



U.S. Department of  
Transportation

Office of the Secretary  
of Transportation

Inspector General

Office of Inspector General  
Washington, DC 20590

September 17, 2013

The Honorable Bill Shuster  
Chairman, Committee on Transportation  
and Infrastructure  
United States House of Representatives  
Washington, DC 20515

The Honorable Frank A. LoBiondo  
Chairman, Subcommittee on Aviation  
Committee on Transportation and  
Infrastructure  
United States House of Representatives  
Washington, DC 20515

The Honorable Rick Larsen  
Ranking Member, Subcommittee on  
Aviation  
Committee on Transportation and  
Infrastructure  
United States House of Representatives  
Washington, DC 20515

Dear Chairmen Shuster and LoBiondo and Ranking Member Larsen:

This letter responds to the Committee's request that our office assess the Federal Aviation Administration's (FAA) progress in meeting Next Generation Air Transportation System (NextGen) provisions in Title II of the FAA Modernization and Reform Act of 2012 (the act).<sup>1</sup> As you know, the act was intended to help FAA better manage NextGen, provide more accountability, and advance new air traffic procedures and technologies. However, there were concerns with FAA's ability to meet these goals after a September 2012 Aviation Subcommittee hearing which highlighted significant cost overruns and program delays with key NextGen initiatives and modernization projects.<sup>2</sup> Given these concerns, the Committee requested that we provide an update on the status of NextGen provisions in the act.

In response to this request, and as agreed with your offices, we identified and reviewed FAA's progress on 24 NextGen-related provisions cited in Title II of the act. (See exhibit A for a description of the provisions and their implementation status.) Specifically, we determined FAA's progress in meeting the statutory requirements

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

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

and deadlines established in those provisions and the challenges FAA faces in successfully implementing them. To perform our work, we interviewed officials from FAA's Office of Aviation Policy and Plans, Joint Planning and Development Office (JPDO), Office of NextGen, and other offices. We also attended industry stakeholder meetings that focused on several of the initiatives; reviewed documents from FAA and other aviation stakeholder groups, such as RTCA, Inc;<sup>3</sup> and reviewed our previous and ongoing NextGen-related audit work to identify any related issues.

In summary, FAA has implemented or is on target to implement 11 of the 24 NextGen-related provisions we identified. However, several of the provisions that have yet to be implemented are key to achieving the full benefits of NextGen, such as initiating rulemaking activities for Automatic Dependent Surveillance Broadcast (ADS-B) *In* technology.<sup>4</sup> Underscoring FAA's difficulties in meeting the provisions of the act are 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, including meeting the provisions of the Budget Control Act of 2011.<sup>5</sup>

### **FAA Has Implemented or Is on Target To Implement Almost Half of the NextGen Provisions in the Act**

FAA has implemented or is on target to implement 11 of the act's 24 NextGen provisions that we identified. Of significant importance are FAA's actions to address three key provisions:

- 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 the budgetary and planning aspects of the effort 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 defines the responsibilities of partner agencies, such as the Department of Defense (DOD) and the National Aeronautics and Space Administration (NASA), for conducting NextGen-related research.
- In May 2012, FAA established a program that uses third parties to develop and test advanced navigation procedures at five mid-sized airports.

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<sup>3</sup> Organized in 1935 as the Radio Technical Commission for Aeronautics, RTCA, Inc. is a private, non-profit corporation that develops consensus-based recommendations for communications, navigation, surveillance, and air traffic management system issues. It functions as a Federal Advisory Committee.

<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 needed to view the information.

<sup>5</sup> Public Law 112-25, signed into law on August 2, 2011.

Despite FAA's progress, the Agency and the Department have not implemented two key provisions of the act that are intended to accelerate NextGen technologies. Specifically, (1) FAA has not initiated rulemaking activities to issue guidelines and regulations on ADS-B *In* technology, and (2) the Department has not established a public-private incentive program for encouraging users to install NextGen avionics equipment on aircraft.

