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*Office of Inspector General*  
*Audit Report*

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**FAA MADE LIMITED PROGRESS IN IMPLEMENTING  
NEXTGEN PROVISIONS OF THE FAA  
MODERNIZATION AND REFORM ACT OF 2012**

*Federal Aviation Administration*

*Report Number: AV-2014-027*  
*Date Issued: January 28, 2014*





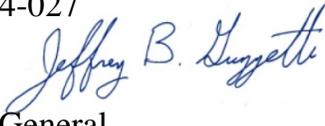
# Memorandum

U.S. Department of  
Transportation

Office of the Secretary  
of Transportation  
Office of Inspector General

Subject: **ACTION**: FAA Made Limited Progress in  
Implementing NextGen Provisions of the FAA  
Modernization and Reform Act of 2012  
Federal Aviation Administration  
Report No. AV-2014-027

Date: January 28, 2014

From: Jeffrey B. Guzzetti   
Assistant Inspector General  
for Aviation Audits

Reply to  
Attn. of: JA-10

To: Federal Aviation Administrator

The Next Generation Air Transportation System (NextGen) is a critical infrastructure project that will transform the Nation's air traffic management from ground-based radar to a satellite-based system with the goals of improving safety, meeting the expected demands for increased capacity, and improving efficiency. It is also FAA's most complex modernization effort to date and will require multibillion-dollar investments from both the Federal Government and airspace users to successfully implement. However, since its inception a decade ago, FAA's progress in implementing NextGen has not met the expectations of Congress and industry stakeholders, and key modernization efforts have experienced significant cost increases and schedule delays.

On February 14, 2012, the FAA Modernization and Reform Act of 2012 (the act) was signed into law.<sup>1</sup> Title II of the act included several provisions intended to help FAA better manage NextGen, provide more accountability, and advance the implementation of new air traffic procedures and technologies. However, there were concerns with FAA's ability to meet these goals after a September 2012 House Aviation Subcommittee hearing highlighted significant cost overruns and program delays with key NextGen initiatives and modernization projects.<sup>2</sup>

Following the hearing, the leadership of the House Committee on Transportation and Infrastructure and its Subcommittee on Aviation requested that we assess

<sup>1</sup> Public Law 112-95, signed into law on Feb. 14, 2012.

<sup>2</sup> "A Review of and Update on the Management of FAA's NextGen Program," House Subcommittee on Aviation, Sept. 12, 2012.

FAA's progress in implementing the act's NextGen-related requirements. Accordingly, our objectives were to (1) assess FAA's progress in meeting the NextGen provisions prescribed in the FAA Modernization and Reform Act of 2012 and (2) identify the challenges that may prevent FAA from meeting the provisions of the act. On September 17, 2013, we provided a letter<sup>3</sup> to the Chairman of the House Transportation and Infrastructure Committee and the Chairman and Ranking Member of the House Aviation Subcommittee that summarized FAA's actions to address Title II requirements. We also explained several ongoing challenges that may hinder the Agency's ability to fully address the act's provisions. This report provides the full results of our review.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Exhibit A details our scope and methodology, and exhibit B lists the organizations we visited or contacted.

## RESULTS IN BRIEF

As of August 2013, FAA implemented or is on target to implement 11 of the 24 NextGen provisions that we identified in Title II of the act, including appointing a Chief NextGen Officer and completing a multi-agency NextGen Integrated Work Plan. However, FAA has not implemented other key provisions intended to accelerate NextGen technologies, such as initiating rulemaking activities requiring use of the Automated Dependent Surveillance-Broadcast (ADS-B) *In* system<sup>4</sup> for enhanced satellite-based air traffic surveillance. Moreover, FAA is behind schedule on many of the act's deadlines for reports and plans related to determining NextGen progress, such as reports explaining the requirements for using performance-based navigation<sup>5</sup> at the Nation's airports.

FAA's difficulties in meeting the act's provisions stem from longstanding programmatic and organizational challenges, including the technical complexity of NextGen initiatives; the collaboration required with other Government and aviation stakeholders to complete the initiatives; and financial concerns, such as meeting the provisions of the Budget Control Act of 2011.<sup>6</sup> Given the importance and complexity of the act's provisions in advancing NextGen technologies and

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<sup>3</sup> Letter Regarding FAA's Process in Meeting NextGen Provisions of the FAA Modernization and Reform Act (OIG Correspondence No. CC-2012-003), Sept. 17, 2013. OIG reports and correspondence are available on our Web site at <http://www.oig.dot.gov/>.

<sup>4</sup> ADS-B *In* technology provides pilots with information transmitted from ADS-B ground stations as well as other aircraft. If an operator chooses to equip an aircraft with ADS-B *In* avionics, a compatible display is also necessary to view the information.

<sup>5</sup> Performance-based navigation delivers new routes and procedures that primarily use satellite-based navigation and on-board aircraft equipment to navigate with greater precision and accuracy and can provide benefits through all phases of flight. It provides a basis for designing and implementing automated flight paths, airspace redesign, and obstacle clearance.

