

**FEDERAL AVIATION ADMINISTRATION REAUTHOR-
IZATION: ISSUES IN MODERNIZING AND OPER-
ATING THE NATION'S AIRSPACE**

(113-83)

HEARING
BEFORE THE
COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES
ONE HUNDRED THIRTEENTH CONGRESS
SECOND SESSION

NOVEMBER 18, 2014

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

Bill Shuster
Chairman

Washington, DC 20515

Nick J. Rahall, Jr.
Ranking Member

Chairman, Transportation and Infrastructure

November 14, 2014

Ranking Member, Transportation and Infrastructure

SUMMARY OF SUBJECT MATTER

TO: Members, Committee on Transportation and Infrastructure
FROM: Staff, Committee on Transportation and Infrastructure
RE: Full Committee Hearing on "FAA Reauthorization: Issues in Modernizing and Operating the Nation's Airspace"

PURPOSE

The Committee on Transportation and Infrastructure will meet on Tuesday, November 18, 2014, at 10:00 a.m. in 2167 Rayburn House Office Building to explore issues related to the Federal Aviation Administration's (FAA) modernization and operation of the Nation's complex airspace system. The Committee will receive testimony from the Department of Transportation Inspector General (IG) and representatives of the Aircraft Owners and Pilots Association (AOPA), Air Line Pilots Association (ALPA), Airlines for America (A4A), Business Roundtable (BRT), and National Air Traffic Controllers Association (NATCA).

BACKGROUND

The United States aviation system is an economic driver, contributing roughly five percent to the Nation's gross domestic product and supporting 11.8 million American jobs.¹ This vital economic sector depends upon a safe, efficient and modern air traffic control system. The United States air transportation system transports millions of passengers and moves billions in revenue ton-miles of freight using a network of airways, interconnected by a ground-based network which provides necessary air traffic control.²

The FAA's Air Traffic Organization (ATO) provides air traffic control (ATC) services within U.S. and certain international airspace. U.S. airspace is the most expansive in the world, covering roughly 30.2 million square miles that make up more than more than 17 percent of the

¹ Fed. Aviation Admin., *The Economic Impact of Civil Aviation on the U.S. Economy* 9, 12 (June 2014), available at http://www.faa.gov/air_traffic/publications/media/2014-economic-impact-report.pdf.

² "Economic Impact of Civil Aviation on the US economy", FAA Air Traffic Organization, August 2011.

world's airspace.³ Within that airspace, FAA air traffic controllers handle roughly 50,000 operations daily.⁴ As the demands on the air traffic system have changed over time, Congress and several presidential administrations have sought reforms to improve safety and efficiency and to accelerate modernization projects.

HISTORY OF FAA AND AIR TRAFFIC CONTROL

Modern aviation in the United States first began in the dawn of the twentieth century. In recognition of the need for federal oversight and promotion of the aviation industry, Congress passed into law the *Air Commerce Act of 1926* which created the Aeronautics Branch (renamed the Bureau of Air Commerce in 1934) within the Department of Commerce. This Act tasked the federal government with fostering air commerce, as well as directing the promulgation of regulations in the issuance and enforcement of air traffic rules, certification of pilots and aircraft, and operation and maintenance of air navigation aids.⁵ By the mid-1930s the growth of air transportation demanded the beginning of air traffic control, with some airports providing basic visual signals for pilots.⁶

In 1934, a group of airlines created the first air traffic control centers.⁷ Throughout the following decades, the responsibility for aviation safety and air traffic control transitioned to the federal government and through a variety of different federal agencies. Many of these transitions were prompted by high profile accidents, which caused Congress to reassess the role of the federal government in ensuring the safe operation of the national airspace system. In 1956, a midair collision between two commercial aircraft over the Grand Canyon resulted in the deaths of 128 passengers. In 1958, two separate midair collisions further spurred the need to reexamine the federal government's role in overseeing aviation safety.⁸ In response, the Federal Aviation Agency was created as an independent agency with the responsibility of aviation safety, air traffic control and modernization.⁹ In 1966, Congress moved the Federal Aviation Agency into the newly created Department of Transportation and renamed the agency the Federal Aviation Administration (FAA).¹⁰

Since the initial creation of a rudimentary air traffic control system in the 1930s, air traffic control has evolved to try to keep pace with the demands of air transportation. The ATO today operates several types of air traffic control facilities, largely within delineations created in 1958, with radar as the primary means of tracking aircraft in flight. Airport traffic control towers control aircraft movements on the ground and within the vicinity of airports: terminal radar approach control (TRACON) facilities provide ATC services to aircraft up to about 40 nautical

³ Federal Aviation Administration. "Air Traffic Organization." https://www.faa.gov/about/office_org/headquarters_offices/ato/

⁴ Speech of FAA Administrator Michael Huerta before the Aeroclub of Washington, "All for One, and One for All," Oct. 16, 2014, Washington, D.C., available at

http://www.faa.gov/news/speeches/news_story.cfm?newsId=17554&omniRss=speechesAoc&cid=104_Speeches.

⁵ "FAA's History Chronological 1926-1996." May 20, 1926. <https://www.faa.gov/about/media/b-chron.pdf>

⁶ Federal Aviation Administration. "A Brief History of the FAA." https://www.faa.gov/about/history/brief_history/

⁷ Id.

⁸ "FAA's History Chronological 1926-1996." June 10, 1956 and April 21, 1958.

<https://www.faa.gov/about/media/b-chron.pdf>

⁹ "FAA's History Chronological 1926-1996." April 21, 1958. <https://www.faa.gov/about/media/b-chron.pdf>

¹⁰ *Department of Transportation Act*, (P.L., 89-670), (1966)

miles from airports and at varying altitudes; and air route traffic control centers (ARTCC) provide ATC services to aircraft at high altitudes and other airspace outside terminal areas.¹¹ While technology modifications have been made over the decades, these facilities are still dependent upon controlling their airspace using radar technology from the 1950s.

AIR TRAFFIC CONTROL MODERNIZATION

In 1981, the FAA began an effort to modernize the air traffic control system by updating facilities and equipment to meet the anticipated demands of a growing volume of post-Deregulation air traffic.¹² At the time, the modernization was estimated to cost roughly \$12 billion¹³ and take more than 10 years to complete.¹⁴ However, in the ensuing years the effort encountered cost overruns, schedule delays, and performance shortfalls, which resulted in calls to reform the FAA. Throughout the 1990s the Clinton Administration developed several different proposals to reform the FAA's organization.

In addition to these organizational reforms, ongoing attempts to modernize the air traffic control system were initiated by the FAA. In 1988, the FAA awarded a contract to IBM Corp. to develop the Advanced Automation System (AAS), which was intended to replace computer hardware and software in ATC facilities.¹⁵ The AAS contract was valued at \$3.5 billion initially; however, due to cost overruns and program delays, the contract was restructured in 1994 with an estimated \$7 billion cost.¹⁶ Eventually, parts of the AAS project were terminated, with the en-route and tower segments of the original contract moving forward after being renamed and redefined. The segment of the contract for AAS in terminal facilities was spun off into a new contract known as the Standard Terminal Automation Replacement System (STARS). In a 1998 report on the topic, the then-DOT IG stated that the project "did not suffer from lack of funding" but that the AAS "failed because of overambitious plans" and "poor FAA oversight of contractor performance." The AAS program resulted in roughly one billion dollars that "was wasted."¹⁷ In light of the problems facing the FAA's modernization efforts in the mid-1990's, a new series of reforms were enacted to address possible causes of delays in modernization. In a 1995 Appropriations bill (P.L. 104-50), the FAA was directed to implement new acquisitions and

¹¹ FAA, "Roles and Responsibilities of Air Traffic Control Facilities."

http://www.faa.gov/jobs/career_fields/aviation_careers/atc_roles/

¹² This included plans to replace the computers at air route traffic control centers with new software, consoles and displays, facility consolidation, new secondary radars, upgraded weather services and a new landing system. Government Accountability Office, "FAA's Plan To Improve the Air Traffic Control System," AFMD-83-34; 1983. <http://www.gao.gov/assets/140/139683.pdf>

¹³ Government Accountability Office, "Transportation: Examination of the Federal Aviation Administration's Plan for the National Airspace System-Interim Report," AFMD-82-66; 1982, Pg. 2. This report claims initial estimates to be roughly \$10 billion, however a later GAO report states the \$12 billion figure.

¹⁴ Dillingham, Gerald L. Government Accountability Office, Testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives, "FAA's Modernization Efforts- Past, Present and Future," October 30, 2003, Pg. 1

¹⁵ Department of Transportation Inspector General, "Advance Automation System: Federal Aviation Administration" Report Number: AV-1998-113 April 15, 1998, Pg. 5

¹⁶ Department of Transportation Inspector General, "Advance Automation System: Federal Aviation Administration" Report Number: AV-1998-113 April 15, 1998, Pg. 5.

