Chapter 1: Ensuring the Next Generation Air Transportation System Advances Safety and Air Travel

Issue 1A:	**<u>Realizing benefits from NextGen capabilities at congested airports in the near term</u>** In response to recommendations from the 2009 RTCA NextGen Mid-Term Implementation Task Force, the FAA undertook an effort to pursue advances at the most congested "metroplexes" – large metropolitan areas served by multiple airports, sharing the same congested airspace – that could be implemented within a few years. The Task Force recommended that the FAA implement airspace redesign and Performance Based Navigation (PBN) procedures which could be achieved quickly, without the need for extensive environmental review and without requiring costly new equipage. The FAA thus began in 2010 the Optimization of Airspace and Procedures in the Metroplex program, (OAPM). The idea behind OAPM is that while the FAA continues to pursue cutting-edge NextGen solutions, these OAPM improvements could be made quickly and with more immediate benefits. The Office of the Inspector General (OIG) states that there is concern among stakeholders that OAPM may be late, and may not deliver all desired benefits, "since FAA has focused on limited airspace and procedure improvements rather than maximizing new technologies and advanced procedures." FAA does not agree with OIG's assessment of benefits since the original purpose of the RTCA recommendations was to redesign navigation procedures without an extensive process or need for equipage.

<div align="center">ACTION PLAN</div>

Cognizant Organization(s):	Advanced Concepts & Technology Development, ANG-C Airspace Services, AJV-1
Tools to be Used to Resolve the Issue:	In accordance with the RTCA Task Force recommendations, FAA is focusing on Area Navigation (RNAV) procedures in order to provide the greatest benefit to the greatest number of aircraft utilizing a particular metroplex. Nearly all commercial aircraft are RNAV equipped. The FAA is also helping metropexes design Required Navigation Performance (RNP) procedures in locations where they can benefit a significant number of aircraft, such as Houston and North Texas. The idea behind OAPM is to effect a comprehensive, safe, and efficient redesign of the airspace at each metroplex in which a majority of aircraft can participate. FAA understands that operators of RNP-equipped aircraft would like to have more procedures in more locations, but these advanced procedures only benefit those aircraft properly equipped, less than half of the current aircraft in US airspace. Since extra time is needed to design advanced procedures in a mixed-equippage environment, FAA is concentrating on those procedures deliver the most benefits to a particular metroplex. FAA continues to work to promote more widespread equipage with advanced RNP avionics by continuing to develop and publish RNP procedures across the NAS. As equipage is widely adopted, RNP procedures will drive more of the metroplex operations. The FAA has addressed the issue of potential schedule slippage, After having gained some experience with the process, the FAA undertook a re-examination of its initial aggressive timeline. The multi-stakeholder, cross-functional nature of the OAPM teams involves experts from the FAA, industry and local facilities all working together to identify existing problems and develop comprehensive solutions. This approach has been used in the past, but never on this scale. The FAA determined that some extension of the original schedule was necessary due to resource constraints. Given the scope of the

	OAPM program, there were simply not enough subject matter experts available to meet the original schedule. The FAA feels confident that the new schedule is achievable and will implement new procedures at three metroplexes in FY14, three metroplexes in FY15, four metroplexes in FY16, and three metroplexes in FY17. This schedule with its significant milestones and initial numbers of proposed procedures per Metroplex team is made available publicly at the following website: http://www.faa.gov/nextgen/implementation/pbn_initiatives/media/OAPM.pdf
Time Needed to Resolve the Issue:	The OAPM program is on track to meet the RTCA recommendations. Nine of thirteen metroplex areas are in various phases of development. One site has begun the implementation phase, five of these have completed the design phase, and are in the evaluation phase. One site is in the design phase and one site is in the study phase. Houston has begun the implementation phase and is on schedule to complete it by the end of 2013. Washington, DC and North Texas are on track to begin implementation in 2013 with completion set for 2014. Completion of all Metroplexes by the end of 2017 as planned is dependent on the availability of needed staffing and funding, both of which may be impacted by sequestration and the continuing resolution.

Specific steps to be taken in FY 2013:	The OAPM team provides quarterly status reports to the FAA's Air Traffic Organization and to the Office of the Assistant Administrator for NextGen. These reports include a progress review and projected/actual risks for each of the Metroplexes. Where there are risks, mitigation plans are included.	Quarterly

Expected Results, this year and in the future:	**CY 2013** By the end of calendar year 2013, three metroplexes will have completed evaluation work and be in the implementation phase—Houston, Washington, DC and North Texas. Four sites will complete design work and be in the evaluation phase—Charlotte, Atlanta, Northern California, and Southern California. South/Central Florida and Phoenix will complete the study phase and be in the design phase. One additional site of the four remaining metroplexes is scheduled to begin its study phase in 2013 unless delayed by the effects of sequester or continuing resolution. **Out years** The target objective is to have all 13 metroplexes implemented by the end of calendar year 2017.

MANAGEMENT CHALLENGE

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Issue: 1B	**Mitigating risks that delays with the En Route Automation Modernization Program pose to critical NextGen initiatives** Increasing airspace capacity and reducing flight delays depend on the successful implementation of the En Route Automation Modernization program (ERAM)—a $2.1 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 is taking steps to get ERAM on track and is using the system on a full-time basis at several sites—a significant step forward given the extensive software problems during testing at the two initial sites. Recent progress at those two 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.