<sup>6</sup> Public Law 112-25, signed into law on Aug. 2, 2011.

that FAA implemented less than half of them, keeping decisionmakers and stakeholders informed of the Agency's progress is key. However, FAA has not developed a process to regularly update stakeholders on its status in meeting the act's provisions, including setting priorities and revised target action dates for missed deadlines.

We are making recommendations to FAA to better assist the Agency in meeting the act's Title II provisions and keeping stakeholders informed of progress.

## **BACKGROUND**

The United States air transportation system serves approximately 730 million passengers each year and nearly 70,000 flights occur each day in U.S. airspace. FAA expects significant increases in commercial and general aviation activity over the next decade that will result in 1 billion passengers traveling per year and more than 79,000 flights per day by 2025. A critical component that will enable FAA to successfully manage this projected surge in air traffic is the advancement and implementation of NextGen technologies.

FAA spends nearly \$1 billion annually on NextGen efforts. We have reported on cost and schedule risks with NextGen programs as well as challenges that FAA must address to successfully transition from the legacy air traffic systems to NextGen since the program began in 2004. For example, we testified in July 2009<sup>7</sup> that organizational barriers and fragmented initiatives hindered FAA's process for approving new flight procedures. During a September 2012 hearing,<sup>8</sup> we reiterated similar concerns regarding FAA's ability to implement NextGen capabilities that could result in delayed benefits. Moreover, our prior work on NextGen programs indicates that the Agency has had difficulties coordinating those efforts.

## **FAA IMPLEMENTED LESS THAN HALF OF THE ACT'S NEXTGEN PROVISIONS, INCLUDING TWO KEY PROVISIONS INTENDED TO ADVANCE NEXTGEN**

FAA is taking action to implement the act's NextGen provisions but has not implemented provisions that are key to achieving the system's full benefits. (See exhibit C for a description of the provisions and their implementation status.) As of August 2013, FAA implemented or is on target to implement 11 of the 24 NextGen provisions of the act. Of significant importance are FAA's actions to

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<sup>7</sup> *Challenges in Implementing Performance-Based Navigation in the U.S. Air Transportation System*, (OIG Testimony Number CC-2009-086), July 29, 2009.

<sup>8</sup> *Update on FAA's Progress and Challenges in Advancing the Next Generation Air Transportation System*, (OIG Testimony Number CC-2012-027), Sept. 12, 2012.

address three key provisions intended to provide more accountability and advance new air traffic procedures and technologies:

- In June 2013, FAA filled a key leadership position by appointing a Deputy Administrator who will also serve as the Chief NextGen Officer. The Deputy Administrator will oversee the Agency's NextGen modernization efforts, including coordinating budgets and planning across the Agency's lines of business and with partner agencies.
- In October 2012, the Agency completed a multi-agency NextGen Integrated Work Plan that includes the responsibilities of partner agencies, such as the Department of Defense and the National Aeronautics and Space Administration, to carry out NextGen-related research activities.
- In May 2012, FAA established a program that uses third parties to develop and test advanced navigation procedures at five mid-size airports.

Despite FAA's progress, the Agency and the Department have not implemented two key provisions of the act that are intended to accelerate technologies and achieve the full range of NextGen benefits. Specifically:

- FAA has not initiated rulemaking activities to issue guidelines and regulations on ADS-B *In* technology, and
- The Department has not established a public-private incentive program for installing NextGen avionics equipment on aircraft.

In addition, FAA is behind schedule on meeting many of the act's established deadlines. In particular, FAA did not meet the deadlines for multiple reports and plans related to determining the Agency's progress in implementing NextGen. For example, while FAA completed the NextGen Integrated Work Plan, it did not meet another provision's deadline for reporting on its status in carrying out the plan. In addition, the Agency is still working to develop reports that will explain the requirements needed to begin using performance-based navigation at the Nation's airports.

## **FAA'S DIFFICULTIES IN MEETING THE PROVISIONS OF THE ACT STEM FROM PROGRAMMATIC AND ORGANIZATIONAL CHALLENGES**

FAA faces a number of programmatic and organizational challenges in its efforts to fulfill the act's NextGen requirements. According to FAA officials, the act's provisions are difficult to execute as they require coordination among multiple programs, resolution of complex technical and operational issues, and

collaboration with industry stakeholders. For example, FAA's delays with issuing guidelines and regulations for ADS-B *In* are due, in part, to the need to finalize requirements for displaying traffic information in aircraft cockpits, modify the systems that controllers rely on to manage traffic, develop and deploy new procedures for separating aircraft using satellite-based technology, and assess potential system security vulnerabilities. As a result, FAA will not likely be ready to mandate the use of the technology by 2020, as required by the act. Moreover, as we reported last year, users are concerned about investing in aircraft avionics for ADS-B and other NextGen initiatives because FAA has not clearly defined what benefits will be achieved and when.<sup>9</sup>

In addition, in order to successfully implement some provisions, the Agency will need to work across multiple lines of business and with other Federal agencies or organizations. FAA officials told us that this coordination is time-consuming and limits the Agency's ability to meet the act's deadlines. To illustrate this point, FAA is working with the NextGen Advisory Committee (NAC),<sup>10</sup> an aviation stakeholder group, to fulfill the act's requirements for developing performance metrics. While FAA and the NAC were able to agree on certain metrics, there was considerable debate within the NAC regarding the use of other metrics. For example, some NAC members were concerned about publicizing aircraft fuel burn rates because it could provide competitors with proprietary information such as flight routes and aircraft types. As a result, this metric remains undeveloped. The NAC is currently working with industry stakeholders on a process to obtain actual fuel burn data to meet the act's requirements.