¹⁷ Id. Pg. 2 and 3.

personnel systems.¹⁸ The acquisitions system was to be implemented in conjunction with guidance from non-governmental experts, to address the “unique needs” of the FAA.¹⁹ The following year, Congress passed the *FAA Reauthorization Act of 1996 (FAA Act of 1996)* (P.L. 104-264). Recognizing that the “[FAA] must become a more efficient, effective and different organization to meet future challenges,” the *FAA Act of 1996* also established a Management Advisory Council (MAC) to “submit comments, recommended modifications, and dissenting views” to the Administrator on issues such as “management, policy, spending, funding or regulatory matters affecting the aviation industry.”²⁰ The MAC was comprised of 15 members; two members were designees of the Secretary of Transportation and Secretary of Defense. The remaining 13 members were presidential appointees who were experts in “disciplines relevant to the aviation community and who [were] collectively able to represent a balanced view of the issues before the FAA.”²¹ The *FAA Act of 1996* also included reforms regarding the new personnel management system and required the FAA to terminate any acquisition program that was fifty percent over cost, or failed to achieve half of the performance goals or was more than fifty percent behind schedule.²² (For a table summarizing major FAA reform legislation since 1995 see Appendix A.)

As part of the continuing effort to reform the FAA, Congress passed the *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR 21)* (P.L. 106-181). *AIR 21* tasked the MAC, through the Air Traffic Services Subcommittee, to oversee air traffic control modernization. In addition, *AIR 21* created the Chief Operating Officer for the air traffic system.²³ The Chief Operating Officer (COO) was answerable to the FAA Administrator, and was to have “demonstrated ability in management and knowledge of or experience in aviation.”²⁴

Shortly after enactment of *AIR 21*, President Bill Clinton issued an executive order on December 7, 2000, establishing the Air Traffic Organization (ATO) within the FAA to run the ATC system under the direction of the Chief Operating Officer. The order created the ATO as

“...a performance-based, results-oriented, organization. The ATO will be better able to make use of the unique procurement and personnel authorities that the FAA currently has and to better use the additional management reforms enacted by the Congress this year”²⁵

Despite the FAA having put in place the required reforms, in the beginning of the 2000’s concern again arose regarding the FAA’s ability to modernize the airspace system. In response the Bush administration and Congress moved forward with additional reforms. In 2003, the Government Accountability Office testified before the Subcommittee on Aviation that, since

¹⁸ *Department of Transportation and Related Agencies Appropriations Act, 1996*, P.L. 104-50, § 347 and §348, (1995).

¹⁹ *Id.*

²⁰ *FAA Reauthorization Act of 1996 (FAA Act of 1996)*(P.L. 104-264)§230 (1996).

²¹ *Id.*

²² *FAA Reauthorization Act of 1996 (FAA Act of 1996)*(P.L. 104-264) §225, §252, §253(1996).

²³ It was not until 2003 that the FAA hired a Chief Operating Officer.

²⁴ http://www.faa.gov/news/press_releases/news_story.cfm?newsId=5649

²⁵ *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century*, (P.L. 104-264) §303 (2003)

²⁵ *Air Traffic Performance-Based Organization*, Executive Order 13180 (Dec. 7, 2000).

1981, the FAA's modernization project "consistently experienced cost, schedule and performance problems," and that while initial cost of the effort was estimated at \$12 billion in 10 years, by 2003 the program was two decades old and \$35 billion dollars had been spent with an additional \$16 billion needed to complete "key projects."²⁶ In 2003, in *Vision 100—Century of Aviation Reauthorization Act (Vision 100)*, Congress clarified that the Chief Operating Officer would be responsible for overseeing "the day-to-day operational functions of the Administration for air traffic control";²⁷ and made changes to the size and membership of the MAC and the Air Traffic Services Subcommittee. *Vision 100* contained additional personnel reforms and established the Joint Planning and Development Office (JPDO).²⁸ The JPDO was responsible for creating an integrated plan for the Next Generation Air Transportation System (NextGen), overseeing research and development of the system, creating a transition plan, coordinating aviation and aerospace research within the Federal government with U.S. aviation and aerospace firms, and facilitating technology transfer from research programs in other agencies.²⁹ The goal of the JPDO was not only to develop an integrated plan for NextGen, but to improve the "level of safety, security, efficiency, quality, and affordability of the National Airspace System and aviation services."³⁰ However, roughly a decade later, the *Consolidated Appropriations Act, 2014* eliminated the JPDO's funding because "FAA [had] failed to establish a clearly defined role for the JPDO and set expectations for how it will leverage research conducted by other Federal agencies."³¹

Next Generation Air Transportation System (NextGen)

In 2003, *Vision 100* was the first legislation which addressed the FAA's air traffic modernization efforts under its new name "NextGen". NextGen is a \$40 billion program that was initially slated to be completed by 2025 to transition the nation's airspace from a 1950's radar based system to advanced technology air-traffic management.³² In 2003, NextGen was envisioned as a fundamental reengineering of our nation's airspace to reduce congestion and delays, increase capacity, while further improving safety and reducing aviation's environmental impact. NextGen is currently comprised of several different technologies; these include En-Route Automation Modernization (ERAM), Data Communications (DataCom), Automatic Dependent Surveillance Broadcast (ADS-B), and Terminal Automation Modernization and Replacement (TAMR).³³

One foundational program needed for NextGen, ADS-B, is anticipated to utilize technologies (both new and old) to provide information to pilots and air traffic controllers throughout flights. ADS-B requires a network of both ground-based radio stations and aircraft

²⁶ Government Accountability Office, "FAA's Modernization Efforts—Past, Present, and Future," Rpt. No. GAO-04-2271 (2003).

²⁷ *Vision 100—Century of Aviation Reauthorization Act*, P.L. 108-176, § 203 (2003).

²⁸ *Id.* § 709.

²⁹ *Id.*

³⁰ *Id.* §709(c).

³¹ *The Consolidated Appropriations Act, 2014*, P.L. 113-76 (2013).

³² Statement of Matthew E. Hampton, U.S. Department of Transportation Inspector General before the Committee on Commerce, Science, and Transportation, Subcommittee on Aviation Operations, Safety, and Security United States, "Progress and Challenges in Meeting Expectations for NextGen," June 25, 2014, Pg. 3

³³ Federal Aviation Administration, "NextGen Implementation Plan," August 2014.

with avionics that are ADS-B rule compliant. This technology would provide controllers with more accurate aircraft tracking, and enable aircraft to “see” other aircraft.³⁴ The *Federal Aviation Administration Modernization and Reform Act of 2012* (P.L. 112-95) mandated a rulemaking on ADS-B In equipage and required equipage with ADS-B In by 2020 for all aircraft operating in capacity-constrained airspace and airports. So far the federal government has invested roughly \$1.5 billion dollars in ADS-B. However, a recent DOT IG report found that in the FAA’s initial cost-benefit case for ADS-B the costs outweigh the benefits by roughly \$588 million.³⁵

The FAA’s efforts to modernize air traffic control have been informed by and benefitted from the observations and recommendations of governmental bodies such as the Government Accountability Office, the DOT OIG, and also Federal advisory committees such as the Radio Technical Commission for Aeronautics (RTCA). RTCA, which was founded in 1935 and functions primarily as a technical standards-setting body, convened a task force that provided the FAA with recommendations on its implementation of NextGen in 2009.³⁶ Those recommendations led to the creation of what is known as the NextGen Advisory Committee (NAC) which is comprised of 28 members representing government and private sector organizations. The NAC was created to foster collaboration between industry and the federal government and also provide guidance to the FAA regarding NextGen implementation. The NAC has been, to date, chaired by individuals with airline chief executive experience.³⁷

As in previous decades, in 2012, Congress again attempted to address issues facing FAA’s NextGen programs. One of the main reforms established in the *FAA Modernization and Reform Act of 2012* was the creation of Chief NextGen Officer (CNO). The law directed that the CNO, who would be responsible for coordinating the implementation of NextGen, would “review and provide advice on the Administration’s modernization programs, budget and cost accounting system” for NextGen.³⁸ This reform established an Officer within the FAA who is accountable for the progress and implementation of NextGen.

As with previous air traffic control modernization efforts, concerns have been raised regarding FAA’s implementation of NextGen technology and procedures.³⁹ In 2013, the DOT IG found that “longstanding programmatic and organization challenges.... further undermine NextGen’s progress.” In addition, the IG stated that the FAA’s NextGen plans were “overly ambitious” and that the FAA has “yet to develop an executable implementation plan that addresses costs and technology development and integration.”⁴⁰ To address concerns regarding implementation of NextGen, the FAA has reorganized three times in the past ten years. However

³⁴ Inspector General of the Department of Transportation. “FAA Faces Significant Risks in Implementing the Automatic Dependent Surveillance-Broadcast Program and Realizing Benefits.” AV-2011-002, October 12, 2010.