ACTION PLAN	
Cognizant Organization:	Air Traffic Organization (ATO): Program Management Office (PMO) 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 program office will employ the following tools: • System architecture reviews for a) Common Mode Failure or similar issues and b) sustainment of the ERAM Back-Up System (EBUS). • Improved software quality through institutionalization of enhanced early site test processes. • Proactive Pre-Operational Analysis process for downstream sites. • Continued collaboration with key National Air Traffic Controller Association (NATCA) and Professional Aviation Safety Specialist (PASS) unions. • Strengthened performance incentives and quality controls in the renegotiated prime vendor contract.
Time Needed to Resolve the Issue:	As it relates to the issues cited in the report, the program office has 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 (from early concept development to JRC-approved baselines). The activities that will be undertaken to resolve the issues identified in the report will be implemented throughout both FY2013 and into the remainder of the baseline, with specific dates and deliverables outlined later in this document.

Specific steps to be taken in FY 2013:	**System architecture reviews for a) Common Mode Failure or similar issues and b) sustainment of the ERAM Back-Up System (EBUS).** Begun in 2012, the program office has implemented a deep-dive architecture review of the system. This work focuses on areas of system stability, reliability, and interoperability with other NextGen systems. To date, the program office has collected a range of data that more closely examines the performance of ERAM's core systems and sub-system. Preliminary analysis indicates significant improvements realized by software enhancements deployed to date. Recommendations will be developed and implemented as-needed based on recommendations of program leadership and availability of resources within the program baseline. Deliverables will include: - An action plan with suggested implementation milestones for each of the reviews listed above.	June 30, 2013
	Improved software quality through institutionalization of enhanced early site test processes. The program office will continue to apply its processes and standards for packaging and deploying builds using a collaboratively managed process between the program office, second level engineering, the National Air Traffic Controller's Association (NATCA), and site teams) to deploy software. This process ensures upstream planning over 3 months in advance of software test dates ensure the necessary plans, resources, and sites are aligned to ensure robust verification and validation of software in 'like-operational' conditions. Deliverables will include: - Updated (as-needed) standard operating procedures for build content recommendation, approval, and site test protocols	September 30, 2013
	Proactive Pre-Operational Analysis process for downstream sites. In late 2012, the program office decided to initiate recurring Pre-Operational review meetings with the sites that have not yet to go operational on ERAM. This process is typical of any site that is planning to transition to ERAM-based operations, however to start it so far in advance is not. This early start is aimed at better understanding any potential new, specific downstream needs and proactively addressing them. This 'early discovery' phase is accompanied by a recurring governance process for managing the program's software bandwidth so that the appropriate balance can be maintained. Deliverables will include:	(ongoing)

	- Site-specific Pre-Ops NAR requirement worksheets. - Monthly National Packaging Team (NPT) and Article 48/13 status updates	Available monthly, delivered September 30, 2013
	Continued collaboration with key National Air Traffic Controller Association (NATCA) and Professional Aviation Safety Specialist (PASS) unions The ERAM program has developed a standing work group within the construct of the contract between the FAA and NATCA, as well as PASS, to collaborate on program strategy, software content, site implementation needs, and a range of other activities. This improves transparency and communication for developing buy-in to the program, and has enhanced the ability of the program to successfully achieve key programmatic milestones. Deliverables include: - Meeting minutes from the conduct of Article 48/13 work group meetings.	(ongoing)
	Strengthening performance incentives and quality controls in the renegotiated prime vendor contract The ERAM program has renegotiated the ERAM contract with the prime vendor for FY12 effort and beyond. This renegotiation, which included a reexamination of multiple components including: • Contractor incentive structure(s), • Relationship between software milestones and the triggering of those incentive(s), and • Agency controls to strengthen processes around software acceptance. Deliverables of this work include: - Renegotiated, activated contract.	(application in 2013 ongoing based on renegotiated contract from 2012)
Expected Results, this year and in the future:	Based on the approach outlined above, the ERAM program is expecting to see improvements in schedule and cost performance, thus addressing the issues raised in the report. The program should also see a decline in software/technology related issues given the strengthened controls and end-user involvement throughout the system development lifecycle. In the future, these improvements will also minimize risk of any negative impact on NextGen.	