FAA officials also noted that budgetary issues, including the provisions of the Budget Control Act of 2011,<sup>11</sup> have impacted its NextGen and modernization efforts, including its ability to conduct activities related to the act's provisions. For example, FAA intended to publish its NextGen Implementation Plan<sup>12</sup> in March 2013. However, according to Agency officials, it did not publish the Plan until June 2013 due to the impacts of sequestration.

Finally, given the importance and complexity of the act's provisions in advancing NextGen technologies and FAA's limited implementation thus far, keeping decisionmakers and stakeholders informed of the Agency's progress is key.

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<sup>9</sup> *Status of Transformational Programs and Risks to Achieving NextGen Goals* (OIG Report No. AV-2012-094), April 23, 2012.

<sup>10</sup> The NAC is a Federal advisory committee that will develop recommendations for NextGen portfolios with an emphasis on the mid-term (through 2018). The NAC includes representation from affected user groups, including operators, manufacturers, air traffic management, aviation safety, airports, and environmental experts.

<sup>11</sup> The law required FAA to reduce its remaining fiscal year 2013 budget by \$637 million dollars, and the reduction will likely result in cost and schedule baseline adjustments for individual NextGen and other modernization programs.

<sup>12</sup> The NextGen Implementation Plan is an annual plan that sets out FAA's vision for NextGen, now and into the mid-term, and identifies the Agency's goals for technology and program development and its commitments in support of that vision.

However, FAA has not developed a process to regularly update decisionmakers and stakeholders on its status in meeting the act's provisions, including setting priorities and revised target action dates for missed deadlines. Communicating these plans to Congress and other stakeholders would position the Agency to identify the likelihood and impact of future delays in completing the NextGen system.

## **CONCLUSION**

NextGen is a complex undertaking that is essential for fundamentally changing the way air traffic is managed in order to meet the future needs of air travel. Unless FAA places greater management attention on its efforts to implement the act's provisions, it is unlikely that the Agency will realize enhanced program oversight and accountability or the benefits of advanced technologies and navigation procedures. We will continue to monitor FAA's NextGen efforts and Title II requirements<sup>13</sup> through our ongoing assignments.

## **RECOMMENDATIONS**

To assist FAA in meeting the Title II provisions of the act, we recommend that FAA:

1. Implement a process for regularly updating stakeholders on its progress in meeting the act's NextGen provisions, to include priorities, revised target action dates for missed deadlines, and reasons for delays.
2. Communicate planned actions to Congress and other stakeholders to address the challenges the Agency faces in meeting the act's provisions.

## **AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE**

We provided FAA with our draft report on November 14, 2013, and received its formal response on December 19, 2013. FAA's response is included in its entirety as an appendix to this report. FAA concurred with both of our recommendations citing multiple outlets, including the NextGen Implementation Plan (NGIP) that the Agency uses as the basis for Congressional briefings and other outreach efforts with stakeholders. Since these processes are currently in use, FAA requested that we close both recommendations.

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<sup>13</sup> See exhibit D for a listing of our previous and ongoing work related to the Title II requirements and other NextGen and modernization programs.

We agree that these are appropriate mechanisms for updating stakeholders, but they are typically broad in laying out a vision for NextGen and providing a status of NextGen overall. For example, the NGIP provides information on a range of activities associated with FAA's progress with NextGen and future plans. However, the plan does not set priorities, focus on the act's specific provisions, or detail the challenges in meeting them. Therefore, it does not provide Congress and stakeholders with a clear understanding of what can be accomplished and when. Since FAA has committed in its response to include this information in future NGIPs and subsequent congressional briefings, we consider these recommendations resolved but open pending our verification that FAA completes these planned actions.

## **ACTIONS REQUIRED**

FAA's planned actions and timeframes for both recommendations are responsive, and we consider them resolved but open pending completion of the planned actions.

We appreciate the courtesies and cooperation of FAA representatives during this audit. If you have any questions concerning this report, please call Matthew E. Hampton, Deputy Assistant Inspector General for Aviation Audits, at (202) 366-1987 or Barry DeWeese, Program Director, at (415) 744-0420.