³⁵ Inspector General of the Department of Transportation. “ADS-B Benefits Are Limited Due to a Lack of Advanced Capabilities and Delays in User Equipage” AV-2014-105 Date Issued: September 11, 2014.

³⁶ RTCA. “About Us.” <http://www.rtca.org/content.asp?pf=49&contentid=49>

³⁷ RTCA. “NextGen Advisory Committee.” <http://www.rtca.org/content.asp?pf=61&contentid=61>

³⁸ *FAA Modernization and Reform Act of 2012*, P.L. 112-95 (2012) § 204.

³⁹ Department of Transportation Inspector General. “Addressing Underlying Causes for NextGen Delays Will Require Sustained FAA Leadership and Action” AV-2014-031, February 25, 2014, Pg. 1

⁴⁰ Inspector General of the Department of Transportation. “Addressing Underlying Causes for NextGen Delays Will Require Sustained FAA Leadership and Action” AV-2014-031, February 25, 2014, Pg. 2.

it is unclear whether the reorganizations have had the desired impact.⁴¹ Throughout the past three decades, both the GAO and the DOT IG have frequently raised the same concerns with FAA's modernization programs. These concerns include, but are not limited to, FAA's committing to acquisitions before requirements are fully understood; poor contract oversight; programs that are over budget and behind schedule; and lack of executable plans that address cost and technology development.⁴² In the most recent modernization program, NextGen, the FAA has raised concerns with the funding levels it has received.⁴³ While the DOT IG has stated that funding of NextGen programs have not been a cause of delay,⁴⁴ the FAA and industry did experience a five year period in which there were 23 short-term extensions for the FAA.⁴⁵ Recent progress has been made through the "NextGen Priorities" in which the FAA and industry took priorities established by the NAC, and collaborated to develop an implementation plan with milestones, timelines and cost estimates to deliver long awaited, near-term benefits, to the aviation system.

It has been roughly eighty years since air traffic control was first utilized in the United States. Since the first efforts to control air traffic through visual signals by airports, the United States air traffic control system has evolved into a complex, interconnected system of airways that safely handles roughly 60 million aircraft annually.⁴⁶ While aircraft, aircraft engines, avionics and other aviation technology has modernized and evolved over the years, since 1981 the effort to modernize our air traffic control system has been riddled, with numerous delays and revisions. Given the importance of the aviation sector to the Nation's economy, and the role it plays in safely transporting millions of passengers and tons of cargo annually, not to mention supporting general aviation activities, it is crucial that the air traffic control system be efficiently and effectively modernized to keep up with the future needs of the country.

WITNESS LIST

The Honorable Calvin Scovel, III
Inspector General
Department of Transportation

Captain Lee Moak
President
Air Line Pilots Association

⁴¹ *Id.*.

⁴² Inspector General of the Department of Transportation. "Addressing Underlying Causes for NextGen Delays Will Require Sustained FAA Leadership and Action" AV-2014-031, February 25, 2014, and Government Accountability Office. "Selected Stakeholders' Perspectives on Operations, Modernization, and Structure" GAO-14-770: Published: Sep 12, 2014. Publicly Released: Sep 12, 2014.

⁴³ Committee on Transportation and Infrastructure. Subcommittee on Aviation hearing on "Causes of Delays to the FAA's NextGen Program." July 17, 2013. 2167 Rayburn House Office Building, Washington D.C.

⁴⁴ *Id.*

⁴⁵ Federal Aviation Administrator Michael Huerta. Speech before the Aeroclub of Washington "All for One, and One for All". October 16, 2014, Washington DC.

⁴⁶ FAA. "Roles and Responsibilities of Air Traffic Control Facilities." http://www.faa.gov/jobs/career_fields/aviation_careers/atc_roles/

Mr. Mark Baker
President and CEO
Aircraft Owners and Pilots Association

Mr. Nicholas Calio
President and CEO
Airlines for America

The Honorable John Engler
President
Business Roundtable

Mr. Paul Rinaldi
President
National Air Traffic Controllers Association

Appendix A.**Major FAA reforms since 1995**

Reform	Mandated by . . .	Implemented in response to . . . ⁴⁷
FAA required to implement personnel management system	Congress (1995 appropriations law)	FAA's stated need for greater flexibility in hiring, training, and locating employees
FAA required to implement acquisition management system	Congress (1995 appropriations law)	Cost overruns and schedule slippages in modernization programs of the 1980s and 1990s, particularly the Advanced Automation System
FAA's "dual mandate" of safety regulation and industry promotion eliminated	Congress (1996 FAA reauthorization)	Deficiencies in FAA's oversight of air carriers, revealed following ValuJet flight 592 accident in 1996
Overcost, overdue acquisition programs terminated	Congress (1996 reauthorization)	Cost overruns and schedule slippages in modernization programs of the 1980s and 1990s
FAA required to appoint Chief Operating Officer responsible for running ATC system	Congress (2000 reauthorization)	Management challenges associated with ATC system modernization
FAA directed to create Air Traffic Organization to run ATC system with accountability and performance management	President Bill Clinton (2000 executive order)	Congress's direction in 2000 reauthorization for appointment of a Chief Operating Officer
FAA required to appoint Chief NextGen Officer to manage intra-agency NextGen work	Congress (2012 reauthorization)	Continued delays in NextGen implementation

⁴⁷ For specific information on the basis for these reforms, see notes 18 through 45, *infra*, and associated text.

FAA REAUTHORIZATION: ISSUES IN MODERNIZING AND OPERATING THE NATION'S AIRSPACE

TUESDAY, NOVEMBER 18, 2014

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
WASHINGTON, DC.

The committee met, pursuant to call, at 10:04 a.m., in Room 2167, Rayburn House Office Building, Hon. Bill Shuster (Chairman of the committee) presiding.

Mr. SHUSTER. The committee will come to order.

Good morning, I wanted to thank everybody for being here. We have a packed room, a topic of great interest, I hope.

The FAA reauthorization issues in modernizing and operating the Nation's airspace. I believe it is a critical issue, and one that I and the members of the committee have been talking about for a year now. And as we go into the next Congress, September, we are going to have to reauthorize the FAA and so we have been working for a year on that. Meeting with folks in this room, members of the committee, stakeholders all across the country, to try to better understand what the situation is out there, and today is going to shed even more light on that.

Our 1958 Congress recognized the need to establish a comprehensive aviation regulatory and air traffic control system. This system has served our country remarkably well and today we have the safest system in the world. However, the world has changed since 1958 in numerous ways and it is time to take stock, where we are and what we need for decades ahead.

Today's hearing is an opportunity for us to learn about issues we should consider as we plan for the next FAA reauthorization and beyond. It will not come as a surprise to any pilot who has waited in a long line of planes on the tarmac, or to any passenger who has watched the departure board as his or her flight is delayed or cancelled, that our system can be better.

Since the Federal Aviation Administration was created 56 years ago, there have been many attempts to reform it. For instance, numerous advisory committees have been made, reform recommendations based upon input from aviation stakeholders. Both President Clinton in the 1990s and President Bush in the 2000s, sought to reform the FAA in order to ensure the level of air traffic control service that Americans deserve. While each had a varying degree of success, neither was able to implement long-lasting transformative reform.

As air travel continues to grow and our airspace becomes increasingly more complex, we must ensure that the infrastructure, rules, process, laws are up to date and able to withstand the test of time. To do that we must make sure the FAA is properly structured to carry out our modernization efforts and operate as efficiently as possible.

In report after report the inspector general of the Department of Transportation and the Government Accountability Office, for that matter, has identified costly problems with the FAA's management of air traffic control modernization programs. For example, in 1998 the IG found that in carrying out one modernization program, the FAA had wasted a billion dollars of taxpayers' moneys. Sadly, the IG will testify today that this is not uncommon. He notes that of 15 major acquisitions that were ongoing as of September 2013, 8 included acquisition cost increases amounting to \$4.9 billion, and 8 experienced delays.

This waste is a result of the FAA's inability to plan effectively, to manage programs in a way that delivers responsible, cost-effective, and beneficial outcomes. Congress has an important role in modernization efforts. And we will continue to provide the tools and the resources necessary while also conducting the oversight to ensure taxpayer money is not being wasted.

Now is the time for us to learn from the past mistakes while at the same time taking note of what other nations have accomplished, and how they have done it. What successes can we apply to the American system that will help us safely and efficiently modernize our airspace? I don't have all of the answers. So I look to the aviation stakeholders and those of you in this room that are experts for your input. As we move forward we want to look at all options, put all options on the table. However, anything we do in the FAA reauthorization needs to be done together to ensure that our work helps lay a foundation for the best possible future of the U.S. aviation.

American aviation, we invented it. We have been the leader in aviation for the past 80 years. We are now starting to lose our edge. Competition coming from foreign carriers, from foreign manufacturers, and one of the big impediments is our own bureaucracy here in Washington and around the country that impedes us from allowing to compete and move products to market fast and quickly. We cannot allow this to happen and we must act now.

