

**Before the Committee on Transportation and Infrastructure  
Subcommittee on Aviation  
United States House of Representatives**

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# **FAA's Implementation of the FAA Modernization and Reform Act of 2012 Remains Incomplete**

**Statement of  
The Honorable Calvin L. Scovel III  
Inspector General  
U.S. Department of Transportation**



Mr. Chairman and Members of the Subcommittee:

Thank you for inviting me to testify on the Federal Aviation Administration's (FAA) progress in implementing key provisions of the FAA Modernization and Reform Act of 2012, which was signed into law on February 14, 2012. This legislation provided FAA with a stable 4-year authorization that included policy direction and guidance for the Agency to safely operate the National Airspace System (NAS). The act also includes several key provisions intended to help FAA better manage its Next Generation Air Transportation System (NextGen) and other modernization efforts, integrate new technologies, and improve its operations and oversight responsibilities.

Our past and ongoing work has examined FAA's implementation of various provisions of the act and corresponding programs. My testimony today is based on this work and will focus on FAA's progress and challenges in meeting three key areas of the act: (1) implementing NextGen and other modernization provisions, (2) safely integrating unmanned aircraft systems (UAS)<sup>1</sup> into the NAS, and (3) effectively utilizing two safety workforces—controllers and inspectors.

## **IN SUMMARY**

FAA has made progress implementing provisions of the act, but significant actions are needed to meet the intent of the act and improve the execution and management of its programs. Notably, FAA has met about half of the act's NextGen and modernization provisions, including appointing a Chief NextGen Officer. However, it has yet to meet provisions intended to expedite a key element of the Automatic Dependent Surveillance Broadcast (ADS-B) program—the core for shifting from today's ground-based radar to NextGen's satellite-based systems. Underlying programmatic and organizational challenges that we have previously reported continue to impact FAA's ability to deliver NextGen capabilities as originally planned. While FAA has made progress meeting the act's UAS provisions, it has determined that it will not meet the September 2015 deadline for UAS integration due to a series of complex technological, regulatory, and managerial barriers. Finally, FAA has not effectively maximized use of key segments of its safety workforce. For example, FAA does not have an effective model for determining the number of inspectors it needs and where to place them. Further, the Agency has not developed metrics to determine whether its new controller scheduling policies will reduce controller fatigue.

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<sup>1</sup> UAS consists of aircraft systems and ground control stations where operators control the movements of aircraft remotely. Unmanned aircraft serve diverse purposes, such as enhancing border security and aiding law enforcement.

## **FAA HAS IMPLEMENTED HALF OF THE ACT'S NEXTGEN AND MODERNIZATION PROVISIONS, BUT KEY ACTIONS REMAIN**

As we reported in September 2013,<sup>2</sup> FAA has made progress implementing the NextGen provisions of the act, but it remains behind in its efforts to implement key provisions. (See attachment 1 for a description of the provisions and their implementation status.) As of January 2014, FAA had implemented or was on target to implement 12 of 24 NextGen-related provisions—including 3 key provisions intended to advance new air traffic procedures and technologies and increase accountability. Specifically:

- In May 2012, FAA established a program that uses third parties to develop and test advanced navigation procedures at five mid-sized airports.
- 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 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 FAA'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.<sup>3</sup>

Despite this progress, FAA has not implemented key provisions of the act that are intended to accelerate NextGen technologies and achieve the full range of NextGen benefits. Most notably, FAA has not carried out important provisions related to accelerating ADS-B—the foundation for shifting from today's ground-based radar to NextGen's satellite-based systems. Although FAA has mandated that all airspace users purchase and install ADS-B *Out*—avionics for broadcasting flight information to controllers and FAA ground systems—it has not issued a mandate for ADS-B *In*, which enables the display of the broadcast information in the cockpit.

The act directed FAA to begin a rulemaking process for ADS-B *In*, with the goal of mandating the new technology by 2020 for aircraft operating in capacity-constrained airspace. However, the technical requirements for ADS-B *In* continue to evolve and, therefore, it is uncertain when the technology can be implemented. For example, a report by an aviation rulemaking committee cautioned that the air-to-air applications for

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<sup>2</sup> *Letter Regarding FAA's Progress in Meeting NextGen Provisions of the FAA Modernization and Reform Act of 2012* (OIG Project No. CC-2012-003), Sept. 17, 2013.

<sup>3</sup> Recognizing the need to better position the Agency to execute NextGen, FAA announced a major reorganization in 2011. Specifically, FAA appointed an Assistant Administrator for NextGen, who reports directly to the FAA Deputy Administrator, and established a new Program Management Office.

