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THE FAA MODERNIZATION AND REFORM ACT OF 2012: TWO YEARS LATER

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HEARING

BEFORE THE

SUBCOMMITTEE ON
AVIATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRTEENTH CONGRESS

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Committee on Transportation and Infrastructure
U.S. House of Representatives

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January 31, 2014

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SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on "The FAA Modernization and Reform Act of 2012: Two Years Later"

PURPOSE

The Subcommittee on Aviation will meet on Wednesday, February 5, 2014, at 10:00 a.m. in 2167 Rayburn House Office Building to receive testimony from the Federal Aviation Administration (FAA), Department of Transportation Office of Inspector General (DOT IG), and Government Accountability Office (GAO). The Subcommittee will hear from the witnesses regarding the progress the FAA has made in implementing provisions in the *FAA Modernization and Reform Act of 2012* (Reform Act)[1] in the last two years.

BACKGROUND

The Reform Act was enacted on February 14, 2012, and contains provisions intended to improve the safety and efficiency of our civil aviation system now and into the future. It provides the FAA with resources needed to safely operate the air traffic control system, invest in airport infrastructure, and continue implementing the Next Generation Air Transportation System (NextGen) program. It also provides policy direction to the FAA, on matters such as safely integrating unmanned aircraft systems (UAS) into the National Airspace System (NAS), streamlining the deployment of NextGen capabilities, and consolidating FAA services and facilities. Finally, the Reform Act provides greater stability to allow government and industry stakeholders to make long-term investment and policy decisions. Prior to its enactment, the FAA was operating under a series of 23 short-term extensions for nearly five years.[2]

[1] P.L. 112-95
[2] Vision 100--Century of Aviation Reauthorization Act (P.L. 108-176) was enacted on December 12, 2003, and expired on September 30, 2007.

Safety

The United States is the gold standard in aviation safety due to the commitment of government regulators and industry professionals, including manufacturers, air traffic controllers, pilots, flight attendants, and mechanics. Safety is also the top priority of the Subcommittee. In furtherance of this priority, the Reform Act requires the FAA to establish and implement a safety assessment system for foreign maintenance, repair, and overhaul facilities that are certificated by the agency.[3] The goal is to ensure that foreign facilities are subject to appropriate oversight, identify deficiencies, and improve safety. In addition, the Reform Act requires the FAA to develop a strategic runway safety plan to improve runway safety, in part, by reducing runway incursions, losses of standard separation, and operational errors.[4] The agency has not yet implemented a safety assessment system for foreign repair stations; however, the runway safety plan was transmitted to Congress on September 13, 2012.

Unmanned Aircraft Systems

The development and application of unmanned aircraft systems (UAS) is rapidly advancing, far exceeding existing rules and regulations for integrating them into the NAS. Currently, public UAS – such as those operated by federal, state, and local government entities – are operating in the NAS but only with FAA authorization.[5] Commercial use of UAS in the NAS is currently prohibited by the FAA.

The Reform Act requires the FAA to *safely* integrate civil UAS into the NAS by September 30, 2015.[6] In doing so, the FAA is required to establish a minimum of six test ranges to conduct research and development activities to address certification standards, coordination with NextGen, privacy issues, and the verification of the operational safety of UAS. Although the establishment of the test ranges was delayed, on December 30, 2013, the FAA announced the selection of the six test site operators.[7]

According to the FAA, while the selection of these test sites will not allow immediate access to the NAS for commercial and civil purposes, the data that is generated will help the FAA answer research questions such as solutions for "sense and avoid," command and control, ground control station standards and human factors, airworthiness, lost link procedures, and the interface with the air traffic control system.[8] Much of this data will be analyzed at the FAA's William J. Hughes Technical Center in Egg Harbor Township, New Jersey, and will ultimately be used to develop regulations and operational procedures for future commercial and civil use of the NAS by UAS.

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[3] P.L. 112-95, Section 308 – Inspection of Repair Stations Located outside the United States.
[4] P.L. 112-95, Section 314 – Runway Safety.
[5] http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/aaim/organizations/uas/coa/.
[6] The Subcommittee notes that it is the responsibility of the FAA to determine if civil UAS can be safely integrated into the NAS by the established deadline.
[7] FAA Press Release, *FAA Selects Unmanned Aircraft Systems Research and Test Site*, December 30, 2013; University of Alaska; State of Nevada; Now York's Griffiss International Airport; North Dakota Department of Commerce; Texas A&M University-Corpus Christi; and Virginia Polytechnic Institute and State University (Virginia Tech).
[8] FAA Fact Sheet, *FAA UAS Test Site Program*, December 30, 2013.

The Reform Act also requires the FAA to determine if some UAS, due to their size, speed, operational capability, proximity to airports and population centers, and operation with the visual line of sight,[9] are capable of operating safely in the NAS before the completion of a required UAS integration plan and rulemaking.[10] The agency was tasked to assess whether these particular UAS do not create a hazard or pose a threat and therefore may not require certification or authorization from the FAA to operate. The agency recently announced that its Small UAS rulemaking, where the FAA intends to address this mandate, will be further delayed with publication not expected until November 2014.

Next Generation Air Transportation System

It has long been recognized that our current air traffic system will be unable to accommodate future air traffic demands. Ground-based radar, voice communication congestion, and controller workload limit the capacity and efficiency of the NAS. For more than a decade, the FAA has been developing a program to modernize the system with new technologies. The future air traffic system will utilize space-based navigation, text message-like communications between pilots and controllers, and automation tools that will reduce the workload of controllers. When it is properly implemented, NextGen will reduce delays and operating costs, improve safety and efficiency, increase capacity, and lessen aviation's impact on the environment. While the FAA has made progress implementing some NextGen programs, it has also experienced significant setbacks including cost overruns and schedule delays on other programs.

The Reform Act includes the most significant reforms to the NextGen program since its inception. It required the FAA to appoint a Chief NextGen Officer, responsible for overseeing the entire NextGen program and held accountable by Congress,[11] requires the acceleration of NextGen technologies and capabilities, including expediting environmental review procedures to improve airspace efficiency,[12] and requires the development of operational incentives to encourage the equipage of aircraft with NextGen technologies.[13] Last year, the FAA appointed a Chief NextGen Officer. However, the agency's progress in achieving other NextGen mandates included in the Reform Act has not been consistent. For example, the FAA has not yet completed a plan to accelerate NextGen technologies at major airports or established a public-private partnership incentive program to encourage airspace users to install NextGen avionic equipment on aircraft.

Good Governance

As previously mentioned, the Reform Act requires the FAA to develop a "National Facilities Realignment and Consolidation Report"[14] and submit it to Congress. The report is intended to support the transition to NextGen and reduce capital, operating, maintenance, and administrative costs of the FAA without adversely affecting safety. Further, the FAA is required

[9] P.L. 112-95, Section 333 – Special Rules for Certain Unmanned Aircraft Systems.
[10] P.L. 112-95, Section 332 – Integration of Civil Unmanned Aircraft Systems Into National Airspace System.
[11] P.L. 112-95, Section 204 – On June 3, 2013, Mr. Michael Whitaker was sworn in as the Chief NextGen Officer.
[12] P.L. 112-95, Section 213 – Acceleration of NextGen Technologies.
[13] P.L. 112-95, Section 222 – Operational Incentives.
[14] P.L. 112-95, Section 804 – Consolidation and Realignment of FAA Services and Facilities.

to include recommendations on realigning and consolidating FAA facilities with input from a diverse group of government and industry stakeholders. Perhaps most importantly, the Reform Act requires the agency to implement its recommendations unless Congress enacts a joint resolution of disapproval. The report was due in June 2012; however, it has not yet been submitted.

The Reform Act also requires the FAA to review each program, office, and organization with the agency to identify (1) duplicative positions, programs, roles, or offices; (2) wasteful practices; (3) redundant, obsolete, or unnecessary functions; (4) inefficient processes; and (5) ineffectual or outdated policies.[15] This provision requires the FAA to report to Congress and grants the agency the necessary authority to address its findings. To increase accountability, the GAO is currently reviewing and analyzing the agency's progress to date, as well as their future plans, to fully implement each recommendation to streamline and reform the FAA.[16]

DOT IG and GAO

The Reform Act directs the DOT IG to conduct five reviews of FAA activities and policies, including: a report on disadvantaged small businesses participation in DOT and FAA programs;[17] an annual review of the Automatic Dependent Surveillance-Broadcast program; an assessment of the effectiveness of the FAA's Voluntary Disclosure Reporting Program; the enforcement of long, on-board delays; and an assessment[18] of the FAA's air traffic controller scheduling practices.[19] The Reform Act also mandates the GAO to conduct eight studies, including: alternative means of collecting passenger facility charges;[20] the effectiveness of the FAA's oversight of new technologies to prevent or mitigate smoke in the cockpit;[21] compensation for delayed baggage;[22] an analysis of the Collegiate Training Initiative program;[23] a review of FAA facility conditions;[24] an assessment of the impact of increases in aviation fuel prices; an air-rail code sharing study;[25] and periodic audits of the National Mediation Board's[26] programs and expenditures.[27] The Subcommittee notes that this work is in addition to roughly 35 ongoing or recently completed Congressional requests to the DOT IG and GAO on FAA activities and programs. The findings of these reviews will assist the Subcommittee in drafting the next FAA reauthorization law.

[15] P.L. 112-95, Section 812 – FAA Review and Reform.
[16] Congressional Request, Chairman Shuster and Chairman LoBiondo, 11/20/2013.
[17] As required by Section 140 of P.L. 112-95, the report was issued on 4/23/2013 (ZA-2013-072).
[18] As required by Section 609 of P.L. 112-95, the report was issued on 8/27/2013 (AV-2013-120).
[19] P.L. 112-95, Sections 140, 211, 344, 406, and 609.
[20] As required by Section 112 of P.L. 112-95, the report was issued on 2/14/2013 (GAO-13-262R).
[21] As required by Section 316 of P.L. 112-95, the report was issued on 6/4/2013 (GAO-13-551R).
[22] As required by Section 407 of P.L. 112-95, the report was issued on 6/24/2012 (GAO-12-804R).
[23] As required by Section 603 of P.L. 112-95, the report was issued on 8/24/2012 (GAO-12-996R).
[24] As required by Section 610 of P.L. 112-95, the report was issued on 9/10/2013 (GAO-13-757).
[25] As required by Section 810 of P.L. 112-95, the report was issued on 8/2/2013 (GAO-13-691).
[26] As required by Section 1004 of P.L. 112-95, the report was issued in 12/3/2013 (GAO-14-5).
[27] P.L. 112-95, Sections 112, 316, 407, 603, 610, 808, 810, and 1004.

Status of Provisions in the Reform Act

In addition to the provisions referenced earlier in this memorandum, below is a list of highlighted provisions in the Reform Act and their implementation status.[28]

Provision	Deadline	Status
Appoint Chief NextGen Officer (§204 (1))	N/A	Complete
Report on status of NextGen acceleration efforts at Core Airports (§213(a)(1))	8/14/2012	Incomplete
Publish report on efforts to accelerate NextGen procedures at Non- Core Airports (§213(b)(2)(A))	8/14/2013	Incomplete
Develop a plan to accelerate NextGen technology DataComm (§213(d))	2/14/2013	Incomplete
Develop and establish performance metrics for NextGen (§214)	8/12/2012	Complete
Develop plan to accelerate and streamline NextGen technology certification (§215)	8/12/2012	Incomplete
Evaluate surface systems technology use at Core Airports (§216)	12/13/2012	Incomplete
Issue final rule on safety of crew and passengers on air ambulance helicopters (§306)	6/1/2012	Incomplete
Secretary of State and DOT Secretary issue joint request for international drug and alcohol standards at foreign repair stations (§308(d)(1))	2/14/2013	Complete
Issue NPRM on inspections of foreign repair stations (§308(d)(2))	2/14/2013	Incomplete
Assess and implement plan to improve aircraft certification process (§312)	8/12/2012	Partially Complete
Submit advisory panel report on consistency of regulatory interpretation (§313)	2/14/2013	Complete
Develop process for tracking and investigating incidents in runway safety (§314(b))	8/4/2012	Complete
Develop comprehensive plan for UAS in the National Airspace (§332(a)(1))	11/10/2012	Complete
Develop 5 year roadmap plan for UAS Integration into National Airspace (§332(a)(5))	2/14/2013	Complete
Establish test range program for UAS (§332(c)(1))	6/30/2012	Partially Complete
Study impact of the use of cell phones on passenger aircraft (§410)	8/12/2012	Complete
Report to Congress on study on frontline manager staffing (§604(e))	11/14/2012	Incomplete
Report to Congress on study on FAA technical training and staffing (§605)	2/14/2013	Incomplete
Implement staffing model for aviation safety inspectors (§606)	1/1/2013	Complete
Review and evaluate FAA academy and other training efforts (§609(b))	2/14/2013	Incomplete
Develop plan on consolidation and realignment of FAA services and facilities (804)	6/13/2012	Incomplete
Review, streamline and reform FAA programs, processes and policies (§812)	7/13/2012	Partially Complete

[28] The Subcommittee notes that this is only a sample list. It is not wholly representative of the FAA's progress in implementing mandates required by the Reform Act, nor does it reflect the Subcommittee's priorities.

WITNESS LIST

The Honorable Michael Huerta
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Federal Aviation Administration

The Honorable Calvin Scovel, III
Inspector General
U.S. Department of Transportation

Dr. Gerald Dillingham
Director – Civil Aviation Issues
Government Accountability Office

THE FAA MODERNIZATION AND REFORM ACT OF 2012: TWO YEARS LATER

WEDNESDAY, FEBRUARY 5, 2014

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON AVIATION,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:01 a.m. in Room 2167, Rayburn House Office Building, Hon. Frank A. LoBiondo (Chairman of the subcommittee) presiding.

Mr. LOBIONDO. Good morning. The subcommittee will come to order.

Today we are going to hear from the FAA Administrator, as well as the Department of Transportation inspector general, and the Government Accountability Office regarding the status of the FAA's implementation of the FAA Modernization and Reform Act of 2012. It has been almost 2 years. As the subcommittee begins to look ahead to the next reauthorization, it will be helpful to understand how the FAA has implemented the mandates of the last reauthorization.

Let me begin by congratulating and commending Administrator Huerta for the FAA's recent selection of the unmanned aircraft system test ranges, as directed by the Reform Act. I know this has been sort of a very long and involved process, but one that we hope will be able to yield great benefits to our Nation in the near future.

The ranges will be used to test and demonstrate UAS technology and capabilities, and gather much-needed safety and operational data. As I understand it, the data will be transmitted to the FAA Technical Center and its industry partners for review and validation, and I welcome any comments our witnesses have regarding the FAA's efforts to implement this UAS provision of the Reform Act.

Along with the UAS provisions, there are many other mandates included in the Reform Act—roughly 200, I know, as the FAA has liked to point out in the past. It is nearly 2 years since the bill was enacted. The FAA has made progress in some areas, but it seems that they remain challenged in others. Admittedly, not every provision or mandate is created equal, but it is still important to hear about the FAA's progress in implementing the law.

The FAA's NextGen program is a collaborative effort to modernize the air traffic control system using new technologies that are intended to increase efficiency and capacity, improve safety, reduce aviation's impact on the environment. The Reform Act made significant changes to the NextGen program, and the FAA has made

progress implementing some provisions. But as the GAO and IG point out in their testimony, significant actions are needed to meet the intent of the Reform Act and improve the execution and management of NextGen.

For example, the FAA needs to demonstrate benefits, such as through the use of ADS–B technology or the implementation of performance-backed GPS approaches, two areas in which the FAA is lacking, according to the GAO and IG. Taxpayers and airspace users have invested a lot of money and a lot of time and a lot of energy in NextGen, but, considering repeated program delays and cost overruns, as well as our ongoing budget constraints, we need to hold the FAA accountable for implementing NextGen.

Further, I want to make clear to Administrator Huerta that I am closely monitoring the FAA's response to the NextGen Advisory Committee's priority recommendations. This was not an exercise undertaken to validate FAA's NextGen implementation plan, and it should not be treated as such by the FAA.

The NAC stakeholders responded to an FAA request quickly and deliberately, and produced a set of consensus-based recommendations regarding which NextGen capabilities need to be prioritized, given the tight Federal budget environment. These recommendations must be taken seriously, and the agency has to show stakeholders that it is taking the necessary steps to address them.

The Reform Act also includes provisions intended to allow NextGen to move forward while saving taxpayers money by establishing process for the FAA to consolidate and realign facilities and services without adversely impacting safety. The law requires the FAA to develop a report with recommendations and transmit it to Congress. The law ultimately gives the agency the authority to implement congressionally approved and stakeholder-supported recommendations.

The FAA has a plan to develop a series of realignment and consolidation reports, and the agency will include stakeholders in the decision. But if delays persist, it will be yet another roadblock in air traffic control modernization.

Another similar good governance provision requires the FAA to review its programs, offices, and organizations to identify wasteful practices, obsolete functions, and inefficient processes, and recommend ways to address these inefficiencies. More importantly, it requires the agency to carry out its recommendations and actually address its finding.

The FAA has submitted its findings to Congress, but I am not aware of any actions the agency has taken to implement them. Congress did not intend for the FAA to issue a report and just let it sit on the shelf and collect dust. The FAA must act on its recommendations and keep Congress informed on its progress.

Despite the delays we have experienced, there are many important provisions that must be implemented addressing FAA staffing, certification processes, passenger rights, and safety issues. I look forward to hearing the status of these, along with the UAS, NextGen, and good governance provisions included in the Reform Act.

And, with that, I ask unanimous consent that all Members have 5 legislative days to revise and extend their remarks, and include extraneous material for the record of this hearing.

[No response.]

Mr. LOBIONDO. Without objection, so ordered. Now, I would like to turn to Ranking Member Larsen for any comments he may make.

Mr. LARSEN. Thank you, Chairman LoBiondo, for today's hearing on "The FAA Modernization and Reform Act of 2012: Two Years Later." Mr. Chairman, this month marks the halfway point of the FAA reauthorization cycle, and it is a good time to stop and assess the FAA's progress implementing the 2012 act.

Together, we must take stock of those areas the act—the FAA has successfully implemented, and note where Congress may need to make adjustments, as we look forward to the next authorization. Looking forward, the force of globalization and the growth of emerging international markets present both opportunities and challenges for American aviation. And as I said in our last hearing, we simply can't write a reauthorization bill for 2015 without understanding what is happening in the rest of the world. The aviation industry is global, it is competitive, there are new entrants in the market every day.

What happens in Shanghai, New Delhi, Moscow, Buenos Aires, or Seattle matters here, in Washington, DC, and around the rest of the country. And what the FAA does here in the U.S. will affect our ability to compete internationally.

The FAA authorization contains several provisions intended to accelerate, for instance, the deployment of NextGen. And at the request of this committee's bipartisan leadership, the Department of Transportation IG recently audited the FAA's implementation of those provisions. The audit noted that, to date, the FAA has implemented roughly half of these provisions. And, according to the IG, the FAA's difficulty in implementing the remaining provisions and meeting stakeholder expectations for NextGen more generally stem from programmatic and organizational challenges.

Mr. Chairman, one of the key takeaways from the 2009 RTCA NextGen implementation task force report was that organizational structure matters. The officials responsible for planning and implementing NextGen must have responsibility, they must have accountability, and they must have authority to get the job done. And, to its credit, the FAA has had some successes advancing individual and NextGen programs. Yet that is not always the case.

Mr. Chairman, you and I have held several hearings and listening sessions last year, where we have heard from some frustration from aviation stakeholders regarding the FAA's ability to deliver near-term NextGen benefits. We have also had continuing concerns that FAA's efforts to advance NextGen at the programmatic level are not properly integrated across the agency's lines of business. And, for several years, stakeholders have stressed the need for unity of effort across FAA lines of business and between FAA's partner agencies to achieve both near and long-term NextGen benefits and vision.

And we have attempted to strengthen the NextGen organizational structure in the 2012 authorization bill by creating a Chief

NextGen Officer. And last June, Michael Whitaker assumed this role, and last September the FAA appointed Major General Edward Bolton to fill the position of Assistant Administrator for NextGen.

So, as we look forward to the next reauthorization, it will be important for this committee to evaluate whether the organizational reforms that Congress made have been effective, or whether additional reforms are warranted. So, I look forward to hearing witnesses' thoughts on that subject.

The disposition and physical condition of FAA facilities are also tied to the successful roll-out of NextGen. Moreover, there are critical safety and qualify-of-life issues for FAA's employees. And last September the GAO reported the FAA's staffed facilities had a backlog of approximately $260 million in deferred maintenance. Further, the existing technology at several terminal facilities must be upgraded to accommodate NextGen. And for these reasons, section 804 of the 2012 act required FAA to complete a study on the consolidation and realignment of FAA facilities.

So, Administrator Huerta, I commend the proactive and collaborative approach that you have taken to address the FAA's need to consolidate its aging facilities. As directed by the authorization, you are working closely with the affected FAA employees unions through a comprehensive process to identify cost-beneficial consolidation opportunities. And based on the briefing that you provided to the committee leadership last year, we expect that FAA will provide initial consolidation recommendations early next year, right around the time that the subcommittee will be taking action on the next reauthorization. And while we hope that facility consolidation will provide cost savings in the long term, I can imagine it may be an expensive undertaking at the outset.

So, the subcommittee will need to examine whether the FAA's current capital funding levels will support facility consolidation, or whether Congress will need to increase the FAA's capital budget to support this effort. We will also need to make sure that labor groups are included in the decisionmaking process.

Now, one last key issue I hope to discuss in more detail today does concern the unmanned aircraft systems, or UAS. Mr. Chairman, unmanned aircraft are not a next generation technology, they are very much in the here and now. Like many other innovations in aviation, the growth and development of large, unmanned aircraft have been spurred by military necessity. We have seen large UAS technology mature over the last decade through thousands of operational hours and missions flown over the battlefields of Iraq and Afghanistan.

The FAA estimates that we can expect 7,500 small, unmanned aircraft in the National Airspace System over the next 5 years, provided regulations and operational guidelines are in place to handle them. In fact, you don't need to go much farther than the Internet today to see that entrepreneurs are finding creative applications for small, unmanned aircraft, as we sit here today.

So, Congress and the administration must ensure these systems are safe before they are being fully utilized, and for the benefit of the public and for private-sector applications. For this reason, FAA authorization required the FAA to safely integrate UAS into the National Airspace System by September 30, 2015. The act also pro-

vides FAA with specific tasks and milestones on its path towards that integration.

And while the FAA has completed roughly half of the UAS provisions set out in the act, it has missed most statutory deadlines for the provisions it has completed. For example, last December the FAA announced six UAS test ranges, where the agency will collect data to address safety and operational issues. Yet, according to the IG, FAA officials do not believe that the agency will meet the September 2015 milestone for safe UAS integration. Additionally, GAO will testify today that FAA will probably not meet the August 2014 final rule deadline for small, unmanned aircraft required by the act itself.

So, Mr. Chairman, this subcommittee must provide rigorous oversight in the coming months to ensure that FAA stays on track implementing these important provisions.

And so, with that, I want to thank you for an opportunity to provide an opening statement, and look forward to hearing from the witnesses.

Mr. LOBIONDO. Thank you, Mr. Larsen. I would now like to turn to the chairman of the full committee. Mr. Shuster, thank you for joining us.

Mr. SHUSTER. Thank you, Chairman LoBiondo. And I want to associate myself with the remarks of both Chairman LoBiondo and Ranking Member Larsen. Today's hearing is about where we are with the existing law, which was passed 2 years ago. I think it is obviously important. We know where we have been, and we have had challenges and some fights. We need to know where we are in regard to the last authorization.

In particular, that reform includes acceleration of NextGen, which I think is extremely important—I think everybody in the industry is behind that—improving the FAA's organizational structure, and achieving other efficiencies in a number of areas. But I also think it is important that we start the discussion as to where we are going, and what the future holds. And I understand that—hopefully we will confirm it today—that the Department of Transportation, FAA, is already starting to talk about the future of FAA and of the industry.

And we have started—I gave a speech in December and I think it is important that we bring the stakeholders together. And well before we start doing reauthorization on the next reauthorization bill, which expires in September of 2015, is bring the stakeholders in to talk about it to find out their ideas.

You know, we invented the aviation industry, the United States of America. We are the leader in it. And if we are not careful, if we are not proactive, we are going to lose it, just like—you look at other industries that America was the leader in, whether it was textiles, steel, autos, electronics. You know, we are playing second fiddle to the rest of the world now. And I don't want to see us—I don't want to see that happen to our aviation and our airline industry.

Today they are under attack from foreign carriers that don't operate under the same rules or regulations, in many cases, that we have to operate in. They don't have the same desire and focus on making a profit; for some of these carriers, it is just an economic

development tool. So we have to take that into consideration as we move forward. Our manufacturers are under attack from foreign manufacturers, and our own regulatory agencies are hammering down on us. We have already seen, with the hours of service and the training requirements that go into place, we are seeing cancellations, and not just because of the weather. I am hearing stories over and over again that they are short on pilots, and there is going to be a major shortage in the near future.

So, again, we have to step back, really look at what we are doing, or else, as I said, I fear we are going to lose our lead in this industry, which provides $1 trillion to the United States economy. And that is something that, again, we need to look around the world and see what they are doing. You look to see what the Europeans are doing, their public-private partnerships when it comes to their airports, what are the certification processes in whether it is Canada or Brazil or Europe. They are faster than we certify our equipment and especially our smaller aircraft.

In addition, what Canada has done with their air traffic controller system, I think we need to take a hard look at that and see if that is able to be done in America. Does it make sense? Can it be done? Is it something that would be positive for our aviation, our airline industry?

So, as the coming months go, I have been joined by—certainly, Mr. LoBiondo is going to be leading the effort, along with myself and Representatives Graves will be meeting with stakeholders across the spectrum, talking to them. And when we get to that next reauthorization, hopefully we will have a unified front to move forward in a number of different ways to really transform what we do in the airspace above us and moving people and moving cargo and making sure that our manufacturers and general aviation are all robust and intact.

So, with that, I look forward to hearing your testimony today, and yield back.

Mr. LOBIONDO. Thank you, Chairman Shuster, and thank you for recognizing, understanding, and emphasizing the critical importance of aviation to our Nation.

Now we are going to turn to our first witness today, FAA Administrator Michael Huerta. Administrator Huerta, you are recognized, and thank you for being here.

TESTIMONY OF HON. MICHAEL P. HUERTA, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION; HON. CALVIN L. SCOVEL III, INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION; AND GERALD L. DILLINGHAM, PH.D., DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. HUERTA. Thank you. Chairman LoBiondo, Ranking Member Larsen, Chairman Shuster, members of the subcommittee, it is a pleasure to be here to talk about what we have accomplished since the very important reauthorization of the FAA 2 years ago.