If you just look back at the 23 extensions, the sequestration that took place, the Government shutdown, the time is now and I think that all the stakeholders are in the room that have had to go through those painful experiences know that we really have to take a different look and move in a different direction.

Today we have representatives from a wide cross-section of aviation stakeholders who can offer valuable insight into the issues we face. So I look forward to hearing from our witnesses, and thank them all for appearing here today.

Before yielding to Ranking Member Rahall, I ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions we have submitted to them in writing, and unanimous consent that the record remain open for 15 days for additional comments and infor-

mation submitted by Members or witnesses be included in the record of today's hearing. Without objection, so ordered.

I now yield to the ranking member, Mr. Rahall, for opening remarks.

Mr. RAHALL. Thank you, Mr. Chairman, I appreciate it.

It has been my great honor to serve as ranking member of this committee for the last 4 years, and on this committee for my entire 38-year career in the Congress.

Mr. Chairman, your commitment to bipartisanship has proven that together we can do great things. We successfully completed the Water Resources Reform and Development Act this year, which showed the American people that leaders in Congress can come together to pass big bills and improve local economies and our Nation's infrastructure.

In September, the committee marked up a bipartisan Amtrak reauthorization that again showed both sides' willingness to compromise for the good of the traveling public. And I have every confidence, Mr. Chairman, that if you work in that same spirit of bipartisanship and cooperation, FAA reauthorization will be short and swift. I have seen so many extensions, 23, I think as you mentioned, that it is like watching a child, I guess, come of age and then the parent leaves home instead of the child.

Since I was first elected to Congress, a lot has changed in our aviation system. In 1977, we were on the eve of airline deregulation. Our modern air traffic control system had existed for less than 20 years at that point. There has been talk recently of potentially changing the structure of air traffic control in the United States.

On that point, I would just say that when Congress enacted the Federal Aviation Act of 1958, it recognized that good Government is at the core of a safe air traffic control system. However this reform idea takes shape, I would urge my colleagues to ensure that labor remains engaged in the conversation, and that aviation programs receive robust, stable funding and to keep air traffic control in the realm of good Government, where it belongs.

With that, Mr. Chairman, I thank you for today's hearing. I will miss working with you and all of my esteem colleagues from both sides of the aisle, but I know that with your leadership, and your bipartisanship, and your transparent manner of operating this committee, this Nation's future is in good hands.

Mr. SHUSTER. I want to thank the gentleman.

And with that I recognize the subcommittee chairman Mr. LoBiondo for an opening statement.

Mr. LOBIONDO. Thank you Chairman Shuster, I especially want to thank you for holding this hearing at a full committee level to emphasize the importance of it and I would really like to echo the chairman's comments about the critical importance.

The United States has a great deal to be proud of when it comes to aviation and thanks to the men and women in this country who day in and day out pilot the aircraft, serve as air traffic controllers, care for the passengers, maintain equipment, and numerous other important jobs, we have the safest and busiest aviation system in the world that keeps our economy ticking and serves as a model of American global leadership.

This industry and these issues are near and dear to my heart. As many of you know, I represent the FAA's flagship technical center in my district, that has and continues to play a vital role in making advances in aviation safety, and air traffic control technology. However, I believe there are some things we need to do even better, like getting technology programs both done and delivering benefits on time without any further waste of taxpayer's money. Let us look at the long-term challenges our aviation sector is facing, and be bold and decisive in addressing these through an open exchange of ideas.

It is my hope today to learn what issues we in Congress need to think about as we look forward to the next FAA reauthorization and beyond to ensure we continue to have the safest system possible that also secures America's leadership in this vital global economy.

And Mr. Chairman, as you have indicated, there is so much at stake, and we have a tremendous opportunity to build on what we have done for the last 2 years, so I look forward to the hearing, and look forward to the participation and moving forward.

I yield back, thank you.

Mr. SHUSTER. Thank the gentleman.

I now recognize the ranking member of the Subcommittee on Aviation, Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman, and for calling today's hearing on our work ahead to reauthorize the Federal aviation programs by October next year, and I look forward to working with you and Chairman LoBiondo and all of my colleagues to get a bill done on time, one that improves safety and keeps our aviation system the envy of the world.

I also want to recognize families of the passengers of Colgan flight 3407, who are with us today. And we welcome you and want to thank you for your tireless efforts to improve aviation safety.

I want to just recognize that many of the aviation stakeholders, including a few testifying here today, are frustrated with funding uncertainty and the delays associated with some programs like NextGen. But I also want to be clear: the FAA is making progress, and good progress thanks to the Subcommittee on Aviation's strong oversight under Chairman LoBiondo's leadership.

At this time last year we were uncertain when we would see a plan for implementing DataComm, and now in response to a tasking by Chairman LoBiondo, the FAA has a plan with industry support to implement DataComm. At this time last year, we were uncertain about the path forward for performance-based navigation procedures, and now again in response to our tasking, the FAA has a plan with industry support for accelerating PBN procedure implementation.

So when I read in some stakeholders' testimony that the FAA is not moving fast enough on several of these programs, I would also like to point out that we have progressed significantly from last year. And Chairman LoBiondo and I remain laser-focused on making sure the FAA continues to make progress. Moreover, under Chairman LoBiondo's leadership the Subcommittee on Aviation has held hearings in the last Congress on FAA's work to streamline the certification process. We heard the FAA has made progress. We

also held two subcommittee meetings on the FAA's work to integrate unmanned aircraft systems into the national airspace and will stay focused on progress there as well.

At the same time we recognize that more has to be done. The FAA must have funding certainty and the flexibility to invest. When we talk about the FAA's challenges in running programs smoothly, we need to recognize the agency's problem is not only a management problem. I think the agency has a political problem, a political problem resting here in Congress.

Last year's efforts by some in Congress to force the Federal Government off the fiscal cliff was not only—was a catastrophe for the everyday operation of the national airspace. It caused great harm to NextGen efforts. Just as the FAA must do better, we have to do better here in Congress, and I hope today's hearing will give us a solid path for how we should progress with a strong bipartisan bill.

I know conversation has been going on about air traffic reform, as well; I have had some of those conversations with folks. I just want to be sure that reauthorization does not become a science experiment. If we resolve to go big in this bill with significant air traffic reforms, we must do so methodically with a clear statement of the problem we are trying to solve, and a clear understanding of how to solve it without compromising safety in any way.

This hearing might be a good first step in that regard. Today we are asking, what problems should we solve in reauthorization? That is an important question. We all need to understand there may not be one answer to that. And I look forward to hearing how witnesses would answer that.

In addition to airspace management, we can't lose sight of the work that needs to be done to safely implement and integrate UAS in the airspace, improve certification, and streamline FAA facilities. I look forward to tapping those topics in future hearings.

On that note, Mr. Chairman, I look forward to working with the full committee and next Congress, and with your continued commitment to bipartisanship, I know we can produce a bill that provides the funding, the stability, and the flexibility that the FAA needs to move forward along in the future to continue to make sure we have a safe national airspace.

I thank you for holding this hearing and I look forward to hearing from our witnesses.

Mr. SHUSTER. Thank you very much, Mr. Larsen.

Before we get started, I think it is important that we acknowledge there are a number of members of this committee that this will be their last hearing. So if you would indulge me. Let's start with the most junior Member, I don't think he is here, Mr. Daines. He has gone off and lost his mind and decided to run for the Senate. I tried to tell him the other day on the floor, I hope he remains true to his roots as a House Member, and continues to work hard to get things done and not hold things up so—but we wish him well in the Senate over there.

Mr. Michaud, who is—I don't believe he is here. I am sure he is going to go on to bigger and better things. You know, when you leave Congress, I look out at the folks out there that they usually have bigger smiles than we do, especially at the end of the month

and when we are out of session. So again, I wish Mike all the best in whatever endeavors he goes off to.

Gary Miller has been a long-time member of this committee. I don't think Gary is here. Gary has really been a champion of developers and building in this country and has always been on the forefront of trying to reduce the burdens the Government puts on us as we try to develop and build roadways and develop communities around the country. So Gary, we wish you well in your future endeavors.

Mr. Bishop from New York, who was a great ally and working on the WRRDA bill. There were times when we would disagree. There were times that we would agree and I would say, I can't get that through my conference, so I can't even be for it. I mean, I want to be, but I can't. And so I think we had a good understanding of finding a common ground, moving the bill forward, and it was a lot of his hard work is the reason we got to that 417 mark on final passage, and I appreciate all of the efforts that he has put forward.

I will say I am not going to miss him on third base. I think the last game you had seven put outs or something like that; something outrageous for a guy your age. And I think at least one of them was me you put out. So you know, but we are going to miss you and miss greatly your voice of reason, and of course, you represented your district extremely well over the years and the committee will miss you.