ADS-B *In* were not mature and that the costs and benefits were uncertain. The report also stated that FAA lacks well-defined policy, equipment standards, certification and operational approval guidance, procedures, and ground automation—all prerequisites for a successful rulemaking effort. As a result, FAA will not be in position to mandate ADS-B *In* for several years.

While FAA is exploring options for NextGen rulemaking initiatives, the Agency has taken some near-term actions to advance ADS-B. For example, FAA has entered into partnerships with several U.S. airlines to develop and demonstrate ADS-B *In* applications and procedures. As part of these agreements, FAA is providing funding for airlines to purchase ADS-B equipment. For example, US Airways plans to install ADS-B systems in 20 Airbus A330 aircraft to assess the use of cockpit displays in maintaining proper spacing between aircraft on arrivals. However, FAA does not expect all elements of the demonstrations to be completed until 2017.

As we testified in July 2013,<sup>4</sup> FAA's progress with delivering planned NextGen capabilities has not met Congress' or industry stakeholders' expectations due to a number of underlying causes. FAA's NextGen plans—which initially estimated completion by 2025 at a cost of \$40 billion—lacked sound strategies for implementing a system that could handle three times more traffic while reducing FAA's operating costs. As a result, FAA has been unable to set realistic plans, budgets, and expectations for key NextGen programs. Moreover, FAA's organizational culture—which is highly operational, tactical, and safety-oriented—has been slow to embrace NextGen's transformational vision. Gaps in leadership have further undermined the Agency's efforts to advance NextGen. These weaknesses have contributed to stakeholders' skepticism about NextGen's feasibility and reluctance to invest—particularly in efforts that require airspace users to purchase and install costly equipment in their aircraft.

The extent to which FAA realigns and consolidates the Nation's air traffic control facilities will be another important component of the Agency's NextGen efforts. To comply with Section 804 of the act, FAA provided Congress with a plan for consolidating and realigning its air traffic facilities. The plan, developed collaboratively with the National Air Traffic Controller Association (NATCA) and Professional Aviation Safety Specialists (PASS), establishes a new process for evaluating realignments of its terminal radar control facilities (TRACON). However, this plan is significantly less comprehensive than previous consolidation plans we reviewed in 2012.<sup>5</sup> The plan also does not include a process for realigning and consolidating facilities that manage high-altitude traffic.<sup>6</sup> As FAA moves forward, it will be important for the Agency to establish

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<sup>4</sup> *FAA's Progress and Challenges in Advancing the Next Generation Air Transportation System* (OIG Testimony No. CC-2013-028), July 17, 2013.

<sup>5</sup> *The Success of FAA's Long-Term Plan for Air Traffic Facility Realignments and Consolidations Depends on Addressing Key Technical, Financial, and Workforce Challenges* (OIG Report No. AV-2012-151), July 17, 2012.

<sup>6</sup> En route centers guide airplanes flying at high altitudes through large sections of airspace.

sound metrics to determine whether facility realignments and consolidations will result in measurable cost savings, operational efficiencies, and productivity enhancements.

## **FAA’S EFFORTS TO SAFELY INTEGRATE UAS INTO THE NATIONAL AIRSPACE SYSTEM HAVE BEEN DELAYED**

FAA has made recent progress in meeting the act’s 17 UAS provisions. However, the Agency faces significant technological, regulatory, and managerial obstacles in its efforts to address UAS-related safety risks and successfully integrate UAS into the NAS. These include longer term challenges with developing adequate UAS technology and establishing certification standards and regulations, as well as near-term air traffic control and oversight issues.

### **Despite Recent Progress, FAA Is Behind in Meeting Statutory Milestones for UAS Integration**

FAA has completed 8 of the act’s 17 UAS provisions, such as publishing its 5-year UAS Roadmap,<sup>7</sup> establishing a comprehensive plan to safely accelerate UAS integration and streamlining its certificate of authorization (COA) processes (see table 1). However, the Agency missed statutory milestones for most of these provisions. For example, FAA recently announced its selection of six UAS test ranges—over a year after the statutory milestone.