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Issue: 1C	**Making decisions on facility consolidation and modernization**
	FAA has not made key decisions on the number and locations of air traffic facilities needed to support NextGen or on the level of automation that can be realistically and safely achieved to manage traffic. In November 2011, FAA formalized an initial plan for consolidating en route centers and Terminal Radar Approach Control facilities (TRACON) into large, integrated facilities in six geographic segments across the country. Since then, the Agency has focused on plans in the New York area but has delayed a final decision until May 2013 on where to build the integrated facility. Ultimately, successfully implementing FAA's plans will require the Agency to address challenges with cost estimates, funding sources, and workforce issues. Consolidation will likely be a long-term challenge for FAA, as its NextGen modernization plans were based on the traditional facility set-up of en route centers and TRACONs—not integrated facilities. Integrating facilities will also require cost and schedule changes to modernization programs that already have established baselines. The Terminal Automation Modernization and Replacement program alone involves about $1 billion through 2018 to replace aging displays and processors that controllers rely on to manage takeoffs and landings, the most critical phases of flight. FAA recently approved plans to begin transitioning to a new terminal automation system at 11 large TRACON facilities through 2017. However, the Agency has yet to determine whether its consolidation efforts will impact these facilities."
ACTION PLAN	
Cognizant Organization:	FAA – Air Traffic Organization (ATO), Technical Operations (AJW-0) Air Traffic Control Facilities (AJW-2)
Tools to be Used to Resolve the Issue:	The Agency plans to resolve the issue by developing and implementing comprehensive plans for facility consolidations, service realignment, and modernization. To address the challenge in the Northeast, the FAA is planning to integrate NY TRACON (N90) and NY Center (ZNY) into a new facility – the New York Integrated Control Facility (NY ICF). In the near-term, the FAA is defining requirements and developing cost estimates, and ensuring full coordination between the NY ICF, the NY/NJ/PHL Airspace Redesign, and the NextGen modernization efforts. To develop a long-term plan for air traffic facilities, the FAA established a Collaborative Workgroup in September 2012. The workgroup is reviewing the Agency's modernization plans (e.g. modernization programs that already have established baselines, such as Terminal Automation Modernization and Replacement) and guiding the FAA's plans to realign air traffic facilities and services. The Agency is planning to present a process document to Congress in the spring of 2013.
Time Needed to Resolve the Issue:	The NY ICF is a multi-year effort with a complex project plan, which is contingent upon funding levels. FY14 passback reduction from $92.5M to $10M has created a delay in building, and PME acquisition. Land acquisition for the NY ICF is currently planned for 2015, construction award is planned for 2017, and initial operations will begin in 2021. As a separate effort, the FAA's Collaborative Workgroup plans to evaluate 20 to 30 Terminal facilities annually for potential realignments, and present its analysis and recommendations to FAA and Labor leadership. Additional time

	will be required to implement recommendations, and ensure full facility, service, and staff transitions.	
Specific steps to be taken in FY 2013:	In regard to the NY ICF, a land Request for Information (RFI) for properties in NY State will be issued in December 2012 and closed in January 2013.	December 2012 – January 2013
	The FAA plans to evaluate the offers received, including no-cost sites. The FAA plans to explore the possibility of public-public/public-private partnerships in late FY2013.	February 2013 – FY14
	The FAA will continue developing cost estimates for building construction, equipment, salary, relocation expenses, and training associated with the transition to the NY ICF. The development of these cost estimates is on track, with the understanding that the estimates will continue to evolve based on program risks, stakeholder involvement, and other factors.	Ongoing
	FAA's Collaborative Workgroup The FAA leadership plans to brief Congress on Collaborative Workgroup progress and activities in the spring of 2013. Once approved, the FAA will begin implementing the plan in accordance with the process developed by the workgroup. The workgroup plans to initiate its work in FY13 and complete evaluation of the first set of realignment scenarios by the end of FY14.	Late FY13 – Early FY14
Expected Results, this year and in the future:	In regard to the NY ICF, the FAA is evaluating the results of the land RFI and plans to complete this evaluation by FY14. The construction award for the NY ICF is tentatively planned for 2017. These expected results are pending funding levels and potential impacts from FAA sequestration impacts.

The FAA is planning to present the Collaborative Workgroup's recommendations to Congress in the spring of 2013. Once briefed, the FAA plans to proceed with development of operational and financial information to support its long-term facility realignment and consolidation planning efforts. Delivery of expected results from the Collaborative Workgroup's process may be curtailed due to sequestration. | |

MANAGEMENT CHALLENGE	
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Issue 1D:	**Completing an integrated master schedule for NextGen transformational programs** The FAA has not yet developed an Integrated Master Schedule for implementing NextGen transformational programs, or established total program costs, schedules or performance baselines. Decision makers in Congress and the Department lack sufficient information to assess progress as requirements evolve. Without a master schedule the FAA will continue to be challenged to assess progress with NextGen efforts, establish priorities, and make necessary trade-offs between programs.
ACTION PLAN	
Cognizant Organization:	NAS Lifecycle Integration Office, ANG-D, and NAS Systems Engineering Services ANG-B
Tools to be Used to Resolve the Issue:	**NextGen Implementation Plan** 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 2012 version of this document to reflect the most recent version of the NSIP including preliminary plans for Segment Bravo through 2020. **NextGen Segment Implementation Plan (NSIP)** 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). Version 5.0 of the NSIP was ratified by the NextGen Management Board on December 3, 2012. Planned NextGen operational capabilities are described in each of the following NSIP 5.0 Portfolios: *Collaborative Air Traffic Management* *Improved Surface Operations* *Time-Based Flow Management* *Improved Multiple Runway Operations* *Improved Approaches and Low-Visibility Operations* *Performance-Based Navigation* *On-Demand NAS Information* *Separation Management* *NAS Infrastructure* *Environment and Energy* *System Safety Management* *Policy* 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. **NextGen Integrated Master Schedule (IMS)** 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

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<tr><td colspan="3">the Segment Bravo timeframe., Additionally, the IMS captures pre-implementation activities. These activities are designed to mature operational capabilities plan for implementation beyond 2015. Costs from program baselines and/or project level agreements and associated multi-year plans are available in the IMS. A more detailed and integrated schedule that encompass segments Alpha and Bravo is expected to be drafted by December 2013.