We are grateful that everyone came together to reauthorize the FAA, and to support the work we do, in running the largest and safest aerospace system in the world. We also appreciate the compromised spending bill that Congress passed in December. It pro-

vides a framework that lends stability for the next 2 years during what may still be an uncertain budget environment.

The reauthorization of the FAA was truly comprehensive in nature, and contained more than 200 deliverables from the FAA. We have either completed or are on track to complete more than 80 percent of those requirements. I would like to highlight a few areas where Congress gave us direction, and where we have made considerable progress.

First, we have strong leadership in place for NextGen. Last time I appeared before you, we had just named Mike Whitaker as Deputy Administrator of the FAA and Chief NextGen Officer, a role that was mandated by the reauthorization. Now, General Ed Bolton has joined the FAA as Assistant Administrator for NextGen. He is a retired Air Force general with many years of experience as an engineer and manager of large, complex programs.

We want to be sure that the modernization of our Nation's airspace is creating benefits. As part of reauthorization, Congress asked us to track 12 metrics, things like arrival and departure rates, system capacity, and gate-to-gate travel times, to name a few. These metrics can help determine the impact our work is having on airlines and on passengers. We are collecting this data and posting it every month on our public Web site. We are close to finalizing the software and hardware updates to our air traffic control system that will form the foundation of NextGen, and will allow us to deliver those benefits.

One essential program is ERAM, the En Route Automation Modernization. This modern computer system will control aircraft at cruising altitudes. We are making great progress. Right now, 18 of 20 en route centers have started running ERAM. More than half are using it exclusively to control air traffic, instead of the legacy system of the 1960s. All of these en route centers are expected to use the new system exclusively by March 2015.

I would like to return to another mandate in the reauthorization, namely, unmanned aircraft systems. This class of vehicle is truly a game-changer. The FAA released two documents in November to set the stage: a comprehensive plan to integrate unmanned aircraft into our Nation's airspace, and a detailed road map on how to do it. The road map addresses the policies, the regulations, the technologies, and the procedures that we need to integrate unmanned aircraft on a routine basis. To accomplish this, we must change the way we do business.

In December, as the chairman noted, we announced six test sites across the Nation that will conduct essential research into the safe use of unmanned systems. Safety, as you know, is our priority. We need to address operational issues, such as ensuring that unmanned aircraft can detect and avoid other aircraft, that unmanned systems operate safety if they lose link to their pilot, and this is why developing additional research from the test sites is so important.

Agencies across the Government are coming together to address privacy concerns that may arise with increasing use of unmanned aircraft. We recognize there has been a great deal of public concern about privacy. For the test sites, we issued a privacy policy that re-

quires operators to comply with all local, State, and Federal laws concerning privacy and civil liberties.

The FAA has successfully brought new technology into the aviation system for more than 50 years, and I have no doubt we will do the same with unmanned aircraft.

Finally, we have completed work on a range of other important reauthorization proposals. Last fall, we created the Center of Excellence for Alternative Jet Fuels and the Environment. This research will help develop and deploy alternative jet fuels, which will provide supplemental supply and help cushion petroleum's price volatility. We have also completed reports on a number of safety-related matters, such as staffing, for safety-critical positions. And we delivered a report to Congress, as requested, reviewing the agency's operations, and ensuring that we take every opportunity to operate as efficiently and as effectively as we possibly can.

Two years ago, reauthorization gave our agency needed predictability and stability, as well as guidance on priorities. Next year, we will be considering FAA reauthorization in the context of a challenging fiscal backdrop with increasing demands. I look forward to continuing to work with the committee to create a vision as we work toward that reauthorization.

Thank you very much. I would be happy to answer any of your questions.

Mr. LOBIONDO. Thank you, Mr. Huerta. Our second witness today is Department of Transportation Inspector General Calvin Scovel.

Inspector General Scovel, you are recognized for a statement.

Mr. SCOVEL. Chairman LoBiondo, Ranking Member Larsen, Chairman Shuster, members of the subcommittee, thank you for inviting me to discuss FAA's progress in implementing the FAA Modernization and Reform Act of 2012. My testimony today will focus on three key areas: implementing NextGen and other modernization provisions; safely integrating unmanned aircraft systems into the National Airspace System; and effectively employing two safety workforces, controllers and inspectors.

Our past and ongoing work shows that longstanding issues continue to challenge FAA's efforts to improve airspace efficiency and realize the benefits that Congress envisioned when it passed the Reform Act 2 years ago. As of last month, FAA had implemented half of the act's 24 NextGen provisions, including appointing a Chief NextGen Officer. Despite this progress, FAA has not implemented key provisions intended to accelerate NextGen technologies, including those needed to shift from ground-based radar to satellite-based systems.

For example, FAA will not be in a position to implement ADS–B In, which will bring new capabilities to the cockpit, for several years, due to changing technical requirements and a lack of well-defined policies regarding equipment and certification.

Programmatic and organizational challenges also continue to impact FAA's progress with delivering NextGen benefits. For example, FAA has not set realistic plans, budgets, and expectations for key programs, and its organizational culture has been slow to embrace NextGen's transformational vision. These weaknesses have

contributed to stakeholder skepticism about FAA's plans for NextGen.

Another critical step for NextGen will be the successful realignment and consolidation of air traffic control facilities. FAA recently provided Congress with its realignment and consolidation plan, per the act. But the plan is smaller in scale and less ambitious than previous ones. Going forward, it will be important for the agency to establish sound metrics to determine whether facility realignments and consolidations will result in cost savings and efficiencies.

The Reform Act also calls for FAA to safely integrate unmanned aircraft systems into the Nation's airspace. As of last month, FAA completed 8 of the act's 17 UAS provisions, which included publishing a 5-year road map, and selecting six test sites. However, the agency will not meet the September 2015 deadline for safe UAS integration, and it is uncertain when this will be achieved.

To ensure safe UAS integration, FAA needs to overcome significant technological barriers, including developing detect-and-avoid technology to ensure unmanned aircraft do not collide with other aircraft. Existing communication technology is also inadequate to prevent losses of connectivity between ground stations and unmanned aircraft. Although research is underway, it is unclear when these efforts will produce the technology needed for successful UAS integration.

Another UAS priority is to establish minimum regulatory standards. The agency has worked with a special advisory committee for over 9 years, but has not reached consensus among Government and industry stakeholders on minimum UAS performance standards. FAA will also need to develop standards for UAS operator qualifications, ground control stations, and operations for private or commercial use.

Also in public use, UAS have been certified to operate in U.S. airspace. Their safe integration has been impacted, in part, by a lack of UAS-specific air traffic controller procedures and training. Currently, unmanned aircraft must be segregated from the normal traffic flow, and controllers have told us that existing automation systems are inadequate for managing UAS flight plans, which typically contain a large amount of navigational data.

Moreover, FAA cannot ensure that public-use UAS operators report all safety incidents, and has been unable to obtain other useful data from DOD because of data sensitivity and coordination issues.

Finally, FAA has not effectively maximized key segments of its safety workforce. The agency has yet to fully implement a new staffing model to determine the number of Flight Standards safety inspectors it needs and where to place them, and data quality problems have prevented FAA from fully relying on the model's results.

FAA also needs metrics to determine whether its new controller scheduling policies will reduce controller fatigue. We found that a small percentage of controllers did not always comply with minimum rest requirements between shifts. Further, FAA could reduce the cost of overnight operations at 72 facilities that do not have enough traffic to require overnight controllers. To address these issues, FAA plans to implement a new scheduling tool to enhance

cost efficiency, and introduce a new timekeeping system to reduce the number of scheduling violations.

At the request of this subcommittee, we are initiating a review of FAA's organizational structure, including an assessment of whether the agency's 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 would be happy to answer any questions you or members of the subcommittee may have.

Mr. LOBIONDO. Thank you, Inspector General Scovel.

Our final witness today is Dr. Gerald Dillingham with the Government Accountability Office. Dr. Dillingham, you are recognized. Thank you for being here.

Dr. DILLINGHAM. Thank you, Mr. Chairman, Ranking Member Larsen, Chairman Shuster, and distinguished members of the subcommittee. My statement this morning focuses on some key provisions in the 2012 FAA Reauthorization and Reform Act, as outlined by the committee leadership this morning. Specifically, implementing NextGen, improving FAA's certification processes, and integrating UAS into the National Airspace System.

Regarding NextGen, as the Administrator has said, FAA has filled key NextGen leadership positions over the last year. However, our work shows that it remains to be seen whether these leaders will be able to leverage support and resources across FAA to effectively lead NextGen implementation.

Additionally, with the recent legislation eliminating direct funding for JPDO, it is unclear how the roles and responsibilities of that office, particularly with respect to long-term planning and coordination of research and development efforts across partner agencies, will be redistributed within FAA.

The act also included several provisions to accelerate the creation of performance-based navigation procedures. Our analysis shows that FAA has made some important progress in this area, but key elements remain a work in progress.

For example, FAA does not have a data system for tracking the use of existing PBN procedures and, therefore, is unable to assure that investments in these routes, including the cost to maintain them, is justified. Furthermore, without these data, FAA cannot demonstrate the value of PBN technologies and any resulting benefits to help convince stakeholders of the need for continued NextGen investment.

The act also directed FAA to complete a study on the consolidation and realignment of FAA facilities and services, which is critical to the NextGen transition. As you have heard in earlier testimony, FAA plans to assess which facilities to consolidate or realign over the next year, likely meaning any consolidation or realignment of FAA facilities remains years away.

Failure to follow through on efforts to deploy new capabilities, consolidate, and realign facilities, and discontinue systems facing significant sustainment issues is important, not only for an efficient transition to NextGen, but also so that FAA does not miss potential opportunities to reduce overall maintenance costs at a time when resources needed to maintain both systems will become scarcer.

Regarding FAA certification process, variations in FAA's interpretation of standards for certification and approval decisions has been a longstanding concern of the aviation community. The 2012 act required FAA to work with the aviation community to identify ways to streamline and re-engineer the certification process, and address findings from our 2012 report on the topic. FAA has taken some actions in response to these provisions, including developing initiatives to address the concerns that have been raised about its certification processes. At the request of this committee, GAO will be examining FAA's implementation of these efforts.

Turning to the integration of UAS into the National Airspace System, FAA, again, has made progress in implementing several of the 17 UAS provisions contained in the Modernization and Reform Act, albeit much later than the timeframes outlined in the act. While progress is being made, there are some significant hurdles and challenges that FAA must still overcome to fully integrate UAS into the NAS.

For example, although FAA created the UAS integration office in 2013, the office does not have resources specifically dedicated to fulfill its responsibilities. In addition, small UASs are expected to represent the majority and most economically promising segment of the civilian market. However, the rulemaking for operating small UAS in the NAS continues to be delayed.

Finally, while FAA has announced the six locations for a UAS test program, FAA has not yet defined what operational safety and performance data it needs from the test site, or how the data will be collected and analyzed. These data will be critical to developing the safety, reliability, and performance standards needed to guide and validate research and development efforts.

Given the status of these efforts, stakeholders remain concerned about FAA's ability to meet the 2015 timeline outlined in the act.

Thank you, Mr. Chairman, Ranking Member Larsen, and members of the subcommittee. This concludes my statement. I will be pleased to respond to any questions.

Mr. LOBIONDO. Thank you, Dr. Dillingham.

For Administrator Huerta, the NextGen Advisory Committee delivered their consensus-based priority recommendations for NextGen capabilities based on the ongoing Federal budget constraints, which have all of us pretty worried. What is the FAA doing to address these recommendations? And can you give us a sort of a status report of where this all is?

Mr. HUERTA. We were very pleased with the work done by the NextGen Advisory Committee to develop two tiers of recommendations, and to ask us to focus on those in the first tier as our highest priority.

We are currently evaluating those recommendations, looking at the trade-offs and the relationships between the recommendations that they made, and we will be responding to them by the end of February. It was a very good body of work that I think gave us a nice industry consensus on what a path forward would look like.

Mr. LOBIONDO. So it seems like it is something that is pretty workable for you?

Mr. HUERTA. It does. One of the things that we need to ensure is that there are not unintended side effects in terms of how they

might have bundled the recommendations. But it is very good work.

Mr. LOBIONDO. Any idea on when you might have a better handle on how that will come together?

Mr. HUERTA. We are going to be discussing it with the NextGen Advisory Committee at their meeting, which is coming up later this month in Phoenix.

Mr. LOBIONDO. OK. Inspector General Scovel, Deputy Administrator Whitaker was appointed in June of 2013. Can you tell us if you have seen any changes he has made to the FAA to address issues regarding the implementation of NextGen?

Mr. SCOVEL. Thank you, Chairman LoBiondo. General Bolton's appointment as Assistant Administrator for NextGen was a very promising development. Mr. Whitaker's designation as Chief NextGen Officer in his capacity as Deputy Administrator for the agency went a long way to helping the organization align its efforts, to use Mr. Larsen's phrase from his opening statement, to develop a unity of effort in order to put NextGen on the proper track.

Since Mr. Whitaker has been designated as Chief NextGen Officer, the agency has completed two actions that we consider instrumental. First was, as I mentioned, the designation of General Bolton in his executive role as Assistant Administrator for NextGen. And, finally, what Administrator Huerta addressed earlier was the request to the NAC to develop recommendations for prioritization of NextGen investments. That has been completed, and that has been a very promising development.

It remains to be seen where we go from here. The recommendations from the NAC align very closely with what this committee and my office learned from the RTCA Task Force 5 recommendations from 2009. There is not a whole lot of difference there, so we would expect the agency to be primed and ready to move out as quickly as possible on those.

We do have continued reservations about the unity of effort prospect. While Mr. Whitaker and General Bolton are in place, the program management office for NextGen is still aligned under the air traffic organization, so there is a division. There is a fault line, in my view, between what Mr. Whitaker and General Bolton can bring to the organizational vision, and what the program management office can ultimately implement and deliver.

Mr. LOBIONDO. Thank you. Dr. Dillingham, the GAO is conducting a study regarding the FAA's CTI program. Can you give us an update on your work?

Dr. DILLINGHAM. Mr. Chairman, we were asked by this committee last year to conduct a study on the CTI program. The issue was, whether there was a way in which the FAA could get better qualified or more air traffic controllers from the CTI program. At that point, the FAA informed us that they were doing a pilot study that was the mirror image of our study. In other words, they were looking at how to maximize what could come from the CTI schools. So we put our study on hold until the FAA was able to do a similar study.

We recently found out that FAA has changed its mind about maximizing the CTI schools, and we are hearing now that the FAA is planning for an off-the-street hire, as opposed to maximizing the

CTI. We are talking with your staff now, as to whether we should re-institute our study to follow up on the original request that we had.

Mr. LOBIONDO. Thank you. Mr. Larsen?

Mr. LARSEN. Thank you, Mr. Chairman. I am not going to take the whole 5 minutes; we have Members on our side who are here to ask questions. And so, I just want to follow up on a few things, really.

Administrator Huerta, Inspector General Scovel said there is still maybe a fault line between program management at the FAA regarding NextGen implementation and the organizational chart, if you will, of having a NextGen officer. Do you see a fault line? If there is a fault line, how are you trying to address that? How are you trying to break that down?

Mr. HUERTA. I think it is a matter of judgment. The NextGen organization under General Bolton is ultimately responsible for system integration of the programs, and ensuring that they all work with one another. There is a separate but equally important requirement that the new programs and the new systems, as they are developed, integrate with the overall operation. It was for that reason that we made the organizational decision to align them with the operation.

We have had previous experience of a fault line emerging between a program developer developing a new system, but not having any clear linkage to the operation. That is what led to the initial deployment problems with respect to our ERAM program. It is a matter of, any way you cut it, you have to draw an organizational distinction somewhere.

The idea of putting the programs with the operation is to ensure that they would be operationally relevant, so that we could bring the workforce into the development of the program, and assure that it is actually meeting the needs of the operating workforce. The NextGen organization has the responsibility for system integration, and they need to be able to work across the whole FAA, not just air traffic, but also with the certification side of what we do.

We are aware of the organizational distinctions, but we think that we have programs and processes in place that enable us to address them.

Mr. LARSEN. Under UAS it seems that there is some consensus, perhaps, in IG and the GAO that the timelines aren't going to get met for implementation. What is your personal assessment of that?

Mr. HUERTA. I have always viewed integration of UAS as a staged implementation process, just as we implement all aircraft into the NAS. There is not a single day where we could safely ensure that any type of unmanned aircraft could operate unconstrained within the National Airspace System. So we view it much more as classes of operation that, over time, will be introduced into the system, just as any other aircraft is introduced into the system.

Mr. LARSEN. If that is the case, do you think that—not that I am asking you to question the judgment of Congress, obviously, because we wrote the act and had these timelines in it; do you anticipate that you may come back and ask us to have the new—the

next version of the act reflect more of a staged implementation, as opposed to a hard deadline?

Mr. HUERTA. I think that every day we learn something new about what is happening in unmanned aircraft. There are a combination of issues regarding how these aircraft operate. There are also potential uses that the private sector and Government users would like to put forward for their use. That illuminates the discussion.

Likewise, as a result of having the test sites, it provides the platform for us to do the sort of research that Inspector General Scovel talked about. What are the technologies that need to be in place to accomplish sense and avoid? How do we appropriately train operators, and what are the certification standards that we need to hit? We are going to continue to learn more. Reauthorization will, in fact, provide us with an opportunity to consider where we are at that point.

Mr. LARSEN. That is fine. Thanks, Mr. Chairman. I will yield back.

Mr. LOBIONDO. Chairman Shuster?

Mr. SHUSTER. Thank you, Mr. Chairman.

Administrator Huerta, as I said in my opening, I wanted to find out what you were doing, looking forward at the FAA. Is it, in fact, true that you have put working groups formed at DOT and at FAA?

Mr. HUERTA. Mr. Chairman, in looking forward to the next reauthorization, I think that there are a number of factors that we need to consider. The first is to determine where we sit now that there are large segments of the aviation industry that feel that we are on an unsustainable course. We need to look at how we finance the programs, what is the array of services that we provide to the aviation community, how do we pay for all of it?

As just one example, this committee has provided direction to us that we should do everything that we can to enhance performance-based navigation. In enhancing performance-based navigation, which the agency is very committed to, we are, by definition, reducing the burn of aviation fuel. Aviation fuel taxes provide an important source of funding for the aviation system. So, right there is an indication of an issue that we need to consider, going forward.

The aviation industry has traditionally taken different positions on what a way forward looks like. I share your belief that the industry has to come together around a set of principles. I have asked the Administrator's Management Advisory Council—they represent a broad segment of the industry—to play a central role in reaching out to the community, to have a conversation about what services the agency needs to provide to the aviation industry in the years ahead. How do we pay for it? What issues do those questions raise, with respect to our structure and framework?

Mr. SHUSTER. Well, that is positive to hear, that you are looking at those types of things, because I think it is important. And working with us as we move forward is, I think, going to be critical.

Mr. HUERTA. Absolutely.

Mr. SHUSTER. You also said in your testimony that you will follow an agreed-upon process when looking at consolidating and realigning some of the facilities.

Mr. HUERTA. Sure.

Mr. SHUSTER. And actually, I think you said the initial outreach to industry stakeholders might be impacted by recommendations of the Reform Act that directs the FAA to develop that plan with participation with the industry——

Mr. HUERTA. Sure.

Mr. SHUSTER [continuing]. Not just outreach. So can you tell us how you are going to work with industry and labor to include them in that?

Mr. HUERTA. We briefed the leadership of the committee and the staff about the process that we are following. As it was originally envisioned in section 804, there was thought that it would be a single process that would look at the full scope of FAA facilities. As we discussed with you recently, we concluded that a staged approach, where we could ensure that we have a full and complete collaboration with our stakeholders, with the people who work in these facilities, the people who maintain these facilities. We need to develop a very clear understanding of the current state of the facilities, with respect to what maintenance is required, or what facilities need to be replaced. As was mentioned earlier, we do intend to provide our first report to you at the end of the year.

I think the key question here that we are going to need to address is the question that was referenced by Congressman Larsen. Any time you are realigning facilities, by definition, there is a bill that we are going to have to pay to develop what a new facility footprint looks like. That is going to require an investment. Effectively, we have to invest money to enable us to achieve long-term savings down the road.

Mr. SHUSTER. Well, including those stakeholders, making sure that they are involved——

Mr. HUERTA. Absolutely.

Mr. SHUSTER [continuing]. Is a positive path forward for us.

Mr. HUERTA. Absolutely.

Mr. SHUSTER. And a question to Mr. Dillingham. You talked about the inconsistencies in the FAA's aircraft certification program. They have a plan to try to deal with those. You have identified a few areas of concern. Could you elaborate on those?

Dr. DILLINGHAM. Yes, Mr. Chairman. As part of the act, FAA was mandated to review their certification and approval process, improve its efficiency, and deal with the inconsistencies of interpretation of regulation, meaning what was happening with the industry was that if you were in one region and you had a product approved and you submitted that product in another region, it may or may not be approved.

So, the FAA put together some committees with industry participation. They made recommendations to both address the integration to make sure that there was consistency, as well as to facilitate improving the efficiency of the process. FAA developed a plan to do that with a set of initiatives. Your committee has asked us to follow up and ensure that FAA, in fact, implements those recommendations.

It has been a longstanding problem with the industry, and we are already starting to look at that issue.

Mr. SHUSTER. Thank you very much. I see my time has expired. But just as I said in my opening, you know, this is one of the areas that we are leading in the world and in manufacturing, especially small aircraft. And if we are not able to speed that process up, I fear that it is going to go elsewhere, equipment is going to be developed elsewhere, and we are not going to be the leader in the industry. So I think it is important that we work on this.

Thank you, Mr. Chairman.

Mr. LOBIONDO. Mr. DeFazio?

Mr. DEFAZIO. Thank you, Mr. Chairman. Mr. Administrator, question. I have been working on—started many years ago with Representative Bill Lipinski and Representative Costello, who have gone on to different things, but I am still here. The provision regarding foreign repair stations: it was supposed to be done by, let's see, I think 2/14/2013. That is a week from, you know—this would be the first anniversary of not getting it done. Where are we at?

Mr. HUERTA. There are two provisions relating to foreign repair stations in reauthorization, one relating to drug and alcohol testing requirements. I think that is the one you are referring to.

This one required a consultative process through ICAO, the Secretary of Transportation, and the Secretary of State notified all ICAO governments. We are now at the point where we are ready to commence the rulemaking process later this year.

Mr. DEFAZIO. Yes. I am just puzzled that it would take so long, and that we would allow foreign repair stations, where their workers do not meet our standards, to do critical maintenance work on aircraft. It causes me great concern. It goes beyond just the drug and alcohol testing and a number of other issues. But I am pleased, at least, that we are moving forward. But it shouldn't have taken so long.

The chairman mentioned about the U.S. losing its lead, and I think there is an extraordinary threat to the U.S. aviation industry. It wasn't anticipated in this legislation, it is not a subject of this hearing, but I am going to bring it up anyway, and that is the fact that Norwegian Air International, which is coming from a country which is not part of our Open Skies Agreement, is going to create a fake headquarters in Ireland, which is part of our Open Skies Agreement, so that they can try and leverage themselves into the U.S. market. And they are developing a new business model, which is based on the merchant marine. And I don't know how familiar you are with that, but a lot of ships are registered in Liberia. And, as I pointed out in the past, Liberia has no navy, it doesn't have any government, but their office is somewhere down there in Reston, Virginia, with a former Coast Guard guy. That is Liberia.

So, if we want enforcement of safety, crew training, any of those things, we discourse with a former Coast Guard guy who represents the nonexistent government, or virtually nonexistent government. I don't want to take aviation to that standard, and that is what these people intend to do. They are going to use part-time crews that are brokered from around the world. Where can we get the cheapest flight crew? Doesn't matter how good they are, it doesn't matter—there is no consistency in their training, their

hours of service, anything else. But, you know, "Oh, well, bring in the crew from Indonesia this week, they just bid lower."

So, this is a potentially very destructive business model. And the last time we had someone here from the FAA, they said sort of, "Yes, we are looking at it." What is your—do you have a level of concern about what this is going to do to our standards? I used to carry on about Frank Lorenzo dragging down the whole industry here. This is, like, a way bigger threat.

Mr. HUERTA. Well, the FAA's regulatory authority does not extend to the business structure, but the Department of Transportation's does.

My understanding of where we are with that is that Norwegian Air has applied to DOT for initial operating authority to conduct scheduled and charter passenger and cargo services between the United States and Europe pursuant to the existing Open Skies Agreement that we have with Europe. Because NAI is still awaiting regulatory approval in Ireland. NAI's application is not yet complete; therefore, the Department cannot act on it.

Because the application is pending before DOT and is contested, I can't really say much more beyond that. They have an incomplete application, and it is something that I am sure that my DOT colleagues are taking a very close look at.

Mr. DEFAZIO. Well, I would hope that the FAA, as advocates for—since I got the law changed after a horrific airplane crash—no longer has a strict promotional authority for aviation, but you still are—you still have some concern with that, but your bigger concern is safety.

Mr. HUERTA. Right.

Mr. DEFAZIO. And I think we are looking at both things here. We are looking at competitive disadvantage, and we are looking at something that would jeopardize the safety of the American flying public. And you and your agency are the experts on that. And I would assume that you maybe can't say anything here, but you are taking a strong position in advocating to DOT on this to use whatever scrutiny and tools they can to basically thwart this end run by this—you know, by these brilliant people who are going to somehow advantage consumers, they tell us.

Well, as I have said many years on this committee, I will pay an extra 2 bucks for a ticket to know I will get there alive. And that is what this is about. Thank you, Mr. Chairman.

Mr. LOBIONDO. Mr. Coble.

Mr. COBLE. Thank you, Mr. Chairman. Gentlemen, good to have you all with us today.

Mr. Scovel, during the most recent FAA reauthorization, language was included in section 424 that established a policy for the transportation of musical instruments. As yet, no final regulation has been issued by the FAA. How soon do you expect these final regs to be completed?

Mr. SCOVEL. Thank you, Mr. Coble. We have been in touch with your staff, and we know of your keen interest in this particular issue. And we commend you and the committee and the Congress for including it in the act.

I must say that we have not, in the OIG, undertaken any review of FAA's efforts to implement that specific provision of the act. So

I might defer to Mr. Huerta on this question, if he has those details.

Mr. HUERTA. Mr. Coble——

Mr. COBLE. Cautiously optimistic, I hope.

Mr. HUERTA. Mr. Coble, I will have to take an IOU and get back to you, which I commit to do.

Mr. COBLE. I didn't hear you, Mr. Huerta.

