could exceed $500 million, and delays could stretch out to 2016. Prolonged delays with ERAM will directly impact the overall cost and pace of NextGen. Without ERAM, the benefits of several other programs, such as a new satellite-based surveillance system and data communications for controllers and pilots, will not be possible.<br><br>The Terminal Automation Modernization/Replacement (TAMR) program involves about $1 billion through 2018 to replace aging displays and processors with a single automation platform that controllers rely on to manage takeoffs, landings and most critical phases of flight. The TAMR Program is modernizing the terminal automation systems in phases as a result of the size and complexity of this modernization effort. Phases I and II were completed in 2004 and 2009, respectively, and Phase III is currently underway. At the time of the program's final investment decision, the Phase III Segment 1 program segment was baselined at a cost of $438M. A gap analysis identified 94 gaps that were prioritized and formed the foundation of the TAMR program requirements baseline. Since establishing the program baseline, additional discovery identified challenges related to system engineering and software requirements, hardware challenges, and overall site implementation needs. Although, the FAA anticipated the need for developing some software and hardware requirements that are critical for successfully replacing the Common Automated Radar Terminal System (CARTS) with the |

| | |
|---|---|
| | Standard Terminal Automation Replacement System (STARS), as the TAMR program transitions to deployment to STARS at the 11 large, complex Terminal Radar Approach Control Facilities (TRACONs), the expectation is that there will be more gaps identified, that could further increase costs. |
| **ACTION PLAN** | |
| Cognizant Organization: | Program Management Office (PMO),<br>Air Traffic Systems Organization (AJM-2) |
| Tools to be Used to Resolve the Issue: | In order to resolve the issues cited in the report, the ERAM program office will employ the following tools:<br>• Improved software quality through institutionalization of enhanced early site test processes.<br>• Proactive Pre-Operational Analysis process for downstream sites.<br>• Continued collaboration with key National Air Traffic Controller Association (NATCA) and Professional Aviation Safety Specialist (PASS) unions.<br>• Strengthened performance incentives and quality controls in the renegotiated prime vendor contract.<br><br>In order to resolve the issues cited in the report, the TAMR program office will employ the following tools:<br>• Continued evaluation of potential requirements through the Engineering Change Proposal Working Group (ECPWG). The ECPWG's role is to ensure a consistent and measured transition from CARTS to STARS at each site.<br>• The ECPWG, working as a collaborative forum between the FAA and its vendor partner to support the thorough and expeditious evaluation, disposition, and implementation of STARS hardware, firmware, and related Commercially Available Software ECPs.<br>• Establishing processes and collaborative forums with users, including but not limited to Air Traffic Controllers, Technical Operations Specialists, Management and Operational Support Facility staff, to identify additional functionality needed for operational suitability and engage stakeholders in regular communications to promote a smooth transition to STARS. |
| Time Needed to Resolve the Issue: | As it relates to the issues cited in the report, the ERAM and TAMR program offices have introduced new processes and personnel to ensure the baselined schedule and budget can be appropriately managed, thereby maintaining the schedule of other programs in varied stages of delivery that rely on integrating with ERAM and TAMR (from early concept development to Joint Resource Council-approved baselines). These activities have been implemented and demonstrated success on ERAM during FY2013 and will be continued throughout both FY2014 and into the remainder of the baseline, with specific dates and deliverables outlined later in this document. |

| | | |
|---|---|---|
| Specific steps to be taken in FY 2014: | The ERAM program achieved a final investment decision for System Enhancements and Technical Refresh (SE/TR) program baseline during Q4 FY2013, which further facilitates capturing and planning for implementation of enhancements. This will help ERAM implementation sites and stakeholders focus on fixes needed to complete the waterfall and defer enhancements to the system into later releases, after all sites are fully operational on ERAM. | Ongoing |
| | Through the implementation of a new schedule waterfall strategy, the program is focused on achieving live air traffic operations on ERAM at the most complex of the remaining sites as early as possible. This will allow the program to facilitate any potential early software discovery at these sites while affording time in the schedule to address these needs, within the parameters of the established cost and schedule baseline. | Ongoing |
| | The ERAM program has assessed potential earlier integration of some software code from other NextGen programs into ERAM to facilitate reduction of the number of concurrent software baselines needed for development and test, ultimately having the potential to reduce specific test and deployment cost elements. | Completed Q1 FY 2014 |
| | The PMO is creating process standards for formally managing requirements changes and TAMR will be building local standard operating procedures | Q3 FY 2014 |