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cc: DOT Audit Liaison, M-1  
FAA Audit Liaison, AAE-100

## **EXHIBIT A. SCOPE AND METHODOLOGY**

We conducted our work from March 2013 through November 2013 in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

To perform our work, we reviewed Title II of the FAA Modernization and Reform Act of 2012 and identified 24 NextGen provisions contained in the title. We then interviewed officials from FAA's Office of Aviation Policy and Plans, Office of NextGen, Joint Planning and Development Office, and other Air Traffic Organization groups regarding FAA's implementation of the 24 provisions. We also attended industry stakeholder meetings that dealt with several of the act's initiatives, and reviewed related documents from FAA and other aviation stakeholder groups such as the RTCA, Inc.<sup>14</sup>

In addition, we talked with a representative from the Department of Defense to discuss how the military certifies aviation systems in comparison to civil aviation systems. Finally, we reviewed our previous and ongoing NextGen-related audit work to identify any related issues.

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<sup>14</sup> RTCA, Inc. is a private, not-for-profit corporation that develops consensus-based recommendations regarding communication, navigation, surveillance, and air traffic management system issues. RTCA functions as a Federal advisory committee and includes roughly 400 industry and academic organizations from the United States and around the world. Members represent all facets of aviation, including government organizations, airlines, airspace users, airport associations, labor unions, aviation services, and equipment suppliers.

**EXHIBIT B. ORGANIZATIONS VISITED OR CONTACTED**Federal Aviation Administration (FAA) Headquarters

Office of Aviation Policy and Plans	Washington, DC
Joint Planning and Development Office	Washington, DC
Office of NextGen	Washington, DC
Air Traffic Organization	Washington, DC

Department of Defense

U.S. Air Force	Virginia
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RTCA, Inc.

	Washington, DC
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## EXHIBIT C. STATUS OF FAA’S IMPLEMENTATION OF THE TITLE II REQUIREMENTS (AS OF AUGUST 23, 2013)

Section	Provision	Description	Deadline	Progress	Status
202	NextGen Demonstrations and Concepts	Provide Facilities & Equipment funding priority to NextGen activities.	None		Met – FAA gives priority in its annual budget request and acquisition management processes for demonstration projects and developmental efforts.
204	Chief NextGen Officer	Administrator shall appoint a Chief NextGen Officer.	None		Met – Michael Whitaker is the FAA Deputy Administrator and also serves as the Chief NextGen Officer. Mr. Whitaker was sworn into office on June 3, 2013.
208(a)(1)	NextGen JPDO Associate Administrator	Head of the JPDO to be redesignated as the Associate Administrator for NextGen Planning, Development, and Interagency Coordination.	None		Not Fully Implemented – On August 22, 2013, Major General Edward Bolton (Ret.) was named the Associate Administrator for NextGen. However, FAA has not yet redesignated the Head of the JPDO as the Associate Administrator.
208(a)(3)(D)	NextGen JPDO (Interagency MOUs)	Execute Memorandums of Understanding (MOU) between DOD, Commerce, Homeland Security, NASA, and other agencies documenting their responsibilities to carry out the NextGen Integrated Plan.	8/14/12		Met – Even though the MOUs were signed in 2008, FAA stated—and we believe—that they meet the intent of the provision.
208(b)(5)	NextGen JPDO (Integrated Work Plan)	FAA shall complete a multi-agency integrated NextGen Work Plan that includes accomplishments and future costs.	None		Met – FAA released the Fiscal Year 2015 Integrated Work Plan on October 1, 2012. However, it does not include budgetary information as required by the act.
208(c)	NextGen JPDO (Implementation Plan)	FAA Administrator shall publish and annually update a NextGen Implementation Plan (NGIP).	2/14/13 & Annually		Implemented Late – FAA completed the NGIP in June 2013—4 months after the due date. The NGIP was originally scheduled for publication a month after the President’s budget, but according to FAA it was delayed due to sequestration.
209	NextGen Senior Policy Committee	NextGen Senior Policy Committee meetings twice annually. FAA shall complete a report that includes progress made in the NextGen Work Plan, a description of success/failure, an explanation of future changes to the Plan and also identify funding.	Report - 2/14/13 & Annually Afterward		Missed Deadline – According to FAA, the report was cleared by partner agencies but is in administrative review. Agency expects the report to be published in next few months.

-  - Provision Implemented, Deadline Met, or FAA Is Taking Steps To Meet Provision’s Deadline
-  - Provision Implemented but Missed Statutory Deadline, or Additional Steps Needed To Implement Provision
-  - Provision Not Implemented and Statutory Deadline Missed