Mr. Coble, Howard Coble is leaving the committee, the Coastie, served over 20 years and has been a great advocate for transportation infrastructure, and certainly been a great protector of the Coast Guard and on the other committees he has worked on. So Howard, he is not here today. I know he is around here somewhere. We wish you well in your future endeavors.

Shelley Moore Capito, truly West Virginia royalty. Is there such a thing? I am from western Pennsylvania, so I can make some analogies about being at the top of certain mountains, but I won't. But Shelley, we wish you well in the Senate. We know you are going to do a great job over there. And we know you won't forget us. You can talk to us over here. We hope you will continue to do that. But congratulations on your victory. And we know you, as I said, will do extremely well in the Senate.

Tom Petri. He was right here. I thought I saw him here. I think he thought I was going to talk about him so he left. But here is a guy that served on this committee for almost four decades; served in every capacity and every subcommittee on the committee, and you know, he was here for ISTE, TEA-21, SAFETEA-LU, MAP-21. Here is a guy that has got tremendous institutional knowledge. He has decided to go back to Wisconsin and not put up with the headaches of Congress. And again, we wish him well in his endeavors. And let's see, make sure I get everybody.

Finally, most importantly, my partner, the leader of the Democratic side in the T&I Committee, Nick, you have been a great friend, a great ally. I have got a lot of stories about going to WRRDA with Nick. My staff told me not to tell the one I really want to tell. So I am going to get rolling here, and then you never know what is going to come out.

But truly, when we sat down for the very first time and talked about how we could work together, and Nick said, it is about communication. Let me know where you are. I will let you know where I am and so we worked very well together on WRRDA. There were times when we would go to negotiate with the Senate and Nick was with us, and we agreed to be on the same page, and there were times we tried to get together before to figure out what maybe would happen in the room and sometimes we didn't. He would come in late or I would be there late, so we didn't get a chance to talk. But he truly was a great counter puncher.

When Barbara would come up with something that we disagreed with, I didn't even have to wink at Nick. He didn't say anything. He was able to counter punch and help me prevail on the issue.

So again, it was a great honor to work with you. We got a lot of stuff done. There is one really, really interesting story that, the most important thing was WRRDA was passed, but there was another story that was one of the highlights of the conference that caused us to lose our way for about 15 minutes. But I am not going to go into it because my staff insists I shouldn't. But it is a great story about Nick and his great history here on Capitol Hill and his great friendships he has developed.

So Nick, again, we are going to miss you greatly. We know that wherever you land out there, we know you are going to do well and you will always have friends up here on Capitol Hill.

Mr. RAHALL. May I respond to that, Mr. Chairman?

Mr. SHUSTER. Yes, sir, are you going to tell the story?

Mr. RAHALL. No, I am just going to say thank you for your kind words and just commend every member of this committee, both sides of the aisle, commend the professionalism of the staff, each member of this committee brings talents, and background, and a wealth of knowledge about transportation and so many issues. They also bring a dedication to their constituents, above and beyond anything else. And this committee is where the future of this country is at, in my opinion. This committee is about jobs, jobs, and jobs.

And Mr. Chairman, when I look back over the bills that we have produced in a bipartisan fashion, you truly have returned that spirit of bipartisanship to this committee, and every Member has a desire to work across party aisles in order to produce for the American people, and this is where the future of the country is, in my opinion, is on this committee right here. And I feel very safe that that future is in great hands under your leadership.

Thank you.

Mr. SHUSTER. Thank you.

With that, I recognize the—do I have to call you Senator yet? OK—the gentlelady from West Virginia, the royalty from West Virginia, Mrs. Capito.

Mrs. CAPITO. Thank you, Mr. Chairman. That will get nowhere, anyway.

I appreciate your leadership on the committee, and I have been honored to be on the committee now for 12 years. But I wanted to take this opportunity to thank my colleague, Nick Rahall, from West Virginia. He served honorably and with long tenure and with

a lot of distinction over his 38 years in Congress; most notably on this committee.

His legacy in West Virginia will be long and strong. The Rahall Institute of Transportation I think shows his passion for all areas of transportation and it is a growing, vibrant, economic development driver in our State, and I appreciate that for him.

One of the things that I have always admired about Nick, is that he has a wonderful turn of phrase. If you have ever heard him argue a point, or read his press releases, or heard him try to convince you to his way of thinking, he is very, very clever, and very humorous at the same time. So I have always enjoyed that Nick about your—except when it is aimed at me maybe but—never aimed at me, but in any event, I thank you for everything you have done for me, and with me, and for our beloved State of West Virginia. You have been a fighter for West Virginia through and through and I appreciate it. Thank you.

Mr. RAHALL. If the gentlelady would yield I appreciate your kind comments, Senator-elect, and congratulations to you, and we will always be working for the future of our great State and this country. Thank you.

Mr. SHUSTER. Any other Members wish to be heard?

Mr. Bishop.

Mr. BISHOP. I just very briefly want to thank you, Mr. Chairman, for your very kind words, and also thank you for the leadership that you have provided to this committee.

My fondest hope as I leave the Congress is that the way in which this committee has conducted its business will come to characterize the way the Congress as a whole conducts its business. I fear that may be a distant hope, but it is very much my hope.

I also have greatly enjoyed and benefitted from working with Ranking Member Rahall. I have learned a great deal about how to do my job from watching how he does his.

And to all of my colleagues on this committee, to Chairman Gibbs with whom we worked very closely on the Subcommittee on Water Resources and Environment, I have enjoyed my service. I have cherished my time on this committee, and I wish you all the very best in the future.

Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you Mr. Bishop.

Mr. DeFazio.

Mr. DEFazio. Thank you, Mr. Chairman.

Well I have been on this committee my entire tenure in Congress and my first term, the chairman of the subcommittee on—I can't even remember—oh, you were then on resources; mines and mining. Nick came into my district for a very interesting hearing. I won't go into the story right now, but I told him the story the day after election day and even got him to laugh. I will miss Nick a lot.

Jim Zoia, who I think has been with Nick almost the whole time, if not the entire time, I have good stories about Jim, too, back in the days when we used to do earmarks which we need to bring back, and how we promoted them with Jim in one bill.

And Tim, it may not have helped as much in your district, although I know you have got some coasts, but in my district I bragged on water the entire election. Did better on the coast than

I have done in years. That shows transportation investments are important to the American people and bipartisan. So thank you for that great work.

And I look forward to working with you, Mr. Chairman, thank you.

Mr. SHUSTER. Thank you.

Mr. Mica.

Mr. MICA. Well, thank you, and to all of our departing Members, we wish you well. Just had an incredible run in my short tenure as chairman and ranking member. Of course, we all remember working with Mr. Transportation, Jim Oberstar, who we did a lot of positive things with, first, reauthorization of passenger rail, and 11 years, the first WRDA, a record number; \$24 billion, which we actually overwrote President Bush's veto quietly when Jim went into the hospital.

But with Mr. Rahall, I found out where Beckley, West Virginia, was with our first, very first transportation hearing on the reauthorization. Some things couldn't be accomplished when one party had the House, Senate, and the White House. And I know we had some rough and tumble, but we did accomplish for the American people a record number of pieces of legislation.

So I thank him for his service, and all of the departing Members for their service. We have an important responsibility in building a Nation's infrastructure, and I intend to work with everyone to make certain that we keep that obligation.

I yield back.

Mr. SHUSTER. I thank the gentleman.

With that, we will go on to our panel now. Thank you for indulging us.

Our panel today consists of the Honorable Calvin Scovel III, inspector general for the Department of Transportation; Governor John Engler, president of the Business Roundtable. Captain Lee Moak, president of the Air Line Pilots Association, International; Mr. Mark Baker, president and CEO of the Aircraft Owners and Pilots Association; Mr. Nick Calio, president and CEO of Airlines for America; and Paul Rinaldi, president of the National Air Traffic Controllers Association. Thank you all for being here.

And before I let you start, Mr. Larsen wants to be recognized for a UC.

Mr. LARSEN. Thank you, Mr. Chairman. I ask unanimous consent to enter into the record a letter from Congress Member Yvette Clarke regarding issues that she has around LaGuardia.

Mr. SHUSTER. Without objection, so ordered.

[The information follows:]

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Yvette D. Clarke
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ACQUISITION

COMMITTEE ON ETHICS

The Honorable Bill Shuster
Transportation and Infrastructure Committee
2165 Rayburn House Office Building
Washington, D.C. 20515

November 17, 2014

Dear Chairman Shuster:

I am writing to express my concern on behalf of my constituents, who are subjected to insufferable noise emanating from the air traffic into and out of LaGuardia airport. The substantial changes implemented by the FAA since 2007 included redirected flight tracks, new flight tracks, realigned flight tracks and increase use of pre 2007 arrival operations. All of the above changes to arrival traffic into LaGuardia airport, utilizing a narrow corridor over air space, increased the air traffic over Kings County.