Mr. HUERTA. I will have to check on the status and get back to you.

Mr. COBLE. Oh, I appreciate that, if you get back in touch with us.

Mr. HUERTA. I will.

Mr. COBLE. Mr. Huerta, yesterday's New York Times included an article on how the FAA's new pilot qualifications and flight and duty time rules, in effect for just a few months, have already caused a shortage of commercial airline pilots, leading some airlines, I am told, to reduce service at less profitable small and medium airports.

In drafting the rules, did the FAA consider the impact on the Nation's pilot workforce, especially in light of the fact that a majority of our pilots are approaching the mandatory retirement age of 65?

Mr. HUERTA. Thank you, Mr. Coble. As you know, the thing that we did focus on in the development of all of these rules, is how do we maintain the highest levels of safety.

Following the Colgan Air crash in 2009, the FAA identified pilot fatigue and training as areas of high risk, and we began the rulemaking process to address these issues.

Later, Congress mandated improvements in each of these areas under the Airline Safety and Federal Aviation Administration Extension Act of 2010, and added improving pilot qualifications and requiring first officers, known as copilots, to hold an airline transport pilot certificate, and requiring 1,500 hours total flying time as a pilot. So that was included in the 2010 Act.

We issued the pilot fatigue rule in December 2011, giving the airlines more than 2 years to comply with the regulations. The training rule was finalized in November of last year, with a 5-year ramp allowing airlines to comply with it. This allows time for the necessary software upgrades to be made to the flight simulation technology that is required to do this.

The pilot qualification rule was finalized in July 2013. And I think this is the one that many in the industry are pointing to as being the most significant factor. As you will recall, the statute requires that a copilot have 1,500 hours of flight time in order to achieve first officer qualification. The rule that we put in place is actually designed to allow military and academic credit to count as credit toward that 1,500-hour requirement. So we can reduce the 1,500-hour requirement within the authorities that were given us by Congress to consider academic credit and military service.

It is a significant change in what previous qualifications and training requirements had been. The intent of Congress directed the agency to really focus on how do we achieve the highest levels of safety. I think the rules are designed to do that.

Mr. COBLE. Let me put this question to you, Mr. Huerta. In light of the pilot shortage, is it your belief that the Congress should nul-

lify the underlying statute? And, if so, can you provide suggested changes that would help to mitigate the impact of pilot workforce shortage?

Mr. HUERTA. I think, as it relates to the shortage, there are different points of view on that. Clearly, many in industry feel that there is a looming shortage, combined with the point that you made, such as retirements. There are questions that have been raised. Is it an attractive profession? Others, on the other side, have said that this is really a matter of what airlines are willing to pay pilots.

I think all of those factors need to be considered. We would be happy to work with the committee to provide technical assistance as you consider the perspectives that are out there, and possible changes that you might be willing to consider.

Mr. COBLE. Thank you, gentlemen, for being with us.

Dr. DILLINGHAM. Mr. Coble?

Mr. COBLE. Yes, sir?

Dr. DILLINGHAM. At the request of this committee, we will be issuing a report in the next several weeks that focuses on the potential pilot shortage, and takes into account those variables that you mentioned: retirement, training, and the impact on the industry. Hopefully, that report will provide a basis for the Congress to get some objective information on this issue.

Mr. COBLE. Thank you, Doctor, I appreciate that. Thank you, gentlemen. Yield back, Mr. Chairman.

Mr. LOBIONDO. Mr. Lipinski?

Mr. LIPINSKI. Thank you, Mr. Chairman. I want to thank you and Chairman Shuster and Ranking Member Larsen for holding this hearing. Oversight isn't—oftentimes does not get the headlines, but it is important. If we are going to pass legislation, we got to do the oversight.

And I appreciate Mr. DeFazio's questions, and I want to just concur with those, especially on the foreign repair stations, although I think Mr. DeFazio may have misinterpreted that—he said I was no longer here. He must have been talking about my father. But I am here. That is the most important thing.

[Laughter.]

Mr. LIPINSKI. I want to talk about NextGen. It has been brought up already. Obviously, it is something that is clearly my biggest focus here, probably, on the Aviation Subcommittee, the importance for enhancing safety, improving efficiency, lowering emissions, and helping to support America's success as a global leader in aviation. Those are all critically important. We understand that.

In the reauthorization bill, I was proud to work with Mr. Mica to include section 221 in the bill, which allows DOT to establish public-private partnerships to boost NextGen by advancing the installation of ADS–B avionics on aircraft as soon as possible. And it is something that I hope that we continue to move forward on.

But I want to ask Administrator Huerta, you know, a key foundation of NextGen is deployment of ADS–B terrestrial network in 2014. We have to ensure that, by 2020, the majority of aircraft will be equipped with avionics. Now, in order to accelerate and incentivize aircraft equipage in the near term, many air carriers believe that FAA should augment the terrestrial ADS–B network

with a space-based ADS–B. Doing so could provide significant tangible savings, would bring the benefits of NextGen to reality more quickly.

For these reasons, I would like to ask, first, what is the current status of FAA's initial investment decision on space-based ADS–B?

Mr. HUERTA. Well, as you mentioned, ADS–B is an important foundational technology, and we have been in discussions with the private-sector partners that are really focused on the deployment of this new technology.

There are two dimensions to what they are doing. Essentially, they want to use space-based equipment to deliver the ADS–B signal, and thereby provide visibility over the oceans. The FAA is focused on working with Iridium and Aireon and their partners in setting the specifications and configuration of space-based ADS–B surveillance.

We are not monetarily investing in the development of the Aireon system. We view that as something that is best done in the private sector. We are investing resources to validate the design, to pay for the technical business case reports that the FAA requires, and for the detailed development of alternatives that, ultimately, the FAA is going to be able to use.

We recognize the potential high value of the Iridium system, particularly what it can provide in oceanic airspace. As the world's largest air navigation service provider, we want to ensure that we are involved in the development and standard setting of this new technology.

Mr. LIPINSKI. Well, what are you—I have concerns that we are behind other countries on this front. I just want to ask. What is the FAA's timeframe for moving forward with the space-based ADS–B?

Mr. HUERTA. An initial investment decision is going to be made by our Joint Resources Council later this year to decide what form the agency's continued participation would take in the years ahead.

Mr. LIPINSKI. So do you have a timeframe for when you think it is actually going to start moving forward? And do you have a concern? Do you feel the country is moving ahead of us and is losing our leadership in this area?

Mr. HUERTA. Taking that question first, I don't think we are losing our leadership, because we have chosen to focus, first and foremost, on specifications and configuration. That will ensure that the standards that the FAA needs to have developed for this are the standards that will be used globally.

We do not necessarily think that requires us to take an investment position in a company that is developing that technology. Others might make a different decision, but we believe that our leadership position is very much protected, as long as we can focus on the resulting technology that comes out the other end.

Mr. LIPINSKI. All right, thank you. I yield back.

Mr. LOBIONDO. The gentleman from Tennessee, Mr. Duncan.

Mr. DUNCAN. Well, thank you, Mr. Chairman.

And I am sorry I had to go to another committee and didn't get to hear your testimony, but I have gone over some of it. And Dr. Dillingham mentions that this NextGen process has been over 10 years, and that we asked him to start monitoring it in 2006. And

I am just wondering, and I will ask any of the three of you or all three of you. Where are we now? Can you tell me how much money we have spent, total, on NextGen so far, how much we will be spending this year, and how much more we need to spend in the years ahead?

And I am assuming that all of you will say that the benefits have far outweighed the costs—or at least I am guessing that is what you would say. But will we ever reach a point—I mean when you build a building, when you build a giant skyscraper, at one point the building is finished. Of course, you always have to maintain it, and you have to occasionally improve it. But where are we on all those things?

Dr. DILLINGHAM. Mr. Duncan, thank you for the question. Yes, we have been, at the request of this committee and others in Congress, monitoring this from the very beginning.

I think the consensus is we are a long way from where we want to be and where we thought we would be at this point in time. Progress has been slow. I think there is now more of a realization that NextGen is a transition, rather than a leap forward all at once. And that it will take time.

I think there is evidence of that. We see and hear from the aviation community that FAA may need to sort of reset, based on the RTCA recommendations and the NAC recommendations. What can we really achieve? What is the reality, versus what was the vision at some point in time?

Mr. DUNCAN. Right.

Dr. DILLINGHAM. We are hearing community people talk about maybe it is time to look for a new way of doing this. Perhaps it can be done within FAA with the new leadership, or perhaps we need to think about how this is done around the world, separating safety from operations in modernization.

The last time we had any information about money spent at this point in time, we were told that we have expended about $5 billion on NextGen over the last several years.

Mr. DUNCAN. All right. Any other comments?

Mr. SCOVEL. Mr. Duncan, if I may?

Mr. DUNCAN. Yes, sir.

Mr. SCOVEL. We would concur with Dr. Dillingham's figure of about $5 billion in Federal investments; $5 billion to $6 billion at this point, cumulatively, over the last 9 or 10 years, is about right.

The committee will well remember that the initial estimates from 9 or 10 years back called for $20 billion in Federal investments, plus another $20 billion in private investments, with a stated goal of completing implementation of the program by 2025. We are clearly not going to make it all by 2025, and we are clearly not going to make it with a total of $40 billion in investments, Federal and private. We are probably looking years beyond 2025, perhaps another 10, even.

Mr. DUNCAN. Wow.

Mr. SCOVEL. Because, as has been stated, this is an evolutionary, rather than a revolutionary process. A transition, rather than a leap.

And we are probably also looking at total expenditures in an order of magnitude two to three times that of the initial $40 billion estimate to achieve the original plan.

As far as resetting NextGen, FAA is backing in to that process right now. It may be regrettable in the eyes of many that it has taken us 9 or 10 years to get where we are now. But if you look at where FAA is organizationally, with the Chief NextGen Officer at the Deputy Administrator level, and Assistant Administrator for NextGen, and a program management office, whether it is directly aligned underneath those officers or over in the operations side, where many in FAA believe it should be, in order to avoid a fault line at that point, organizationally FAA is getting close.

As far as the near-term and midterm process, FAA—thankfully, through the RTCA's Task Force 5, and the recent NAC investments—it is getting close there, too. They are focusing on performance-based navigation and the metroplex improvements in the very near term.

Moving on, they have got to get ERAM right, they also have got to get the automation platforms right for terminal modernization. Then they need to get to DataComm. Because if we get to 2020 with ADS–B Out coming in, and we don't have all of those pieces in place already, then we are a house without a foundation yet.

Now, the real benefits for the commercial users are going to be with ADS–B In. And Mr. Huerta is correct on that. Industry well recognizes, too, that the technical requirements are not yet stable. FAA is not in a position to mandate ADS–B In yet. So we are looking clearly into the next decade before we can say truly that there are measurable improvements for the commercial airlines at congested U.S. airports.

Mr. DUNCAN. Well, you have raised other questions in my mind, but my time has expired.

But, Administrator Huerta, do you want to——

Mr. HUERTA. I would like to concur with the point that was made by Mr. Dillingham and Mr. Scovel, which is it is an evolutionary process. I think it is important to point out where we are and where we have made success.

As I said in my testimony, a lot of the foundational platforms on which NextGen is built are nearing completion. I talked about how ERAM is going to be fully deployed and exclusively used for operations next year. Likewise, we will complete the build-out of the ADS–B ground infrastructure program, which is also a foundational platform. Then we are well positioned with respect to the terminal component to our automation platforms, or TAMR.

Mr. Scovel is quite right. DataComm is extremely important. We have done some great work, in terms of demonstrating the benefits of DataComm through some trials. Our focus is that we have these platforms, we have these systems, and now we are building the applications on them. That is where the work that we are doing on such things as performance-based navigation becomes so important. With the foundational technologies in place, we have to focus on what we can do to maximize delivery of benefits, and ensure that the community, who has invested a lot and will invest a lot more, will see something positive coming out of the end of that.

Mr. LOBIONDO. Mr. Carson?

Mr. CARSON. Thank you, Mr. Chairman. One of the requirements of the 2012 FAA Modernization and Reform Act was to assess the participation of small and disadvantaged businesses with DOT and FAA programs. This is a very important issue, and I would like to hear from each of the witnesses about what you have learned so far. What are the immediate recommendations for improving participation? And what should we be considering for the long term?

Mr. SCOVEL. Thank you, sir. If I may, in the Office of Inspector General we have had now two audits, one complete and one underway—it will be completed later this year—dealing with the entire Department of Transportation's disadvantaged business enterprise program.

Our first audit, which we have completed and reported to Congress—and there has been intense interest on the part of many Members, as well as the Nation at large—was on how DOT administers its DBE program. We did not include FAA in that particular audit, because FAA, as the committee knows, has its own procurement system and acquisition regulations. Therefore, we thought that if we examined FAA's in conjunction with the Department's, it might lead to mixed conclusions and mixed messaging, perhaps the potential for misunderstood results.

So we have reported on DOT, we have made a series of recommendations, which Secretary Foxx has taken most seriously. The Department is well underway with putting them in place. We are encouraged at what they have told us they would do in concurring with our recommendations. We have also been very pleased with the interest on the part of many Members of Congress in making sure that the Department executes this important program right.

Our audit with respect to FAA's implementation of the DBE program is underway. I am not in a position to share our results now, because our work is not yet complete, and we haven't yet spoken with the agency, with FAA, to brief them in advance, as we must, under our audit standards. But I can assure the committee that we will have those results for you later this year.

Mr. CARSON. Thank you. Yes, sir?

Mr. HUERTA. Sir, if I could just say that, while the audit is underway and we look forward to discussing this with the inspector general, I will point out that this is an important program in a whole lot of areas. It is certainly an important area of focus for me. It is something that our organization spends a lot of time focusing on. How can we structure procurements, particularly in the technology area, where you have a lot of opportunity for participation by smaller businesses? That is where a lot of innovation takes place. We want to ensure that we are able to leverage those contributions and provide appropriate opportunities for disadvantaged businesses in these incredibly important programs.

Mr. CARSON. Thank you.

Dr. DILLINGHAM. Mr. Carson, that provision of the act was not a part of what GAO has looked at.

Mr. CARSON. OK. Thank you, Mr. Chairman. I yield back my time.

Mr. LOBIONDO. OK, and Mr. Webster?

Mr. WEBSTER. Thank you, Mr. Chairman. I would like to ask Mr. Scovel. Have you had anything to follow up on the discussion that was done between the chairman and the Administrator on performance-based navigation? Specifically, the two reports that were due last year some time on those procedures which would—flight procedures for medium and large-sized commercial airports.

Mr. SCOVEL. Thank you, sir. Performance-based navigation and enhancements to that have been at the top—or very near the top—of the shopping list for the aviation community, in terms of what it would like to see FAA turn its attention to most immediately for NextGen enhancements.

Our work with regard to performance-based navigation several years ago showed that FAA, at that time, was focusing on the quantity of PBN procedures, rather than the quality. Consequently, the agency was overlaying PBN procedures over existing air traffic procedures without being able to show to the users that they would achieve much, if anything, if they were to implement them.

Since then, and with the mandate of the Congress in this Act, FAA has relied to some degree not just on its own in-house resources to develop PBN procedures, but has worked with a private contractor to develop more of those. Those have been encouraging, we understand, to members of the aviation community who would like more PBN usage.

Some members of the airline community feel frustrated because, while they have equipped and they have even secured approval from the agency for performance-based navigation usage, they have been stymied at the airport level, because tower and TRACON controllers need to have the proper guidance and training in order to approve the use, operation-by-operation, by an approaching aircraft. We have found that controller training in this area has been lacking. We have encouraged, and the committee has encouraged, as well, FAA to turn its attention to that as a way to mitigate a nontechnical barrier to achieving NextGen improvements.

Mr. WEBSTER. Dr. Dillingham, did you have anything to add to that?

Dr. DILLINGHAM. Yes, sir. I think, by default, performance-based navigation has become near-term NextGen. As the inspector general said, the community is very interested in getting as much out of the current equipment that is available on the aircraft as possible. And I think FAA has made a strong effort to meet the needs of that community.

What we have said to FAA is, "What you need to do is you need to be able to show to the airline industry, and for your own budgetary purposes, how much PBN routes are being used, which are not being used, so that you can invest in those that are giving the most service, and that you can also encourage the airline industry to participate."

Mr. WEBSTER. Even without NextGen, though, many of those procedures could be implemented. Is that correct?

Dr. DILLINGHAM. Yes, sir.

Mr. WEBSTER. OK. Thank you very much. Yield back.

Mr. LOBIONDO. Mr. Cohen?

Mr. COHEN. Thank you, sir. Administrator Huerta, first, thank you for coming in. I appreciate your efforts in Memphis over the

years in working with me. But there is an issue regarding airports and the development around that. You shake your head, so we—you don't have your turban, but you know my question. And it does deal with Part 77. And in the past we have had hearings. And we have been assured there would be public input and hearings and a full report with the Office of Management and Budget on the impact of these changes.

The changes in Part 77 and the OEI has an effect on development at airports, not just in Memphis, but in DC and other areas. It is height of structures, et cetera. Are we going to be able to have a traditional hearing on these issues, so that the overall commercial impact of this rule affecting airport communities, airtropolises, can be had?

Mr. HUERTA. Mr. Cohen, thank you very much. Yes, I am well aware of your interest. As we have talked about, this is an issue that is something that we are looking at very carefully.

What the specific issue is is to consider operations of aircraft that might experience an outage of an engine on departure, and do there need to be restrictions around the airport to plan for that possibility. The existing framework is that it is up to an individual airline to determine, which leads to piecemeal application. But, most importantly, those procedures are not made public.

So, what the FAA has been considering is a way to rationalize that process. I provided an assurance to you that anything we did would be subject to a public process, and that commitment stands. We are in the process now of framing out what a notice would look like, and we want to engage in a public discussion of that before we make anything final.

Mr. COHEN. Thank you. Would that include, in the rulemaking, the Office of Management and Budget cost-benefit analysis?

Mr. HUERTA. At this point, what we are really looking at is what are the policy options that are available to us, and whether it is something that is best done on an airport-by-airport basis in a voluntary fashion, or what other options are available. But you know, all of that will be part of the public discussion.

Mr. COHEN. Well, it shouldn't be proprietary, and that is what it is right now, with the airlines——

Mr. HUERTA. Correct.

Mr. COHEN [continuing]. Private, nontransparent—and the public's concern that highrises or—whatever, I mean, if it falls on the one-story building with lots of folks or if it runs into a taller building, it is a problem still there, and it does affect——

Mr. HUERTA. Absolutely.

Mr. COHEN. Speaking of airports and the economic impact thereof, you mentioned in your statement some things about NextGen and how you work on city payers and gate—how the large airports are—how effective they are, and runways, and traffic flows, improving air traffic flows in busy metropolitan areas, gate-to-gate travel, et cetera, et cetera, et cetera.

You looked at the top 30 airports. I don't know if Memphis—I guess it is still considered that because of FedEx, is that right?

Mr. HUERTA. Correct.

Mr. COHEN. Because of Delta, we are not necessarily where we were. We have fallen in the ratings.

When you look at key city pairs, distance time, distance and time and fuel reduction—you have got here runway safety and all these considerations—has the FAA ever considered putting a maximum number of departures from an airport that serves as a hub for the convenience of the public, and that sometimes, just as too-big-to-fail, too big to serve in a proper fashion?

Atlanta is one that I would think of, specifically. People aren't clamoring to go to Atlanta, like they may be to go to Los Angeles or New York, we have got large airports. But they go there because they are forced to go there. If you want to get to Denver from Memphis, you have to go through Atlanta. When you die, you might have to go to Atlanta before you get to, you know, the opportunity to enter. Have you considered limitations?

Mr. HUERTA. The FAA looks only at the number of operations that an airport can safely accommodate. In terms of looking at a particular carrier in their operations, that would be a form of economic regulation——

Mr. COHEN. How about public convenience, and the public convenience of having to be—what is wonderful, FedEx does with packages, humans are different. And we are like packages being sent around the country.

Mr. HUERTA. But that was exactly the sort of direction that Congress provided in the 1970s that we wanted to get out of, regulating——

Mr. COHEN. We made a mistake.

Mr. HUERTA. We, as a Government, made a determination at that point that the market was the best place to sort out the nature of the services.

Mr. COHEN. But we now know that is wrong, because you have got Cincinnati and Pittsburgh and St. Louis and Memphis and others—Cleveland, now, with United leaving—and airports that have been built with public funds to accommodate hubs in airports and companies, airlines, and now we have congestion and humans being treated like packages, not being put on drones, but having to go through Atlanta to get to anywhere. And it seems like public convenience, we should have learned from our mistake. And I hope you will look into that, the possibility that some airports are too big, and they should fail.

Mr. HUERTA. We look forward to working with Congress on however we should operate the aviation system.

[Laughter.]

Mr. COHEN. Thank you, sir.

Mr. LOBIONDO. Mr. Meadows?

Mr. MEADOWS. Thank you, Mr. Chairman. Thank each of you for being here today. I know that each of you have a commitment to make sure that not only we implement NextGen with efficiency and accountability, but also that we are competitive globally. And so I thank you for that.

Mr. Huerta, I wanted to give you a chance. I know when Mr. Scovel said that it would be beyond our implementation time, some 10 to 15 years, you winced at that in disagreement. So I will go ahead and open it and let you address when you think those benchmarks might be made.

Mr. HUERTA. Well, thank you for that, Mr. Meadows. As everyone has talked about, this is an evolutionary process. I think a lot of it depends on how can we deliver the benefits to the industry to encourage them to equip. We are in this trade-off that we consider between mandates and incentives.

What we have heard clearly from industry is that providing operational incentives is the highest priority, because that is where they get the maximum benefit.

Mr. MEADOWS. Sure.

Mr. HUERTA. That is where we are very focused. The part we have to focus on is deploying the basic technology, ensuring that the procedures are in place, and, most importantly, ensuring that they are used and are delivering the benefit. That has a lot of operational requirements that it imposes on us.

I do believe that we are——

Mr. MEADOWS. So do you think you will meet the deadline? I know the inspector general's office does not. Do you think you will meet the 2025 deadline, or——

Mr. HUERTA. In terms of the capabilities that we have laid out to achieve by 2025, I do feel that the vast majority of those we will be able to meet. The question that we have is will we be in a position to be getting the maximum benefit we would like to get at that point. That is where I am very focused.

Mr. MEADOWS. Well, and if you could, at a later time in your response, just illuminate perhaps some of those areas you are concerned about, in terms of——

Mr. HUERTA. Sure.

Mr. MEADOWS [continuing]. Potentially not getting the benefit.

Dr. Dillingham, I am going to come back to you. When it was mentioned that we have spent $5 billion on NextGen, and that Mr. Duncan said, "I assume that we have gotten benefit," you raised your eyebrow. And so I would like you to comment on that. Because, according to my cost estimates, I would show that it is probably closer to $6 billion that we have spent on NextGen. I am not going to argue, you know, what is a billion here or there. But have we gotten—in your opinion, have we gotten the benefit so far of the money, the hard money that we have invested?

Dr. DILLINGHAM. Thank you, Mr. Meadows. I—it is hard to say what the benefits that we have gotten thus far are worth, in terms of putting a dollar amount on it. I think that some of the accomplishments, some of the laying the bases for what we are going to get, that one has to take that into consideration.

As the Administrator said, we are trying to put in place the base, so that we can build for all of those capabilities. And it——

Mr. MEADOWS. So we have laid the foundation in hopes of getting a benefit. So today we wouldn't have a $6 billion benefit, but hopefully the foundation is laid for that benefit to pay good return in the future.

Dr. DILLINGHAM. Absolutely. And I think part of that is sort of realizing the difference between what you predict 10 years ago, and as technology changes, as things happen——

Mr. MEADOWS. Sure.

Dr. DILLINGHAM [continuing]. What the reality really is. So I think that the benefits will come.

Mr. MEADOWS. OK. Here is what I would ask, then, as we go forward. Because it is very easy to see that what we have embarked on is much greater than perhaps we all realized. Stakeholders are frustrated because they are investing money and they are not seeing perhaps a commensurate level of investment or commitment to reaching those benchmarks. And yet they are asking to make significant financial investments, as well.

And so, Administrator Huerta, if you would, without us looking at the failures of the past, or benchmarks that have been missed, if you would, as we look to this reauthorization, look at what are some of the areas of concern, i.e., you know, are there workforce issues, in terms of implementation? And so, I am asking you officially so that you don't have to go out and be the bad guy for you to respond to Congress.

And, with that, I will submit the rest of the questions for the record later. I yield back.

Mr. LOBIONDO. OK. Ms. Esty?

Ms. ESTY. Thank you, Mr. Chairman. I would like to start by thanking our panel for coming and testifying. I am the newest member of the Aviation Subcommittee, so I am getting up to speed, and your help is greatly appreciated.

I have recently toured some of the contract towers in my district, in Danbury, met with pilots and crewmembers throughout Connecticut. And many of the manufacturers, as you well know, also reside and have home bases in my State. And I have heard from all of them about their concerns about the timetable and our progress towards implementing NextGen. And I believe it is absolutely critical for the U.S. to continue to set the gold standard for aviation safety, so we must do a better job.

So, following up on my colleague, Mr. Meadow's, question, what can we do? What can you do? How are you going to keep the private sector stakeholders involved in this process, which they have gotten, clearly, frustrated and discouraged in? And what are your proposals for moving forward, keeping them engaged so that we do really move forward in a much more timely fashion?

Mr. HUERTA. I think the key point is focusing on what it is that they need, operationally, and ensuring that we are focused on delivering it. That is what was underlying our request to the NextGen Advisory Committee to establish their priorities, and that is the foundational point of our performance-based navigation initiative.

To illustrate what was going on, you heard from Mr. Dillingham that in the past the focus had been on quantity, rather than quality. Let's develop the maximum number of advanced procedures, but without there being a clear sense that all of them are necessarily in the same place, with respect to their usability and, more importantly, their benefit.

So, the way that the program has been redesigned is we break the country up into metropolitan areas, where you can really dive in and develop a very detailed understanding of what are the specific requirements of that area, such as around Atlanta or around Washington or around Dallas. Who are the specific stakeholders? What are the actual flights they want affected? And then, how can we, working collaboratively with controllers and pilots and all the

users of the system, and GA, develop an understanding of what is going to work for the whole? I think that process has served us well.

The downside of it is that it is a collaborative process and, by definition, it is messy and takes a long time. So, the most important thing we can do is stay the course on those efforts, and not lose sight of the fact that we are all in this for an important reason, and that is to get a benefit of deploying these new technologies.

Ms. ESTY. Thank you. And, actually, I want to give you a heads up. I have got a fairly detailed question that I will be submitting about the categorical exclusion requirement, which I think will not be of interest to many people here, and is very detailed. I wanted to let you know I will be following up.