| | | |
|---|---|---|
| | based on those. Software is the responsibility of the Requirements Tiger Team (RTT), which validates proposed changes to the TAMR baseline and translates them into specific contractual requirements as a formal work plan for the contractor. The RTT also ensures that all contract requirements are formally introduced via ECPs to the STARS System and Subsystem Specification | |
| | The TAMR program is establishing processes and collaborative events, known as STARS User Team Event with users, including but not limited to Air Traffic Controllers, Technical Operations Specialists, Management and Operational Support Facility staff, to identify additional functionality needed for operational suitability and engage stakeholders in regular communications to promote a smooth transition to STARS. | Ongoing |
| | In the area of software testing, the TAMR program is also incorporating lessons learned from the ERAM program. The test strategy for TAMR includes a range of structured events with entrance and exit criteria for deploying new software to TRACONs. This includes: a) early user involvement events involving controller system testing prior to government acceptance; b) informal risk mitigation testing involving the program office and vendor prior to software delivery at the William J. Hughes Technical Center test facility; and c) formal operational test and evaluation including software bug fixes, engineering change verification, regression tests, and operational evaluation by users prior to software delivery to the sites. | Q4 FY 2014 |

| | |
|---|---|
| Expected Results, this year and in the future: | Based on the approach outlined above, the ERAM program is expecting to see continued improvements in schedule and cost performance, thus addressing the issues raised in the report. The program has seen a decline in software and technology related issues (such as high reliability and a drastic reduction in discrepancies and trouble tickets from the sites), and is expecting to see more improvements.<br><br>The coordination with NextGen initiatives such as Time-Based Flow Management(Work Package 2 and Work Package 3), Traffic Flow Management System, Automatic DependantSurveillance-Broadcast , and DataComm has been facilitated through PMO portfolio construct (ATS directorate) and best practices, including:<br><br>• The introduction of a capability management function and set of processes focused on integrating plans, activities, and reporting across baselined programs to facilitate achieving desired NextGen outcomes.<br>• An integrated approach to program and portfolio reviews that includes stakeholders from the PMO, NextGen, Operational Requirements organizations and others.<br>• A standard approach to risk, issues, and opportunities management both within and across programs in the Air Traffic Systems and PMO portfolio, to help ensure things be appropriately identified and mitigated (for risks and issues) or leveraged (for opportunities).<br><br>Based on the approach outlined above, the TAMR program is expecting to see improvements in schedule and cost performance, thus addressing the issues raised in the report. In order to mitigate additional potential long-term risks, the Program is undertaking a three-pronged approach:<br><br>• The Program is facilitating a series of planning workshops with multiple stakeholder communities (program office, terminal operations, NATCA, terminal second level, and others as-needed) to develop an updated Estimate to Complete by Q3 FY2014.<br><br>• TAMR expects to establish a new Terminal Automation Systems Enhancement budget line by Q4 FY14 within the Capital Investment Plan to accommodate newly identified enhancements in any of the program segments, and to reimburse funds reallocated from Phase I and Phase III Segment 2 to Phase III Segment1.<br><br>• As part of the forecasted need, there are a series of controls and preventative measures that are in progress to reduce future financial risk. This includes improved 1) requirements and issue disposition, 2) software estimation and forecast and 3) requirements and issues tracking and reporting.<br><br>ERAM's collective approach has helped to resolve early challenges and help align programs to deliver NextGen initiatives with integration |