Seeing as the local residents were neither foretold nor consulted prior to these changes, I request that representatives from the communities in Kings County be included in future discussions and decisions regarding changes made to the regular traffic patterns in the airspace over Brooklyn, New York.

It is important that my constituents be afforded the same quietness and peace of mind that is afforded to all districts. This can better be achieved by transparently working with local communities that will be impacted by an increase in noise and air pollution.

Sincerely,

Yvette D. Clarke

Yvette D. Clarke
Member of Congress

Mr. SHUSTER. And with that, we will recognize first General Scovel 5 minutes for your opening statement. Proceed.

TESTIMONY OF HON. CALVIN L. SCOVEL III, INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION; HON. JOHN ENGLER, PRESIDENT, BUSINESS ROUNDTABLE, AND FORMER GOVERNOR OF MICHIGAN; CAPTAIN LEE MOAK, PRESIDENT, AIR LINE PILOTS ASSOCIATION, INTERNATIONAL; MARK BAKER, PRESIDENT AND CEO, AIRCRAFT OWNERS AND PILOTS ASSOCIATION; NICHOLAS E. CALIO, PRESIDENT AND CEO, AIRLINES FOR AMERICA; AND PAUL RINALDI, PRESIDENT, NATIONAL AIR TRAFFIC CONTROLLERS ASSOCIATION

Mr. SCOVEL. Chairman Shuster, Ranking Member Rahall, members of the committee, thank you for inviting me to testify on FAA's efforts to modernize the National Airspace System.

As you know, FAA has undergone considerable change after Congress granted several important reform authorities. FAA is also in the midst of a multibillion-dollar effort to improve the efficiency of its air traffic system through NextGen. My testimony today will highlight several challenges that we have identified through our ongoing and recently completed audits faced by FAA as it tries to meet its modernization and reform goals.

First, while FAA has instituted a number of important reforms such as establishing the Air Traffic Organization, it has yet to fully adopt sound management practices, such as using metrics and goals to assess productivity. Without such practices, FAA's reforms will have little effect on slowing cost growth or improving operational efficiency. We determined that between fiscal years 1996 and 2012, FAA's total budget, operations budget, and personnel compensation and benefits costs nearly doubled in nominal terms with inflation accounting for only part of this increase.

Further, FAA's workforce remained relatively constant during this period, while FAA's air traffic operations dropped 20 percent between fiscal years 1998 and 2012.

Second, FAA's acquisition reforms have fallen short in improving the delivery of new technologies and capabilities. When FAA implemented a new acquisition management system in 1996, its stated goal was to cut acquisition costs by 20 percent and schedules by 50 percent within 3 years. Yet, between 1996 and the establishment of the ATO in 2004, acquisitions averaged 38 percent over budget, and 25 percent behind schedule, consistent with FAA's prior performance.

Moreover, of the 15 major acquisitions that were ongoing as of last year, which totaled \$16 billion, 8 included cost increases amounting to \$4.9 billion, and 8 experienced delays ranging from 6 months to as much as 15 years. Now, most of these overruns are attributable to two problem-plagued programs. But even factoring them out, the remaining programs are still \$539 million over budget, and behind schedule by an average of 25 months.

FAA's cost overruns, delays, and poor performance on these major acquisitions are traceable to longstanding management weaknesses in identifying requirements, estimating software com-

plexity, leveraging sound contracting practices, and securing reliable cost and schedule estimates.

For example, during the award phase of its ATCOTS contract, a support service contract to improve air traffic controller training, FAA found that there was a 60- to 80-percent likelihood that the contract would not meet its goals due to the limited staff hours proposed by the successful bidder. However, FAA did not require the contractor to address this risk before awarding the contract, leading to a cost increase of 30 percent in the first 2 years of the contract.

As FAA works to better meet the goals of its reforms and modernization efforts, it faces additional challenges. Key among these is FAA's work to implement four NextGen investment priorities identified by a joint industry-agency committee, including performance-based navigation, which our office also has identified as the top priority. FAA published its master implementation plan for these priorities last month. However, executing the plan and holding all parties accountable could be difficult, especially given FAA's history of schedule slippages and cost overruns with NextGen programs.

Adding to these complexities, FAA faces the demanding task of safely integrating unmanned aircraft systems into U.S. airspace. The rapidly accelerating demand for UAS presents important economic and technological opportunities for our Nation. However, before commercial UAS can safely operate in U.S. airspace, FAA must first reach consensus with industry on design and safety standards, establish necessary rules and regulations, and collect and analyze UAS safety data to better understand and mitigate risk.

Finally, recent incidents involving fires at Chicago area air traffic control facilities demonstrate the importance of ensuring that FAA has controls in place to mitigate potential security risks and viable business continuity plans to maintain operation of the Nation's extensive air traffic control system.

Ultimately, FAA's actions to implement the reform authorities Congress granted almost two decades ago have not achieved the results the agency and this committee seek. We remain committed to working with FAA to help it succeed in meeting ongoing challenges highlighted today.

Mr. Chairman, this concludes my prepared statement. I am happy to answer any questions you or other members of the committee may have.

Mr. SHUSTER. Thank you very much, General.

And now we before we go to Governor Engler, it is fitting that he has a fitting introduction because of the star power that he brings to the panel today.

So with that I yield to Mrs. Miller.

Mrs. MILLER OF MICHIGAN. Thank you, Mr. Chairman.

First of all, I would like to thank you for providing the sound effects of the whistle in the room when we are talking about aviation. So you think of everything. We appreciate that.

But, it is my great honor to introduce Governor John Engler from the great State of Michigan. As many of you know, I served as Michigan Secretary of State for 8 years before I came to the Con-

gress, and I had that honor and privilege of serving with Governor Engler at that time. And if I can be a bit parochial, I certainly think he was one of my State's most successful Governors, and I think one of the Nation's successful Governors on all kinds of issues. But he really left a legacy in the transportation area as well.

And so very fitting as we are talking about transportation today in our aviation system that he is here. We have Detroit Metropolitan Airport, of course, in southeast Michigan, one of our Nation's, one of the world's busiest airports. And during his tenure his last year, I think, as Governor, he put together an authority that really cleaned up a lot of things that needed to be cleaned up at our airport. And today, if any of the millions of you go through that airport, you will see what a fantastic facility it is because he recognized how important aviation is as a critical link and component of our aviation transportation grid.

And so, as the president of the Business Roundtable with his vision and commitment taking it to a national level, we certainly appreciate his attendance here today. Governor.

Mr. SHUSTER. Thank you, Mrs. Miller, and with that, I just remind our panelists, pull that mic close to you because that whistle is pretty annoying and it is difficult to hear sometimes.

So with that, Governor Engler you are recognized for 5 minutes.

Mr. ENGLER. Good morning.

Thank you, Chairman Shuster, Ranking Member Rahall, thank you Congresswoman Miller. Thank you for your wonderful comments to the committee.

I deeply appreciate the opportunity to testify on aviation and air traffic control as Congress begins work on reauthorization of the Federal Aviation Administration.

And I am certainly pleased to speak on behalf of the Business Roundtable that is more than 200 CEOs of major U.S. corporations. From Kitty Hawk to the end of the 20th century the United States was considered the world's leader in aviation. Today our air traffic system remains the world's largest and safest. But sadly, as the chairman noted in his opening comments, it is no longer the most technologically advantaged, and it may no longer be the world's most cost-effective.

The Business Roundtable recently conducted an analysis that applied Canadian rates for air traffic control services to U.S. flight data. Preliminary results suggest that in aggregate, the Canadians are delivering services at a lower cost than the FAA. At a minimum, the next FAA authorization should seek to reaffirm and regain U.S. aviation leadership by fostering a more modern, efficient system, starting with air traffic control.

Such a modernized system would produce significant benefits for all air travellers including the huge numbers who are traveling on business. Advanced technologies and procedures will enable more planes to land and take off safely on existing runways, reducing delays. More direct routes also equal shorter flights and more efficient operations with notable savings in staffing and fuel. Emissions and noise pollution would fall.

With the modernized systems overseas sale of technologies developed and deployed in the United States would expand, reasserting

U.S. aviation leadership. Like many other stakeholders, business leaders are concerned about the slow and uncertain pace of the modernization effort represented by the FAA's NextGen program.

Numerous official reports document costs overruns—we just heard some of those from my colleague, General Scovel—delayed implementation of systems and led stakeholders to question whether we have the best model, not just for delivering NextGen, but also for the ongoing management and modernization of what used to be the world's most advanced air traffic control system.

A few years ago I convened experts who identified challenges to aviation and they found problems start with funding unpredictable, unreliable, often inadequate funding streams are doing damage to long-term planning investment. Last year's sequestration with its furloughs of controllers and near shutdown of 149 contract towers is only the worst example.

The second underlying problem, governance, the Air Traffic Organization answers to way too many disparate interests, agencies, and administrators.