But again, I do think it is critically important, not only that we engage these stakeholders—and collaboration does, obviously, lead to better results—but it does need to be done in a timely fashion, because we need critical masses to make these investments in equipment. It would be very good for our economy if everyone can hold hands and jump in rapidly to make this happen, and we can begin to realize the benefits.

So, we do have to balance the benefits of collaboration with recognizing there is a timeliness component here that, if we don't get that right, we actually, then, risk falling behind the curve. Other parts of the world set that standard, and we aren't being part of that process. So I think we do need to be attentive to that issue. Thank you very much.

Mr. DAVIS [presiding]. All right. The gentlelady's time has expired. The Chair would like to recognize Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman. I have just one question, and I know that Mr. DeFazio wanted a second round, as well.

But the question for Inspector General Scovel, in your testimony, in your report, you discussed the safety workforce for the FAA. And can you—for our record, can you just discuss whether or not the FAA has finished, or when they are about to finish, or when they will finish getting a model done to determine what exactly is the safety inspector workforce needs for the FAA?

Mr. SCOVEL. Thanks, Mr. Larsen. Yes, we are talking about the aviation safety inspector workforce. In fiscal year 2013 the FAA was authorized 4,104 inspectors. They requested the same number for this fiscal year, 2014. The situation with that particular workforce dates back many years.

Congress, in the 2005–2006 timeframe, directed the agency to obtain a study from the National Research Council that would permit the development of a staffing model for aviation safety inspectors. The agency did that, received the study in 2009, and put it into place. It turned out that the model that was developed by FAA was clearly not adequate, and apparently was not well founded in order to deliver to the agency the specific numbers that it needed. There were some wide variations from year to year, in terms of the inspector shortfalls that the model had predicted.

For instance, in January 2011, the model had predicted 389 inspector vacancies, needed vacancies. The very next year it was 914. That was 2012. In 2013, estimated vacancies had fallen to 430. So,

clearly, the needle on the compass was spinning all around the dial, and it couldn't find magnetic north.

We did a study of the model at that point, and FAA concurred with us that further work needed to be done, in terms of validating the data, developing performance measurements, and figuring out the cost benefits to be achieved. FAA has taken the model offline. They are attempting to develop the details that are necessary in order to flesh it out completely. And we hope that, by the end of this calendar year, we will be able to see further progress on it.

Mr. HUERTA. Just to add to what the inspector general talked about, this model has been a challenge for us, as we try to anticipate what the needs are. There have been difficulties, moving forward.

I would just like to add another dimension that we are also factoring in as well, and that is, as we approach safety, the nature and skill set of the individuals we are hiring is also a factor we need to consider. Previously, our aviation safety workforce has tended to come from industry, where they have developed experience in working in maintenance and operations of a major air carrier or other participant in the industry. That was based on an older safety assurance regime, which was essentially kind of a forensic approach: How do you prevent the last accident from happening?

As we all know, this is an industry that has made great strides in achieving levels of safety. The flip side of that is we don't have a lot of accidents, and that is a good thing. But we do know that there is risk in the system, and we have to proactively manage that risk.

So, the question for us is, in addition to the number of people we need, the skill set of the people that we need is also a factor that is itself changing as we are needing to rely more on data that might be in possession of the industry that we regulate. How do we put the mechanisms in place, so that we have full access to that data, while at the same time ensuring a level of collaboration while maintaining our regulatory role.

Mr. DAVIS. The gentleman yields back. The Chair would like to recognize Mr. DeFazio for 5 minutes.

Mr. DEFAZIO. I thank the chair. Administrator Huerta, you know, we have heard a good deal about NextGen, and I am not sure whether this question is somewhat repetitive, but, my experience has been when I came here 28 years ago, that I went out with Norm Mineta, then chair of the subcommittee, and we went out to see the air traffic controller station of the future, you know, this grand vision. I don't know what we—can't remember what we called it back then. Still not there.

How much have we spent thus far in this endeavor? You have a number?

Mr. HUERTA. We talked about a $6 billion number that has been spent to date.

Mr. DEFAZIO. Yes, right.

Mr. HUERTA. A lot of that has been on foundational technology.

Mr. DEFAZIO. Right.

Mr. HUERTA. And I would actually like to invite you to come to a tower and show you some of the things that we are using today.

Mr. DEFAZIO. OK. That would be good. It has been a couple of years since I visited.

But beyond that I guess I wonder, you know—you are saying it is foundational. So we are not really looking at—we can say at this point that investment has yielded this savings or these efficiencies those are kind of on the margin yet. Right?

Mr. HUERTA. Yes. You have to build the foundation.

Mr. DEFAZIO. Right.

Mr. HUERTA. Then you build the applications on it. We are very focused now on realizing operational benefits. I would be the first to say that it is not moving as quickly as I would like, but it is the center of our focus.

Mr. DEFAZIO. In Mr. Scovel's—you know, this has been sort of an enduring issue with me. I have described—no offense, but before your leadership I have described the FAA as the only agency of Government worse at procurement than the Pentagon. And it seems to me to come from constant and consistent change orders as we move through these projects.

And Mr. Scovel says in his testimony that ADS–B In continues to evolve—the technical requirements continue to evolve. My question is, are we trying to chase the future, here? Because it is a rapidly evolving technology and industry. But if we just kind of said, "OK, look. This is the best we have got today, it is going to provide these efficiencies, it is going to cost this much, let's settle on it, and let's let the next generation deal with this great new technology that lets planes, you know, do something else," or are we just going to keep saying, "Oh, gee, this just came along, let's make another change"? And we will never get there.

Mr. HUERTA. No, I couldn't agree more with that, and that is a constant admonition that I am giving to our technical staff. We cannot let the perfect become the enemy of the good, because there is significant benefit that we are able to achieve, based on technology that we have.

The other dimension to that, though, is ensuring that we are able to develop a consensus with industry about how they would like to use the technology. They will tell you they are not completely aligned on that. A big part of what we have to do is figure out how do we bring them together around something. You throw into the mix our friends in Europe and elsewhere in the world, because industry also does not want to have one set of issues going on on this side of the ocean, while there are other things going on on the other side.

Mr. DEFAZIO. Right.

Mr. HUERTA. It is extremely frustrating sometimes. It takes way too long. But your admonition, which I couldn't agree more with, is don't let the perfect be the enemy of the good. We need to reach a point where we have a nice complement of benefits, and focus on getting to the end.

Mr. DEFAZIO. Right. I would point out that Oregon has the—I think—the only insurance exchange that still doesn't work, probably never will work, because they tried to create the future, and it is not working. They are taking paper applications, however. That is great.

Quick question about the UAS. I am concerned. Congress set a hard deadline. There is obviously a lot of commercial pressure. There is, you know, a whole bunch of agencies, and everything, everybody—there is always pressure. But do you think—this is very complicated, in my mind, to integrate these things safely, not only into the airspace, but just operationally over populated areas, et cetera. Are you going to need more time to come up with something that is really going to work and be fully integrated and protect, you know, safety?

Mr. HUERTA. Congress' direction was to ensure safe integration of unmanned aircraft into the National Airspace System. I believe that the way we are approaching it is the only way we can approach it, through a staged process. That just as aircraft have different characteristics and they are introduced at different times, I see that is how unmanned aircraft will evolve. We won't get to a point where there will be one day where suddenly it will be everyone can operate anything any time. But, as we go through the certification and qualification process, there will be classes of these aircraft that we will be able to introduce, but with the overriding concern that we want to maximize the highest levels of safety.

Mr. DEFAZIO. OK. I guess my—what I am saying is this is a case where I don't want you to feel jammed by an artificial deadline created by Congress, despite my complaints about NextGen.

So, anyway, thank you, Mr. Chairman.

Mr. DAVIS. The gentleman's time has expired. Thank you all very much for being here today.

One of the benefits, again, of being a freshman and then coming to the chair is I get to ask my questions last. Administrator Huerta, I want to start with you.

The FAA contract tower program has a strong and also bipartisan support here in Congress as one of the most cost-effective safety programs for the agency and the taxpayers. And it is my understanding that the FAA continues to work on revising data used in the cost-benefit ratios that determine eligibility and cost share formulas. Is this accurate?

Mr. HUERTA. We are constantly looking to revise and evaluate how we understand what the cost profile for these contracts are, and how we can do them as effectively as possible, yes.

Mr. DAVIS. OK. Well, can you share an update, quickly, of these revisions, and how you are going to ensure that the revisions to the cost-benefit ratios are done in a collaborative way, with input from the industry and the airports that would be impacted?

Mr. HUERTA. We would be happy to provide a briefing on that.

Mr. DAVIS. OK, thank you. I do hope you will work closely with the industry. Obviously, in my district, in central Illinois, there were many that were worried about the contract hours last year. I am glad that has been solved. Thank you for your cooperation.

I know there has been a lot of talk about the public-private partnership language with NextGen. I am, obviously, interested in expanding P3 language with provisions that Cheri Bustos and I helped write for a WRRDA bill. I don't want to rehash some of the issues regarding NextGen, but I do want to ask you. What are your views on promoting more public-private partnerships during the next reauthorization?

Mr. HUERTA. I think it is extremely important. I think there are a number of technical issues that we may need help from Congress as we look at that question.

One example is the large multitude of facilities that we have, and the need to replace certain of those as we consider consolidation, or refocusing. In some instances, we have facilities that are 50 years old and they need to be replaced. Under our current framework, all of that is done as a Federal project.

But the real estate industry has evolved to a point where a lot of that can be done under lease or through some long-term commitment with a private party to provide something such as facilities. My understanding, though, is that there are technical issues on how those projects are considered in a budgetary context that have the effect of discouraging trying to achieve that sort of beneficial use.

I think that there is a lot of potential in the facilities area. I think we need to focus as we have been focusing on how do we work with industry to develop operational procedures. You know, the FAA has, for a long time, been focusing on how can we work together with the private sector on provision of services. A lot of services that are provided under the FAA banner are, in fact, privately provided. That is something that we will continue to work on.

This is a business that I was formerly in, so it is something that I know a little bit about. I believe it is important on two levels. One, is it enables us to get maximum benefit from taxpayer resources as they are expended. Two, it also builds partnerships with industry, and in an industry such as ours, which depends on close collaboration, strengthening those partnerships is something that is extremely important and has a lot of benefit.

Mr. DAVIS. Well, thank you. And thank you for your cooperation, too.

I guess we will leave this one to Mr. Scovel. I have a number of air medical services in my State: AirLife Illinois; Saints Flight. They are interested in the improvement of the low-level aviation infrastructure, especially when it comes to weather reporting. Section 317 of the FAA reauthorization requires the FAA to assess the quality of off-airport low-level weather reporting, and issue a report and recommendation within a year.

My understanding is that has not yet occurred. Has the assessment even started? And do you have a timeline as to when the FAA is going to complete that work?

Mr. SCOVEL. Thank you, Mr. Chairman. We have not examined that. That was not one of our mandates under the act, and we haven't undertaken ourselves to initiate an audit in that area.

You mentioned aeromedical services in your district and State. I will say that we do have a body of work in that area. We have initiated specifically an audit to examine FAA's oversight of the helicopter emergency medical service providers to the extent that, whether factors will enter into our audit, we can certainly build those in. And, in the meantime, perhaps I could defer again to Mr. Huerta for——

Mr. DAVIS. That is where I was going next.

Mr. SCOVEL. Thanks.

Mr. HUERTA. We have conducted all the work that is necessary to finalize the report. We conducted a thorough review of aircraft weather observation technologies, and potentials for improvements. We also looked at NTSB reports. The report is currently being finalized and it is in executive review within the agency.

Mr. DAVIS. Do you have an estimated timeline?

Mr. HUERTA. I don't. I will need to get back to you on that.

Mr. DAVIS. I would appreciate that. My constituents have asked, and I would like to get back to them with that. So thank you for your cooperation.

Mr. HUERTA. Sure.

Mr. DAVIS. Administrator Huerta, commercial aviation, as we know, drives over 10 million U.S. jobs and $1 trillion in economic activity per year, and about 5 percent of the total U.S. GDP. In your time at the FAA, can you identify for us three FAA policies or initiatives that have helped our airlines grow, create jobs, and compete with foreign airlines, many of whom receive direct assistance and subsidies from their Government?

Mr. HUERTA. I think that where I would focus is in two major areas. One is on the airline side, the other is on the aircraft manufacturing side.

First, on the airline side, we have had a lot of conversation about delivery of benefit. But what has been the highest priority for me has been the operational benefit associated with performance-based navigation. What that does is it reduces the actual cost that an airline pays for fuel, which represents about 40 percent of their cost basis. If you can focus on reducing fuel cost, you are making for a stronger industry. That is something that all of us at the FAA are extremely focused on.

Those impacts are very specific to particular procedures, particular airports, particular carriers, but we have a very broad base, where we are working through very detailed projects in a lot of metropolitan areas around the country.

On the certification side, we are doing a lot of work on Part 23. This is the regulation that governs the manufacture of small aircraft and associated parts. This is an area that has gotten a lot of attention by Congress. It is also an area which, for us, is a very significant contributor to the economy and to our exports. The question that was given to us by industry and by Congress is how do we streamline the certification processes and the approval processes to enable these companies to bring new products to market.

A lot of good work has been done there. A lot more is yet to be done. If you look at how a product is manufactured now, it truly is global, it truly is a very complicated process. What we have to recognize is that this is our largest export industry, it is where we lead the world, and we have to make sure that our industries have a level playing field.

Mr. DAVIS. Well, thank you. I think, from the line of questioning that you saw here today, there is bipartisan commitment to ensuring that America doesn't lose a competitive advantage because of our regulatory environment. And there has been a lot of talk about the President being able to pick up his pen and increase the regulatory environment, not just on transportation-related issues, but many others.

And, with that in mind, with so much discussion being put forth that the President is going to offer more and more rules and regulations, are you aware of any proposed FAA rules and regulations that the administration is considering at this point that this committee should be aware of?

Mr. HUERTA. Well, there is a number of regulations that we have been asked by Congress to implement.

Mr. DAVIS. I am talking direct administration's, not congressional mandates. The administration—the regulations that could be—or are maybe in discussions, being proposed with the FAA by the administration, without any input from this committee or Congress, whatsoever.

Mr. HUERTA. No.

Mr. DAVIS. Thank you. Any other questions? Mr. Capuano?

Mr. CAPUANO. Just came by to say hello.

Mr. DAVIS. This is a first, that Mr. Capuano has no questions.

I am going to thank you on behalf of Chairman LoBiondo and this entire committee for your time here today. And, without any objection, and before Mr. Capuano decides to change his mind, this committee is adjourned.

[Whereupon, at 11:55 a.m., the subcommittee was adjourned.]

STATEMENT OF MICHAEL P. HUERTA, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION, BEFORE THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON AVIATION, ON THE FAA MODERNIZATION AND REFORM ACT OF 2012: TWO YEARS LATER, ON FEBRUARY 5, 2014.

Chairman LoBiondo, Congressman Larsen, Members of the Subcommittee:

Thank you for the opportunity to appear before you today to review the accomplishments of the Federal Aviation Administration (FAA) during the past two years since Congress passed, and the President signed into law, the FAA Modernization and Reform Act of 2012 (the Act). For those of us who were working on developing and passing the Act, and I was only in office for part of it, we remember the long and difficult road we travelled to achieve passage. In part because the bills were works in progress for so long, when the legislation passed, it was truly comprehensive in nature. It contained over 200 deliverables, nearly half of which were due within the first year after enactment. FAA takes the Congressional direction we receive very seriously and our employees work hard to achieve the goals and directives you legislate. Given the breadth and depth of the Act, it would be difficult to provide a comprehensive review of all FAA responses its provisions. I will, therefore, focus on three main areas that I know are of concern to this Subcommittee: Next Generation Air Transportation System (NextGen), unmanned aircraft systems (UAS), and the consolidation and realignment of FAA facilities, often referred to as section 804. I think my time before you would be best spent updating you on these three vital initiatives because they are critical to how the agency, the aviation industry and the safety and efficiency of the national airspace system (NAS) will evolve over the coming years.

Before I begin, I would like to note what a difference a year makes. Last year, I sat before you days before the funding restrictions of sequestration were imposed. I know everyone in

government was challenged by the effects of those restrictions. I would like to express my gratitude that Congress worked through the many serious compromises and potentially crippling funding issues and passed the Omnibus Appropriations bill. This vital legislation provides needed predictability during a very uncertain budget environment. I appreciate the effort and the achievement.

NextGen

Let me begin with NextGen. Following the Reauthorization, I named Michael G. Whitaker, who assumed the role of Deputy Administrator on June 3, 2013, Chief NextGen Officer. This is a role of great importance. Effectively leading the agency through the next phases of NextGen implementation will require working with many organizational components within the FAA, collaborating with industry and labor, and understanding the complexities of the NextGen program. Mr. Whitaker is a seasoned aviation executive with extensive business, regulatory, legal, and international experience. I knew that he was the right choice for this role and I am confident that NextGen will continue to flourish under his leadership. Mr. Whitaker made it clear that helping to build and deploy NextGen was one of the principle reasons he joined the FAA and he has great commitment to ensuring that we reap the maximum benefits from NextGen enhancements.

In September 2013, Air Force Major General Edward L. Bolton Jr. became the new Assistant Administrator for NextGen. Mr. Bolton's accomplished military career involved many leadership positions. Most recently, he served as Assistant Secretary for Budget in the Office of the Assistant Secretary for Financial Management and Comptroller, where he led a team of financial managers responsible for the Air Force's $110 billion annual budget. His leadership

and commitment to public service is apparent. I am confident that he is well-suited to lead the talented workforce responsible for transforming the NAS under NextGen. NextGen is already delivering concrete benefits to users of the national airspace. Because of NextGen improvements, we are able to guide and track aircraft more precisely on more direct routes. This allows us to cut flight miles and reduce fuel burn, making air travel more convenient, predictable, and environmentally friendly. NextGen procedures have resulted in reductions in fuel consumption, carbon dioxide emissions, and noise, as envisioned at the time of the Reauthorization. We are projecting that NextGen will reduce overall delays by 41 percent by 2020, compared with what would happen if we did not implement any additional NextGen improvements.[1] These delay reductions will provide an estimated $38 billion in cumulative benefits through 2020. We estimate 16 million metric tons in cumulative reductions of carbon dioxide emissions through 2020, and 1.6 billion gallons in cumulative reductions of fuel use.

The agency has made consistent progress in delivering NextGen in several key areas since the Reauthorization. One such area is Automatic Dependent Surveillance–Broadcast (ADS-B). This system transitions the nation's air traffic control system from one that relies on radar technology to one that uses global satellites, which can provide more precise location data. To date, the FAA has installed more than 596 ADS-B ground stations, 566 of which are operational. ADS-B ground stations provide traffic and weather information to more than 1,700 properly equipped aircraft and supporting air traffic control separation services at eight En Route and 38 Terminal facilities. Users with ADS-B capabilities are already achieving increases in efficiency and fuel

[1] In order to assess the full cost of delay, the Department of Transportation (DOT) considers the value of air travelers' time. From 2003 to 2011, this was estimated by DOT at $28.60 per hour. In the Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis, DOT increased that value for 2012 to $43.50 per hour.

burn. They can also increase flight hours by virtue of being able to operate in periods of low visibility, which is particularly important in areas like Alaska and over the Gulf of Mexico.

Over the last two years, System Wide Information Management (SWIM) infrastructure investments have enabled significant advancement in the access and distribution of airport surface movement information. The surface movement data from 27 major airports is now available through a single portal to a broad range of external consumers. Today there are 19 external consumers, including many cargo and passenger airlines, vendors, and aviation research institutions, receiving surface movement data through this single portal. This allows operators to make better-informed decisions that improve their efficiency.

We are in the final stages of the En Route Automation Modernization (ERAM) program, which will provide benefits for users and the flying public by increasing capacity and efficiency, as well as allowing us to add new capabilities into the airspace system. The optimization of airspace and procedures in the Metroplex program has seven active teams in various phases of development.

One of the most exciting new capabilities we have underway is Data Communications (Data Comm). Data Comm allows us to communicate through written instructions to pilots, which reduces the possibility of error with radio communications. More importantly, Data Comm allows us to communicate highly complex clearances that are not practical to convey over the radio – instructions that can be automatically loaded into the aircraft's flight management system. This will ultimately save operators and passengers time and money, and will vastly improve the flexibility and efficiency of our operations. The FAA has awarded the Data Communications (Data Comm) Integrated Services contract, which will provide for data

communications between airport towers and appropriately equipped aircraft in 2016. Operational Data Comm trials are underway in Memphis and Newark.

NextGen's Performance Based Navigation (PBN) facilitates more efficient design of airspace and procedures which collectively result in improved access, capacity, predictability, operational efficiency, and environmental benefits. PBN's Area Navigation and Required Navigation Performance (RNAV and RNP) procedures are providing greater operational flexibility and capabilities. Optimized Profile Descents allow aircraft to reduce engine power and virtually glide down to the runway. This leads to reduced fuel burn, which reduces the carbon footprint of large air carriers, as well as reduced noise. New departure procedures, made capable by NextGen at major airports across the country, are reducing delays and increasing capacity. The optimization of airspace and procedures in the Metroplex program has seven active teams in various phases of development.

We have expanded our public reporting of NextGen performance through success stories and performance snapshots on our website. The FAA publishes NextGen-specific metrics at the local level in order to isolate and identify NextGen improvements at site-specific locations. Core airports, key city pairs, distance/time/fuel reduction, runway safety, the implementation and use of NextGen technology and procedures will continue to be important to understanding the value and benefits of modernization. Taken together, these metrics reveal the nationwide impact of NextGen development, which has already been shown to provide tremendous benefits to efficiency and the environment.

In this month's release, we have added three new key performance indicators:

1. Effective gate-to-gate time at Core 30 airports. An efficiency indicator, it measures the duration of travel from scheduled gate-out time to the actual gate-in time. As outlined in Sec. 214 of the FAA Reform Act, gate-to-gate is an important metric of NextGen success.

2. Effective gate-to-gate predictability for city pairs. This too is an efficiency indicator, and we have chosen city pairs as recommended by the NextGen Advisory Committee, our industry-government partnership that advises the FAA on key NextGen initiatives. Based on the Bureau of Transportation Statistics, the metric measures whether flight duration is consistent over time between NAC-recommended city pairs

3. Average Daily Capacity for Core 30 airports.

The NextGen Performance Snapshots reports the average daily capacity at Core 30 airports during reportable hours. For instance, at MEM, reportable hours cover all hours of a day, while at JFK, they include the 6:00 to 23:59 time period. Another reauthorization metric, the user reference provides the data sources and definitions as well as the methodology to compute the metrics.

In the latest release, we added a metroplex section highlighting the FAA's initiatives to improve air traffic flows in busy metropolitan areas. The metroplex concept revolves around traffic flow de-confliction in a complex airspace where airports are in close proximity. There are 21 metroplexes and each metroplex is linked to an individual page that provides:

- the list of airports included in the metroplex,
- a description of operations by user class (commercial air carriers, GA, military),
- passenger volume as well as
- the expected benefits expected to accrue upon completion of the NextGen near-term procedural improvements implemented by the Optimization of Airspace and Procedures in the Metroplex (OAPM) program

Additionally, we updated our efficiency, access, city pair and environmental metrics with the latest available data. We also introduced four more success stories that highlight some of the more significant results we are seeing from NextGen implementations.

1. Localizer Performance with Vertical Guidance at a GA airport in California - NextGen procedure enables pilots of equipped aircraft to land even when the approach to the runway is covered in fog. LPV provides a great backup (to the ILS) and it is another means for pilots to get their passengers into airports they otherwise could not.

2. The use of Performance-Based Navigation at Jackson Hole - A satellite-based precision procedure that makes the landing path to Jackson Hole both safer and shorter for equipped aircraft. The new procedure, which keeps aircraft on a tightly-defined track along a smooth, curved path, provides a safety cushion between the approach path and the higher terrain to the west.

3. Area Navigation off-the-ground at DFW - The FAA has put in place a NextGen procedure that triples the number of departures the airport can accommodate, a significant increase in the airport's throughput up to 20% on an average day. The NextGen procedure makes it possible for flights to take off with less distance between each aircraft — 1 nautical mile compared to the standard 3 nautical miles. This enables an increase of 15-20 percent of departures per hour when the airport is congested compared to conventional methodology

4. Airborne Collision Avoidance System X - As NextGen technology enables aircraft to safely fly closer, the FAA is developing a new collision avoidance system. Terrain Collision Avoidance System was introduced in 1989; however, the system needs an upgrade to accommodate new capabilities that are being introduced in the National Airspace System. With satellite-based NextGen technologies, aircraft are tracked with a higher precision than with radar and safe separation distances may be reduced. This means that ATC can get aircraft through busy airspace more efficiently.

As we continue to move forward with NextGen development and deployment, I am confident that we will continue to see benefits to the operation of the national airspace.

UAS

Many new technologies have abstract benefits that are sometimes hard to succinctly describe or understand. UAS have applications that are not only readily understandable, but have the

potential for broad benefits for virtually all Americans. From homeland security, emergency management and law enforcement, to food and package delivery, the potential uses for UAS technology are limitless. Realistically, neither the technical nor operational capabilities necessary exist today to implement the opportunities described by visionaries, but their promises for 21st century conveniences are compelling.

Meeting the challenges for realizing this potential will take a concerted effort and must achieve the requisite balance of maximizing the technological benefits, while maintaining safety and efficiency of the NAS. The FAA has a history of accommodating new technology into the NAS safely and effectively. UAS is the latest technology to be developed that FAA is working to integrate. While FAA's role in this effort is critical, it is limited to NAS safety and operational efficiency. As with other manned technologies, FAA's role does not extend to directing or otherwise limiting the underlying purposes for which the aircraft is used. That is left to government agencies with the appropriate jurisdiction and Congressional mandates.

I would like to set forth a basic framework for how the FAA will integrate unmanned aircraft into the NAS. In some ways, unmanned aircraft are inherently different from manned aircraft. They possess a wider operational range than manned aircraft, with a wider number of different physical and operational characteristics. Some UAS are the size of a fist, and fly at low altitudes and slow speeds. Others have glider-like bodies with the wing span of a 737 and can fly above 60,000 feet. Many can fly longer than manned aircraft. Their common characteristic, distinguishing UAS from manned aircraft, is that their pilot is on the ground and not on board the aircraft. This is a very new and different common denominator.

FAA estimates that we can expect 7,500 small unmanned aircraft in the NAS over the next five years, provided regulations and operational guidelines/policies are in place to handle them. We recognize that, while the expanded use of UAS presents great opportunities, integrating them also presents significant challenges. Operational issues, such as pilot training, must be addressed. Additionally, we need to make sure that unmanned aircraft can detect and avoid other aircraft and that they operate safely, even if they lose the link to the pilot in command. Likewise, manned aircraft must be able to detect these aircraft as well.