## EXHIBIT C. STATUS OF FAA’S IMPLEMENTATION OF THE TITLE II REQUIREMENTS (AS OF AUGUST 23, 2013)

Section	Initiative	Description	Deadline	Progress	Status
211(b)	ADS-B (Rulemaking)	Initiate rulemaking to issue guidelines and regulations related to ADS-B <i>In</i> technology (display of information in the cockpit).	2/14/13		Missed Deadline – According to FAA, it is working through an Aviation Rulemaking Committee recommendation related to this issue, and there is no specific target date for initiating rulemaking activities. We note that the technical requirements for ADS-B <i>In</i> are not mature and continue to evolve. As a result, it is uncertain when the advanced capabilities of ADS-B can be implemented and at what cost.
211(c)	ADS-B (Usage)	FAA, in coordination with employee and industry groups, shall develop a plan to use ADS-B for active air control and surveillance.	8/14/13		Missed Deadline – According to FAA, the first draft of the plan is complete and under internal review.
212	Expert Review Enterprise Architecture for NextGen	FAA shall enter into an agreement with the National Research Council (NRC) to review NextGen Enterprise Architecture and submit a report to the House and Senate authorizing Committees within 1 year of enactment.	2/14/13		Missed Deadline – FAA signed an agreement with the NRC 7 months after the act became law, and the NRC’s schedule calls for the report to be completed in March 2014.
213(a)(1)	Acceleration of NextGen Technologies (OEP Airports)	Publish a report that outlines implementation requirements needed to implement RNAV and RNP procedures at Operational Evolution Partnership (OEP) airports. Certify, publish, and implement RNAV/RNP procedures at OEP airports by June 30, 2015.	Report: 8/14/12  RNAV/RNP Procedure Implementation: 30% by 8/14/13; 60% by 2/14/15; 100% by 6/30/15		Report: Missed Deadline – According to FAA, a single report for OEP and non-OEP airports is under FAA executive review.  Implementation: Not Implemented – FAA is shifting away from publishing large numbers of routes to publishing fewer new routes that provide operational benefits. The realization of widespread benefits from the new procedures depends on FAA’s ability to revamp the controller handbook and deploy new automated tools for controllers.

-  - Provision Implemented, Deadline Met, or FAA Is Taking Steps To Meet Provision’s Deadline
-  - Provision Implemented but Missed Statutory Deadline, or Additional Steps Needed To Implement Provision
-  - Provision Not Implemented and Statutory Deadline Missed

## EXHIBIT C. STATUS OF FAA'S IMPLEMENTATION OF THE TITLE II REQUIREMENTS (AS OF AUGUST 23, 2013)

Section	Initiative	Description	Deadline	Progress	Status
213(b)(1)	Acceleration of NextGen Technologies (Non-OEP Airports)	Publish a report that outlines implementation requirements needed to implement RNP procedures at 35 non-OEP airports. Certify, publish, and implement RNP procedures at non-OEP airports over 4 years, fully implementing them by June 30, 2016.	Report: 8/14/12  RNAV/RNP Procedure Implementation: 25% by 8/14/13; 50% by 2/14/15; 100% by 6/30/16		Report: Missed Deadline – According to FAA, a single report for OEP and Non-OEP airports is under FAA executive review.  Implementation: Not Implemented – FAA is shifting away from publishing large numbers of routes to publishing fewer new routes that provide operational benefits. The realization of widespread benefits from the new procedures depends on FAA's ability to revamp the controller handbook and deploy new automated tools for controllers.
213(d)	Acceleration of NextGen Technologies (Data Communications System)	Submit a plan to the House and Senate authorizing committees for a nationwide data communications system that includes budget, schedule, and performance metrics.	2/14/13		Missed Deadline – According to FAA, a draft plan is in FAA internal coordination.
213(e)	Acceleration of NextGen Technologies (Improved Performance Standards)	Outline in the NextGen Implementation Plan (1) if technology such as ADS-B and RNP will improve efficiency, and (2) safely reduce aircraft separation standards (include a timetable describing reduced standards in the NGIP).	None		Met – The NGIP, published in June 2013, includes the required language. While FAA states that it is evaluating reducing separation standards at congested airports, it is uncertain when FAA will widely implement the new standards.
213(f)	Acceleration of NextGen Technologies (Third-Party Usage)	Establish a program that authorizes the use of qualified third parties in the development, testing, and maintenance of flight procedures.	None		Met – FAA awarded a contract in May 2012 for third-party development of RNP procedures to five mid-sized airports.
214	Performance Metrics	Establish and track detailed performance metrics at the 35 OEP airports. Submit a report to the House and Senate describing the metrics.	8/14/12		Implemented Late – FAA delivered the metrics report to the House and Senate authorizing Committees on August 9, 2013. It has also published the metrics on its Web site. However, the Agency has yet to complete development of metrics measuring airline fuel burn and the number of operations using advanced navigation procedures.
215	Certification Standards and Resources	Develop a plan to accelerate and streamline the process for certifying NextGen technologies.	8/14/12		Missed Deadline – According to FAA, the draft plan is being revised based on internal coordination.

-  - Provision Implemented, Deadline Met, or FAA Is Taking Steps To Meet Provision's Deadline
-  - Provision Implemented but Missed Statutory Deadline, or Additional Steps Needed To Implement Provision
-  - Provision Not Implemented and Statutory Deadline Missed