NSIP Portfolio Management Reviews and Senior Leadership Reporting
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.</td></tr>
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Time Needed to Resolve the Issue:	**End of Calendar Year 2013** 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 2013:	**NSIP Version 5.0, Final** Updated the NSIP content to include operational improvements (OI), increments and schedule information for implementation activities through 2020. **NSIP Version 6.0** Will serve as an updated version to NSIP 5.0 to include the OI, increments, operational sustainments and schedule information for implementation activities through 2020. Integrate NSIP Version 6.0 reviews into the annual NAS EA Roadmap reviews: Phase 1: Operational portion of NSIP updated and approved as part of Service roadmap review. Phase 2: Technical portion of NSIP updated and approved as part of the infrastructure roadmap review.	Complete by December 2012 Complete by May 2013 Complete by August 2013
	NextGen Integrated Master Schedule (IMS) Update the IMS to continue to align with the NSIP updates, including initial program plans in Segment Bravo increments and key milestones for the related programs. Populate IMS with Segment Alpha Increment Schedules and Dependency Information. Populate IMS with Segment Bravo Increment Schedules and Dependency Information.	 Complete by April 2013 Complete by September 2013
	NSIP Portfolio Management Conduct quarterly Portfolio Management Reviews for the NSIP Portfolios, including - Status a review and update of the IMS - Status of key activities	*1st QTR FY13*- PfMR Oct - Dec 2012

	- Review of accomplishments - Identification of Challenges and mitigation strategies	*2nd QTR*-FY13 PfMR Jan – Mar 2013 *3rd QTR PfMR* FY13 PfMR Schedule Apr – Jun 2013 *4th QTR FY13* PfMR Schedule Jul – Sep 2013
	NextGen Management Board Approve NSIP 5.0	Complete by December 2012
	Review progress quarterly of key NextGen initiatives	NextGen Management Board (NMB) Monthly Status Report.
	Approve NSIP 6.0 Brief NMB on the overall strategy for updating and virtualizing NSIP content in FY13 and synching NSIP updates to the NAS EA roadmaps.	NMB Approval on revised NSIP update approach April 2013. NSIP 6.0 virtualized (initial draft), September 30, 2013.
Expected Results, this year and in the future:	**CY 2012 - Accomplishments** 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 2013 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 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 2013** 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. The IMS will be the common product used in the PfMRs and in the program offices to track progress of related initiatives. **Out years** The FAA will use the Enterprise Portfolio Management framework in the NSIP 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.	

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Issue 1E:	**Achieving expected outcomes from reorganization to improve NextGen management**
	Many of FAA's difficulties with implementing NextGen stem from underlying management challenges, such as assigning responsibility, accountability, and authority. In 2011, FAA commissioned an internal study to examine how the Agency's internal structure, processes, and management culture could be improved to support NextGen. Based on the study's recommendations, FAA announced a major reorganization in 2011 to better position NextGen for success. FAA elevated the former NextGen office—creating an Assistant Administrator for NextGen who reports directly to the FAA Deputy Administrator—and established a new Program Management Office. This new office will also work to bridge the gap between strategic requirements and program implementation. FAA is still in the early stages of this reorganization, and work remains to establish best practices and institutionalize changes.
	Background
	In 2011, the FAA conducted an assessment of the NextGen Organization reviewing its location and role within the Agency. The study revealed that improving internal structures and operating models were essential next steps to ensure the successful implementation of NextGen into the National Airspace System (NAS). The FAA identified several deficiencies in NextGen activities to effectively transform the NAS. The FAA lacked:
	• An enterprise level perspective which posed difficulty introducing changes into the NAS
	• Senior executive accountability and authority to assess enterprise level requirements and recommend programmatic changes consistent with the NextGen Plans.
	• A shared sense of urgency/priority for NextGen implementation
	It was concluded that the FAA would not be positioned to meet the demands of transforming the National Airspace System (NAS) without a structured, coordinated, and collaborative process to enable NextGen activities.
	The FAA executed a number of actions to meet the challenges above, specifically:
	• Established an FAA NextGen staff office (via an appropriations reprogramming of the ATO NextGen Office) to report directly to the FAA's Deputy Administrator
	• Created a centralized organization (NAS Lifecycle Integration Directorate) in the NextGen Office
	• Improved the concept-to-program framework called "Ideas to In-Service" to include program management best practices, enhanced transparency, and defined decision points to elevate information for senior level decisions.
	• Establish a Program Management Office (PMO) in the Air Traffic Organization which provides program management capability for acquisition planning, management and deployments to provide more efficiency in the implementation of NextGen capabilities, and the sustainment of legacy systems in the NAS

ACTION PLAN	
Cognizant Organization:	NextGen Organization Air Traffic Organization