Our airspace system is not static and it is important for industry to understand that unmanned operations will evolve over time, just as they have over the past decade. Today, unmanned aircraft are used to keep our borders safe. They help with scientific research and environmental monitoring. They support law enforcement agencies and help state universities conduct research.

As we move forward, the use of small unmanned aircraft is likely to grow most quickly in civil commercial operations. These UAS are extremely versatile and have relatively low initial cost and operating expenses. The FAA, in accordance with the Act, is working on a proposed rule governing the use of a wide range of smaller UAS, which, in accordance with the roadmap, we expect to issue for comment this year.

FAA's long term goal of UAS integration will rely on the test sites to answer key questions and provide solutions to the issues noted above, as well as how they will interface with the air traffic control system. This information will help the FAA to develop regulations and operational procedures for future civil commercial use of UAS in the NAS.

Last year, the FAA, often in consultation with other key government partners and industry stakeholders and in accordance with provisions of the Act, issued a number of key documents

intended to assist in defining parameters to safely integrate these very diverse systems into the world's most complex airspace. The Integration of Civil UAS in the NAS Roadmap outlines, within a broad timeline, the tasks and considerations needed to enable UAS integration into the NAS. The five year Roadmap, updated annually, provides stakeholders with proposed agency actions to assist with their planning and development. One concrete achievement facilitated by the roadmap took place in September 2013 when the first commercial flight of an unmanned aircraft took place in the skies above the Arctic Circle. A Scan-Eagle completed a 36 minute flight to view marine mammals and survey ice. There are hopes that UAS can be used to meet environmental and safety requirements in the Artic. The flight was coordinated by Insitu (the UAS manufacturer), Conoco Phillips, and other federal and international agencies. The Arctic region is the only area to date where we have authorized the use of small unmanned aircraft for commercial purposes. This flight was organized to demonstrate the feasibility of implementing the Artic provisions in the Act.

The UAS Comprehensive Plan was drafted by the Joint Planning and Development Office (JPDO) in coordination with JPDO Board participants from the Departments of Defense (DOD), Commerce (DOC), Homeland Security (DHS), the National Aeronautics and Space Administration (NASA) and the FAA. It is a document that considers UAS issues beyond 2015, including technologies necessary for safe and routine operation of civil UAS and the establishment of a process to inform FAA rulemaking projects related to certification, flight standards and air traffic requirements. The Comprehensive Plan details work that has been accomplished, along with future efforts needed to achieve safe integration of UAS into the NAS in the NextGen timeframe. It sets overarching, interagency goals, objectives, and approaches to

achieving integration. Each partner agency will work to achieve these national goals and may develop agency-specific plans that are aligned to the national goals and objectives.

With respect to another important issue for UAS development, in November 2013, FAA also released a privacy policy that applies to the UAS test sites. This policy requires operators to comply with all local, state and federal laws concerning privacy and civil liberties. FAA is requiring the test site operators to create a privacy policy that is available to the public. The test site operator must require anyone operating unmanned aircraft at the site to have a written plan for how they will use and retain any test data acquired. On a broader level, agencies across the government are coming together to work on privacy issues that may arise with the increasing use of unmanned aircraft beyond these test sites. Ensuring that UAS integration does not erode individuals' privacy is a goal supported by both government and industry.

This brings me to the announcement of the selection of the test sites, the creation of which were mandated in the Act. FAA received 25 applications from 24 states, so I was quite pleased with the depth and range of the proposals we reviewed. In selecting the sites, FAA considered many factors. We made a concerted effort to pick sites that reflected both geographic and climactic diversity. We also took into consideration the location of ground infrastructure. We looked at the type of research that would happen at each site and the aviation experience of the applicants, as well as the type and volume of aircraft that fly near the sites. Our research goals are focused on (1) gathering system safety data, (2) aircraft certification, (3) command and control link issues, (4) control station layout and certification criteria, (5) ground and airborne detect and avoid capabilities, and (6) impacts on affected populations and the environment.

The following test sites were selected by the FAA, after consultation with DOD and NASA: University of Alaska; the State of Nevada; New York's Griffiss International Airport; North Dakota Department of Commerce; Texas A&M University – Corpus Christi; and Virginia Polytechnic Institute and State University (Virginia Tech).

As required by Congress, we expect the first test site to be operational within 180 days of the December 30, 2013, announcement and that the test sites will continue to operate until at least February 2017.

FAA Facility Consolidation and Realignment – Section 804

When I testified before you last year, I noted that not all Congressional deliverables were created equal. One of the sections of the Act that holds great potential for the FAA is section 804, a provision which is intended to assist with the consolidation and realignment of FAA facilities. In order for FAA to be well positioned to meet future demands, we must have strategically placed, state of the art air traffic control facilities.

While FAA appreciates the importance of this provision, executing the intent of the provision has proven to be challenging. As originally envisioned, the Act contemplated a single plan being presented to Congress with a comprehensive recommendation encompassing all FAA facilities. After working extensively with our labor unions, we now believe the most effective workable approach to consolidation and realignment is a segmented one utilizing a repeatable process and incremental steps toward thoughtful and agreed upon recommendations. Subsequent to providing the details of this process to this Committee's leadership late last year, we kicked off the first step of this important initiative on January 22, 2014, along with our union colleagues.

We will begin this effort focusing on our terminal facilities with a goal of making an initial recommendation to Congress early next year.

We expect to evaluate approximately 25 facilities this fiscal year. The evaluation will include a review of the infrastructure of the facility, the technology the facility can support, including its readiness for NextGen, and how people working at the facility will be impacted by any decision made. Step two begins the development of business case plans that document the benefits and risks associated with different scenarios. This includes evaluating each proposed pairing of receiver and transfer candidates. It also includes an initial outreach to industry stakeholders who might be impacted by the recommendation. Step three is a more detailed quantification of the costs, benefits and risks of the potential recommendations. Step four is a ranking the recommendations of the fully developed scenarios and clearing the recommendations throughout the FAA and the Department. Agreed upon recommendations will then be presented to Congress for your consideration. After submission to Congress, FAA will publish a notice in the Federal Register to solicit public comment. We will also be using existing communication opportunities to speak to airlines and system users regarding the status of the process and recommendations.

Throughout this process, five prioritization criteria will be consistently applied and given equal weight. Factors, such as whether the facility's airspace borders the airspace of another terminal facility, whether it provides approach control for core airports, whether it operates full or part time, what its facility condition index is, and whether it is an FAA investment priority will be considered. Life cycle costs and benefits have also been identified and agreed upon.

There is always great sensitivity surrounding decisions affecting where people will work. This process took a long time to develop, but I think it was time well spent. We have worked out all

of the details so that employees and management alike can understand why the recommendations that are made got made. In turn, we can justify the recommendations to Congress at the appropriate time.

We recognize that facility consolidation and realignment are fundamental to FAA moving forward and meeting its challenges and responsibilities. With this new process in place, it will support a segmented and repeatable format for identifying and quantifying the difficult decisions that must be made in this area. I certainly believe that by this time next year, we will have made good use of the authority provided in section 804 and I look forward to being able to report on that.

Conclusion

These are only three of the important areas FAA is working on to meet the future needs of government and the aviation industry without compromising the safety or efficiency of the NAS. We have an enviable safety record, which means we must constantly look at ways to raise the bar on safety and be smarter about the use of data to keep ahead of emerging safety concerns. We must learn how to recruit and train our workforce to better adapt to innovation so that we more efficiently and effectively approach our critical mandates. These are broad priorities. As we work through completing the directives of the last reauthorization and think about what goals should be included in the next one, we must keep these priorities in mind because there are a lot of details we must work through collectively, government and industry, to support them.

FAA, government generally, is being asked to do more with less. Given the fiscal challenges we have seen in the past year and the continued difficult financial environment, we are going to have to have thoughtful conversations about how FAA should prioritize its role – what it makes sense

for FAA to continue doing, and how we should do certain things differently. We need to be strategic in how we prioritize our resources.

We in this room, the people who are watching this hearing, care about aviation. We must continue to lead take on the challenges before us. I very much look forward to working with you as we do.

Mr. Chairman, this concludes my statement. I will be happy to answer your questions at this time.

Congressman Frank A. LoBiondo

Committee on Transportation and Infrastructure

Subcommittee on Aviation

February 5, 2014

Hearing

"The FAA Modernization and Reform Act of 2012: Two Years Later"

Questions for the Record to Hon. Michael P. Huerta, Administrator,
Federal Aviation Administration

QUESTION 1

QUESTION: Section 812 of the Reform Act required the FAA to review programs and offices within the Agency and identify wasteful practices, duplicative positions, redundant functions, etc. I commend the FAA for completing this requirement. However, this provision also requires the FAA to address its findings. What is the FAA's timeline to begin addressing the Agency's findings?

ANSWER: The FAA continues to make consistent progress towards meeting the mandates pursuant to Section 812 of the FAA Modernization and Reform Act of 2012 (Pub. Law No. 112-95).
In July 2012, the agency completed a thorough review of agency programs, offices, and organizations, and identified 36 projects for elimination or reform.
On January 28, 2013, the FAA transmitted a Report to Congress detailing the results of its review to Representative Bud Shuster (Chairman, House Committee on Transportation & Infrastructure). As of the date of transmittal, the FAA had implemented 15 (41.7 percent) of the 36 projects identified during the comprehensive review of it programs.
The Agency continues to make consistent progress towards reaching its goal of 100% implementation. In the year following the report's initial transmittal to Congress, an additional 14 projects have been implemented. To date, the agency has implemented 29 of the 36 projects identified, or approximately 81 percent.
The following seven projects are in progress and continue to move toward implementation:
• Shared Services Optimization for Information Services
• Records Management Reform
• FAA Greening Initiative
• Office of Airports - Geographic Balancing Effort
• Office of Airports - Standardization and Standard Operating Procedures

• Office of Commercial Space - Staff Relocations to Field Offices
• Joint Resource Council – Review of Investments

The FAA recently completed a routine status update of those projects still in progress. An updated report is currently under review.

QUESTION 2

QUESTION: Can you explain the FAA's role in regulating commercial space activities, in particular those that involve hybrid space systems (i.e., part aircraft, part spacecraft)? It is my understanding that two separate offices within the FAA regulate these operations, which increases costs and decreases efficiency. What can you do, or what are you doing to ensure that the Agency is working together internally to safely and efficiently regulate this industry?

ANSWER: The FAA supports a flexible regulatory structure which promotes growth, safely integrates operations into the national airspace system and leverages all the capabilities of the FAA. By leveraging both the expertise in the Office of Aviation Safety (AVS) and the Office of Commercial Space Transportation (AST), we believe we can create a regulatory structure which addresses safety, meets the needs of industry and allows commercial spaceflight operators the flexibility to grow.

AVS has representatives from the Aircraft Certification Service (AIR) and Flight Standards (AFS) who are members of a working group sponsored by AST. This team has developed an internal process where applicants who intend to use aircraft as a component of a launch system can apply through AST. AST coordinates with the Hybrid team to discuss regulatory requirements of the aircraft and aircraft crew during a launch operation. The team has a draft memorandum of understanding that may help formalize the AVS-AST interactions for hybrid launch systems.

It's important to note that in a hybrid launch system where an aircraft is used to carry a launch vehicle aloft, the aircraft portion is always operated as an aircraft since it will never meet the §401.5 definition of launch itself. Currently, AST incorporates the aircraft airworthiness certificate and operating limitations within their launch permit or license's terms and conditions. This strategy allows the aircraft to operate as a part of the launch without actually being a launch vehicle.

Our current process provides a single entry point into the Agency for all commercial spaceflight applicants. For the traditional, vertical launch providers, all launch, reentry and other activities covered by chapter 509 of the US Code are conducted under a single license or permit issued by the Office of Commercial Space Transportation (AST). For hybrid launch systems, launch and reentry are also conducted under a single launch license or permit issued by AST. When the components of a hybrid vehicle are operated as aircraft, performing aircraft functions, then they

are regulated as aircraft. Within the Agency in all these cases, AST is the entry point and primary interface with the applicant. We leverage the expertise of engineers and aviation inspectors from the Office of Aviation Safety and include them in technical level discussions, but our commitment is to make the internal processes between AVS and AST transparent to the applicant.

QUESTION 3

QUESTION: It is my understanding that since March 2010 the FAA has been working under a temporary Memorandum of Understanding (MOU) with NATCA that does not require controllers to sign in or out of their position or when they report for their shift. How does FAA keep track of its controller workforce and their time on position? Further, the temporary MOU was signed on March 25, 2010. When will the FAA resolve this matter and require employees to track their own time on position and when they report for their shift?

ANSWER: The 2010 MOU between FAA and NATCA was the result of an adverse third party arbitration ruling that required the FAA to discontinue requiring controllers to be responsible for recording their own time and attendance. Therefore, controller time on position and sign in and sign out times became the responsibility of management. Those times are captured and recorded in the official time keeping system (CRU-X) by supervisory staff at each facility. FAA and NATCA recently agreed to a collaborative work group tasked to identify alternatives that would allow controllers to resume sign in and sign out responsibilities, as well as possible automated solutions for tracking time and attendance. Recommendations from the group are expected within the next 90 days. Any changes and/or bargaining obligations will be determined at that time.

QUESTION 4

QUESTION: As you know, there are 36 FAA-approved Collegiate Training Initiative (or CTI) colleges and universities that offer degree courses in air traffic control. As air traffic control becomes more and more high-tech with NextGen, it seems to make good business sense to have these schools provide a pool of highly educated applicants for the FAA, especially with the wave of anticipated retirements. It is my understanding that due to the 2013 Academy shut-down, between 3,000 and 3,500 CTI graduates were on the FAA waiting list, hoping for the restart of hiring that would send them to the FAA Academy. However, I have heard that the FAA is backing off this approach and issuing a general public or "off-the-street" job announcement. Why is the FAA doing this when it already has thousands of college graduates ready to go? Is this fair to the CTI graduates? How will this new approach impact the skill and educational level as well as training costs of future controllers?

ANSWER: The FAA created the AT-CTI program to establish partnerships with post-secondary educational institutions to encourage interest in employment opportunities in the aviation industry as a whole. This program was never designed to be the sole source of candidates for the FAA's Air Traffic Control Specialist vacancies, nor imply in any way a guarantee of employment with the Agency. Rather, the CTI program has been used along with other recruitment sources when hiring new Air Traffic Controllers.

The FAA recently announced that we are making improvements to our hiring processes for the Air Traffic Control Specialist occupation. The improvements we are making to our hiring processes will increase the objectivity in the assessment of candidates for Air Traffic Controller positions and improve our hiring decisions. The Agency will continue to apply appropriate merit-based recruitment, assessment and selection processes when filling our vacancies with those candidates most likely to succeed on the job. We anticipate these improvements will result in lower training costs.

The FAA opened a job announcement for the Air Traffic Control Specialist occupation on February 10th and closed on February 21, 2014. All interested applicants, including those with CTI educational backgrounds, had the opportunity to apply under this announcement. Those previously eligible to apply under the individual hiring source announcements, CTI, VRA, etc., also had the opportunity to apply under the new single hiring source announcement. All applicants will be ranked based on validated, job-related assessments that predict success on the job. The FAA will also apply veterans' preference rules, as required by law. These changes will assist the FAA in meeting its fundamental goal of attracting and selecting the best candidates for the profession.

As you indicate in your letter, budget restrictions impacted job applicants from all hiring sources, including CTI students. Now that those challenges have been resolved, the Agency is working to honor its commitment to those applicants that were offered tentative job offers. To that end, the Agency has contacted the approximately 950 affected persons, of which 543 are CTI graduates. We are working with these individuals to complete the pre-employment requirements so they can be appointed and hopefully begin their Academy training later this year.

Let me assure you that as this critical occupation continues to evolve through NextGen and other initiatives, we will continue to evaluate and improve our recruitment and applicant assessment process. Our commitment to aviation safety remains our top priority and these changes to our hiring processes will only serve to enhance that effort.

Congressman John L. Mica
Committee on Transportation and Infrastructure
Subcommittee on Aviation

February 5, 2014

"The FAA Modernization and Reform Act of 2012: Two Years Later"
Questions for the Record to Hon. Michael P. Huerta, Administrator,
Federal Aviation Administration

Question:

Administrator Huerta, section 321 of the Reform Act requires the issuance of improved pilot licenses that are compliant with Federal Information Processing Standards (FIPS) for processing through checkpoints into airport sterile areas. Has the FAA determined how it intends to proceed in meeting this requirement? Where is the Agency in the process of implementing the new standards and issuances? What is the timeframe for meeting this requirement?

Response:

On December 10, 2013, the FAA sent a Report to Congress and this Committee on improved pilot licenses, as required by section 321 of the Reform Act. This Report discusses the technical issues and challenges involved in issuing improved pilot licenses that are FIPS compliant. The FAA continues to work with stakeholders, including the Transportation Security Administration (TSA) and National Security Council staff, to ensure that the implementation of this requirement is done in the most efficient and cost effective manner possible. The FAA remains focused on meeting this requirement given the challenges and considering the other rulemaking priorities of the Reform Act.

Congressman Roger Williams
Committee on Transportation and Infrastructure
Subcommittee on Aviation

February 5, 2014

Hearing
"The FAA Modernization and Reform Act of 2012: Two Years Later"
Question for the Record to Hon. Michael P. Huerta, Administrator,
Federal Aviation Administration

Question: Mr. Huerta, given the controller furloughs and proposed contract tower closures prompted by the sequester last April, along with multiple reports by GAO and the DOT IG on the significant problems with the FAA's NextGen implementation efforts, do you think it might be time for us to consider transforming the FAA's Air Traffic Organization into a public-private partnership or even a self-financing entity along the lines of NavCanada or the ATC service providers of most European nations?

Answer: The FAA has traditionally provided a variety of services to airspace users in addition to ATC services. We are increasingly being asked to do more with less. We have an aviation Trust Fund but the Trust Fund only covers about 2/3 of our budget. We need to ask ourselves whether we really want to, and need to do everything the way we've always done it.

In the past, there have been debates over how to fund the system. Those discussions were historically difficult but I am hearing from many in the industry that those discussions are occurring. The fundamental question that needs to be answered is what should industry and the public expect the FAA to provide?

T&I Aviation Subcommittee Hearing
"The FAA Modernization and Reform Act of 2012: Two Years Later"
Elizabeth H. Esty Question for the Record
February 5, 2014

Administrator Huerta, I have a question about Next Gen's performance based navigation procedures. As you know, Section 213(c) of the FAA Modernization and Reform Act directed the FAA to categorically exclude National Environmental Policy Act (NEPA) requirements for procedures that would reduce aircraft fuel consumption, emissions and noise on an average per flight basis.

The DOT IG's January report does not provide an update on FAA's efforts to implement the categorical exclusion requirement. Can you provide a status report and explain what role, if any, the requirement has played in expediting PBN procedures?

Elizabeth H. Esty
Member of Congress

FAA Response: The FAA Modernization and Reform Act of 2012 included two legislative categorical exclusions (Catex) to accelerate environmental reviews of NextGen procedures. The FAA issued implementing guidance on the first Catex in Section 213(c)(1) on December 6, 2012. Technical challenges regarding how to determine reductions in noise on a per flight basis, as required by the statute, have hindered guidance on the second Catex in Section 213(c)(2).

While measurable reductions in fuel consumption and carbon dioxide emissions can be determined on a per flight basis by summing up total fuel and total emissions and dividing by the number of aircraft, the calculation of noise is more complex. Determinations of aircraft noise depend not only on the varying noise levels of an aircraft as it flies, but also on the relative position of the aircraft with respect to noise sensitive receivers on the ground. Noise tends to increase at some locations and decrease at other locations as Performance Based Navigation (PBN) procedures shift and focus noise. Total noise in an area of airspace cannot be calculated by adding up the noise levels at various locations on the ground, and noise levels cannot be divided by the number of aircraft to produce noise per flight. The FAA has analyzed methodologies in current use to find a technically sound way to make the noise determination required by the statute.

In September 2012, the FAA tasked the NextGen Advisory Committee (NAC) for assistance in further exploring how to make use of this legislative Catex. The NAC reviewed and agreed with the FAA's technical analyses and went on to develop and recommend a Net Noise Reduction Method as the means to meet the requirements of Section 213(c)(2). The FAA has evaluated the recommended Net Noise Reduction Method and has decided to solicit additional public comment on the NAC recommendation via a Federal Register notice. Aviation subcommittee staff in the House and Senate were briefed by the FAA, and they endorsed this additional step of public review to further inform FAA's decision on the implementation of this Catex.

Regarding the role of the Section 213(c)(2) Catex in expediting PBN procedures, it offers limited expediting capability. The Catex applies only to the environmental review of PBN procedures and cannot be used for the environmental review of projects involving a mix of PBN and existing procedures. Currently, larger projects involve both PBN procedures and changes to existing procedures in order to accommodate all air traffic efficiently and to avoid conflicts within the airspace that is being optimized. This is expected to continue to be the case until existing procedures are phased out over a longer time frame. For projects involving only PBN procedures, 95 percent or more are subject to existing Catexes due to their low levels of environmental impact. The Section 213(c)(2) Catex could fill a small niche, which would be an ability to Catex a PBN-only project that would otherwise be subject to an Environmental Assessment (EA) or possibly an Environmental Impact Statement (EIS) due to a high level of environmental controversy or potential environmental impacts that would preclude the use of other Catexes.

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COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

Congress of the United States
House of Representatives
Washington, DC 20515-1303

February 21, 2014

Administrator Michael P. Huerta
Federal Aviation Administration
800 Independence Ave, SE
Washington, DC 20591

Re: February 5, 2014, The FAA Modernization and Reform Act of 2012 Hearing: Questions for the Record

Dear Administrator Huerta,

Thank you for testifying in front of the Aviation Subcommittee on February 5, 2014. Your answers to my questions regarding NextGen, and specifically space-based ADS-B helped to clarify FAA's views on this technology. I would appreciate answers to these additional questions in writing to further explain FAA's strategy in regards to ADS-B, as well as the status of several provisions of the 2012 FAA Reauthorization that I authored.

Follow Up From Hearing

During the hearing, I inquired about whether the United States, compared to other countries, is being left behind with respect to space-based ADS-B and NextGen. You said that you believe the FAA is not falling behind other air navigation service providers (ANSPs), and that the FAA continues to move forward in developing the specifications for the use of space-based ADS-B. You mentioned that the FAA's Joint Resources Council (JRC) will make an initial investment decision on space-based ADS-B later this year.

- In the FAA's investment decision, how is "global leadership" factored into the business case? Please provide specific details on this calculation.
- Should the JRC decide against proceeding with space-based ADS-B, what do you view as the impacts to the United States? Specifically:
    - In the long term, how would the FAA handle aircraft as efficiently as other countries managing the airspace that surrounds FAA oceanic regions if they utilize space-based ADS-B and the FAA does not?

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- Would FAA and DOD be guaranteed access to the commercial space-based ADS-B data if controlled by another country? Would this access issue pose any possible risk to FAA in maintaining control of oceanic airspace in the future?

Additional Questions

A program to establish a NextGen avionics equipage incentive program was established in Section 221 of the 2012 FAA Reauthorization. FAA is to utilize public-private partnerships and maximize private sector capital for any incentive program they establish under this section.

- Please explain the status of this program and any challenges FAA has had with its implementation.

In addition to NextGen development, I remain interested in new fuels technology as well. Advances in alternative and biofuels will be critical in the decades to come, and the FAA should be at the forefront of this effort. Section 910 of the 2012 FAA Reauthorization requires FAA, in coordination with NASA, to continue research and development activities for unleaded aviation fuel, and a safe transition to this fuel for piston engine aircraft.

- Please explain the status of FAA and NASA's collaboration as well as any challenges FAA has faced implementing this program.
- Please provide information about any advances in this technology and any proposed timelines FAA has for a safe transition to unleaded aviation fuel for piston engine aircraft.

Section 911 of the FAA Reauthorization also requires research into the development of jet fuel from alternative and renewable sources. Under this section, FAA must work collaboratively with existing educational and research institutions. This section also described the designation of a Center of Excellence for Alternative Jet-Fuel Research in Civil Aircraft.

- Has FAA begun collaborating with research or educational institutions yet? If so, which institutions are involved?
- Please describe any alternative fuels technologies FAA is pursing with institutional partners and how far along any new technology is in research and development.
- Please explain any difficulty FAA has had in establishing partnerships and conducting research with educational or research institutions.
- Has FAA designated a Center of Excellence for Alternative Jet-Fuel Research in Civil Aircraft? If so, please provide details about the center and why it was designated. If not, please explain the challenges FAA has faced, preventing this designation.

This FAA Reauthorization also represented a good opportunity to promote environmental considerations related to America's aviation sector. Section 133 encouraged airports with master plans to study the feasibility of solid waste recycling, as well as how to minimize waste.

- Please provide a listing and accompanying details about airports participating in either studies or plans to reduce waste and increase recycling.
- Please also describe any projections FAA has about the environmental impacts of this program.

Thank you again for your time and attention to these questions. Should you need additional clarification, please do not hesitate to contact my staff.

Sincerely,

Daniel Lipinski

Daniel Lipinski
Member of Congress

Responses of Hon. Michael P. Huerta, Administrator, Federal Aviation Administration, to Questions for the Record from Congressman Daniel Lipinski

QUESTION: In the FAA's investment decision, how is "global leadership" factored into the business case? Please provide details on this calculation.

ANSWER: The FAA recognizes the potential high value benefits the Space Based system can provide in oceanic operations. As the world's largest air navigation service provider (ANSP), the FAA will ensure its involvement in the development of this technology and is committed to ensuring that the technical performance of the system will meet the FAA's operational needs.

The FAA has already committed $15 million towards the development of the space based ADS-B service. The current business case assumes that the FAA will undertake the activities to test and certify the data regardless of whether we procure and implement the service.

The qualitative aspects of providing global leadership in terms of its impact on other ANSPs adopting the capability and the enhanced levels of safety that would be provided will not be accounted for in the economic analysis.

QUESTION: Should the JRC decide against proceeding with space-based ADS-B, what do you view as the impacts to the United States?

ANSWER: At this point in time, we do not believe that there will be significant impacts to the United States if the FAA's JRC decides against proceeding with space based ADS-B. As mentioned above, the FAA is committed to ensuring that the technical performance of the system will meet our operational needs and we will undertake the activities to test and certify the data regardless of whether we procure and implement the services directly from the vendor.