The third underlying problem is organizational culture. The culture needs to embrace innovation so modernization occurs continuously as technology advances. For an example of culture of innovation that works, look at AT&T. It happens to be the company chaired by my boss at the Business Roundtable, Randall Stephenson. The years we have been talking about NextGen, AT&T has gone through at least two generations of cellular technology, from powering your basic flip phone to 4G streaming video in today's modern iPhones that most of us have in our pocket.

The last two decades have seen other countries restructure the way air traffic control is funded and governed. Australia, Canada, Germany, the United Kingdom have been among the early movers. These Governments determined that an air traffic control is a high-tech service business that can be funded directly by aviation users, in effect, the customers. More than 50 countries have separated their air traffic control systems from their transport ministries, leading to arm's length regulations of air safety. In the U.S. the FAA's own management advisory council recently studied the same issues. Their final report in January of 2014 made three unanimous recommendations.

First, remove all air traffic control funding from the Federal budget so that aviation users would pay directly for air traffic control services and allow that revenue stream to be bonded.

Second, create a governing board of aviation stakeholders, not just to advise on technology decisions, but to actually set the priorities for management and modernization.

Third, separate the operation of the air traffic control systems from the FAA safety regulator. This will establish independent arms-length safety regulation, the kind that currently applies to all the other actors in U.S. aviation.

These three unanimous recommendations were made by experts like Paul Rinaldi, who you will hear from in a moment, and they are an excellent starting point for FAA reauthorization.

Finally, it is important that the financial and business model for any new structure be sound, fully discussed, and broadly supported; hence, the appreciation for today's hearing. Next year's

FAA reauthorization offers a critically important opportunity to advance NextGen, to restore our leadership in aviation, and to put management in the national airspace on a path to continuous modernization.

Business Roundtable looks forward to working with you to achieve these important goals.

Mr. Chairman, I have a more complete statement for submission to the record and appreciate the opportunity to do that.

Mr. SHUSTER. Thank you very much for that.

Mr. ENGLER. Thank you.

Mr. SHUSTER. And next Captain Lee Moak, the president of the Air Line Pilots Association, International. Captain Moak, you are recognized for 5 minutes.

Mr. MOAK. Chairman Shuster, Ranking Member Rahall, and members of the committee, I am Captain Lee Moak, president of the Air Line Pilots Association, International. Thank you for the opportunity to represent ALPA's 51,000 members who fly for 30 passenger and all cargo airlines in the United States and Canada, before the committee today.

When it comes to issues of modernizing the airspace in the United States, contrary to what you are hearing previously, I am very happy to report that we are on the verge of becoming a success story and one that you can help us write. We have made considerable progress during very turbulent times, in spite of dealing with issues like sequestration and operating under 23 short-term extensions.

NextGen is a collaborative initiative involving industry, Government, and key users, including airline pilots and controllers, and technicians. The various system components they save time, fuel, emissions, and money while increasing safety, and I want to underscore that, while increasing safety.

There is no question that our Nation's airspace needs an overhaul to prepare for the influx of passengers projected to arrive in our terminals and the continued growth of the cargo industry. And there is no question there is room for growth in our aviation industry. I would say that we agree on 95 percent of how to achieve that growth, but the 5 percent we disagree on lies in how to pay for it, and who pays for it. That is the real issue, a lack of commitment when it comes to dedicated Federal resources now to a problem we know is only going to get worse.

We need leadership to set us on a path for continued infrastructure expansion, and airspace modernization so that we can better serve our customers, and maintain our position as the world leader in aviation.

Continuing the recent tradition of kicking the can down the road will result in failure and like many of you in this room, I hate failure. ALPA believes that this committee can fill that leadership role, ensuring that FAA can count on the sustainable, long-term funding needed to get the job done right.

However, for the aviation industry to succeed, this funding must come from a source that is separated from the constant jeopardy inherent in the reauthorization process. We simply cannot put the future of our Nation's airspace in the cross hairs of DC politics. After all, we are updating the largest, most complex, and safest air

transportation system in the world, and that requires everyone to be all in.

And up until this point, that hasn't been the case. Several years ago airlines invested approximately \$100,000 per aircraft to install Controller-Pilot Data Link Communications Equipment, CPDLC, only for the FAA to cut funding for the program because the Congress couldn't support it. That put our airlines out millions of dollars and left them with useless equipment on aircraft. In fact, some of that—some of those airplanes are now getting parked in the desert with equipment that was never used. If our airlines invest in new equipment on our airliners, they have to see a return on investment; not a different plan from a different administration.

Aviation industry stakeholders want to see that return on investment to pilots, controllers, airlines. We all want to operate in the 21st century; not the 1950s infrastructure we are trying to replace.

While the current air traffic control system isn't perfect, performance-wise it is still one of the best in the world and it is consistently pumping out 97 percent capacity through the system. And in fact, I would caution that the current operational performance and costs of the U.S. system may not warrant an immediate need for a complete overhaul; namely, creating a standalone air traffic service provider similar to the NAV CANADA model which I have up here showing you a scale of that model. Pilots will continue to operate safely under any ATC structure.

Again, I would, however, respectfully offer the NAV CANADA model needs a thorough investigation before anyone jumps to the conclusion that it is the answer here in the United States.

And as I mentioned earlier, the U.S. national airspace is by far the largest, most complex airspace system in the world. The NAV CANADA model might not translate well to the U.S. system because it only covers roughly a quarter of the airspace and flights we manage. That is our east coast alone.

And so if you see the issue here, what has worked well and seems completely manageable in Canada, might not even scale to our system's needs. We all know that our system has room to improve, but structural changes to the governance of the Air Traffic Organization will not serve the fundamental problems facing our industry. We first need to debate about reliable funding.

Mr. Chairman, I have heard you say many times before, America invented aviation. We are the global leader. If we want to hold this position, we cannot allow Government policies, either through laws, regulations, or taxes, to put us at a competitive disadvantage to the rest of the world. We already pay 17 unique taxes, the most of any industry. I know you understand that, Mr. Chairman, because you introduced and passed legislation to make those 17 taxes more transparent to the traveling public.

We thank you for that, but we all know that there is more work to do out of those 17 taxes. Some don't even go back to aviation. I am sure I speak for many of my colleagues here that are sitting on the panel when we say that we are fed up for the aviation industry being the piggy bank for Government programs that have nothing to do with aviation.

And finally, that is why I am asking you to invest in the U.S. aviation industry. I am here to underscore that the Air Line Pilots

Association is committed to working together to make the tough choices necessary to ensure our aviation system remains the best, the safest system on the planet, and with your leadership, sir, stable funding can be held and we will move forward. Thank you.

Mr. SHUSTER. Thank you very much, Captain Moak and all I can say is amen.

With that, Mr. Baker, the president and CEO of the Aircraft Owners and Pilots Association.

Mr. Baker, you are recognized for 5 minutes.

Mr. BAKER. Chairman Shuster, Ranking Member Rahall, committee members, thank you for inviting me to testify today. My name is Mark Baker and I am the president and CEO of the Aircraft Owners and Pilots Association, and AOPA represents our members as aircraft owners and private pilots concerning the economy, safety, utility, and popularity of flight in general aviation aircraft.

Mr. SHUSTER. Will pull your mic up closer to you?

Mr. BAKER. This one here? This one is not working.

Mr. SHUSTER. Captain Moak, can you shift over there.

Mr. MOAK. Happy to work together.

Mr. SHUSTER. OK. Thank you.

Thank you.

Mr. BAKER. The general aviation industry is under stress and needs the FAA to enact policies and procedures that will support GA growth. Over the past decade, the number of private pilots has fallen by more than 6,000 each year. In addition, today's GA fleet is on average more than 40 years old. The number of single-engine piston-powered aircraft being produced in the U.S. has fallen dramatically, from more than 14,000 produced in 1978 to just 674 in 2013. Many of the stressors on the industry are compounded by outdated FAA processes that are costly and cumbersome.

A long-term reform-minded FAA reauthorization measure is needed. As the committee develops a multiyear FAA reauthorization, we encourage the inclusion of provisions that will give the FAA the direction and the tools needed to improve its internal processes. The regulatory and certification processes used today may have been needed 30 or 40 years ago, but they simply cannot keep pace with today's rapid changes and improvements in technology. Changing these processes in ways that lower costs, reduce bureaucracy, and improve safety will help general aviation grow. These should be our collective goals.

I would like to provide three examples of areas that we believe require a different approach from the FAA: medical reform, aircraft certification and retrofit, and the FAA's ADS-B 2020 mandates.

The third-class medical reform is long overdue. Nearly 3 years ago, AOPA and others filed a petition requesting an expansion of the sport pilot medical standard, a standard that the FAA had put in place more than a decade ago. This standard allows sport pilots to fly without obtaining a third-class medical exam, which is a cursory medical check that is less comprehensive than an annual physical.