| | |
|---|---|
| | into ERAM software build processes and collaboration with the user community. Similarly, TAMR program's three-pronged methodology will help lessen current and long term risks related to requirements challenges and help ensure timely integration of this foundational program. |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 2: Identifying and Addressing Root Causes of Problems With NextGen and Setting Investment Priorities** | |
| Issue: | **<u>Further Developing and Implementing Consolidation and Modernization Plans</u>**<br><br>Section 804 of the FAA Modernization and Reform Act requires the FAA to develop a National Facilities Realignment and Consolidation Report to support the transition to NextGen, and to reduce costs without affecting safety. The FAA and Labor Unions established a collaborative workgroup in September 2012 to develop criteria and the process for future realignment decisions. Due to sequestration, the agency was delayed in presenting the workgroup's recommendations to Congress. In December 2013, FAA and Labor leadership presented the process to Congress and secured concurrence on implementing the process over multiple years with a report developed and delivered once per year.<br><br>In January 2014, the agency launched the analysis for the first set of realignment scenarios. The Section 804 workgroup will begin development of its recommendations by the end of FY14. Year 1 analysis will not be completed until the end of calendar year 2014. |
| **ACTION PLAN** | |
| Cognizant Organization: | Air Traffic Organization, Technical Operations |
| Tools to be Used to Resolve the Issue: | The FAA is following a four step process which includes a prioritization model and allows the Agency to review and analyze operational criteria in a pre-decisional, transparent, and defensible manner.<br>The following activities are part of the Section 804 process:<br>• For each potential realignment scenario, the workgroup and potential realignment candidates meet in a multi-day working session with management and Labor from the candidate facilities to understand the process and to begin to evaluate each potential transfer and receiver pairing.<br>• During the working session, the Section 804 workgroup begins to capture operational requirements and potential benefits in discussion with management and Labor from candidate facilities.<br>• The working session is followed by a visit by a sub-group from the Section 804 workgroup to the potential transfer and receiver candidates' facilities to capture and validate quantitative data with facility management and Labor.<br>• Data captured during the working session and during the facility visits is provided to a business case team to develop fully fleshed-out scenarios with cost, benefits, and risk |
| Time Needed to Resolve the Issue: | The workgroup plans to evaluate the first year realignment scenarios. The workgroup plans to develop its recommendations on the scenarios and deliver a report capturing its recommendations to the FAA Administrator (and, subsequently, to Congress). After public notice, Congress may act on the report. Currently, for any realignments, notification to employees is required at least one year prior to any changes. The FAA plans to submit a report with recommendations annually to Congress over multiple years. |

| | | |
|---|---|---|
| Specific steps to be taken in FY 2014: | Launch Section 804 analysis of realignment scenarios<br><br>Preliminary findings to ATO Senior Officers Group | January 2014<br><br>September 2014 |
| Expected Results, this year and in the future: | This year the Agency plans to conduct the Section 804 analysis from a list of 20-30 terminal facilities. Each subsequent year, the Agency plans to do the same until all terminal facilities have been evaluated. | |

| MANAGEMENT CHALLENGE | | |
|---|---|---|
| **Chapter 2: Identifying and Addressing Root Causes of Problems With NextGen and Setting Investment Priorities** | | |
| Issue: | **Safely Integrating Unmanned Aircraft Systems in the NAS**<br><br>FAA predicts there will be roughly 7,500 small commercial UAS in 5 years, with the aerospace industry making significant investments in UAS technology over the next 10 years. Integrating UAS in domestic US airspace will impact several FAA lines of business and offices, including Aviation Safety, Airspace Services and NextGen.<br><br>Prior to integration, FAA must resolve a number of UAS-specific safety-related issues. While UAS capabilities have improved, there are significant integration-related questions that must be answered through research and development. The FAA's UAS research program is targeted at those specific integration-related issues, such as detect and avoid, and command and control. The FAA's research program is aligned with partner agencies' research efforts, such as NASA.<br><br>While the expanded use of UAS presents great opportunities, it also presents significant challenges as unmanned aircraft are inherently different from manned aircraft. The FAA will meet the challenge of UAS integration as we did the challenge of jet powered aircraft. UAS integration will be incremental. As the NextGen systems come on-line in the National Airspace System (NAS), higher and higher levels of UAS integration will be possible. The NAS is constantly evolving and changing and with those changes aircraft will also evolve, allowing even greater integration and utilization. | |
| **ACTION PLAN** | | |
| Cognizant Organization: | Aviation Safety, Flight Standards Service, UAS Integration Office | |
| Tools to be Used to Resolve the Issue: | FAA-approved UAS Research and Development portfolio with requirements that address critical integration issues; Data received from UAS Test Site Operations; Activities supporting small UAS expansion in the Arctic | |
| Time Needed to Resolve the Issue: | It is expected that integration will be incremental and will begin in 2015. Prior to 2015, UAS operators may obtain authority to fly UAS in the NAS by applying for a Certificate of Waiver or Authorization (COA) (for public use aircraft) or by obtaining a Special Airworthiness Certificate (for experimental use/research and development of unmanned aircraft systems). | |
| Specific steps to be taken in FY 2014: | **Activities**<br><br>Yearly Revision of UAS Roadmap | **Milestones**<br><br>Ongoing |