Tools to be Used to Resolve the Issue:	• FAA Acquisition Management System (updated to include "Ideas 2 In-Service" (i2i) framework) • NextGen Implementation Plan • NextGen Segment Implementation Plan (NSIP) • NSIP Integrated Master Schedule (IMS) • NSIP Portfolio Management Review Teams • NextGen Management Board Quarterly Reports (NSIP Progress) • NextGen Performance Snapshots	
Time Needed to Resolve the Issue:	End of Calendar Year 2013	
Specific steps to be taken in FY 2013	**ATO: Program Management Office (PMO)** • Develop a PMO Charter • Develop a PMO Strategic Plan	4th Qtr. 2013
	NMB Approval of NSIP 6.0 • Define workplans for future NSIP segments and create cross-organizational capture teams required to complete the work.	Sept 2013
	• Institutionalize the"i2i" process framework by developing supporting documentation, to include process improvements in the FAA Acquisition Management System (AMS) • The PMO will conduct regular program reviews	April 2013
	• The NAS Lifecycle Integration Office will host quarterly Portfolio Reviews • NMB Reporting of NSIP progress	Sept 2013
	• The NextGen Performance Snapshots (NPS) website provides a rear-view mirror look at NextGen progress	3rd Qtr. 2013
Expected Results, this year and in the future:	**CY2013** • The "Ideas to In-Service" framework will be incorporated into the AMS and become standard practice for all related FAA activities • Program reviews will provide more information to the FAA stakeholder about program level progress, accomplishments and risk • Portfolio level reviews will provide regular assessments and senior level reporting of each of the NSIP portfolios • Subject matter expert teams, called "Capture Teams," will develop detailed work plans for development of future NextGen capabilities	

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Issue: 1F	**<u>Integrating Unmanned Aircraft Systems in the National Airspace System</u>** The application of Unmanned Aircraft Systems (UAS) in the United States for research, law enforcement, private sector, and State government needs continues to grow. FAA predicts there will be roughly 10,000 active commercial UAS in 5 years, with industry investing over $89.1 billion in UAS technology over the next 10 years. The FAA Modernization and Reform Act of 2012 (FMRA) requires the Secretary of Transportation to develop a comprehensive plan that will safely and fully integrate UAS into the NAS no later than September 30, 2015. The FMRA also requires FAA to establish a program to integrate UAS into the NAS at six test ranges by late summer 2012. The selection for these test sites was scheduled to begin in July 2012, but there have been delays due to privacy concerns. The FAA has charted a path forward and the selection process commenced on February 14. It is anticipated that the test site selection process will conclude by the end of 2013. In addition, the FAA and DOT are currently coordinating language for the small UAS Notice of Proposed Rulemaking (NPRM) which is targeted for release later this year. 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 sense and avoid, and is aligned with partner agency (NASA) research efforts. While the expanded use of UAS presents great opportunities, it also presents significant challenges (safety, privacy) as unmanned aircraft are inherently different from manned aircraft. The impact of integrating UAS is similar to the integration of jet powered aircraft that occurred during the 1950's and 1960's. The FAA will meet the challenge of UAS as we did the challenge of jet powered aircraft. It is important to note that the integration of UAS is not a destination but a continuous journey. 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; Comments gathered in support of the Small UAS Notice of Proposed Rulemaking (NPRM).
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 2013:	**Activities**	**Milestones**
	Publication of UAS Roadmap	February 14, 2013
	Execution of research activities as defined by the UAS Integration Office	Ongoing
	Commencement of the six UAS Test Site selection process	February 2013
	Actual selection of the six UAS Test Sites	September 2013
	Initial flight testing activities in support the expansion of small UAS in the Arctic	Summer 2013
	Release of the small UAS Notice of Public Rulemaking	Summer 2013
Expected Results, this year and in the future:	It is expected that the release of the first edition of the UAS Roadmap will provide (initial) necessary stakeholder guidance for the path to UAS integration. The Roadmap will be updated and published annually, and will include lessons learned, progress and accomplishments from the previous year. It is also expected that the Notice of Proposed Rulemaking for the small UAS rule will be released in 2013, which will start the external rulemaking process for small UAS. By 2015, we expect to have achieved a high level of integration for small UAS with the completion of the Small UAS rulemaking project as well as a much higher level of integration of military and other federal large unmanned aircraft operations enabled by technological advances in the area of ground-based sense and avoid systems.	

Chapter 2: Enhancing FAA's Oversight and Use of Data To Identify and Mitigate Safety Risks

Issue: 2A	**<u>Identifying trends in operational errors and determining their root causes</u>**
	The FAA must make better use of data on operational errors to investigate incidents, identify trends and mitigate their risks.
	To identify root causes of safety problems and mitigate their risk, the FAA needs to fine tune its approach to how it collects, verifies, and uses safety data.
	To realize ATSAP's full potential, the FAA must close program gaps: such as a lack of a formal process to review committee decisions on errors and enforce key ATSAP guidelines and requirements.
	FAA lacks an accurate baseline on the number of separation losses due to its limited use and review of the Traffic Analysis and Review program data, gaps in ATSAP reporting, and inconsistent classification of separations losses.
	FAA's new policies transfer the function of investigating operational errors from the facilities where they occur to the Air traffic Service Areas. Facility managers raised concerns about whether the Service Areas have enough staff and knowledge of local flight procedures to successfully carry out this responsibility.
	The mitigation strategy for operational errors included in the new policies lack a previously identified causal factors, trends, and follow-up actions to address the – considered to be key elements for mitigating the highest safety risks.