In addition, to further protect our interests, the FAA and NAV CANADA signed a non-binding Declaration of Intent in June 2013 to jointly develop the standards, technical requirements, policies, and procedures related to Space Based ADS-B. This will help to ensure that any system that is developed by NAV CANADA and its partners meets U.S. safety requirements. By ensuring the system is interoperable, U.S. carriers that equip with ADS-B avionics may be able to realize flight efficiencies in oceanic and remote domestic airspace.

QUESTION: In the long term, how would the FAA handle aircraft as efficiently as other countries managing the airspace that surrounds FAA oceanic regions if they utilize space-based ADS-B and the FAA does not?

ANSWER: The FAA is considering space based ADS-B, as well as an ADS-B In solution to increase the efficiency of air traffic operations in Oceanic airspace. Space based ADS-B has the potential to reduce separation minima, while the ADS-B In application could allow reduced separation between aircraft pairs. Currently, we view these as complimentary solutions to ensure efficiency in Oceanic airspace.

As a part of our analysis, we are reviewing a longer term implementation strategy that would enable individual airlines to subscribe directly with Aireon for the Space Based ADS-B capability. This approach would provide the FAA with the ability to receive the data and provide separation services, if an airline were to subscribe directly to Aireon. Because the FAA is committed to ensuring that the technical performance of the Space Based system, services can be procured directly by airlines and/or by the FAA as a function of operational needs.

QUESTION: Would FAA and DoD be guaranteed access to the commercial space-based ADS-B data if controlled by another country? Would this access issue pose any possible risk to FAA in maintaining control of oceanic airspace in the future?

ANSWER: The FAA and NAV CANADA (the primary international investor in Aireon) have been working closely together to ensure the system is interoperable while meeting the needs of both parties. In order to have guaranteed access to the data, the FAA would need to subscribe to Aireon's space based ADS-B services.

As stated above, the FAA is reviewing a likely implementation strategy that would enable individual airlines to subscribe directly to Aireon for the space based ADS-B capability as a part of the business case analysis. Under this strategy, if a customer subscribed to the Aireon space based ADS-B capability, the necessary data would be provided to the FAA to provide the separation services.

Separately, if the FAA determines that the space based ADS-B system meets its needs for increasing efficiency of Oceanic operations and it is supported by a positive business case with appropriate funding authorization, the Agency could seek to subscribe to Aireon's space based ADS-B services.

If the FAA is able to provide the separation services as described in either option above, we do not believe there is risk to maintaining control of oceanic airspace in the future.

QUESTION: Please explain the status of this program (section 221 of the FAA Reauthorization regarding an incentive program) and any challenges FAA has had with its implementation.

ANSWER: The Agency requires appropriation authority in order to offer a loan guarantee program as described in Section 221 of our Reauthorization. The agency is not seeking this appropriations authority at this time. It is our understanding, after holding several meetings with stakeholders and operators, that there is not enough interest from the air carrier community for us to make requesting funding for the program a priority at this time.

QUESTION: Please explain the status of FAA and NASA's collaboration as well as any challenges FAA has faced implementing this program (section 910 of the FAA Reauthorization regarding research and development activities for unleaded aviation fuel)?

ANSWER: The FAA coordinated at the start of this program with NASA to see if we could collaborate and we were informed that NASA does not have any ongoing or planned research in the aviation gasoline area. Regarding challenges the FAA is facing in implementing the R&D program, to date we are making good progress and moving forward with implementing the strategies of the R&D plan. We have created the Fuels Program Office in FAA's Aircraft Certification Service to coordinate the unleaded avgas R & D program, along with other related unleaded fuels certification projects. In addition, we have formed, in collaboration with industry, the Piston Alternative Fuels Initiative (PAFI) Steering Group (PSG) to ensure coordination and collaboration with industry and the general aviation community in moving this program forward.

We have released a solicitation to industry for candidate unleaded fuels to evaluate in the program, which closes July 2014, and have established the Technical Evaluation Committee to review and rate the proposed candidate fuels for impact on the industry and entrance into the program. Additionally we established an industry Technical Advisory Committee, to facilitate the acquisition of industry in-kind support. We will have more insight regarding the technical challenges that we face once we receive the responses to our solicitation in July.

Currently, the only non-technical challenge we have faced is in the allocation of funding for the program, which was delayed due to budgetary considerations. However, in FY2014 $6M in funding was approved in the FY 2014 Consolidated Appropriations Act, which will allow us to move forward with minimal impacts to the program.

QUESTION: Please provide information about advances in this technology and any proposed timelines FAA has for a safe transition to unleaded aviation fuel for piston engine aircraft.

ANSWER: Significant advances had been made based on previous R&D the FAA and industry had conducted in the search for a "drop-in" replacement for leaded avgas. The GA Alternative Fuels research conducted by the FAA supported the evaluation of more than 279 fuel formulations for their octane properties in laboratory experiments and anti-detonation performance in test engines. Valuable data was collected on the interaction of the tested additives and base fuels, on the performance differences between leaded and unleaded fuels, and

on the actual octane levels of 100LL fuel. Knowledge gained regarding the detonation performance between leaded and unleaded fuels will be used in the development and application of test methods, procedures, and standards to evaluate and certify the new candidate fuels.

The aforementioned FAA solicitation has spurred continued R&D activity in the private sector that we hope will lead to several potential candidate unleaded replacement fuels. We are anticipating several high-quality responses to our solicitation that will provide advanced formulation fuels for evaluation testing by the FAA. We are currently developing procedures, test methods and facilities to test these candidate fuels. We expect to begin testing in FY 2015 and continue for several years. This will be followed by industry specification development and certification approval. The intent is to identify a replacement unleaded aviation gasoline by 2018 that is useable by most of the general aviation fleet. It is the goal of the FAA to complete the R&D test program by 2018 and issue the research reports that will provide data for ASTM Production Specification and fleetwide certification.

QUESTION: Has FAA begun collaborating with research or education institutions yet (regarding section 911 of the FAA Reauthorization regarding the development of jet fuel from alternative and renewable sources)? If so, which institutions are involved?

ANSWER: Yes. The FAA has been working with the Partnership for AiR Transportation Noise and Emissions Reduction (PARTNER) Center of Excellence for the last decade to understand aviation's impact on the environment and to investigate methods to mitigate this impact, including the use of alternative jet fuels. PARTNER university members include Massachusetts Institute of Technology; Boston University; Georgia Institute of Technology; Harvard University; Pennsylvania State University; Purdue University; Stanford University; University of Illinois at Urbana-Champaign; Missouri University of Science and Technology; University of North Carolina; University of Pennsylvania; and York University.

QUESTION: Please describe any alternative fuels technologies FAA is pursuing with institutional partners and how far along any new technology is in research and development.

ANSWER: In partnership with industry, academia, and other government agencies, the FAA continues to make significant progress towards the development and deployment of sustainable alternative jet fuels. The FAA works with the U.S. Departments of Defense, Energy, and Agriculture, the EPA and NASA to jointly accomplish much of this work. Through the Commercial Aviation Alternative Fuels Initiative (CAAFI), the FAA is working with approximately 300 alternative jet fuel stakeholders from government, the aviation industry, fuel suppliers, the agriculture industry and universities to develop and deploy alternative jet fuels. Through the Continuous Lower Energy Emissions and Noise (CLEEN) program, the FAA, in partnership with industry, is facilitating ASTM International fuel approval by conducting performance testing of promising novel alternative jet fuels. There are currently two types of

fuels approved for use in aviation and seven additional fuel types being evaluated for approval. These fuels could be made from a wide variety of feedstocks including sugars, starches, lignocellulosic biomass, alcohols, plant oils, waste greases, and waste gases from industrial sources. The processes used to make the fuels rely on technologies developed by Honeywell UOP, LanzaTech, Gevo, KiOR, Virent, ARA, and Amyris, among others. Through the Center of Excellence program, the FAA also works with universities to conduct research on alternative jet fuels as well as issues relating to the environment.

QUESTION: Please explain any difficulty FAA has had in establishing partnerships and conducting research with educational or research institutions.

ANSWER: The FAA has been very successful in using the Center of Excellence program to both establish partnerships and conduct research with educational and research institutions.

QUESTION: Has FAA designated a Center of Excellence for Alternative Jet-Fuel Research in Civil Aircraft? If so, please provide details about the center and why it was designated. If not, please explain the challenges FAA has faced, preventing designation.

ANSWER: The FAA has established the Aviation Sustainability Center (ASCENT), the new FAA Center of Excellence for Alternative Jet Fuel and Environment, to conduct research on alternative jet fuels and issues relating to the environment. The new COE will continue the efforts carried out in PARTNER as well as the alternative jet fuel research that was stipulated under Section 911 of the FAA Modernization and Reform Act of 2012. ASCENT is led by Washington State University and the Massachusetts Institute of Technology. It includes an additional 14 University partners: Boston University; University of Dayton; Georgia Institute of Technology; University of Hawaii; University of Illinois at Urbana-Champaign; Missouri University of Science and Technology; University of North Carolina at Chapel Hill; Oregon State University; University of Pennsylvania; Pennsylvania State University; University of Tennessee, Knoxville; Purdue University; University of Washington; and Stanford University. The COE team was selected and awarded in September 2013 based on the results of a competitive process.

The FAA expects that ASCENT will conduct research on the following:

- Test alternative jet fuel performance and impact on aircraft components
- Analyze regional feedstock supply and refining infrastructure for the production of alternative jet fuels
- Quantify the environmental and economic sustainability of alternative jet fuels
- Advance our understanding of aviation noise and emissions and their impact on society
- Assess the environmental benefits of new aircraft and engine technologies, operational procedures, and policy measures; and
- Develop environmentally and energy efficient aircraft operations

QUESTION: Please provide a listing and accompanying details about airports participating in either studies or plans to reduce waste and increase recycling. Please also describe any projections FAA has about the environmental impacts aof this program.

ANSWER: The FAA agrees that Section 133 of the Reauthorization Act has helped reinforce the importance of solid-waste recycling at airports, and the FAA has taken a number of steps in support of this effort. In April 2013, the FAA published a synthesis report entitled "Recycling, Reuse and Waste Reduction at Airports," outlining best practices, lessons learned, policies and processes that a number of airports have advanced.

Airports highlighted in that report included Chicago O'Hare, Denver, New York Kennedy, Orange County/John Wayne, LAX, Minneapolis-St. Paul, Oakland International, Philadelphia, Phoenix, Portland (Oregon), Salt Lake City, San Diego, San Francisco, Seattle-Tacoma, and Charleston (West Virginia). Many other airports have undertaken recycling programs as well, including some airports that do not have master plans (which are encouraged but not required).

In addition, the FAA's Office of Airports issued a Program Guidance Letter to ensure that new master planning grants include recycling plans in the scope of work, and to make it clear this additional work is eligible for AIP funding. The FAA also convened an industry working group to develop more detailed technical guidance, which addresses the specific provisions of the FMRA. The draft technical guidance is currently under review by OMB prior to further coordination with industry. The FAA does not currently have a basis for estimating the environmental benefits that will result from Section 133.

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)[1] 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.

[1] 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,[2] 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.[3]

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

[2] *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.

[3] 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,[4] 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.[5] The plan also does not include a process for realigning and consolidating facilities that manage high-altitude traffic.[6] As FAA moves forward, it will be important for the Agency to establish

[4] *FAA's Progress and Challenges in Advancing the Next Generation Air Transportation System* (OIG Testimony No. CC-2013-028), July 17, 2013.
[5] *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.
[6] 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,[7] 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

Initiative	Date Due	Date Completed
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

[7] 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.[8]

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[9] 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[10] granted some UAS-specific radio frequency in 2012, many unknowns remain—particularly

[8] 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.
[9] 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.
[10] 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[11] qualifications, ground control stations, and command and control reliability.

- **Lack of minimum performance standards for civil UAS.**[12] Despite working with a special RTCA advisory committee[13] 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.[14]

- **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.

[11] 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.
[12] Private or commercial use.
[13] 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.
[14] 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
• Policy	• Policy	• Policy	• Policy
• Certification Requirements	• Certification Requirements	• Certification Requirements	• Certification Requirements
• Technical Standards	• Operational Standards	• Technical Standards	• Technical Standards
• Performance Standards	• Procedures	• Airworthiness Standards	• Airworthiness Standards
• Airworthiness Standards	• Regulations	• Interoperability Requirements	• Interoperability Requirements
• Procedures	• Guidance Material	• Guidance Material	• Dedicated Aviation Radio Frequency Spectrum
• Regulations/ Guidance	• Training Requirements	• Maintenance Requirements	• Standardized Control Architectures
• Measures of Performance	• Medical Standards	• Means of Compliance	• Link Security Requirements
• Maintenance Requirements			

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.[15] 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

[15] 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.

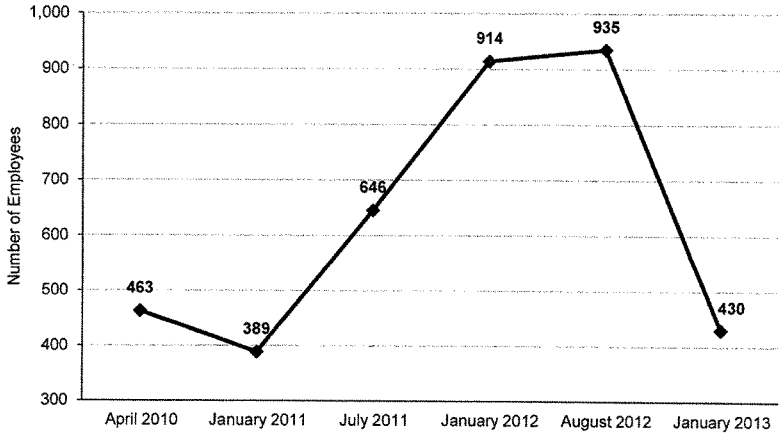
metrics to determine whether its new controller scheduling policies will reduce controller fatigue.

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.[16] 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,[17] 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

[16] NRC study, "Staffing Standards for Aviation Safety Inspectors," Sept. 20, 2006.
[17] *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.[18] 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[19] 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.

[18] 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.
[19] *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 *In* 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 *In* 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 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. 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 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. 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 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 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) 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. 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	◐	Met — FAA made changes to the COA process to shorten the timeframes needed for approval.
			○	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.	8/15/2017	○	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**

Chairman Frank LoBiondo
House Committee on Transportations and Infrastructure
Subcommittee on Aviation
Questions for the Record – February 5, 2014 Hearing
Controllers Tracking Time-On-Position (For DOT IG)

Question: According to your testimony, the staffing model that FAA uses for aviation safety inspectors is ineffective. What actions is the FAA taking to address this issue?

DOT OIG Response: FAA is taking steps to address the recommendations from our June 2013 report. Following our report, FAA removed the model from service while it makes changes aimed at improving the model's accuracy for projecting the number of aviation safety inspectors the Agency needs. FAA also obtained a comprehensive, independent review of the model, which confirmed our findings. For example, the review confirmed that FAA had not conducted detailed cost analyses, defined performance measures, or validated the model's data. FAA is now in the process of identifying corrective actions and developing a plan with milestones to address the model's shortcomings. FAA officials stated that they will complete the action plan this April and expect to bring the model back online in the December timeframe.

Question: According to your testimony, the FAA does not have metrics to determine the impact that its revised controller scheduling practices is having on controller fatigue. What actions is the FAA taking to address this issue?

DOT OIG Response: While it is uncertain when FAA will develop and implement metrics to assess the impact of its revised scheduling practices on the controller workforce, the Agency is taking other steps to determine the impact these new practices are having on controller fatigue. We note that FAA has established a fatigue risk management group to further examine the effects of scheduling policies on the controller workforce, and the Agency continues to conduct research in coordination with the National Air Traffic Controllers Association.

While FAA's actions are a step in the right direction, workforce fatigue is a longstanding issue, especially during overnight shifts. Controller fatigue will remain an important watch item for the Committee as long as controllers work rotating schedules during which the start and stop times vary between day, evening, and night times.

Question: It's my understanding that since March 2010 the FAA has been working under a temporary Memorandum of Understanding (MOU) with NATCA that does not require controllers to sign in or out of their position or when they report for their shift. How does FAA keep track of its controller workforce and their time on position? Further, the temporary MOU was signed on March 25, 2010. When will the FAA resolve this matter and require employees to track their own time on position and when they report for their shift?

DOT OIG Response: Yes, currently controllers are not required to sign in or out when they are managing traffic or performing other work. FAA uses a system called "Cru-X/ART" to capture the time controllers spend "on-scope" managing air traffic, and "off-scope" performing collateral duties, such as redesigning air routes and procedures and attending training. Data from Cru-

X/ART are then used to account for and distribute FAA's controller workforce labor costs to specific facilities and functions. However, due to the 2010 MOU, supervisors are required to sign controllers in and out of the system. It is our understanding that there are no plans for FAA and NATCA to renegotiate the MOU and require controllers to sign in or out of their positions or when they report for their shift.

Congressman Roger Williams
House Committee on Transportations and Infrastructure
Subcommittee on Aviation
Questions for the Record – February 5, 2014 Hearing
FAA's Organizational Structure and NextGen (For DOT IG)

Question: Mr. Scovel, do you believe that the FAA, as currently organized, can successfully implement NextGen, or do we need to consider other organizational and financial reforms in the next FAA reauthorization bill?

DOT OIG Response: Over the past several years FAA has implemented several organizational changes intended to improve its delivery of NextGen. This includes creating a Program Management Office for coordinating NextGen activities with other Agency programs and appointing a Chief NextGen Officer. However, it remains an open question as to whether FAA, as currently organized, can successfully implement NextGen.

How FAA is organized and financed is a policy call for Congress. We are currently reviewing FAA's organizational structure, which includes examining the impact of past reform efforts and how FAA's organizational structure compares with other countries. We plan to provide our observations to the Subcommittee later this year.

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives

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FAA REAUTHORIZATION ACT

Progress and Challenges Implementing Various Provisions of the 2012 Act

Statement of Gerald L. Dillingham, PhD, Director, Physical Infrastructure Issues

GAO Highlights

Highlights of GAO-14-285T, a testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

The U.S. air transportation system is the busiest and among the safest in the world. Even so, maintaining and improving the extraordinary level of connectivity and mobility the system affords us, and the safety record that has been achieved to date requires continued attention and effort. In the 2012 Act, Congress directed FAA to take various actions to improve the safety and efficiency of the current NAS while transitioning to NextGen. In addition, given the potential and opportunities afforded by new UAS technologies, the 2012 Act included several provisions with respect to FAA safely integrating UAS into the NAS.

Based on work GAO has conducted for this Committee since the passage of the 2012 Act, this testimony discusses FAA's challenges and progress in

1) implementing NextGen,
2) improving aviation safety, and
3) integrating UAS into the national airspace system.

This statement is drawn from several GAO reports completed since the 2012 Act, as well as additional reports from prior to the 2012 Act on these topics. To update information in those reports, GAO conducted interviews with officials from FAA and industry, and reviewed agency documents.

View GAO-14-285T. For more information, contact Gerald L. Dillingham at (202) 512-2834 or dillinghamg@gao.gov.

February 5, 2014

FAA REAUTHORIZATION ACT

Progress and Challenges Implementing Various Provisions of the 2012 Act

What GAO Found

The FAA Modernization and Reform Act of 2012 (the 2012 Act) contained several provisions related to implementing the Next Generation Air Transportation System (NextGen)—a complex, long-term initiative to incrementally modernize and transform the national airspace system (NAS). GAO's recent work on NextGen has highlighted three key implementation issues:

- *Improving NextGen Leadership:* Complex transformations, such as NextGen, require substantial leadership commitment over a sustained period, and leaders must both be empowered to make critical decisions and be held accountable for results. The 2012 Act created a Chief NextGen Officer that FAA appointed in June 2013, and FAA has recently filled other key NextGen leadership positions. With these positions filled, FAA should be in a better position to resolve its NextGen leadership challenges.
- *Demonstrating Near-Term Benefits:* The 2012 Act included a number of provisions aimed at accelerating the creation of performance-based navigation (PBN) procedures, such as following precise routes that use the Global Positioning System, which can save airlines and other aircraft operators money through reduced fuel burn and flight time. FAA must continue to deliver PBN capabilities and begin to demonstrate a return on operator's investments. As of January 2014, FAA has implemented PBN procedures at two of the five airports selected for early deployment.
- *Balancing the Needs of the Current Air–Traffic Control System and NextGen:* While the 2012 Act contained a number of provisions aimed at accelerating NextGen implementation, GAO found that FAA's budget planning does not fully account for the impact on the agency's operating costs of the NextGen systems that will be deployed in future years, along with the need for continued operation and maintenance of existing systems and facilities. Cost estimates for maintaining existing systems and facilities coupled with implementing NextGen exceed anticipated funding levels. GAO recommended improvements to FAA's budget–planning and infrastructure-condition data, which FAA is working to implement.

Safety in the aviation industry is achieved in part through adherence to various certification standards. The 2012 Act required FAA to work with industry to assess the certification process. GAO's work has found that while FAA has made progress developing its plan to implement these recommendations, FAA continues to lack performance measures to track its progress.

For unmanned aircraft systems (UAS), FAA has implemented 7 of the 17 requirements established in the 2012 Act, representing progress since GAO's last update in January 2013. However, FAA continues to experience challenges implementing the provisions in the 2012 Act and integrating UAS into the NAS. For example, although FAA has had efforts under way since 2008 supporting a rulemaking on small UAS, it is unlikely that FAA will meet the August 2014 final rule deadline required by the 2012 Act since it has not yet issued a Notice of Proposed Rulemaking. In addition, while FAA created the UAS Integration Office in 2013 to lead UAS integration, as of January 2014, the program lacks an operations budget.

Chairman LoBiondo, Ranking Member Larsen, and Members of the Subcommittee:

I appreciate the opportunity to testify today on progress made by the Federal Aviation Administration (FAA) in implementing key provisions of the FAA Modernization and Reform Act (the 2012 Act).[1] The U.S. air transportation system is the busiest and among the safest in the world, with key aviation stakeholders—FAA, the airlines and other aircraft operators, airports, aircraft manufacturers, and others—working together to achieve these results. Nevertheless, FAA must not become complacent because of the extraordinary level of connectivity and mobility the system affords us, or the safety record that has been achieved to date. Thus, in the 2012 Act, the Congress directed FAA to take various actions to improve the safety and efficiency of the current air traffic control (ATC) system while transitioning to the Next Generation Air Transportation System (NextGen).[2] In addition, given the potential opportunities afforded by new unmanned aircraft systems (UAS), the 2012 Act included several provisions with respect to FAA safely integrating UAS into the national airspace system (NAS). Ongoing improvements to safety, implementation of NextGen, and integration of UAS continue to be paramount as Congress considers FAA's progress to date, and begins to consider the next reauthorization bill.

My statement today is based on work on these issues we have completed for the Subcommittee since passage of the 2012 Act, including (1) implementing NextGen, (2) improving aviation safety, particularly with respect to implementing provisions of the 2012 Act related to FAA's certification processes, and (3) integrating UAS into the NAS. The 2012 Act also directed us to complete eight studies on a variety of aviation topics. Appendix II lists seven of those mandated studies that have been completed and contains information on our key findings.[3]

[1]Pub. L. No. 112-95, 126 Stat. 11 (2012).

[2]The objective of the NextGen initiative is to transform the current radar-based system to one centered on satellite-based navigation, automated position reporting, and digital communications. See appendix I for a listing of recent GAO reports related to NextGen, among others.

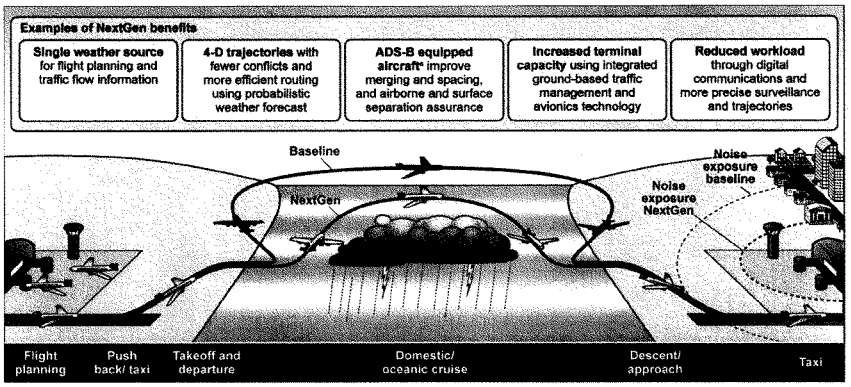
[3]Section 808 of the 2012 Act mandated that GAO perform a study and report to Congress on the impact of increases in aviation fuel prices on the Airport and Airway Trust Fund and the aviation industry in general. A final report will be issued in spring 2014.

This statement is drawn from several reports that we completed since passage of the 2012 Act, as well as additional reports from prior to the Act on these topics. We have updated this information through a review of FAA documents and interviews with FAA officials, as well as interviews with relevant advisory groups. In addition to the information on the seven completed studies mandated in the 2012 Act listed in appendix II, a list of other related GAO products is included in appendix I of this statement, along with footnoted references to these products throughout the statement. We reviewed and analyzed documents and interviewed relevant government, academic, and private-sector entities to address these objectives. The reports and testimonies cited in this statement contain more detailed explanations of the methods used to conduct our work. The work upon which this testimony is based on was conducted 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.

FAA Faces Several Challenges Implementing NextGen

More than 10 years ago, Congress directed FAA to conceptualize and plan NextGen; FAA is now implementing key NextGen systems and capabilities. NextGen was envisioned as a major redesign of the air transportation system to increase efficiency, enhance safety, and reduce flight delays that would entail precision satellite navigation and surveillance; digital, networked communications; an integrated weather system; and more. Figure 1 provides examples of changes and benefits that are expected to come from NextGen.

Figure 1: Examples of NextGen Changes and Benefits



Source: GAO

Notes: The baseline reflects an aircraft's flight path in the current air-traffic control system.

"Four-dimensional (4-D) trajectory" operations is an air traffic management concept in which every aircraft that is operating in or managed by the air traffic control system is represented in four dimensions—latitude, longitude, altitude, and with time.

Automatic Dependent Surveillance-Broadcast (ADS-B) is a technology that will enable aircraft to continually broadcast flight data—such as position, air speed, and altitude— among other types of information, to air traffic controllers and other aircraft.

The transition to NextGen—which encompasses multiple programs, procedures, and systems at different levels of maturity—is a complex, incremental, multi-year process. Since 2006, we have monitored FAA's development of NextGen and identified a number of key challenges facing the agency's implementation efforts. The 2012 Act included several provisions that address some of the issues that we have identified in our work, including incentivizing aircraft operators to equip with NextGen technologies, developing performance measures, and involving stakeholders in NextGen development.[4] Our recent work on FAA's progress in implementing NextGen has highlighted ongoing challenges in

[4]For provisions related to NextGen, see 2012 Act, §§ 201-225, 126 Stat., 36-56.

three areas: improving leadership, demonstrating near-term benefits, and balancing the needs of the current system while implementing NextGen systems.