| | | |
|---|---|---|
| | Execution of research activities as defined by the UAS Integration Office | Ongoing |
| | Test Site Stand-Up | June 2014 |
| | Small UAS Arctic Expansion Demonstration Flights | Summer 2014 |
| Expected Results, this year and in the future: | The first edition of the UAS Roadmap published on November 7, 2013 provides initial necessary stakeholder guidance for the path to UAS integration. The Roadmap will continue to be updated and published annually. It will include lessons learned and progress and accomplishments from the previous year.<br><br>By 2015, we expect to begin incremental integration for small UAS into the NAS. We also expect to have a higher level of integration of public (governmental) UAS enabled by technological advances, including ground-based detect and avoid systems. | |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 6: Managing Acquisition and Contracts to Achieve Results and Save Taxpayer Dollars** | |
| Issue: | **Ensuring Taxpayer Dollars are Invested and Administered Wisely on Major Contracts**<br><br>Air Traffic Control Optimum Training Solution (ATCOTS)<br><br>In 2010, we made several recommendations to improve the Federal Aviation Administration's (FAA) management of its ATCOTS contract, which was awarded in 2008 to provide controller training support, reduce total training time and costs, and develop training innovations. Despite FAA's efforts to address recommendations from our 2010 report, we continue to identify weaknesses in program and contract management. Notably, FAA did not identify training needs, as we recommended, before exercising an option to continue the contract even though it experienced $89 million in cost overruns for the first 4 years. While FAA reduced the number of contractor instructors by 44 percent to prevent future cost overruns, this required FAA to perform more internal training—a cost FAA has not quantified.<br><br>In addition, FAA was unable to achieve key contract goals to reduce controller training times or produce sufficient training innovations, as the average time to certify controllers increased by 41 percent from fiscal year 2009 through fiscal year 2012. Finally, FAA did not effectively use cost incentives to control contract spending for the first 4 years, and award fees were not linked to the achievement of contract goals. We plan to issue our report by January 2014. |
| **ACTION PLAN** | |
| Cognizant Organization(s): | Air Traffic Organization (ATO): Safety and Technical Training (AJI) and Acquisition and Contracting (AAQ) |
| Tools to be Used to Resolve the Issue: | • When a Performance Based Service Contract (PBSC) is administrated as a labor hour method, problems are easily identified in contract oversight procedures allowing discrepancy findings and reporting that indicates contract needs improvements<br><br>• All FAA ATC training services are IAW FAA Order 3120.4. *The Federal Aviation Administration 10-YearStrategy for the Air Traffic Control Workforce 2008 – 2017* (Controller Workforce Plan) provides the annual FAA forecasts of its Controller Workforce population.<br><br>• The foundation for the PBSC is the ATCOTS' performance work statement (PWS). The PWS consists of specifications and other portions of the contract that describes the required delivery of ATC training services by the service provider. The PWS specifies the means by which the performance |

| | | |
|---|---|---|
| | objectives are to be achieved.<br>• The Acceptable Performance Levels and associated performance measures identified in the *Performance Requirements Summary* (PRS), established the scope of ATC training mission outcomes and measurements to be monitored and assessed against metrics.<br>• The FAA provides the service provider with a monthly Work Plan depicting the forecast of the AT Controller population, schedule of qualification, proficiency and development training services required for the next twelve (12) months. The Work Plan describes the PBSC effort in terms of measurable performance standards (outputs) with the number and types of students, location of training, and when students need to be trained.<br>• Use the Field Planning Tool (FPT) Workbooks which provide the Field Monthly training requirements as a supplemental tool in developing the Work Plan.<br>• The Monthly updates to the Work Plan will provide a forecast of AT Controller schedule of qualification, proficiency and development training services at the Academy and within the Field.<br>• Acquisition Management System (AMS) which establishes agency-wide policy and guidance for all areas of lifecycle acquisition management. | |
| Time Needed to Resolve the Issue: | The steps taken in FY14 will put in place the mechanisms and procedures to better manage the ATCOTS contract while executing a competitive RFP to select the best options to continue to delivery and modernize ATC training delivery. | |
| Specific steps to be Taken in FY 2014: | The FAA certified Quality Reliability Offers, within the FAA Acquisition and Contracting organization, will continue to conduct site audits of the Contractor's performance on an average of twice per month to verify accuracy of Contractor performance and overall compliance with the contract requirements. | |
| | Monthly meetings between executives and staff in the office of Acquisitions and the Air Traffic Organization under Safety and Technical Training office | |
| | Explore early replacement or revision of the current ATCOTS contract, under the governance | a. Issue market survey/Request for Information (November 2013)<br>b. Assign an Acquisition |