ACTION PLAN	
Cognizant Organization:	Air Traffic Organization (ATO) Safety and Technical Training (AJI)
Tools to be Used to Resolve the Issue:	The FAA through its Air Traffic Organization (ATO) has completed its largest and most significant safety improvements in the last 30 years regarding the way air traffic control risk, safety performance and analysis of safety risks are managed in the United States. From implementation of voluntary reporting, to new electronic separation loss detection programs , the development of standardized risk assessment and validation processes and the establishment of a proactive safety management system, the FAA has greatly enhanced its ability to identify precursors, root causes, and trends of safety risks system-wide rather than reacting to single incidents. 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. Combining air traffic and aircraft data offers opportunities to improve aviation safety never available before.
	The FAA continues to implement enhancements in training, risk analysis and loss validation processes, procedures and technology based on its use of a

dramatically improved reporting system. Yet, our processes and metrics need to be mature before establishing a proper risk-based safety baseline. Creating a safety baseline needs to account for the current system variables, not factors that no longer influence the system performance. Each policy change, mandatory training in response to trends, and the recently implemented recurrent training for controllers permits managing safety based on relevant data.

In January of 2012, the ATO implemented a significant change in the way safety data, including losses of separation, are reported, analyzed, and acted upon. Additionally, the ATO combined its Safety and Technical Training offices into one service unit, under the leadership of the Vice President, Safety and Technical Training (AJI). This combination was initiated for the specific purpose of identifying safety issues, evaluating the effectiveness of training and collaboratively identifying necessary resources (e.g. training, staffing, and data-driven improvements to procedures).

New safety orders, safety directives, and the establishment of a Quality Assurance Validation Board and policy changes that follow will improve the application of safety standards and efficient identification, analysis and communication of the root causes.

The tools that were deployed are the Comprehensive Electronic Data Analysis and Reporting (CEDAR) tool, the FALCON 3 radar playback tool and the Traffic Analysis and Review Program (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. Analysis is done to aggregate the data and identify significant and common hazards that contribute to risk in the NAS. The development and implementation of new training requirements for those who conduct validation, risk assessment and perform quality assurance duties is being developed. The FAA agrees that knowledge of operational incidents is needed by field managers to identify and address safety trends. To achieve that goal the FAA successfully developed and is in the process of fully implementing the TARP system that captures quantitative data relating to the vast majority of occurrences that involve loss of separation. TARP was fully implemented at all terminal radar facilities in September 2012, and is now refining TARP for En Route facilities with implementation targeted for May 2013. TARP has demonstrated its capability to operate effectively in the terminal environment, and is generating a greater amount of data than FAA previously had available relating to losses of separation. The system increases the utility of the data captured by consolidating the information into a single database available to all facilities. Although we are not yet able to align TARP with every ATSAP reported loss, we continue to communicate ATSAP findings and trends through regular distributions to all employees and field managers.

Fair and objective principles, efficient processes, and logical/timely responses to ATSAP reports are emphasized in new training available for ATO employees since FY12. ATO managers that have ATSAP Event Review Committee (ERC) assignments, also participate in the monthly Operational Supervisor's Workshops (OSW) to re-emphasize the roles, responsibilities, and expectations for ERC members.

In addition, the ATSAP Office has begun to adapt an audit form used by the Flight Standards Voluntary Safety Programs Branch to use for ATSAP. Our audit procedures are being developed to establish critical process checkpoints and evaluation steps. Program personnel to conduct internal audits have been identified and workflows realigned to facilitate these quality reviews within ATSAP, including the effectiveness of ERC actions. This is an effort to

	promote continuous improvement as part of implementing Quality Management Systems. The draft procedures will be included in the ATSAP Administration Manual, once the new procedures are finalized, and we continue to look for other ways to realize the full potential of this program.
Time Needed to Resolve the Issue:	In order to achieve its goal of identifying and addressing safety trends, the FAA is in the process of fully implementing the Traffic Analysis and Review Program (TARP); which electronically captures quantitative data relating to the vast majority of occurrences that involve losses of separation. TARP was fully implemented in terminal radar facilities in September 2012 with development for En Route Facilities targeted for May 2013.

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 stakeholders. Current efforts are centered upon standardization in data processing to include the use of improved taxonomy; the establishment of training and work processes; and the proper grouping and reporting of safety data. This effort is expected to occur throughout 2013. |

Specific steps to be taken in FY 2013:	Continued use of the RAP to identify factors that contribute to occurrences where less than 2/3 of standard separation was maintained.	Weekly
	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	Ongoing/Daily
	Continued facilitation of AJI Quality Assurance Validation Advisory Board	Meetings held quarterly 2013
	Complete development of AJI QA Standard Operating Procedures (SOP) to address the standardization for validating and processing of losses of separation.	February 2013
	Implementation of Safety Guidance for the ATO's new Safety Orders	February 2013
	Implementation of AJI Quality Assurance SOP and Validation Lead training for QA Specialists in each Service Area office.	April 2013
	Implementation of audit processes for ATSAP.	April 2013
	Implementation of TARP for En Route facilities	May 2013
	Assessment and Certification of QA Specialists and all who will serve as Validation Leads for each Service	September 2013