Improving NextGen Leadership

Our work has found that complex organizational transformations, such as NextGen, involving technology, systems, and retraining key personnel require substantial leadership commitment over a sustained period, and that leaders must be empowered to make critical decisions and held accountable for results. Transitions, inconsistent leadership, and unclear roles and responsibilities can weaken the effectiveness of the internal and external collaboration required for successful implementation. Both the magnitude of the multi-year transition, as well as the numerous efforts under way throughout the different offices and divisions in FAA to effectuate that transition, will require FAA's leaders to manage all aspects of NextGen in a strategic, timely, and coordinated fashion.

FAA has struggled to have the leadership in place to manage and oversee NextGen implementation,[5] but more recently, has begun to fill key positions. In June 2013, FAA appointed a new Deputy Administrator and designated a Chief NextGen Officer, in response to Section 204 of the 2012 Act.[6] In addition, in September 2013, FAA appointed a new Assistant Administrator for NextGen—a position that had previously been vacant. Designating one leader—such as the Deputy Administrator's responsibility over NextGen—can be beneficial because it centralizes accountability and can speed decision-making. With these positions now filled, FAA should be in a better position to resolve its NextGen leadership challenges. However, as I have stated in other work, a number of offices oversee certain aspects of NextGen, not all of which report to the Assistant Administrator, and implementation will require successful collaboration between these offices. As these positions have only recently been filled, it is not yet clear how effective the changes resulting from the 2012 Act will be in achieving that collaboration.

[5]See GAO, *NextGen Air Transportation System: FAA Has Made Some Progress in Midterm Implementation, but Ongoing Challenges Limit Expected Benefits*, GAO-13-264 (Washington, D.C. April 2013); and GAO, *National Airspace System: Improved Budgeting Could Help FAA Better Determine Future Operations and Maintenance Priorities*, GAO-13-693 (Washington, D.C. Aug, 2013).

[6]2012 Act, § 204, 126 Stat., 37.

Another key development in NextGen management envisioned by Section 208 of the 2012 Act[7] redesignated the Director of the Joint Planning and Development Office (JPDO) as an Associate Administrator reporting directly to the FAA Administrator and defined that administrator's responsibility for coordination and planning with FAA's partner agencies.[8] This change has not been fully implemented by FAA. However, in the Consolidated Appropriations Act of 2014, Congress eliminated direct funding of JPDO, and subsumed JPDO in FAA's operations budget. At this point, it remains unclear whether a JPDO Director position will continue and, if not, how the roles and responsibilities of that office, particularly with respect to long-term planning and coordination of research and development efforts across partner agencies, will be redistributed within FAA. We will continue to monitor these issues in two studies requested by this committee—one examining the organizational and leadership structure of the NextGen effort, and one looking more in-depth at actions FAA has taken to streamline its organization. We have begun both of these examinations.

Demonstrating Near-Term Benefits

To convince operators to make investments in NextGen equipment, FAA must continue to deliver systems, procedures, and capabilities that demonstrate near-term benefits and a return on an operator's investments. In particular, a large percentage of the current U.S. air carrier fleet is equipped to fly more precise performance-based navigation (PBN) procedures, such as following precise routes that use the Global Positioning System or glide descent paths, which can save airlines and other aircraft operators money through reduced fuel burn and flight time.[9] However, aircraft operators have expressed concerns that FAA has been slow to produce new procedures for various reasons, and has not produced the most useful or beneficial PBN routes and procedures.

[7]2012 Act, § 208, 126 Stat., 40.

[8]FAA's partner agencies in the NextGen effort include the Departments of Commerce (particularly its National Oceanic and Atmospheric Administration (NOAA)), Defense (DOD), and Homeland Security (DHS); the National Aeronautics and Space Administration (NASA); and the White House Office of Science and Technology Policy (OSTP).

[9]PBN uses advance guidance technology to improve the precision of air-traffic control routes (known as "procedures"). These procedures can deliver benefits to airlines such as fuel savings and increased efficiency, particularly in congested airspace.

The 2012 Act included a number of provisions aimed at accelerating the creation of PBN procedures. For example, Section 213 of the 2012 Act[10] directed FAA to develop plans to identify beneficial PBN procedures and to prioritize their implementation at key airports. We reported in April of 2013 that FAA had made progress in focusing its PBN efforts at seven priority metroplexes with airport operations that have a large effect on the overall efficiency of the NAS.[11] More recently, FAA reports that it is considering recommendations from the NextGen Advisory Committee (NAC) regarding revalidation of the criteria used to prioritize these metroplexes, and that recent efforts have been diverted to metroplexes where the deployment of the new En Route Automation Management (ERAM) system is complete, in order not to interfere with ERAM deployment at those locations where it is ongoing.

Our work also found that FAA does not have a system for tracking the use of existing PBN procedures. As a result, FAA is unable to assure that investment in these routes is worthwhile or that they justify the cost to develop and maintain them. Further, in the absence of data on the use of existing PBN routes, airlines and other stakeholders remain unconvinced that the investments needed for the full implementation of NextGen will be justified. Such data could help the agency demonstrate the value of PBN technologies and any resulting benefits, as well as allow the agency to identify routes that need to be revised to increase their use. We made recommendations to FAA to develop a system to track the use of PBN procedures and a process to proactively identify new PBN procedures based on NextGen goals and targets. We will continue to monitor FAA's progress in implementing these recommendations.

The 2012 Act also included two other key provisions to accelerate the creation of PBN procedures. The first was a categorical exclusion from environmental review for PBN procedures that if implemented could demonstrate measurable reductions in fuel consumption, carbon dioxide emissions, and noise, on a per-flight basis, as compared to aircraft

[10]2012 Act, § 213, 126 Stat., 46.

[11]GAO-13-264.

operations that follow existing procedures.[12] However, our April 2013 report found that, according to FAA, potential noise impacts are measured cumulatively for all flights and that FAA has not yet identified an approach for per-flight assessments. FAA officials stated that no currently available methodology resolves the technical problems involved in making such a determination, so the agency has not applied this new categorical exclusion.[13] Second, the 2012 Act called for the agency to establish a program for qualified third parties to develop, test, and maintain flight procedures.[14] FAA has made some progress in this area by awarding a $2.8-million contract to GE's Naverus and a partner to develop two PBN procedures each at five mid-sized airports. The contractors are to design, evaluate, and maintain these procedures and be responsible for providing environmental data and analysis to FAA to support categorical exclusions and for drafting any required National Environmental Policy Act reviews, for review and approval by FAA. As of January 2014, PBN procedures had been implemented at two of the five selected airports.

Balancing the Needs of the Current and NextGen Systems

NextGen represents a transition from existing ATC systems and facilities to new systems, potentially necessitating changes to or consolidation of existing facilities. We have reported over the years that various investment and policy decisions, including what existing ATC systems and facilities will remain in the NAS during the transition and for how long, have yet to be made.[15] For the systems and facilities that remain, FAA will have to monitor and maintain their performance and condition while the agency implements the NextGen transition. Decisions about the number of existing systems and facilities that will remain in operation during the

[12]A federal action may be categorically excluded—thus exempting it from further federal environmental review—if, based on agency experience, the agency has determined the proposed action is within a category of actions that do not individually or cumulatively have a significant effect on the environment and there are no extraordinary circumstances in which a normally excluded action may have a significant environmental effect. See 40 C.F.R. § 1508.4.

[13]See Section 213(c)(1) and (2), and Section 213(f).

[14]GAO-13-264.

[15]GAO, *Integration of Current Implementation Efforts with Long-term Planning for the Next Generation Air Transportation System*, GAO-11-132R (Washington, D.C.: Nov. 22, 2010) and *Next Generation Air Transportation System: FAA Faces Implementation Challenges*, GAO-12-1011T (Washington, D.C.: Sept. 12, 2012).

transition have implications for FAA's capital and operations budgets going forward. If aging systems and associated facilities are not retired, FAA will miss potential opportunities to reduce its overall maintenance costs at a time when resources needed to maintain both systems and facilities may become scarcer.

The 2012 Act contained a number of provisions aimed at accelerating the implementation of NextGen systems.[16] However, we found in August 2013 that FAA's budget planning does not fully account for the potential impact of NextGen systems that will be deployed and the need for continued operations and maintenance of existing systems and facilities.[17] In the 2012 Act, Congress also expressed concern regarding the condition of FAA facilities and mandated that we study their condition. In our September 2013 report, we noted that FAA estimates its staffed facilities like towers and Terminal Radar Approach Control (TRACON) facilities have about $260 million in deferred maintenance; unstaffed facilities, such as shelters and communication towers that house and support NAS equipment, had an estimated $446 million in deferred maintenance in 2012. These, and other cost estimates for maintaining existing systems and facilities, along with implementing NextGen exceed anticipated funding levels. However, we concluded that FAA's imprecise facility-condition data do not facilitate agency-wide priority assessments, which, in turn, could hinder the agency's ability to target its limited resources on those projects in greatest need of repair and that are most critical to the NAS. In addition, section 804 of the 2012 Act directed FAA to complete a study on the consolidation and realignment of FAA services and facilities to support the transition to NextGen. However, FAA has yet to identify which facilities would be consolidated or realigned, and according to FAA officials, the study will continue through 2014.

In our August 2013 report we recommended improvements to FAA's budget-planning and infrastructure-condition data, improvements that FAA is currently considering. Improved budget planning and accurate and reliable data on infrastructure condition could help Congress better understand the funding requirements of existing systems and facilities and facilitate FAA's efforts to support the agency's mission of continuing to safely operate the NAS along with the longer-term goal of transitioning

[16]See, for example, Section 211, 213, and 216.

[17]GAO-13-693.

to NextGen. We will continue to monitor FAA's progress in implementing these recommendations.

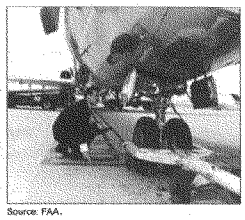
FAA Is Continuously Working to Improve Safety and Has Made Progress in Improving Its Certification Processes

The U.S. air transportation system remains one of the safest in the world. As part of FAA's efforts to maintain and improve the safety of the system, FAA issues certificates and approvals for new air operators, new aircraft, and aircraft parts and equipment, and grants approvals for changes to air operations and aircraft based on FAA's interpretation of federal standards (see fig. 2). These certificates and approvals indicate that such things as new aircraft, the design and production of aircraft parts and equipment, and new air operators are safe for use in the NAS. However, our previous work has highlighted FAA's inconsistent regulatory interpretation of certification standards. In 2010, we found that variation in FAA's interpretation of standards for certification and approval decisions was a long-standing issue and made recommendations to improve those processes.[18] Subsequently, the 2012 Act required FAA to work with industry to assess the certification process, including reviewing our previous work and developing recommendations to address the concerns that we and others have raised.[19]

Figure 2: FAA Conducts Inspections as Part of Certification



Source: FAA.



Source: FAA.

[18]GAO, *Aviation Safety: Certification and Approval Processes Are Generally Viewed as Working Well, but Better Evaluative Information Needed to Improve Efficiency*, GAO-11-14 (Washington, D.C.: Oct. 7, 2010).

[19]Pub. L. No. 112-95, § 312 and § 313, 126 Stat. 11, 66 and 67(2012). GAO-11-14.

As required by Section 312 of the 2012 Act, FAA, in consultation with representatives of the aviation industry, made recommendations to the director of FAA's Aircraft Certification Service regarding streamlining and reengineering the certification process. These recommendations, which we found to be relevant, clear, and actionable, called for FAA to:

1. improve the effectiveness of its delegation programs,
2. update certification procedures to reflect a systems approach to safety,
3. review operational safety and rulemaking processes, and
4. implement efficiency reforms, among others. [20]

In July 2013, FAA released its plan to implement these recommendations. The plan included 14 initiatives and programs that FAA either had under way or intended to start to improve efficiency and reduce costs related to certifications. We found these initiatives were generally relevant to the recommendations and were clear and measurable. However, we found that FAA's plans do not contain some of the elements essential to a performance measurement process.[21] For example, FAA has developed milestones for each initiative and deployed a tracking system to monitor the implementation of all certification-related initiatives, but it has not yet developed performance measures to track the success of most of the initiatives and programs. According to an FAA official, the agency has started discussions with industry stakeholders to identify key goals related to performance measurement. Because industries' goals and FAA's goals may be different with respect to the certification process, developing meaningful performance measures is a complex task that the agency plans to continue in 2014. The Committee recently asked us to examine in more detail FAA's progress and any challenges experienced in implementing the recommendations and making improvements to its certification processes, and will be tracking FAA's efforts going forward.

Also resulting from issues found in our 2010 report on certification, section 313 of the Act directed FAA to establish an advisory panel to

[20]See GAO, *Aviation Safety, Status of Recommendations to Improve FAA's Certification and Approval Processes*, GAO-14-142T, (Washington, D.C.: Oct. 30, 2013).

[21]GAO-14-142T.

address inconsistencies in the interpretation of regulations by the certification offices. Consistent with issues raised in our 2010 report, this committee identified three root causes of inconsistent interpretation of regulations: (1) unclear regulatory requirements; (2) inadequate and nonstandard FAA and industry training in developing regulations, applying standards, and resolving disputes; and (3) a culture that includes a general reluctance by both industry and FAA to work issues of inconsistent regulatory application through to a final resolution and a "fear of retribution." To address these root causes, the committee made six recommendations, including developing a master source of guidance and developing instructions for FAA staff with policy development responsibility. We found that the advisory committee took a reasonable approach in identifying the root causes and that its recommendations were relevant, actionable, and clear.[22] The committee also considered the feasibility of the recommendations by identifying modifications to existing efforts and programs and prioritizing the recommendations.

FAA reported in January 2014 that it was still determining the feasibility of implementing these recommendations. The agency told us that it expected to publish an action plan to address the recommendations and metrics to measure implementation by late June 2014, more than six months after FAA's initial target. We note that while measuring implementation may be useful, FAA is not intending to measure outcomes, a measurement that could help in understanding if an action is having the intended effect.

While Progress Has Been Made, Safely Integrating UAS into the NAS Will Continue to Present Challenges for FAA

UAS are aircraft and associated equipment that do not carry a pilot aboard, but instead operate on pre-programmed routes or are manually controlled by pilot-operated ground stations. Although current non-military, domestic uses of UAS are limited to activities such as law enforcement, forensic photography, border security, and scientific data collection, UAS have a wide range of other potential commercial uses—including vehicular traffic monitoring, crop dusting, and pipeline inspections—and the market for UAS use is expected to grow. Concerned with the pace of integrating UAS into the NAS, Congress established specific requirements and set deadlines for FAA in the 2012 Act.

[22]GAO-14-142T.

FAA has several efforts under way to satisfy the 2012 Act's requirements, most of which must be achieved by December 2015. In January 2013 we reported that of the seven deadlines that had passed, FAA had completed two items. However, since that time, FAA has satisfied a number of additional milestones (see app. III for an update of all the 2012 Act's requirements with respect to UAS). Of particular note:

- JPDO and FAA released a UAS Comprehensive Plan and a UAS Roadmap, respectively, in November 2013 to outline the nation's UAS goals and objectives and the tasks necessary to achieve UAS integration.[23] [24]
- In late December 2013, FAA selected the six locations for its UAS test site program.
- FAA established permanent Arctic areas where small UAS can operate for research and commercial purposes and the first flight took place in the fall of 2013.

While progress has been made implementing some of the key milestones established in the 2012 Act, integrating UAS into the NAS continues to challenge FAA leading to uncertainty about when UAS integration will be achieved.[25] For example, while FAA announced the six locations for its UAS test site program, FAA has not yet defined what operational, safety, and performance data it needs from the test sites and how that data will be collected and analyzed. We previously reported that use of these data would be important in developing safety, reliability, and performance standards, which are needed to guide and validate the supporting research and development efforts. FAA and industry stakeholders have stated that data and other information generated by the test sites will be important in helping FAA answer key research questions related to UAS operations and developing regulations and operational procedures for future commercial and civil use of UAS. Finally, to increase collaboration and provide stable organizational leadership, and focus on UAS integration efforts, FAA created the UAS Integration Office in 2013. While the office did not have an operations budget, as of January 2014, the

[23]JPDO, *Unmanned Aircraft Systems Comprehensive Plan: A Report on the Nation's UAS Path Forward* (Washington, D.C.: September, 2013).

[24]FAA, *Integration of Civil Unmanned Aircraft Systems in the National Airspace System Roadmap: First Edition—2013* (Washington, D.C.: November, 2013).

[25]FAA, *Integration of Civil Unmanned Aircraft Systems in the National Airspace System Roadmap: First Edition—2013* (Washington, D.C.: Nov. 2013).

office has 33 full time employees, and FAA is still finalizing agreements and other arrangements related to the reorganization, and it remains unclear what resources the office will have available to fulfill its role.

Moving forward, FAA has a number of important milestones it must meet to ensure UAS integration into the NAS. A key next step, according to FAA officials and industry stakeholders, will be to adopt a final rule for small UAS operations.[26] Although FAA has had efforts under way since 2008 supporting a rulemaking on small UAS, it is unlikely that FAA will meet the August 2014 final rule deadline required by the 2012 Act. For example, FAA has not yet issued a Notice of Proposed Rulemaking for small UAS, and recently estimated that one will not be released until November 2014. Further, FAA must develop standards—and determine what data are necessary to inform that process—to facilitate safe UAS integration into the NAS. More broadly, to achieve UAS integration, FAA faces the challenge of ensure that all of the various efforts supporting these integration issues within its own agency, as well as across federal agencies and other entities, align and converge in a timely fashion. We have begun additional work on UAS that will be looking specifically at collaboration between federal agencies responsible for UAS integration into the NAS and the research and development priorities in the area of research and development to support UAS integration.

In closing, FAA has made some progress in implementing various parts of the 2012 Act, and is seeking to address some of the key challenges it faces. Going forward, we will continue to monitor FAA's progress, highlight the key challenges that remain, and the steps FAA and industry can take to find a way forward on the issues covered in this statement as well as other issues facing the industry. For example as previously mentioned, we have work underway to examine organizational and leadership issues with NextGen, and to examine, in greater detail, FAA's certification processes and progress made with respect to UAS. In addition, for this Committee we will be examining issues related to funding airport development, including passenger facility charges, airport improvement program grants, and the potential for greater private sector investment through public-private partnerships.

[26]Generally, a *small* UAS is less than 55 pounds, while a *large* UAS is 55 pounds or more. According to an industry association, small UAS are expected to comprise the majority of UAS that will operate in the national airspace.

Chairman LoBiondo, Ranking Member Larsen, and Members of the Subcommittee, this completes my prepared statement. I would be pleased to respond to any questions that you may have at this time.

Appendix I: Related GAO Reports and Testimonies

NextGen	*NextGen Air Transportation System: FAA Has Made Some Progress in Midterm Implementation, but Ongoing Challenges Limit Expected Benefits*. GAO-13-264. Washington. D.C.: April 8, 2013. *Next Generation Air Transportation System: FAA Faces Implementation Challenges*. GAO-12-1011T. Washington, D.C.: September 12, 2012. *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*. GAO-12-223. Washington, D.C.: February 16, 2012. *Next Generation Air Transportation System: FAA Has Made Some Progress in Implementation, but Delays Threaten to Impact Costs and Benefits*. GAO-12-141T. Washington, D.C.: October 5, 2011. *Integration of Current Implementation Efforts with Long-term Planning for the Next Generation Air Transportation System*. GAO-11-132R. Washington, D.C.: Nov. 22, 2010. *NextGen Air Transportation System: FAA's Metrics Can Be Used to Report on Status of Individual Programs, but Not of Overall NextGen Implementation or Outcomes*. GAO-10-629. Washington, D.C.: July 27, 2010.
Aviation Safety and Certification	*Aviation Safety, Status of Recommendations to Improve FAA's Certification and Approval Processes*. GAO-14-142T. Washington, D.C.: Oct. 30, 2013. *Aviation Safety: FAA Efforts Have Improved Safety, but Challenges Remain in Key Areas*. GAO-13-442T. Washington, D.C.: April 16. 2013. *Aviation Safety: Additional FAA Efforts Could Enhance Safety Risk Management*. GAO-12-898. Washington, D.C.: September 12, 2012. *Aviation Safety: Certification and Approval Processes Are Generally Viewed as Working Well, but Better Evaluative Information Needed to Improve Efficiency*. GAO-11-14. Washington, D.C.: October 7, 2010.
Unmanned Aircraft Systems (UAS)	*Unmanned Aircraft Systems: Continued Coordination, Operational Data, and Performance Standards Needed to Guide Research and Development*. GAO-13-346T. Washington, D.C.: February 15, 2013.

Unmanned Aircraft Systems: Measuring Progress and Addressing Potential Privacy Concerns Would Facilitate Integration into the National Airspace System. GAO-12-981. Washington, D.C.: Sept. 14, 2012.

Appendix II: Key Findings from Seven GAO Reports That Were Mandated by the FAA Modernization and Reform Act

- *Passenger facility charges.* We evaluated three alternative methods to the current ticket-based method of collecting passenger facility charges and found that each faces considerable technological challenges, for example, to implement.[1] While none of the three methods that we evaluated are currently better than the existing collection method, it is possible that in the future some of these challenges will be reduced as technology advances or that airports might be willing to accept the additional costs and impose additional passenger burdens in return for an increase in their capital funding.
- *Dense, continuous smoke in the cockpit.* FAA uses a variety of approaches, including certifying airplane design and inspecting air carriers, to oversee procedures and technologies that prevent or mitigate the effects of dense, continuous smoke in the cockpit.[2] We identified five procedures and technologies that FAA oversees: (1) certification standards for aircraft design that include smoke's evacuation; (2) a requirement that air carriers provide protective breathing equipment that protects the flightcrew from the effects of smoke; (3) a requirement that air carriers' pilot–training programs cover principles of emergency operations and emergency communications procedures; (4) a requirement that an FAA-approved emergency procedures checklist be provided by air carriers and used by their flight crewmembers; and (5) oversight of the Emergency Vision Assurance System, a device that provides a means to see during a dense, continuous smoke event, that FAA has approved for installation on several models of commercial airplanes.
- *Compensation for delayed baggage.* According to DOT data, the number of mishandled baggage[3] reports has decreased since 2008 when airlines first began charging for the first checked bag.[4] There are a number of factors that could contribute to this decline, such as a decline in the number of bags checked and improved baggage–

[1]GAO, *Alternative Methods for Collecting Airport Passenger Facility Charges*, GAO-13-262R (Washington, D.C.: Feb. 14, 2013).

[2]GAO, *Transportation: FAA Oversight of Procedures and Technologies to Prevent and Mitigate the Effects of Dense, Continuous Smoke in the Cockpit*, GAO-13-551R (Washington, D.C.: June 4, 2013)

[3]A "mishandled baggage" report is a report filed with a carrier by or on behalf of a passenger who claims loss, delay, damage, or pilferage of baggage. A mishandled-baggage report may represent one or more mishandled bags.

[4]GAO, *Delayed-Baggage Trends and Options for Compensating Passengers*, GAO-12-804R (Washington, D.C.: June 14, 2012).

handling processes; however, data limitations impeded further analysis.[5] We described DOT's options for and the impact of implementing minimum compensation standards for delayed baggage, which included (1) keeping current regulations, which, among other things, require compensation for reasonable expenses that result because of delay in the delivery of baggage; (2) reimbursing passengers for the checked baggage fee if the bag is delayed; and (3) implementing compensation standards based on the length of delay.

- *Air Traffic Collegiate Training Initiative (CTI).* We found that the cost-effectiveness of the CTI schools depends on a number of cost elements that are currently unknown, including the upfront cost of developing new curriculums and how FAA implements training through the CTI schools, among other factors.[6] In addition, we were not able to determine the potential effect of the alternative air–traffic–controller–training approach through CTI schools on controller trainees; the concept would need further development before comparisons can be made about performance outcomes for such trainees under the current approach through the FAA Academy and the alternative approach through the CTI schools.
- *FAA facility condition.* While FAA has mechanisms to identify and mitigate safety deficiencies at FAA facilities and has taken actions to strengthen its capital planning process to help ensure its facilities are in good condition, our analysis of FAA's statistical model for estimating the condition of uninspected terminal facilities found the model to be imprecise; it uses one variable—age of the facility—to estimate the facility's condition.[7] Furthermore, inaccuracies in FAA's real–estate management database undermine its usefulness as a management tool to manage its real estate portfolio. We recommended that FAA take action to improve the precision of the methods it uses to estimate the conditions of uninspected terminal facilities and implement a plan to improve its database for tracking its inventory of real property assets, consistent with sound data–collection practices.

[5]DOT's data do not distinguish between delayed baggage and other types of mishandled baggage, such as those that are lost, damaged, or pilfered.

[6]GAO, *Review of FAA's Collegiate Training Initiative as Mandated in the FAA Modernization and Reform Act of 2012,* GAO-12-996R (Washington, D.C.: Aug. 24, 2012).

[7]GAO, *FAA Facilities: Improved Condition Assessment Methods Could Better Inform Maintenance Decisions and Capital- Planning Efforts,* GAO-13-757 (Washington, D.C.: Sept. 10, 2013).

- *National Mediation Board.* We found that the National Mediation Board, which facilitates labor relations and oversees union elections in two key transportation sectors—railroads and airlines—through mediation and arbitration of labor disputes and overseeing union elections, has adapted to challenges presented by large union elections resulting from airline mergers and has implemented improvements such as online voting.[8] However, the board lacks some controls in key management areas that could risk its resources and its success such as having a formal mechanism for tracking resolution of findings and recommendations. We made a number of recommendations to improve the board's planning and make the most effective use of its limited resources and also noted that Congress should consider authorizing an appropriate federal agency's Office of Inspector General to provide additional oversight.
- *Airport-intercity passenger rail connectivity.* Most major U.S. airports have some degree of physical proximity to intercity passenger rail stations; however, air-rail connectivity remains limited due to a variety of factors.[9] We found that connectivity between these two modes may provide a range of mobility, economic, and environmental benefits, and while strategies exist to improve connectivity, the costs and trade-offs of enhancing connectivity could be substantial.

[8]GAO, *National Mediation Board: Strengthening Planning and Controls Could Better Facilitate Rail and Air Labor Relations*, GAO-14-5 (Washington, D.C.: Dec. 3, 2013).

[9] GAO, *Intermodal Transportation: A Variety of Factors Influence Airport-Intercity Passenger Rail Connectivity*, GAO-13-691 (Washington, D.C.: Aug. 2, 2013).