| | | |
|---|---|---|
| | of the FAA's Joint Resources Council (JRC) investment management process. | Category (ACAT) level to the ATCOTS follow-on contract (February 2014)<br>c. Determine whether to issue a solicitation for a new controller training contract (March 2014)<br>d. Award new contract, if decision is made to do so, or complete revision of the existing contract (tentatively Dec 2014) |
| Expected Results - This Year and in the Future: | • Improved contract oversight to ensure cost effective delivery of results<br>• Begin the process of executing a competitive RFP. | |

| MANAGEMENT CHALLENGE | |
|---|---|
| **Chapter 7: Building a Secure and Modern Information Technology Infrastructure** | |
| Issue: | **Protecting Sensitive Information**<br><br>Personally Identifiable Information (PII) data in the FAA's Civil Aviation Registry, was not encrypted or adequately protected from compromise through strong authentication techniques. Also, numerous configuration deficiencies in the system's software rendered the Registry vulnerable to attacks and unauthorized access.<br><br>FAA states that it will implement upgrades to correct the software vulnerabilities and establish data encryption by the end of 2013. OST plans to complete actions to secure the COE by the end of fiscal year 2014. |
| **ACTION PLAN** | |
| Cognizant Organization: | Aviation Safety's Flight Standards Service's Civil Aviation Registry Directorate and FAA Information Technology's Solution Delivery Services |
| Tools to be Used to Resolve the Issue: | Encryption is currently not feasible due to technical limitations within the mainframe database space allocation for the Registry System (RMS 1.0). A system replacement is under development. The RMS 2.0 upgrade will include the development of new imaging software and migration from mainframe to Windows Sever 2008 operating system and Structured Query Language (SQL) 2008 database. Encryption of the PII data will be accomplished through implementation of Transparent Data Encryption on the SQL 2008 database during FY 2014. The RMS 2.0 upgrade utilizes the traditional server infrastructure to facilitate the data-at-rest encryption requirement.<br><br>For the imaging software of the RMS system, the FAA implemented strong access controls utilizing the UNISYS proprietary format for the image files (Tagged Image File Format). The image files can only be viewed using the UNISYS proprietary software. The image files are stored in a file directory structure which is located on a separate network/domain. Access to this separate network/domain is limited to authorized user IDs. In addition, the image file names have no indicators to allow for association to an airman or aircraft.<br><br>Additionally, a cross-site scripting vulnerability for the web servers was identified during the FY13 security assessment. This vulnerability enables attackers to inject client-side script into Web pages viewed by other users. In accordance with DOT Privacy Policy the FAA is utilizing current access controls to ensure protection of PII and remediate the risks associated with cross-site scripting. |
| Time Needed to Resolve the Issue: | The implementation of Transparent Data Encryption at the database level is scheduled for August 29, 2014.<br><br>RMS 2.0 is currently scheduled for an FY 2015 implementation. |

| | | |
|---|---|---|
| Specific steps to be taken in FY 2014: | Planning and development work in preparation for the transition from mainframe to Windows Server 2008 will be ongoing for most of FY14.<br><br>Implementation of Transparent Data Encryption on SQL Server 2008 database. | Ongoing<br><br>August 29, 2014 |
| Expected Results, this year and in the future: | For FY 2014 PII data encryption will be implemented through the use of Transparent Data Encryption on the SQL Server database. Vulnerabilities related to cross-site scripting will be remediated through implemented access controls as required by the DOT Privacy Policy.<br><br>In FY 2015, the mainframe component of the Registry system will be phased out with the transition of the Registry applications to a non-mainframe based solution. This includes the upgrades of the operating systems hosting the imaging component within RMS to Windows Server 2008 operating system and SQL 2008 database. | |