***Table 1. Completed UAS Initiatives as of January 2014***

| <b>Initiative</b>   | <b>Date Due</b> | <b>Date Completed</b> |
|---|-----------------|-----------------------|
| Establish agreements to streamline the COA process  | 5/14/2012       | 3/4/2013              |
| Establish a program for integrating UAS into the NAS at six test ranges   | 8/12/2012       | 12/30/2013            |
| Develop a plan for small UAS to operate in the Arctic for research and commercial purposes                        | 8/12/2012       | 11/1/2012             |
| Determine if certain UAS may operate safely in the NAS before completion of the comprehensive plan and rulemaking | 8/12/2012       | 7/19/2013             |
| Issue guidance regarding the operation of public-use UAS, including expediting the UAS approval process           | 11/10/2012      | 1/22/2013             |
| Develop a comprehensive plan to safely accelerate the integration of UAS into the NAS                             | 11/10/2012      | Sept. 2013            |
| Submit a copy of the comprehensive plan to Congress   | 2/14/2013       | 11/6/2013             |
| Develop and make publically available a 5-year roadmap for the introduction of UAS into the NAS                   | 2/14/2013       | 11/7/2013             |

Note: For full status information on these and other initiatives, see attachment 2.

Source: OIG

<sup>7</sup> The Roadmap is a guide outlining FAA’s plans for integrating UAS into the NAS over a 5-year period.

FAA is also behind schedule in implementing the remaining nine UAS provisions. For example, FAA is a year late in implementing a provision to make the first UAS test range operational. In addition, FAA officials stated that the Agency will not meet the act's August 2014 milestone for issuing a final rule on small UAS operations.<sup>8</sup>

Further, Agency officials stated that FAA will not meet Congress' September 2015 milestone for safe integration of UAS but will complete some parts of integration—most likely for small UAS. FAA's 5-year UAS Roadmap contains target dates for the Agency's future integration efforts, but FAA officials stated that the target dates do not represent "commitments." As a result, it remains unclear when FAA will complete UAS integration.

### **Technological, Regulatory, and Managerial Barriers Limit Progress Toward Full UAS Integration**

FAA faces significant challenges in fully integrating UAS, including resolving technological barriers to mitigate UAS safety risks, reaching consensus on critical UAS regulatory standards, and addressing managerial barriers that limit UAS operations.

Successfully mitigating UAS safety risks depends on FAA's ability to overcome two significant technological barriers: (1) the lack of a mature detect-and-avoid technology to avoid collisions and (2) inadequate control and communications technology, which allows a ground control station and unmanned aircraft to interact.

- **Lack of mature detect-and-avoid<sup>9</sup> technology.** Because there are no pilots on board, UAS cannot comply with FAA requirements for aircraft to be able to "see and avoid" other aircraft. Therefore, the safe operation of UAS relies on effective, robust technology to automatically detect other aircraft operating in nearby airspace and successfully maneuver to avoid them. Experts we interviewed said detect and avoid is the most pressing technical challenge to integration yet to be mitigated.
- **Lack of adequate control and communications technology.** The integrity, stability, and security of the link between the ground control station and unmanned aircraft are vital to safe UAS operation. However, adequate technology to reduce the potential for "lost link" scenarios (interruptions or losses of connectivity) does not yet exist. Secure and adequate radio frequencies for communication will also be necessary to ensure sufficient links. While the International Telecommunication Union<sup>10</sup> granted some UAS-specific radio frequency in 2012, many unknowns remain—particularly

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<sup>8</sup> The rule is intended to establish operating and performance criteria for small UAS (under 55 pounds) in the NAS that are operated within line-of-sight of a pilot or ground observer below 400 feet.

<sup>9</sup> While FAA 14 CFR 91.113 speaks of a pilot's ability to "see and avoid" other aircraft, the UAS community, spearheaded by RTCA SC-228, is using the term "detect and avoid" to describe the desired capability of UAS.

<sup>10</sup> The International Telecommunication Union is the United Nations' specialized agency for information and communication technologies. It allocates global radio spectrum.

regarding the amount of frequency spectrum needed, licensing issues, control and communications standards, and security vulnerabilities.

To address these technological barriers, several research projects are under way at FAA and other agencies, such as DoD and NASA. For example, FAA plans to complete testing of communications between ground operators and unmanned aircraft in fiscal year 2015, and DoD is testing a ground-based detect-and-avoid system. However, it remains uncertain when these efforts will provide UAS technology to fully support safe UAS integration.

FAA also has yet to establish minimum regulatory standards for UAS. Specifically, the Agency lacks (1) minimum performance standards for civil UAS and (2) regulatory requirements or standards for UAS design certification, pilot and crew<sup>11</sup> qualifications, ground control stations, and command and control reliability.