### Exhibit C. Status of FAA's Implementation of the Title II Requirements (as of August 23, 2013)

## EXHIBIT C. STATUS OF FAA'S IMPLEMENTATION OF THE TITLE II REQUIREMENTS (AS OF AUGUST 23, 2013)

Section	Initiative	Description	Deadline	Progress	Status
216	Surface System Acceleration	Evaluate and accelerate the ASDE-X program, the surveillance system that allows air traffic controllers to track aircraft and vehicle surface movement. Develop a plan to expedite the certification and installation of Ground-Based Augmentation System (GBAS) technology at the 35 OEP airports.	Implementing ASDE-X (none)  GBAS Plan: 12/31/12		Ongoing (ASDE-X) – FAA continues to explore enhancements to the ASDE-X program as part of its NextGen initiatives.  Not Implemented (GBAS) – According to FAA, due to issues in Newark, NJ, in 2012, the GBAS system went back in development for further research. The issues were resolved, and GBAS has been certified as a non-Federal acquisition system for airports.
217	Inclusion of Stakeholders in Air Traffic Control Modernization Projects	Include qualified employees from each collective bargaining unit and report to the House and Senate authorizing committees on this section.	2/14/13		Missed Deadline – According to FAA, the process for including employees is in place, but the draft report is under review.
218	Airspace Redesign	FAA and the Port Authority of NY/NJ/PHL monitor noise impacts of area Airspace Redesign. No later than 1 year after completing Redesign, submit a report on noise impacts.	TBD		In Progress – The expected NY/NJ/PHL Airspace Redesign completion date is December 2016, with the report due in December 2017.
220	NextGen Research and Development Center of Excellence	FAA may enter into an agreement to assist in the establishment of a Center of Excellence to research NextGen technology.	None		Met – Existing Centers of Excellence are conducting research and development.
221	Public-Private Partnerships	The DOT Secretary may establish an avionics equipage incentive program for general aviation and commercial aircraft to install equipment to utilize NextGen capabilities.	None		In Progress – In 2012, FAA obtained information from stakeholders regarding financial incentives for operators to equip with NextGen avionics. FAA continues to seek stakeholder input, but the Agency states that it lacks complete statutory authority to grant a loan guarantee and that Federal credit laws require agencies to obtain specific authority to guarantee loans in an appropriation act.
222	Operational Incentives	FAA shall issue a report that identifies incentive options to encourage operators to equip aircraft with NextGen technology.	8/14/12		Missed Deadline – According to FAA, the Office of the Secretary has reviewed the report and final publication by FAA is pending.
225	Greener Skies Project	Report on NextGen capabilities produced by Greener Skies Project.	Initial report 8/14/12 & Annually		Implemented Late – Initial report was completed in March 2013—7 months after the due date.



- Provision Implemented, Deadline Met, or FAA Is Taking Steps To Meet Provision's Deadline



- Provision Implemented but Missed Statutory Deadline, or Additional Steps Needed To Implement Provision



- Provision Not Implemented and Statutory Deadline Missed

## EXHIBIT D. OIG WORK RELATED TO NEXTGEN PROGRAMS

### *Ongoing OIG Work*

<b>Audit Initiated</b>	<b>Audit Focus</b>
January 23, 2013	FAA's Information Security Controls of the Automatic Dependent Surveillance-Broadcast System
October 18, 2012	FAA's Surface Surveillance Programs for Runway Safety
July 19, 2012	Underlying Causes for FAA's Limited NextGen Progress
May 14, 2012	FAA's Automatic Dependent Surveillance-Broadcast Program
May 9, 2012	FAA Efforts to Streamline Processes for Implementing New Performance-Based Flight Procedures

### *Previously Issued Reports and Testimonies*

<b>Date</b>	<b>Report No.</b>	<b>Title</b>
September 13, 2012	AV-2012-179	Weakness in Program and Contract Management Contribute to ERAM Delays and Put Other NextGen Initiatives at Risk
September 12, 2012	CC-2012-027	Update on FAA's Progress and Challenges in Advancing the Next Generation Air Transportation System
August 1, 2012	AV-2012-167	Challenges With Implementing Near-Term NextGen Capabilities at Congested Airports Could Delay Benefits
April 23, 2012	AV-2012-094	Status of Transformational Programs and Risks to Achieving NextGen Goals
October 5, 2011	CC-2011-036	Federal Aviation Administration's Progress and Challenges in Developing and Transitioning to the Next Generation Air Transportation System
August 4, 2011	AV-2011-149	FAA Oversight is Key for Contractor-Owned Air Traffic Control Systems That Are Not Certified
June 15, 2011	AV-2011-131	FAA's Approach to SWIM Has Led to Cost and Schedule Uncertainty and No Clear Path for Achieving NextGen Goals
February 16, 2011	CC-2011-016	Actions Needed to Meet FAA's Long-Term Goals for NextGen

OIG reports and testimonies are available on our Web site at <http://www.oig.dot.gov>.