	Area office. This will be established as an annual QA training requirement.	
Expected Results, this year and in the future:	Electronic monitoring of losses of separation; such as TARP, has enabled the FAA to develop a standardized risk analysis process and has generated significant amounts of data. This system increases the utility of the data captured by consolidating the information into a single database available to all facilities. As a result, the vast amount of new data made available will provide the most accurate available metric for safety occurrences. Additionally, in harmony with industry best practices, the FAA is currently addressing five top areas to mitigate risk in the NAS to improve overall safety in the delivery of air traffic control services. The top five focus areas evolve as mitigation actions are implemented, safety performance improves, and new hazards in the NAS are identified. In the future, the FAA will begin its development of new training requirements for a completely revised Instructor led Quality Assurance/Quality Control course at the FAA Academy; as well as, initiate the development of resource requirements for a Safety Study of TARP management.

MANAGEMENT CHALLENGE	
Chapter 2: Enhancing FAA's Oversight and Use of Data To Identify and Mitigate Safety Risks	
Issue: 2B	**Advancing oversight by implementing the Airline Safety Act of 2010** 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. Although the Office of the Inspector General acknowledges the progress that the FAA has made, it noted missed deadlines and overdue milestones. 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. 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.
ACTION PLAN	
Cognizant Organization:	Aviation Safety/Flight Standards Service
Tools to be Used to Resolve the Issue:	• Rulemaking • Guidance to inspectors and operators (Notices, 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. 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). In March 2013 a Rulemaking Action Plan was submitted to management for approval. The plan outlines key issues associated with implementation. If approved, the PRD rulemaking team will begin drafting the NPRM document. The FAA intends to publish its final rule for *Pilot Certification and Qualification Requirements* in FY2013. Additionally, the FAA continues to work on its final rule for *Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers* in FY2013. The FAA previously proposed a 5 year implementation deadline for this rule.

Specific steps to be taken in FY 2013:	• Complete preliminary team concurrence for *Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers*.	March 2013
	• Provide the final rule for *Pilot Certification and Qualification Requirements* rule to AOA-1 for concurrence.	May 2013
	• We conducted two Proof of Concept (PoC) tests before October 1, 2012. These tests allowed us to successfully demonstrate: (1) the PRD interface; and (2) the creation of a sample PRD pilot record with data from agency systems (airmen data systems and enforcement database) and data from a mockup of an air carrier system.	October 2012
	• Submitted Rulemaking Action Plan (first step in rulemaking) at March Rulemaking Council Meeting.	March 2013
Expected Results, this year and in the future:	The FAA expects that publication of the above-referenced rules 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.	

Chapter 2: Enhancing FAA's Oversight and Use of Data To Identify and Mitigate Safety Risks

Issue: 2C	**Providing more rigorous risk-based oversight of repair stations and identifying inspector staffing requirements**
	Since 2003, the OIG has issued reports critical of FAA's surveillance of aircraft repair stations. The most recent one, released in January 2013, states that FAA's risk based oversight system to help inspectors target surveillance to areas of higher risk is ineffective. Also, it does not provide inspectors with comprehensive data needed for analytical reviews of a repair station's performance. Also, the DOT's OIG does not think that FAA's inspector staffing model effectively projects staffing needs due to incomplete and inaccurate data. The OIG has stated that FAA must further refine this tool so that it more effectively allocates inspector resources.

ACTION PLAN		
Cognizant Organization:	Aviation Safety/Flight Standards Aircraft Maintenance Division	
Tools to be Used to Resolve the Issue:	The FAA is implementing a new certification and surveillance system called the 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. In July 2012, FAA provided an in-depth briefing on SAS to the OIG to keep them apprised of progress and to demonstrate how the new system will address audit recommendations. To address the issue of staffing in the most critical areas, FAA has developed the AVS Staffing Tool and Reporting System (ASTARS) which is the FAA's forecasting tool to determine how many inspectors and other employees are needed to provide adequate levels of safety oversight in the National Airspace System and where they are needed. It does this by forecasting probable levels of work activity required based on the configuration of each certificate holder assigned to the office.	
Time Needed to Resolve the Issue:	SAS is scheduled to begin deployment in fiscal year 2014. SAS training will be led by inspectors and provided to the individual FAA Flight Standards District Offices (FSDO) as SAS is deployed. The ASTARS Model is currently in use.	
Specific steps to be taken in FY 2013:	Continuous development of SAS .	FAA stakeholders will meet in February 2013, to perform the evaluation. If a revision is warranted, FAA plans to complete this by February 28, 2014.

	Evaluate current training courses that instruct inspectors to evaluate a repair stations to ensure the courses are effective.	If revisions are required this will be accomplished by September 30, 2014.
	Review applicable inspector guidance before deployment in FY-2014.	Completion date is September 30, 2013.
	Continuous evaluation and refinement of data sources and quality to ensure the ASTARS data and results more effectively target inspector resources.	On-going throughout fiscal year.
Expected Results, this year and in the future:	FAA is developing SAS, a new comprehensive risk-based system that will increase the effectiveness of repair station safety oversight. It will trigger oversight towards those repair stations most at risk and better detect systemic deficiencies. Deployment beginning in fiscal year 2014. FAA's continuous refinement of the data sources and quality will address the OIG's recommendation to enhance the ASTARS Model, which determines where inspector resources should be targeted.	