- **Lack of minimum performance standards for civil UAS.**<sup>12</sup> Despite working with a special RTCA advisory committee<sup>13</sup> for over 9 years, FAA has not reached consensus among Government and industry stakeholders on minimum performance standards. In March 2013, FAA tasked RTCA to form a new committee with a much narrower focus to help accelerate this effort.<sup>14</sup>
- **Lack of regulatory requirements or standards for UAS design certification, pilot and crew qualifications, ground control stations, and command and control reliability.** FAA has not established design certification standards needed to certify new civil UAS. According to FAA officials, the Agency's civil UAS certification projects have resulted in the certification of two aircraft. However, the projects rely on a military certification rule that does not apply to new types of UAS, and the two aircraft are restricted to operations over water in the Arctic area. FAA officials told us they are evaluating lessons learned to develop standards for widespread use. Table 2 lists some other UAS operations areas needing safety regulations, standards, and guidance. Without such a regulatory framework to mitigate safety concerns, UAS will continue to operate in the NAS with significant limitations.

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<sup>11</sup> Crew, in addition to the pilot, can include ground-based crew, who must assist the pilot with determining UAS proximity to other aviation activities and help the pilot avoid operating beyond the visual line-of-sight limit.

<sup>12</sup> Private or commercial use.

<sup>13</sup> Organized in 1935 as the Radio Technical Commission for Aeronautics, RTCA, Inc. is a private, not-for-profit corporation that develops consensus-based recommendations regarding communications, navigation, surveillance, and air traffic management system issues. It functions as a Federal Advisory Committee.

<sup>14</sup> RTCA established Special Committee 228, which is focused on more detailed standards regarding detect-and-avoid capabilities and command and control links.

**Table 2. Sample of UAS Operations Areas Needing Aviation Safety Regulations, Standards, and Guidance**

| Unmanned Aircraft  | Pilot and Crew  | Control Station   | Data Link  |
|--|---|---|--|
| <ul style="list-style-type: none"> <li>• Policy</li> <li>• Certification Requirements</li> <li>• Technical Standards</li> <li>• Performance Standards</li> <li>• Airworthiness Standards</li> <li>• Procedures</li> <li>• Regulations/Guidance</li> <li>• Measures of Performance</li> <li>• Maintenance Requirements</li> </ul> | <ul style="list-style-type: none"> <li>• Policy</li> <li>• Certification Requirements</li> <li>• Operational Standards</li> <li>• Procedures</li> <li>• Regulations</li> <li>• Guidance Material</li> <li>• Training Requirements</li> <li>• Medical Standards</li> </ul> | <ul style="list-style-type: none"> <li>• Policy</li> <li>• Certification Requirements</li> <li>• Technical Standards</li> <li>• Airworthiness Standards</li> <li>• Interoperability Requirements</li> <li>• Guidance Material</li> <li>• Maintenance Requirements</li> <li>• Means of Compliance</li> </ul> | <ul style="list-style-type: none"> <li>• Policy</li> <li>• Certification Requirements</li> <li>• Technical Standards</li> <li>• Airworthiness Standards</li> <li>• Interoperability Requirements</li> <li>• Dedicated Aviation Radio Frequency Spectrum</li> <li>• Standardized Control Architectures</li> <li>• Link Security Requirements</li> </ul> |

Source: OIG analysis of FAA data

Although some UAS operate in the NAS today under FAA’s case-by-case authorizations, their safe integration into the NAS has been impacted by various managerial barriers including (1) a lack of national UAS-specific air traffic controller procedures and training, (2) organizational barriers that impede FAA’s progress in integrating and overseeing UAS operations, and (3) an inadequate framework for sharing and analyzing safety data.

- **Lack of standardized UAS-specific air traffic controller procedures and training.** Although FAA provided interim guidance on UAS-specific air traffic control, it has not established national procedures and training, which limits controllers’ ability to manage air traffic that includes unmanned aircraft. Currently, air traffic controllers are forced to segregate UAS from other traffic rather than integrate them into normal traffic flow. According to air traffic personnel, current procedures and separation standards, designed for manned aircraft, are not adequate for UAS. For example, controllers told us that the En Route Automation Modernization system, a system for processing high-altitude flight data, cannot adequately manage UAS flight plans, which contain an unusually large amount of navigational data. In addition, due to the lack of training and guidance, controllers at air traffic facilities nationwide have filed

reports of problems managing UAS operations.<sup>15</sup> FAA established a corrective action plan in January 2013 but does not expect to resolve these issues until September 2015.