Appendix III: Status of Requirements for UAS Integration under the 2012 Act as of January 2014

Deadline	FAA Modernization and Reform Act of 2012 requirement	Status of action
05/14/2012	Enter into agreements with appropriate government agencies to simplify the process for issuing Certificates of waiver or authorizations (COAs) or waivers for public UAS.	In process–memorandum of agreement (MOA) with the Department of Defense (DOD) signed September of 2013; MOA with Department of Justice (DOJ) signed March 2013; MOA with National Aeronautics and Space Administration (NASA) in final coordination; MOA with Department of Interior (DOI) and National Oceanic and Atmospheric Administration (NOAA) are still in draft.
08/12/2012	Establish a program to integrate UAS into the national airspace at six test ranges. This program is to terminate 5 years after date of enactment.	In process
08/12/2012	Develop an Arctic UAS operation plan and initiate a process to work with relevant federal agencies and national and international communities to designate permanent areas in the Arctic where small unmanned aircraft may operate 24 hours per day for research and commercial purposes.	Completed
08/12/2012	Determine whether certain UAS can fly safely in the national airspace before the completion of the Act's requirements for a comprehensive plan and rulemaking to safely accelerate the integration of civil UAS into the national airspace or the Act's requirement for issuance of guidance regarding the operation of public UAS including operating a UAS with a COA or waiver.	Completed
11/10/2012	Expedite the issuance of a COA for public safety entities	Completed
11/10/2012	Develop a comprehensive plan to safely accelerate integration of civil UAS into national airspace.	Completed
11/10/2012	Issue guidance regarding operation of civil UAS to expedite COA process; provide a collaborative process with public agencies to allow an incremental expansion of access into the national airspace as technology matures and the necessary safety analysis and data become available and until standards are completed and technology issues are resolved; facilitate capability of public entities to develop and use test ranges; provide guidance on public entities' responsibility for operation.	Completed
02/12/2013	Make operational at least one project at a test range.	In-process
02/14/2013	Approve and make publically available a 5-year roadmap for the introduction of civil UAS into national airspace, to be updated annually.	Completed
02/14/2013	Submit to Congress a copy of the comprehensive plan.	Completed
08/14/2014	Publish in the Federal Register the Final Rule on small UAS.	In process
08/14/2014	Publish in the Federal Register a Notice of Proposed Rulemaking to implement recommendations of the comprehensive plan.	None to date
08/14/2014	Publish in the Federal Register an update to the Administration's policy statement on UAS in Docket No. FAA-2006-25714.	None to date
09/30/2015	Achieve safe integration of civil UAS into the national airspace.	In process

Deadline	FAA Modernization and Reform Act of 2012 requirement	Status of action
12/14/2015	Publish in the Federal Register a Final Rule to implement the recommendations of the comprehensive plan.	None to date
12/31/2015	Develop and implement operational and certification requirements for public UAS in national airspace.	In process
02/14/2017	Report to Congress on the test ranges.	None to date

Source: GAO analysis of FAA Modernization and Reform Act and FAA's progress.

Appendix IV: GAO Contact and Staff Acknowledgments

For further information on this testimony, please contact Gerald L. Dillingham, Ph.D., at (202) 512-2834 or dillinghamg@gao.gov. In addition, contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this testimony include Andrew Von Ah, Assistant Director; Mike Armes, Martha Chow; Geoff Hamilton; Dave Hooper; Daniel Hoy; Eric Hudson; Bert Japikse; Heather Krause, Sara Ann Moessbauer; Faye Morrison; Nalylee Padilla; Melissa Swearingen; and Jessica Wintfeld.

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March 5, 2014

The Honorable Frank A. LoBiondo
Chairman
Subcommittee on Aviation
Committee on Transportation and Infrastructure
House of Representatives

Subject: "The FAA Modernization and Reform Act: Two Years Later"–*Response to Questions for the Record*

Dear Mr. Chairman:

We appreciated the opportunity to testify before the Subcommittee on February 5, 2014, about the Federal Aviation Administration's (FAA) progress implementing select provisions in the FAA Modernization and Reform Act of 2012. On February 7, 2014, we received the Subcommittee's questions for the record. The enclosure provides our response to the Subcommittee's questions. If you or members of your staff have any questions about our response, please contact me at (202) 512-2834 or dillinghamg@gao.gov.

Sincerely yours,

Gerald Dillingham

Gerald L. Dillingham, Ph.D.
Director, Physical Infrastructure Issues

Enclosure

cc: The Honorable Roger Williams, Member, Subcommittee on Aviation Committee on Transportation and Infrastructure

1. The NextGen program is generally associated with cost overrun and delays. However, FAA is making progress. Where has the FAA been most successful in implementing NextGen?

FAA is making progress in a number of areas to implement NextGen. FAA's recent effort on Performance Based Navigation (PBN)—a midterm operational improvement associated with NextGen—is one example. PBN uses satellite-based guidance to improve air-traffic control routes (known as "procedures") and deliver benefits to airlines in the form of fuel savings and increased efficiency. Increasing the number and use of PBN procedures is viewed as a way to accelerate the delivery of NextGen benefits, particularly for major airports and multi-airport airspace ("metroplexes").

FAA has recognized the importance of implementing PBN procedures at key airports to accelerate the delivery of benefits. For example, through the Optimization of Airspace and Procedures in the Metroplex (OAPM) initiative, FAA is primarily focusing its efforts on implementing PBN procedures at key metroplexes that are expected to have a large effect on the overall efficiency of the national airspace system. If OAPM proceeds as planned, FAA expects to begin to demonstrate benefits at the eight sites by the end of 2015. In addition, projects at five additional sites are expected to be fully operational before the end of 2017, according to current FAA plans.

In addition to the OAPM initiative, FAA has other PBN initiatives that aim to deliver midterm benefits in less congested areas by 2018. For example, FAA's Greener Skies project, which was initiated by Alaska Airlines, aims to deliver benefits to the Seattle metroplex and was shaped by local considerations. The procedures are designed to shorten flight tracks and route aircraft over water. FAA estimates that the new Greener Skies procedures at the Seattle metroplex would reduce fuel consumption by 112,420 barrels annually, resulting in potential annual savings of $13.5 million.

2. While it is evident that NextGen procedures are gradually being implemented, utilization rates in the national airspace system have been inadequate in providing substantial benefits to equipped aircraft. Part of the reason for this is the "mixed equipage" environment in which aircraft operate. What is being done to address mixed equipage to enable equipped aircraft to gain benefit from their investment?

The FAA Modernization and Reform Act of 2012 provided FAA with the authority to establish a program to facilitate public-private financing for equipping commercial and general-aviation

aircraft with NextGen technologies. We reported in July 2013 that FAA is in the process of determining how to structure a financial incentive program that would encourage deployment of NextGen-capable aircraft sooner than would have occurred without such a financing program in place.[1] The statute directed FAA to maximize the use of private sector capital, and FAA officials said that they reached out to other federal agencies—such as the Departments of Agriculture, Education, and Energy, and the modal administrations of the Department of Transportation—to understand various options for establishing a loan-guarantee program. The establishment of a loan or loan guarantee program is contingent on the availability of appropriations, and to date, FAA has not received an appropriation for the incentive program.

Based on recommendations from the NextGen Advisory Committee, in 2013 FAA proposed two avionics equipage bundles focused on operators: one for air carriers flying in the busiest metroplexes and one for operators that fly elsewhere. Each equipage bundle identified minimum operational equipment. FAA then conducted outreach through public meetings, market surveys, and individual meetings with aviation representatives to get industry perspectives on the program's overall structure and the proposed equipage bundles.

FAA officials noted that an agency effort to establish a financial incentive program is one piece in a broader effort to develop incentives for aircraft operators. FAA has also noted the need to demonstrate the benefits of NextGen equipment, such a demonstration would help create a business case for operators to equip early. For example, FAA has entered into agreements with JetBlue, UPS, and United Airlines to provide or upgrade equipment and obtain data to validate the business case for early adoption of Automatic Dependent Surveillance-Broadcast (ADS-B) equipment. FAA officials stated that these ADS-B data will help the agency measure operational benefits, reduce uncertainty, and help to determine time frames for carriers to obtain a return on their investment. In addition, FAA's Data Communications contract includes an incentives goal to equip 1,900 aircraft to create a critical mass of equipped aircraft and demonstrate the benefits of equipping with this technology.

3. As you know, there are 36 FAA-approved Collegiate Training Initiative (or CTI) colleges and universities that offer degree courses in air traffic control. As air traffic control becomes more and more high-tech with NextGen, it seems to make good business sense to have these schools provide a pool of highly educated applicants for the FAA, especially with the wave of anticipates retirements. It is my understanding that due to the

[1]GAO, *Aviation: Status of DOT's Actions to Address the Future of Aviation Advisory Committee's Recommendations*, GAO-13-657 (Washington, D.C.: July 2013).

2013 Academy shut-down, between 3,000 and 3,500 CTI graduates were on the FAA waiting list, hoping for the restart of hiring that would send them to the FAA Academy. However, I have heard that the FAA is backing off this approach and issuing a general public or "off-the-street" job announcement.

a. Why is the FAA doing this when it already has thousands of college graduates ready to go?

According to FAA officials, the general public hiring announcement was pursued in response to the findings of two recent reports commissioned by FAA's Office of Civil Rights and Office of Human Resources. The first study began in spring 2012[2] and was subsequently followed by a second study to look at the initial analysis,[3] with both studies completed by spring 2013. These studies found that there were barriers and adverse impacts on certain minority groups at various stages of the ATC–hiring process. The reports made various recommendations to FAA to improve the process, although neither report recommended that FAA pursue hiring from the general public pool as opposed to other potential hiring pools. However, according to FAA officials, the agency was attempting to respond to findings in the reports that FAA's multiple job vacancy announcements caused confusion and have different minimum qualifications for the same job (e.g., to meet minimum qualifications for a CTI announcement, an applicant must be a graduate of a CTI program, whereas for a general public announcement, a college degree is not required). According to this official, a single announcement with one set of qualifications broadens the diversity of the applicant pool (for example, the announcement, so structured, generated over 28,000 applicants, from which FAA expects to find about 2,000 applicants as initially qualified) and simplifies the process administratively.

With respect to the number of college graduates that FAA had ready to go, according to officials, as of March 2013, the agency was working to follow through on 543 offer letters to CTI graduates. The FAA's inventory of qualified applicants had 1,527 CTI graduates; however, with the changes to the hiring process, these applicants were purged from the inventory and must reapply in order to be considered.

b. Is this fair to the CTI graduates?

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[2]Outz and Associates, *Barrier Analysis of the Air Traffic Control Specialists (ATCS) Centralized Hiring Process* (May 8, 2013).
[3]APT Metrics, Inc., *Extension to Barrier Analysis of Air Traffic Control Specialist Centralized Hiring Process* (Apr. 16, 2013).

While the CTI program was initiated and expanded in order to ensure that FAA had an educated pool of candidates to hire from when needed, CTI graduates do not have a guarantee of employment by FAA. In addition, while in recent years, FAA has made hiring announcements specifically for CTI graduates, FAA has the authority to make a general public–hiring announcement whenever the agency deems it necessary.[4] According to FAA officials, with a general public announcement, anyone can apply, including those with prior ATC education or experience, and it does not put anyone with ATC education or experience at a disadvantage. In fact, a new FAA–screening tool considers ATC education and experience as factors that are predictive of success on the job, and therefore, CTI graduates will likely have an advantage in the screening process over general public applicants without prior ATC education.

Since 2006, the CTI program has been the largest source of FAA's ATC hiring. Given that FAA has recently hired primarily from the ranks of CTI graduates, the stated purpose of the CTI program, and with an existing pool of CTI graduates to draw from, it is not unreasonable that CTI graduates would expect to be considered before FAA solicited additional general public applicants.

c. How will this new approach impact the skill and educational level as well as training costs of future controllers?

The impacts on the skill or educational level of future controllers are unclear, since CTI graduates are also eligible to apply under the general public announcement, and it is not known how many hires will be CTI graduates. However, according to FAA, CTI graduates tend to reach certification as a professional controller somewhat faster than general public hires, although the difference is not large. Conversely, a past FAA study found that college education was negatively correlated with the likelihood of completing FAA facility training.

The new approach could increase FAA costs. Each applicant who applies to the general public announcement and meets minimum qualifications must then take the Air Traffic Selection and Training (AT-SAT) test, an aptitude test, at a cost to FAA of about $350 to $360 per test. CTI graduates in the previous pool would have already taken the test, but must retake the test under this new process. Since FAA is planning on roughly 2,000 applicants reaching this stage, the cost of testing will be approximately $700,000 to $720,000. In addition to this cost, FAA will

[4]Before the February 2014 announcement, the last general-public-hiring announcement was in 2009, when about 8,000 applications were received.

have paid twice for testing any CTI graduates reaching this stage. Also, initial direct costs of training a general public hire at the FAA Academy may be over $6,000 per student higher than training a CTI graduate.[5] This difference is because completion of the CTI program curriculum permits CTI graduates to bypass Air Traffic Basics during the FAA Academy's training.

4. Mr. Dillingham, do you believe that the FAA, as currently organized, can successfully implement NextGen, or do we need to consider other organizational and financial reforms in the next FAA reauthorization bill?

At this time, it is unclear whether FAA, as currently organized, can successfully implement NextGen. As I reported in my written statement, our work has found that implementing complex, long-term organizational transformations, such as NextGen–involving technology, systems, and retraining key personnel–requires, among other things, substantial leadership and clear roles and responsibilities. Inconsistent leadership and unclear roles and responsibilities can weaken the effectiveness of the internal collaboration required for successful NextGen implementation. Since the beginning of the NextGen initiative more than 10 years ago, FAA has struggled to have the necessary leadership in place. However, the agency has recently begun to fill key positions. For example, in June 2013, FAA appointed a new Deputy Administrator and designated a Chief NextGen Officer in response to provisions in the FAA Modernization and Reform Act of 2012. Both the magnitude of the multi-year roll out, as well as the numerous efforts under way throughout the different FAA offices and divisions in FAA will require leaders to manage all aspects of NextGen in a strategic, timely, and coordinated fashion.

Given the full committee's interest in FAA's organizational structure and ability to implement NextGen, GAO has ongoing work looking at these key issues. Among other things, the committee has asked GAO to identify stakeholders' perspectives on NextGen implementation and we expect to report our findings to the committee this summer. Further, more broadly, the members of the committee have also asked GAO to identify the extent to which FAA has identified duplicative programs or positions, wasteful practices, or other inefficient or outdated

[5]The figure is derived from two components. Air Traffic Basics instruction is provided to ATCS trainees for 25 days at the FAA Academy at an estimated cost to FAA of about $1,064 per student. Additionally, ATCS trainees earn a salary and per-diem benefits while at the FAA Academy, and the Air Traffic Basics portion of that training costs FAA over $5,000 per student. Under the new process, FAA intends to allow CTI graduates to skip Air Traffic Basics if they can show evidence that they have completed the appropriate coursework.

practices and the status of the agency's actions. We will keep your office apprised of the status of our work.

Chairman Schuster and Members of the Committee:

On behalf of the Aircraft Mechanics Fraternal Association ("AMFA"), thank you for the opportunity to submit testimony regarding the state of the American aviation industry. As explained below, AMFA supports the need for greater oversight and regulation regarding foreign repair stations and their operations. AMFA is concerned that while qualified and skilled aircraft mechanics find less opportunity for work at home, foreign repair stations continue to flourish, hiring staff with insufficient industry training along with minimal drug and alcohol testing, or criminal background checks. The aviation industry has evolved dramatically since 2000, with multiple airline bankruptcies, mergers, and newly formed carriers. As the industry evolved, so have airlines' business practices and annual budgets. The FAA is now responsible for over 4,700 foreign repair stations, and the popularity of these stations is expected to increase. AMFA's concern is that foreign repair stations are held to a different standard, benefitting the bottom line, versus an aircraft's safety and performance while in commercial service. If such services are going to continue to exist, AMFA endorses tighter regulations, identical to the ones found domestically, as well as incentivizing airlines to utilize the qualified and skilled workforce within the United States.

Aircraft Mechanics Fraternal Association

AMFA is a national, craft oriented, independent aviation union representing over 3,000 aircraft mechanics and related personnel at Alaska and Southwest Airlines. AMFA is unique in that it is the only aircraft mechanic-specific organization within the entire industry. Membership spans the entire country, with members working tireless hours at hubs in Florida, Maryland, Washington, California, and others. AMFA members are utilized for routine maintenance, major aircraft repairs, and aircraft breakdowns while in service. AMFA prides itself in holding its members to the highest standards and continuing to fight on behalf of aircraft mechanics' rights and the vitality of the industry.

Due to AMFA's exclusive membership, numerous industry-specific views and opinions are shared, but the common voice among all of our mechanics is that airplanes repaired abroad are not held to the same quality as seen domestically. AMFA members have experienced countless examples of planes returning from foreign repair service, only to be found with improper screws, crossed wires, or incomplete work. AMFA certification within domestic hubs ensure that planes are ready for commercial use, however, it should not be considered a last-line of defense in the face of sub-par work.

Federal Aviation Agency's Oversight Concerns

The FAA is the only federal agency with direct access, oversight, and power to properly administer and regulate foreign repair stations. Considering the thousands of repair stations across the globe, it is easy to see that this is a task that requires intense scrutiny, diligence, and continuity. AMFA respects the efforts of the FAA and their inspectors, but such oversight demands increased Congressional scrutiny and reform in order to properly investigate each individual repair station and its personnel.

As evidenced by the FAA's own Inspector General earlier this year, the FAA has found itself constantly trying to maintain annual inspection quotas instead of targeting resources to where they are needed based on risk. Despite the FAA's efforts to employ a new risk-based oversight system to inspect repair stations, this system has yet to reach its full potential in over 5 years of implementation due to staffing concerns, lack of training, and inconsistent use. The FAA's overall model is dependent on a reliable annual station check, complete with 16 sub-inspection items, which includes quality control, training, manuals, as well as tools and equipment. Further, the FAA requires that as many as nine elements be inspected annually, regardless of risk, yet the IG revealed that less than half of these parameters are actually inspected (7 of 16). Given the findings of the FAA's IG report, this risk-based model reveals its vulnerability immediately in the face of inconsistency along with poor management and execution. Though the FAA has tried to implement an effective oversight campaign, it is clear that such authority should not continue without the guidance and support of Congressional stakeholders, along with appropriate laws and rules that ensure public safety within the industry.

Further, inspectors have little to no historical data to work off of, hampering efforts to identify industry trends, specific facility improvement, or enact adequate and consistent inspection practices. Such gaps of data is alarming and complicates efforts to track patterns within foreign repair station operations. Work done domestically can clearly be tracked through order forms, personnel files, and consistent oversight, while the most basic data searches and trends are almost impossible when applied to facilities abroad. This discovery is even more telling when coupled with the IG's findings that the FAA's new oversight system, called the Repair Station Data Package, has yet to be developed and accessed by FAA personnel. This system was initially setup in 2007, however, 60% of inspectors interviewed in the IG report were either not familiar with it, felt the guidance was unclear, or did not know how to access the information.

Finally, a glaring observation from the IG report was that FAA inspectors lack standardized checklists to guide their inspections and surveillance activities. In fact, over half of the inspectors interviewed, 19 of 33, did not even use a checklist to perform inspections. As an alternative, such inspections were conducted with either an inspector's individual knowledge of that specific station or the inspector developed their own checklist. This problem is further exasperated once it was discovered that inspectors do not clearly identify and document which areas were reviewed in the inspection database. Thus, it is difficult to determine if inspectors did indeed focus their resources on areas in which previous discrepancies were identified.

The Need for Action

Conclusions such as those found in the FAA's IG report reflect the need for action on behalf of legislators, to both bolster the FAA's resources in maintaining effective foreign repair station oversight, as well as bringing this crucial service back to the professionals who are best prepared to handle intense aircraft maintenance. Given the evidence within the FAA's IG report, along with the first-hand experiences from AMFA members at airports around the country, AMFA firmly believes this problem will not

solve itself. Due to the current system, airlines need to be pressed to perform the best work abroad if they lack utilizing such services domestically. Additionally, airlines should be rewarded or incentivized if they determine the best practice moving forward is to maintain work domestically with trained aircraft mechanics. If such action were taken, it would relieve FAA staff from conducting foreign inspections and allow the FAA to continue to use the proven oversight they currently follow within US borders.

The committee's hearing tried to address foreign repair stations with FAA Administrator Michael Huerta, however little was gleaned. The committee hoped to see what safety assessments have occurred since the 2012 FAA Reauthorization, which is mandated in the legislation. Instead, the agency has not yet implemented a safety assessment system for foreign repair stations and the FAA has shared little on what it will actually implement.

During the hearing, Rep. Peter DeFazio (D-OR) brought up the FAA foreign repair rule as his first question to Administrator Huerta. Rep. DeFazio emphasized that the FAA foreign repair proposed rule was originally supposed to be published this month, adding, "I'm puzzled, it causes me great concern." Administrator Huerta acknowledged the FAA delay in promulgating foreign repair drug and alcohol testing guidelines, citing ongoing consultations with foreign governments. Huerta stated that the FAA will be ready to commence rulemaking "later this year." It is disappointing that major considerations for drug and alcohol testing have yet to be enacted and potential foreign repair station workers could be on their job site under the influence. Such recklessness and slow action would not be tolerated within our domestic aircraft mechanic workforce and it should not be tolerated. Standards should not be limited to regions of the world, and all planes should be treated and repaired with the highest level of quality and experience.

AMFA has tried its best to engage the FAA regarding these points and worked with legislators to send a letter to the FAA and their response to their IG report. Included questions cover what immediate and long-term actions the FAA is taking to address the IG's concerns and recommendations regarding consistent checklists and updated databases. The FAA letter also asked how the FAA would train inspectors moving forward, including what, if any, measures would be taken to improve and increase staffing. This also applies to comprehensive post-inspection briefings and draft reports for stations that have been found at fault for certain shortcomings.

It is has been shown repeatedly that this herculean task of foreign repair station oversight cannot be properly maintained within the FAA's jurisdiction alone, and should point to the need to reinvigorate the qualified domestic workforce in our own communities. AMFA understands that foreign repair stations will not disappear altogether, however, the trend of more foreign work should be reexamined if the stations already in service cannot receive the highest standard in federal oversight. AMFA looks forward to working with the FAA, Members of Congress, the House Transportation and Infrastructure Committee, and industry stakeholders as we find an appropriate solution to maintain the safety of our commercial aircraft.

Thank you for this opportunity, and AMFA appreciates the Committee's attention regarding this issue.

Congress of the United States

Washington, DC 20515

February 11, 2014

The Honorable Anthony Foxx
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, D.C. 20590

Dear Secretary Foxx:

Music has a great impact on our country, both culturally and economically. Our states are home to not only some of the world's greatest musicians, but also to some of the world's greatest music venues – attracting millions of people to performances every year. But, with damaged instruments – or without instruments at all – those performances cannot happen and those venues fall silent, as musicians are left without the tools of their trade.

Countless stories have emerged over the years of musicians whose guitars, lutes, flutes and other musical instruments have been damaged because of a patchwork series of airline policies that put these fragile and valuable instruments in danger. Musicians arrive to their destinations only to learn their instruments were lost or find their instruments damaged, with little if any time to replace them before a scheduled performance. This puts livelihoods at risk.

To help keep this from happening, Congress included a provision in the 2012 FAA Modernization and Reform Act (P.L. 112-95) that required the FAA to promulgate rules permitting airline passengers to stow their instruments on board in closets or overhead compartments, or if necessary, purchase an extra seat to store their instrument. As we approach the statutory deadline for that rule, we are disappointed to learn the process has not yet even begun.

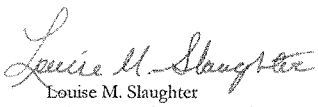
We understand the budgetary pinch that many agencies have found themselves in, but the relatively modest cost of promulgating this rule should not have hindered its completion. We urge you to ensure this rulemaking is a priority as you are finalizing your funding decisions for the current and upcoming fiscal year.

Sincerely,

Lamar Alexander
U.S. Senate

Jim Cooper
U.S. House of Representatives

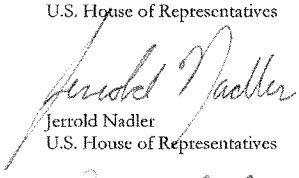
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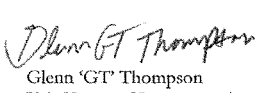
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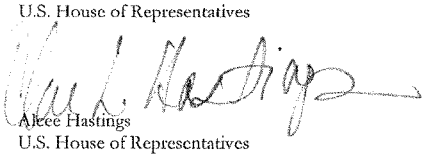
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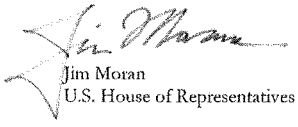
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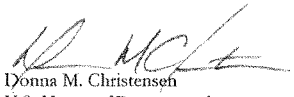
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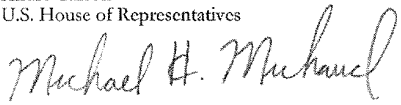


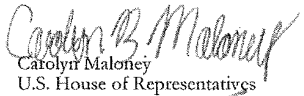
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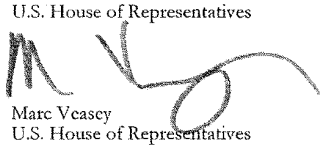

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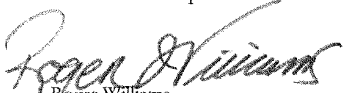

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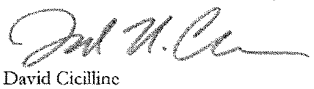

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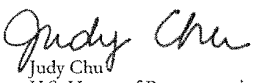

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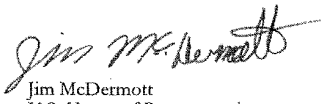

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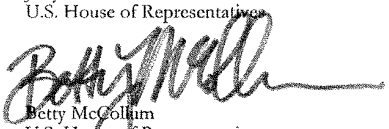

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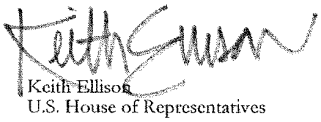

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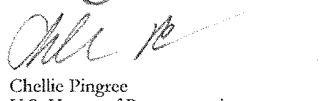

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Judy Chu
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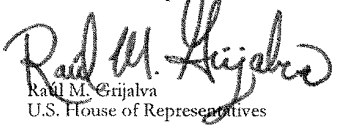

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Adam Schiff
U.S. House of Representatives

cc: The Honorable Michael P. Huerta, FAA Administrator

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