FAA is also 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 with 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 use performance-based navigation<sup>6</sup> at the Nation's airports.

### **FAA's Difficulties in Meeting the Act's NextGen Provisions Stem From Programmatic and Organizational Challenges**

FAA faces a number of programmatic and organizational challenges in fulfilling 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, delays in issuing guidelines and regulations for ADS-B *In* are due, in part, to the challenges FAA faces to realize the full range of ADS-B benefits. These include finalizing requirements for displaying traffic information in aircraft cockpits, modifying the systems that controllers rely on to manage traffic, developing and deploying new procedures for separating aircraft using satellite based technology, and assessing potential system security vulnerabilities. As a result of these challenges, FAA may not 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 *In* and other NextGen initiatives because FAA has not clearly defined what benefits will be achieved and when.<sup>7</sup>

According to FAA, many of its difficulties stem from the challenges of working with multiple stakeholders. 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. For example, while FAA and

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<sup>6</sup> Performance-Based Navigation is comprised of Area Navigation (RNAV) and Required Navigation Performance (RNP) and describes the capability to navigate using performance standards. RNAV is a navigation method in which aircraft use avionics, such as Global Positioning Systems, to fly any desired flight path without the limitation imposed by ground-based systems. RNP is a form of RNAV that adds on-board monitoring and alerting capabilities for pilots.

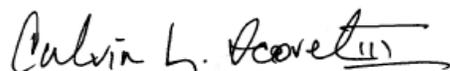
<sup>7</sup> *Status of Transformational Programs and Risks to Achieving NextGen Goals* (OIG Report No. AV-2012-094), April 23, 2012. OIG reports are available on our Web site at <http://www.oig.dot.gov/>.

the NextGen Advisory Committee (NAC)<sup>8</sup> were able to agree on certain performance metrics, as required by the act, there was considerable debate within NAC on the use of other metrics, such as those related to aircraft fuel burn rates. Some NAC members were concerned about publicizing fuel burn rates because it could provide competitors with proprietary information such as flight routes and aircraft types. NAC is currently working with industry stakeholders on a process to obtain actual fuel burn data to meet the act's requirement.

FAA officials also noted that budgetary issues, including the provisions of the Budget Control Act of 2011,<sup>9</sup> have impacted its 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>10</sup> in March 2013. However, according to Agency officials, it did not publish the plan until June 2013 due to the impacts of sequestration.

We plan to issue a full report on our findings later this year and will continue to monitor FAA's NextGen efforts through ongoing assignments, several of which relate to the NextGen provisions of the act.<sup>11</sup> If I can answer any questions or be of further assistance, please contact me at (202) 366-1959, or Matthew E. Hampton, Deputy Assistant Inspector General for Aviation and Special Program Audits, at (202) 366-1987.

Sincerely,

A handwritten signature in black ink that reads "Calvin L. Scovel III". The signature is written in a cursive style with a horizontal line underlining the name.

Calvin L. Scovel III  
Inspector General

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<sup>8</sup> NAC is a Federal advisory committee that will develop recommendations for NextGen portfolios with an emphasis on the mid-term (through 2018). NAC includes representation from affected user groups, including operators, manufacturers, air traffic management, aviation safety, airports, and environmental experts.

<sup>9</sup> The law requires 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>10</sup> The NextGen Implementation Plan is an annual plan that sets out FAA's vision for NextGen, now and in the mid-term, and identifies the Agency's goals for technology and program development and its commitments in support of that vision.

<sup>11</sup> See exhibit B for a listing of our previous and ongoing work related to the Title II requirements and other NextGen and modernization programs.

## EXHIBIT A. 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 (NGIP).	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 an 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 A. 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.



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

Section	Initiative	Description	Deadline	Progress	Status
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 or 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.
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.

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## EXHIBIT A. 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.



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



- Provision Not Implemented and Statutory Deadline Missed

## EXHIBIT B. OIG WORK RELATED TO FAA'S 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/>.