- **Organizational barriers impeding FAA’s progress in integrating and overseeing UAS operations.** Integrating UAS operations into the NAS presents significant organizational challenges, as it requires the collaboration of many stakeholders. In February 2012, FAA established a new UAS Integration Office, which combines Flight Standards and Air Traffic Organization (ATO) personnel and consolidates UAS expertise into a single organization. However, the office is not fully staffed and will have to reach out to FAA lines of business and offices beyond ATO, such as the Aircraft Certification and NextGen organizations. FAA has had difficulty working across lines of business in the past. Other organizational barriers limit FAA’s oversight of current UAS operators. For example, regional UAS safety inspectors receive work assignments from the UAS Integration Office but report to their regional managers, resulting in competing priorities.
- **Inadequate framework for sharing and analyzing safety data.** FAA routinely collects safety data from current public-use UAS operators (mainly from DoD), as required by the COAs granted to each operator. However, the Agency does not know whether it is receiving sufficient data from COA operators, as it has no process to ensure that all incidents are reported as required. In addition, FAA has not reached agreement with DoD to obtain useful data. For example, while FAA’s Office of Accident Investigation and Prevention receives annual UAS mishap data from DoD, FAA’s UAS integration staff told us they do not find these data useful because they lack detail. DoD has a wealth of other operational data, such as maintenance data, but the Agency has been unable to obtain the data due to concerns about data sensitivity and resource coordination. FAA and DoD have formed a data sharing team to resolve this issue.

We plan to issue a report later this year on FAA’s efforts to (1) develop standardized training and procedures for air traffic controllers, (2) establish design and certification standards for UAS technology, (3) enhance collection of UAS safety data, and (4) establish well-defined metrics to assess progress toward safe integration.

## **FAA HAS NOT EFFECTIVELY MAXIMIZED USE OF KEY SEGMENTS OF ITS SAFETY WORKFORCES**

FAA has not fully resolved issues with the effective utilization and management of two safety workforces. Specifically, FAA does not have an effective model for determining the correct number and placement of inspectors, and the Agency has not developed

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<sup>15</sup> Controllers file these reports through FAA’s Air Traffic Safety Action Program, a voluntary safety reporting program that enables air traffic personnel to confidentially report air traffic safety events.

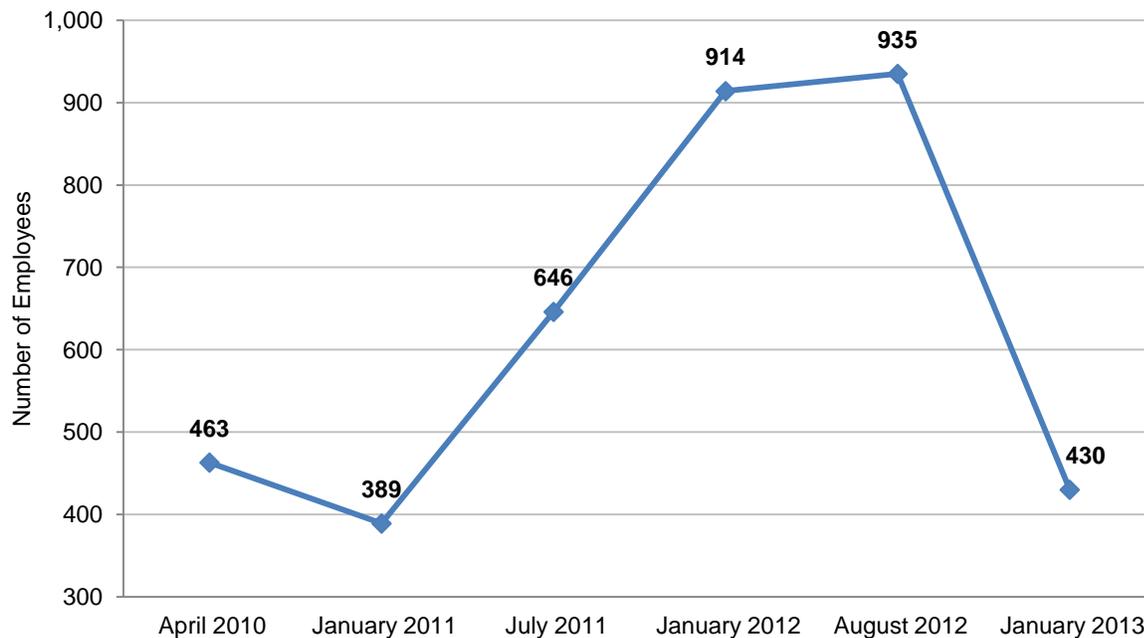
metrics to determine whether its new controller scheduling policies will reduce controller fatigue.

### **FAA Has Not Developed a Reliable Model for Determining Its Safety Inspector Workforce Needs**

FAA currently employs approximately 4,000 flight standards safety inspectors who oversee all facets of aviation safety, from general aviation to air carrier operations. The act required FAA to implement a new staffing model for its inspector workforce to address concerns raised in a 2006 congressionally mandated National Research Council (NRC) study.<sup>16</sup> NRC concluded that FAA had an ineffective method for identifying how many safety inspectors it needs and where they are most needed.