**EXHIBIT E. MAJOR CONTRIBUTORS TO THIS REPORT**

<b><u>Name</u></b>	<b><u>Title</u></b>
Barry DeWeese	Program Director
Frank Danielski	Project Manager
Craig Owens	Senior Analyst
Claudia Estrada	Analyst
Michael Broadus	Analyst
Audre Azuolas	Writer-Editor



## Federal Aviation Administration

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# Memorandum

Date: December 19, 2013

To: Jeffery B. Guzzetti, Assistant Inspector General for Aviation Audits

From: H. Clayton Foushee, Director, Office of Audit and Evaluation, AAE-1 

Subject: Federal Aviation Administration's (FAA) Response to Office of Inspector General (OIG) Draft Report: FAA's Progress in Implementing NextGen Provisions

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As noted by the OIG, the Next Generation Air Transportation System (NextGen) is “the FAA’s most complex modernization effort to date and will require multibillion-dollar investments from both the Federal Government and airspace users to successfully implement.” The FAA fully agrees and regards NextGen as a major transformation of the air traffic system on an unparalleled scale. The FAA has made substantial progress toward the implementation of many of the mandated FAA’s Modernization and Reform Act of 2012 (P.L. 112-95) provisions. However, NextGen is a technically complex system-of-systems requiring collaboration with, and investments by, private sector stakeholders, as well as other federal government agencies in order to accomplish all of those requirements. The agency is working hard to obtain the necessary stakeholder commitments to NextGen, without which full implementation will be delayed.

### RECOMMENDATIONS AND RESPONSES

**Recommendation 1:** Implement a process for regularly updating stakeholders on its progress in meeting the act’s NextGen provisions, to include priorities, revised target action dates for missed deadlines, and reasons for delays.

**FAA Response:** Concur. The FAA has multiple processes in place that provide regular updates on the progress of NextGen to all stakeholders. The FAA publishes an annual update to the NextGen Implementation Plan (NGIP) (<http://www.faa.gov/nextgen/implementation/>). This document is intended to keep stakeholders informed about the progress of NextGen implementation and benefits, as well as providing an overview of the agency’s NextGen deployment plans for the next several years.

Discussions relating to the status of some of P.L. 112-95 provisions can be found in the narrative chapters of the NGIP, while information relating to the status of, and plans for, the remainder of statutory provisions can be found in the appendices. Appendix A deals specifically with the equipage necessary for operators and airports to take advantage of NextGen capabilities, and

Appendix B provides graphical timelines for the implementation of NextGen capabilities necessary to realize operational improvements, as well as an overview of the work activities in which the agency plans to engage over the next several years in support of those deployments. When there is a change from one year to the next in those timelines, or if the agency has simply re-named a capability, the FAA documents the change in a footnote that identifies whether the change was due to shifting agency priorities, budgetary constraints or technical/programmatic issues.

The information published in the NGIP serves as the basis for the briefings and other outreach products created and distributed by the agency to stakeholders at conferences, symposiums, and other events across the country and around the world. Examples of these events include: the Air Traffic Control Association (ATCA) Annual Convention; Radio Technical Commission for Aeronautics (RTCA) Symposium; International Civil Aviation Organization (ICAO) Symposium; ATCA/FAA/National Aeronautics and Space Administration Technical Symposium; and the National Air Traffic Controllers Association (NATCA) conferences. FAA Regional Administrators also meet with state-level officials to provide updates on local activities.

Additionally, the FAA maintains a web-based tool for regularly updating stakeholders. The NextGen Performance Snapshots (NPS) website (<http://www.faa.gov/nextgen/snapshots/>) provides performance information at many locations where NextGen capabilities have been deployed in accordance with a set of metrics agreed upon in concert with the aviation community, along with narrative reports on user experience. The NPS is updated several times a year, providing stakeholders with access to fresh information.

Finally, the FAA also provides programmatic information around NextGen implementation policy issues to the RTCA's NextGen Advisory Committee (NAC)<sup>1</sup>, a group of senior officials from government and the aviation community. The NAC includes a cross section of executives from the FAA, airlines, airports, general aviation, pilots, air traffic controllers, the Department of Defense, environmental interests, international interests and providers of air traffic control technology. These aviation community leaders are then able to pass this information along through their various organizations and constituencies.

The FAA believes that it has met the intent of the recommendation and requests that it be closed.

**Recommendation 2:** Communicate planned actions to Congress and other stakeholders to address the challenges that the Agency faces in meeting the act's provisions.

**FAA Response:** Concur. The FAA has a number of communication channels and mechanisms already in place to keep Congress and other stakeholders informed of planned actions to address the challenges of meeting the provisions of P.L. 112-95.

1. The FAA Administrator and other senior Administration officials routinely participate in hearings of the House Committee on Transportation and Infrastructure and the

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<sup>1</sup> The NextGen Advisory Committee (NAC), established September 23, 2010, is a 28-member Federal advisory committee formed to provide advice on policy-level issues facing the aviation community in implementing NextGen (<http://www.rtca.org/content.asp?pl=33&sl=61&contentid=61>)

Senate Committee on Commerce, Science, and Transportation, and both the House and Senate Appropriations Committees, either directly on the topic of the agency progress on NextGen with respect to P.L. 112-95 provisions, or indirectly on NextGen and its challenges in response to the FY14 budget submission or sequestration or specific Member questions and inquiries.<sup>2</sup> The agency also responds in writing to specific questions that were not addressed during a particular Congressional proceeding as part of the hearing Questions for the Record (QFRs). Upon request, senior FAA officials also brief Congressional staff on a specific NextGen program or overall NextGen progress at frequent intervals.