Chapter 2: Enhancing FAA's Oversight and Use of Data To Identify and Mitigate Safety Risks

Issue: 2D	**Identifying the effects of air traffic controller scheduling on safety, cost efficiency, and controller performance** A series of high-profile incidents in early 2011 involving controllers who were sleeping on duty sparked public concern about controller fatigue. In April 2011, FAA instituted a series of policy changes including placing an additional air traffic controller on the midnight shift at certain facilities and mandating a minimum of 9 hours off between evening and day shifts.

ACTION PLAN	
Cognizant Organization:	En route and Oceanic Service Unit, AJE Terminal Services, AJT
Tools to be Used to Resolve the Issue:	The Air Traffic Organization has formally established a Fatigue Risk Management System (FRMS) to identify potential controller cognitive performance and safety related effects due to human fatigue. The Fatigue Risk Management Team (FRMT) provides fatigue research, comparative analyses, and other educational material to the Fatigue Safety Steering Committee (FSSC), consisting of senior ATO, NATCA, and PASS representatives, on a quarterly basis for their consideration. The following quality controls are in place to ensure a minimum of 9 hours between the evening and day shift: • Implemented periodic quality control checks to identify facilities and individuals that are not in compliance. • Facility management alerted and follow-up is occurring to ensure compliance. • Any obstacles to compliance will be briefed to senior Air Traffic Organization (ATO) leadership for resolution.
Time Needed to Resolve the Issue:	The quality control checks implemented in mid-2012 are effective and will remain in place until ATO reaches total compliance, which FAA anticipates this will be achieved by the end of FY 2013.

Specific steps to be taken in FY 2013:	Continue to track compliance with periodic compliance checks	Periodic compliance check will be accomplished quarterly beginning in Jan 2013.
Expected Results, this year and in the future:	The expectation is that all personnel requiring 9 hours off between an evening and day shift will remain in compliance and be monitored via periodic checks.	

MANAGEMENT CHALLENGE		
Chapter 8: Ensuring Effective Management of DOT's Acquisitions To Maximize Value and Program Performance		
Issue: 8B	**Strengthening DOT's acquisition planning, oversight, and workforce** Modernizing the complex, highly sophisticated National Airspace System depends on FAA's acquisition workforce professionals and requires that they be of the highest caliber. FAA's 2012 acquisition workforce plan provides the blueprint for developing a high-performing acquisition workforce capable of successfully managing the FAA's major systems acquisitions, including the Systems Engineering 2020 (SE-2020) contracts and the En Route Automation Modernization (ERAM) program. The 2012 plan emphasizes the need for and the specific steps being taken to train and develop the existing workforce, reflecting the realities of a Federal budget climate that constrains the agency's ability to hire additional resources. Looming retirements, competition for acquisition talent inside and outside of government, and the growing complexity of technology and related system requirements all contribute to the challenge of maintaining an adequately staffed, highly capable acquisition workforce.	
ACTION PLAN		
Cognizant Organization:	Acquisition Workforce Council; Acquisition Policy & Oversight, AAP-1; Acquisition Career Management, AAP-300;	
Tools to be Used to Resolve the Issue:	FAA's acquisition workforce plan, which is updated annually to reflect changes in workforce requirements, is the primary tool for identifying, implementing, and reporting the initiatives FAA is taking to address this management challenge. The plan describes the strategies currently being followed to improve hiring processes, create an integrated acquisition career development program, and institutionalize the acquisition workforce planning process.	
Time Needed to Resolve the Issue:	Developing a high caliber acquisition workforce is a continuous activity, as new employees and new requirements are introduced and incorporated. FAA is actively enhancing its career development program across 10 core acquisition professions, as described in the FY12 Acquisition Workforce Plan. Improvements are being seen in the volume and quality of training courses, the number of employees trained, and the number of certifications conferred to acquisition professionals, particularly in the Program/Project Management, Contracting Officer/Specialist, and Contracting Officer's Representative professions. Efforts and goals supporting course quality, training delivery and employee certification for FY13 will be completed by September 30, 2013.	
Specific steps to be taken in FY 2013:	**Collect acquisition workforce staffing gains and losses** Collect acquisition workforce staffing gains and losses to ensure an accurate count and profile of the workforce.	• Quarterly
	Develop and certify Develop and certify program managers, contracting officer/specialists and contracting officer's representatives consistent	• September 30, 2013 (reported monthly)

	with established business goals.	
	Test & Evaluation Initiate the Test & Evaluation profession certification program.	• November 1, 2012
	Systems Engineering Initiate the Systems Engineering profession certification program.	• February 1, 2013
Expected Results, this year and in the future:	In 2013, FAA expects the following results: • 90% of Program Managers managing Acquisition Category (ACAT) programs meet/maintain certification requirements for their positions • 80% of entry level contracting specialists achieve level 1 certification within 15 months of hire • Increase by 5% the number of Contracting Officers who have level 2 or higher certification • Increase by 5% the number of Contracting Officer's Representatives (COR)s who have a level 2 or higher certification	