As we reported in June 2013,<sup>17</sup> FAA introduced the new staffing model in October 2009. However, the Agency has not fully relied on the model’s results—in part because the model’s data are incomplete, inaccurate, and outdated. On six occasions, FAA issued the results of its staffing model, with each iteration showing widely differing nationwide employee shortages (see figure 1).

**Figure 1. FAA’s Model-Projected Safety Employee Shortfalls**



Source: OIG analysis of FAA data

<sup>16</sup> NRC study, “Staffing Standards for Aviation Safety Inspectors,” Sept. 20, 2006.

<sup>17</sup> *FAA Lacks a Reliable Model for Determining the Number of Flight Standards Safety Inspectors It Needs* (OIG Report Number AV-2013-099), June 20, 2013.

To help FAA address issues with its staffing model, we recommended that the Agency (1) conduct a comprehensive assessment of the model, (2) assess the quality of the data used in the model, and (3) develop a plan with milestones to address the model's shortcomings. In response, FAA obtained an independent review, issued in September 2013, which confirmed our report findings and concluded that the staffing model did not sufficiently address 16 of the 25 NRC recommendations.<sup>18</sup> For example, the study confirmed that FAA had not conducted detailed cost analyses, defined performance measures, or validated the model's data. To address our remaining recommendations, FAA stated that it will identify mitigating actions to address the findings from the independent review and develop a plan with milestones to address the model's shortcomings by April 2014. We met with FAA officials in December 2013 to determine the status of the Agency's efforts and will continue to monitor FAA's progress.

### **FAA Revised Some of Its Controller Scheduling Policies, but Weaknesses Remain**

Following a number of incidents of sleeping or unresponsive controllers in 2011, the act required us to review FAA's air traffic controller scheduling practices—particularly, the impact of scheduling on controller fatigue, performance, and cost. In August 2013<sup>19</sup> we reported that while FAA has revised some of its policies regarding controller scheduling, weaknesses remain. Specifically:

- **FAA lacks metrics to determine whether its new policies will reduce controller fatigue.** FAA revised its controller scheduling policies to increase minimum rest periods between shifts, establish a fatigue risk management system, increase the number of controllers assigned to midnight shifts, and allow “recuperative breaks” on overnight shifts. However, it is unclear how these new policies impact fatigue because FAA does not have metrics to measure the effects of its scheduling practices. In addition, fatigue research, which is still ongoing, may prompt additional revisions to FAA's scheduling practices.
- **FAA has an opportunity to reduce costs related to its overnight operations.** FAA records indicate that 72 facilities are staffed with a minimum of two controllers during the midnight shift—despite not having air traffic that requires continuous overnight operations. By reducing services at these facilities during the midnight shift, the Agency could reduce costs. In response to our recommendation, FAA plans to take some steps to address our concerns by September 30, 2014. Additionally, FAA plans to enhance cost efficiency by implementing its Operational Planning and Scheduling tool, a new system created to help managers design more efficient shift schedules.

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<sup>18</sup> Office of Aviation Safety Staffing Tool and Reporting System (ASTARS) Gap Analysis Study, Comparison of the AVS Staffing Model for Aviation Safety Inspectors to the National Academy of Sciences' Recommendations, Sept. 20, 2013.

<sup>19</sup> *FAA's Controller Scheduling Practices Can Impact Human Fatigue, Controller Performance, and Agency Costs* (OIG Report Number AV-2013-120), Aug. 27, 2013.

- **FAA has not ensured that controllers comply with minimum rest requirements between shifts.** Our review found that a small percentage of controllers did not always comply with minimum rest requirements between shifts. The majority of these violations were less than 15 minutes in length. In response to our review, FAA committed to improving compliance with its policies and reducing the number of violations, such as conducting regular audits and implementing a new timekeeping system feature that will alert users to potential violations.

Our past and ongoing work shows that long-standing issues continue to impact FAA's efforts to improve the efficiency of the NAS and realize the safety, operational, and economic benefits envisioned when Congress passed the FAA Modernization and Reform Act 2 years ago. At the request of this Subcommittee, we are initiating a review of FAA's organizational structure, including an assessment of whether the Agency's previous structural and organizational reforms have improved its operational, technological, and cost effectiveness. We will keep the Subcommittee apprised of our work.

This concludes my prepared statement. I will be happy to answer any questions you or the other Members of the Subcommittee may have.