2. P.L. 112-95 requires the FAA to provide 60 different Reports to Congress within one or two years of enactment. Some of these are required to be provided annually thereafter. These reports serve as a medium to communicate to Congress and other stakeholders about NextGen.<sup>3</sup>
3. The NAC provides policy and technical advice directly to the FAA on issues and challenges associated with NextGen. The NAC is a collaborative partnership and communication forum that meets quarterly and allows the FAA to speak directly with our stakeholders on our progress and work together on overcoming common challenges.<sup>4</sup>
4. Every year, the agency publishes the NGIP, which is a roadmap of our ongoing transition to NextGen. Typically, the NGIP is published a month after the President's budget submission to Congress each February. The NGIP helps to communicate both FAA's progress and success stories for the past year and FAA's future plans for the nationwide deployment of NextGen to Congress and stakeholders. It includes a description of current and expected future benefits to users of NextGen technologies. The NGIP is a public document available on the FAA website at <http://www.faa.gov/nextgen/implementation/>
5. The NPS website was launched in 2012 and tracks NextGen performance metrics and serves as another outreach vehicle for updating the aviation community, Congress, the flying public and other stakeholders on NextGen progress. It is available at: <http://www.faa.gov/nextgen/snapshots/>
6. The NextGen Institute<sup>5</sup> is a collaborative partnership between the FAA and the private sector that serves as a catalyst for fostering a shared vision of NextGen, combining the talents and resources of government, industry, and academia. The NextGen Institute holds at least one public meeting every year to allow interested parties to review the status of the Institute's activities and provide comments. The public

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<sup>2</sup> House Aviation Subcommittee, T&I hearings: Causes of Delays to the FAA's NextGen Program, July 17, 2013, Review of the FAA's Progress in Implementing the FAA Modernization and Reform Act, May 16, 2013, Implementation of the FAA Reauthorization and Reform Act: One Year Later, February 27, 2013; House Transportation, Housing and Urban Development, and Related Agencies Appropriations Subcommittee: Budget Hearing – FAA, April 24, 2013, Budget Hearing – DOT, April 16, 2013; Senate Committee on Appropriations: FY14 FAA Budget Hearing, April 18, 2013.

<sup>3</sup> Reports to Congress are available publicly on the FAA website at

<http://www.faa.gov>[http://www.faa.gov/about/office\\_org/headquarters\\_offices/agi/reports/](http://www.faa.gov/about/office_org/headquarters_offices/agi/reports/).

<sup>4</sup> NAC documents and meeting materials are available publicly at <http://www.rtca.org/content.asp?pl=33&sl=61&contentid=61>.

<sup>5</sup> The NextGen Institute was established for FAA and its partners to work together on the definition, goals, development, and implementation of NextGen, enabling the Joint Planning and Development Office (JPDO) to access world-class expertise, tools, and facilities for application to NextGen activities and tasks.

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meeting is announced on the Institute website (<http://www.nginstitute.org/>) and provides another forum for the FAA to inform Congress and its stakeholders about the progress of NextGen, in an effort to foster collaborative discussions and endeavors to overcome challenges.

7. The FAA Administrator and other senior Administration officials routinely participate in hearings of the House Committee on Transportation and Infrastructure and the Senate Committee on Commerce, Science, and Transportation, and both the House and Senate Appropriations Committees, either directly on the topic of the agency progress on NextGen with respect to P.L. 112-95 provisions, or indirectly on NextGen and its challenges in response to the FY14 budget submission or sequestration or specific Member questions and inquiries.<sup>6</sup> The agency also responds in writing to specific questions that were not addressed during a particular Congressional proceeding as part of the hearing Questions for the Record (QFRs). Upon request, senior FAA officials also brief Congressional staff on a specific NextGen program or overall NextGen progress at frequent intervals.
8. P.L. 112-95 requires the FAA to provide 60 different Reports to Congress within one or two years of enactment. Some of these are required to be provided annually thereafter. These reports serve as a medium to communicate to Congress and other stakeholders about NextGen.<sup>7</sup>
9. Each year, the FAA participates in several industry conferences and forums, such as the ATCA Conference and the RTCA Symposium, which provides attendees and others with information on NextGen.

Based on the multiple communication opportunities described above, the FAA believes it has met the intent of this recommendation and requests that it be closed.

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<sup>6</sup> House Aviation Subcommittee, T&I hearings: Causes of Delays to the FAA's NextGen Program, July 17, 2013, Review of the FAA's Progress in Implementing the FAA Modernization and Reform Act, May 16, 2013, Implementation of the FAA Reauthorization and Reform Act: One Year Later, February 27, 2013; House Transportation, Housing and Urban Development, and Related Agencies Appropriations Subcommittee: Budget Hearing – FAA, April 24, 2013, Budget Hearing – DOT, April 16, 2013; Senate Committee on Appropriations: FY14 FAA Budget Hearing, April 18, 2013.

<sup>7</sup> Reports to Congress are available publicly on the FAA website at <http://www.faa.gov>[http://www.faa.gov/about/office\\_org/headquarters\\_offices/agi/reports/](http://www.faa.gov/about/office_org/headquarters_offices/agi/reports/).

## Appendix. Agency Comments