# ATTACHMENT 1. STATUS OF FAA'S IMPLEMENTATION OF THE ACT'S TITLE II PROVISIONS (AS OF JANUARY 2014)

| Section      | Provision  | Description  | Deadline                                | Progress  | Status  |
|--------------|--|--|---|---|---|
| 202          | NextGen Demonstrations and Concepts  | Provide Facilities & Equipment funding priority to NextGen activities.   | None                                    |    | Met – FAA prioritizes demonstration projects and developmental efforts in its annual budget request and acquisition management processes.   |
| 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 Joint Planning and Development Office (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, and is in the process of implementing the appropriations Direction to move the JPDO to the NextGen and operations planning activity. |
| 208(a)(3)(D) | NextGen JPDO (Interagency MOUs)  | Execute Memorandums of Understanding (MOU) with DoD, Commerce, Homeland Security, NASA, and other agencies documenting their responsibilities to carry out the NextGen Integrated Plan.  | 8/14/12                                 |    | Met – Although 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 and annually                    |  | Implemented Late – FAA completed the NGIP in June 2013— 4 months after the due date. According to FAA, the NGIP was originally scheduled for publication a month after the President's budget, but 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 an identification of funding. | Report - 2/14/13 and annually afterward |  | Missed Deadline – According to FAA, partner agencies cleared the report, but it is still in administrative review.  |

-  - 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

# ATTACHMENT 1. STATUS OF FAA'S IMPLEMENTATION OF THE ACT'S TITLE II PROVISIONS (AS OF JANUARY 2014)

| Section   | Provision   | 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 on an Aviation Rulemaking Committee recommendations 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 plan is under internal review.   |
| 212       | Expert Review Enterprise Architecture for NextGen   | FAA shall enter into an agreement with the 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. 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 area navigation (RNAV) and required navigation performance (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<br><br>RNAV/RNP Procedure Implementation:<br>30% by 8/14/13;<br>60% by 2/14/15;<br>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.<br><br>RNAV/RNP Procedure 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

## ATTACHMENT 1. STATUS OF FAA'S IMPLEMENTATION OF THE ACT'S TITLE II PROVISIONS (AS OF JANUARY 2014)

| Section   | Provision   | 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<br><br>RNAV/RNP Procedure Implementation:<br>25% by 8/14/13;<br>50% by 2/14/15;<br>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.<br><br>RNAV/RNP Procedure 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, it has drafted a plan that is undergoing internal review.  |
| 213(e)    | Acceleration of NextGen Technologies (Improved Performance Standards) | In the NGIP, (1) determine if technology such as ADS-B and RNP will improve efficiency, and (2) safely reduce aircraft separation standards (including 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 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 undergoing internal review.  |

-  - 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

## ATTACHMENT 1. STATUS OF FAA'S IMPLEMENTATION OF THE ACT'S TITLE II PROVISIONS (AS OF JANUARY 2014)

| Section | Provision   | Description   | Deadline   | Progress  | Status   |
|---------|---|---|--|---|--|
| 216     | Surface System Acceleration   | Evaluate and accelerate the Airport Surface Detection Equipment Model X program (ASDE-X), 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. | ASDE-X Implementation: (none)<br><br>GBAS Plan: 12/31/12 |    | ASD-X Implementation: Ongoing – FAA continues to explore enhancements to the ASDE-X program as part of its NextGen initiatives.<br><br>GBAS Plan: Not Implemented – According to FAA, due to issues in Newark, NJ, in 2012, the GBAS system was sent back to development for further research. The issues were resolved, and GBAS has been certified as a non-Federal acquisition system for airports. FAA states that it is working with industry on the plan required by the legislation.                                |
| 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 Authorities of New York/New Jersey/Philadelphia monitor noise impacts of area Airspace Redesign. No later than 1 year after completing redesign, submit a report on noise impacts.   | 12/1/17  |    | In Progress – The New York/New Jersey/Philadelphia Airspace Redesign is expected to be completed in 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 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. FAA also stated that there has been one interested private partner that has submitted an application targeted to General Aviation. FAA is reviewing the application. |
| 222     | Operational Incentives  | FAA shall issue a report that identifies incentive options to encourage operators to equip aircraft with NextGen technology.  | 8/14/12  |  | Implemented Late – According to FAA, the report was delivered to Congress in September 2013 – 13 months after the due date.  |
| 225     | Greener Skies Project   | Report on NextGen capabilities produced by Greener Skies Project.   | Initial report 8/14/12 and 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

## ATTACHMENT 2. STATUS OF FAA'S IMPLEMENTATION OF THE ACT'S UAS PROVISIONS (AS OF JANUARY 2014)

| Section | Description  | Deadline   | Progress   | Status   |
|---------|--|------------|--|--|
| 334c    | Establish agreements to simplify process for issuing COAs for public UAS in the NAS.   | 5/14/2012  | <br> | Met — FAA made changes to the COA process to shorten the timeframes needed for approval.<br><br>Implemented Late – FAA completed a streamlined COA process via MOUs with DoD, NASA, and DOJ in March 2013.   |
| 332c(1) | Establish program for integrating UAS into the NAS at six test ranges.   | 8/12/2012  |    | Implemented Late – On December 30, 2013, FAA announced the test-site applicants chosen for the six test ranges.  |
| 332d    | Develop plan to designate permanent areas in the Arctic where small UAS may operate 24 hours/day for research and commercial purposes. | 8/12/2012  |    | Implemented Late – FAA's Arctic Plan was signed on November 1, 2012, and was made available to the public on FAA's Web site on December 6, 2012.   |
| 333     | Determine if certain UAS may operate safely in the NAS before completion of the comprehensive plan and rulemaking.                     | 8/12/2012  |    | Implemented Late – FAA issued type certificates (using the 21.25 restricted category certification) to ScanEagle and Puma UAS to operate in the Arctic in July 2013, stipulating that certain UAS could operate in restricted areas of the NAS prior to the issuance of the comprehensive plan.            |
| 332a(1) | Develop a comprehensive plan to safely accelerate the integration of UAS into the NAS.   | 11/10/2012 |    | Implemented Late – JPDO was assigned to develop the comprehensive plan. However, the document had to undergo substantial revisions during an interagency review process.   |
| 334a    | Issue guidance regarding the operation of public-use UAS including expediting the UAS approval process.                                | 11/10/2012 |   | Implemented Late – On January 22, 2013, the FAA issued notice N8900.207, which provides policies necessary for reviewing and evaluating the safety and interoperability of proposed UAS flight operations in the NAS, and outlines best practices and procedures that FAA has used in prior UAS approvals. |
| 332a(4) | Submit copy of comprehensive plan to Congress.   | 2/14/2013  |    | Implemented Late – After an extended executive coordination and interagency review process, FAA submitted the plan on November 6, 2013.  |

-  - Provision Implemented and Statutory Deadline Met
-  - Provision Implemented but Missed Statutory Deadline
-  - Provision Not Implemented and Statutory Deadline Missed

## ATTACHMENT 2. STATUS OF FAA'S IMPLEMENTATION OF THE ACT'S UAS PROVISIONS (AS OF JANUARY 2014)

| Section | Description  | Deadline   | Progress   | Status   |
|---------|--|------------|--|--|
| 332c(4) | Make operational at least one project at a test range.   | 2/14/2013  |    | Missed Deadline – FAA announced the six test sites in December 2013. FAA officials stated that the first test site will not be operational until 6 months after that date.   |
| 332a(5) | Develop and make publically available 5-year roadmap for the introduction of UAS into the NAS.               | 2/14/2013  |    | Implemented Late – OMB required FAA to make substantial revisions to its Roadmap, and the document underwent a Legislative Referral Memorandum process. FAA published the Roadmap on November 7, 2013.             |
| 332b(3) | Issue an update to the Administration's policy statement on UAS.   | 8/14/2014  |    | Deadline in future.  |
| 332b(1) | Issue the Final Rule on small UAS.   | 8/14/2014  |    | Deadline in future. FAA officials stated that the Agency will be unable to meet this deadline.   |
| 332b(2) | Issue a NPRM to implement recommendations of the comprehensive plan.   | 8/14/2014  |    | Deadline in future.  |
| 332a(3) | The safe integration of civil UAS into the NAS.  | 9/30/2015  |    | Deadline in future. FAA officials stated that, by this date, they plan to have the test sites operational, issue the small UAS rule, and approve a ground-based detect-and-avoid system available for certain UAS. |
| 332b(2) | Issue final rule on integration of all UAS into the NAS.   | 12/14/2015 |  | Deadline in future.  |
| 334b    | Develop and implement operational and certification requirements for the operation of public UAS in the NAS. | 12/31/2015 |  | Deadline in future.  |
| 332c(1) | Termination of program for integrating UAS into the NAS at six test ranges.                                  | 2/14/2017  |  | Deadline in future.  |
| 332c(5) | Submit report of findings and conclusions concerning projects from six test ranges.                          | 5/15/2017  |  | Deadline in future.  |

-  - Provision Implemented and Statutory Deadline Met
-  - Provision Implemented but Missed Statutory Deadline
-  - Provision Not Implemented and Statutory Deadline Missed
-  - Deadline in Future