The sport pilot typically flies small, light general aviation aircraft that are limited to two seats. The FAA's decision to eliminate the third-class medical for these pilots was the correct one. Over

the past decade, it has not had a discernible impact on safety and has helped grow the sport pilot segment of general aviation. A conservative estimate indicates that expanding this standard would save private pilots in excess of \$24 million a year to each one of these pilot groups.

Today, other than sport pilots, all general aviation pilots under the age of 40 must take a medical exam every 5 years. Pilots over the age of 40 need an exam every 2 years. In between exams, pilots self-certify their own fitness to fly. In addition, every 2 years pilots are required to undergo a flight review with an FAA certified flight instructor who must determine a pilot's cognitive ability to fly.

Again, we believe the 10 years of experience we have with the sport pilot standard demonstrates that it should be expanded to a larger segment of general aviation pilots.

The FAA and the Department of Transportation are currently reviewing a proposed rule. In addition, legislation has been introduced by both the House and the Senate. The bills combined have nearly 180 bipartisan cosponsors, many of whom serve on this panel. We thank you for your vigorous support. Expanding this standard to more pilots is a top priority for AOPA. We look forward to working with this committee in the next Congress on this issue.

Certification and regulatory reform are also urgently needed. Since 2008, the aviation industry and FAA have been working to streamline and simplify part 23 certification standards for the manufacture and modification of new aircraft. To that end, this committee shepherded the Small Airplane Revitalization Act through Congress, and the bill was signed into law last year.

To fully realize the benefits of increased safety and reduced certification costs, the regulations, orders, and policies for retrofitting existing aircraft with new equipment must also be streamlined and transformed. These realities are highlighted by the fact that the general aviation fleet averages more than 40 years old and most aircraft rely on decades-old technology. Widespread availability of modern equipment can make flying much easier, safer, less expensive, and give the industry a much needed boost at every level.

While the FAA's desire to create a "gold standard" for safety is admirable, in practice, this approach has the opposite effect. Allowing products that offer incremental safety improvements to reach the market more quickly would lower costs, simplify flying, and ultimately improve the safety for folks flying today and into the future.

The FAA's ADS-B mandate is too expensive. The FAA has set a standard of January 1, 2020, for aircraft to have ADS-B Out equipment in order to keep flying in airspace near large cities and airports. However, the mandate standards were designed for commercial airliners and the resulting equipment is just too costly for GA owners.

More than 81,000 of the 188,000 certified piston-powered aircraft on the FAA registry are worth \$40,000 or less, and those aircraft have a weighted average value of about \$25,800. That puts the \$5,000 to \$6,000 minimum cost to install ADS-B Out beyond the reach of many owners.

Without changes, we will see these airplanes parked in fields or reduced to limited flying, further accelerating general aviation

losses and seriously damaging the thousands of small aviation businesses nationwide.

We believe that technological advances in portable, noncertified equipment could point to a strategy that would lower the cost of compliance with the FAA's mandate. We look forward to working closely with the FAA and industry to make low-cost solutions available so all segments of general aviation can participate in a modernized air traffic system.

In conclusion, we believe the future of general aviation depends on bold and transformational reforms in the certification and regulatory processes at both the FAA and DOT. We do not believe the FAA has a funding problem. In fact, this committee and Congress have funded the FAA generously, increasing the FAA's budget by more than 500 percent since 1980, even though the number of agency employees has decreased.

The system of funding the FAA through excise taxes collected on fuel, rather than a user-fee system, has proven both efficient and effective. And the FAA's nearly \$16 billion budget gives the agency sufficient resources to make needed changes in the way it oversees general aviation. The challenge facing the FAA is to use those resources to meet the needs of stakeholders and improve efficiencies.

We need the FAA to embrace a system that can keep up with rapidly changing technology; that is comfortable with timely, economical, and incremental safety improvements; and that will actually work to reduce risk today for hundreds of thousands of general aviation pilots. When pilots, industry, and the FAA work together, we see positive results for general aviation.

On behalf of AOPA's members, we appreciate your leadership on these important issues. Thank you for the opportunity to appear.

Mr. SHUSTER. Thank you, Mr. Baker.

And now I will turn to Mr. Nicholas Calio, president and CEO of Airlines for America. You are recognized for 5 minutes.

Mr. CALIO. Thank you, Mr. Chairman.

Mr. Chairman, members of the committee, Airlines for American and its members appreciate the opportunity to participate in this hearing on the operation and modernization of our Nation's air-space system.

The issues surrounding modernizing and operating our system, are critical of the future of U.S. aviation, and the future growth of our economy. At stake are whether you and your constituents can get to your destinations faster, smarter, and in a more environmentally friendly way.

Mr. SHUSTER. Nick, can you get closer to the mic, I am sorry.

Mr. CALIO. I am already standing up, Mr. Chairman.

At stake is whether you and your constituents can get to destinations faster, smarter, and more efficiently. Aviation is 5 percent of our gross domestic product. The question before this committee is really pretty simple. Can we move people and products in a more efficient manner with a more modern system? There seems to be a little disagreement that we can do so. Three Federal commissions and reams and reams of testimony, congressional testimony, as well as multiple speeches by multiple stakeholders over a year all agree to the point.

So the question becomes: How do we get that system and what does it look like? Here, the clarity of the goal starts to get complicated. Its achievement starts to get complicated. While Chairman Shuster, you have called for transformational change, and we agree with it, different stakeholders have differing interests. And my guess is that this committee is going to have significant resistance to any kind of significant potential changes.

An undeniable record of missteps, cost overruns and equipage investments gone bad exists, and has been detailed before this committee. It has been detailed by GAO reports, by the inspector general and others. Some of that record as well as some particular airline disappointments are detailed in our written testimony, and I commend that testimony to you.

So the record begs a series of questions that need to be asked in light of the historic opportunity that this reauthorization bill presents. Does the United States have the best governance and funding structure in place to deliver the most efficient, modern air traffic control system? Have the ATC models used by other countries enhanced safety and efficiency, and if so, can their best attributes be applied to our system here without it adversely impacting safety?

If yes, would the adoption actually improve our system which is a key question, obviously, and if so, at what cost and to whom? Asking these questions is not a criticism of the current FAA leadership. They have been advancing the ball. However, it is simply a need to ask and examine these questions given the checkered history of progress and, frankly, the stakes were simply maintaining the status quo.

A4A has an open mind on these questions. To that end, we have engaged independent aviation experts to create a fact base and see if the facts lead us to any kind of conclusions. Our study is benchmarked in the financial, operational, and governance performance of USATC system against models used by other countries. It is evaluating the risks and opportunities for specific elements of reform on the U.S. system and developing USATC options, highlighting the benefits economically and implications for NextGen, as well as potential governments' impact of reform. The work is incomplete, but some basic observations are emerging.

First, the difficulties U.S. modernization efforts have encountered in the past seem to consistently come back to Government structure and funding questions.

Next, the commercialized ATC model present three alternatives to consider represented by, for example, the United Kingdom which has a public-private partnership, and NAV CANADA already spoken to, which is a completely independent commercial corporation, and then Germany, which is an independent, Government-owned corporation.

All three models engage airspace users in a—in decisionmaking to a greater and more structured degree than we do here. All three models have improved safety and efficiency. And all three systems—all three models have implemented long-term modernization programs pretty smoothly.

The bottom line, we have a good aviation system. We have the best pilots. We have the best air traffic controllers. Frankly, we can

do better. It is clear that we don't need another Federal Commission On this issue. What we do need is for the Congress and all major stakeholders to keep an open mind and take a clinical, fact-based approach to looking at possible solutions, including the models in other countries.

If we determine that significant reforms are not necessary or, frankly, are not politically achievable, then we still need to examine what we can do about the bottlenecks and difficulties and obstacles in the current system and admit that we might just find some answers outside the U.S. and apply them here.

Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you. And, now, we will turn to Mr. Paul Rinaldi, president of the National Air Traffic Controllers Association. You're recognized for 5 minutes, Mr. Rinaldi.

Mr. RINALDI. Thank you, Mr. Chairman, for the opportunity to testify in front of the committee today is truly an honor. We all have a stake in the National Airspace System. It is an economic engine. It contributes \$1.5 trillion to our gross domestic product every year and provides 12 million American jobs. NATCA appreciates the committee for its outreach in the industry in order to better understand the issues/problems in which—in the National Airspace System.

This committee is doing it the right way. Identify the problems and then collectively, we can develop the right solution. But we must make something clear. Any change we make needs to be accomplished with the precision-like approach so that we don't interrupt the day-to-day operation of the National Airspace System.

Currently, we run the largest, safest, most efficient, most complex, most diverse airspace system in the world. Our system is incomparable, unequalled, and unrivaled by any country in the world. The United States airspace system and the FAA is considered the gold standard in the world aviation industry. And, yet, we come to a reality, we need to change.

The globalization and innovation are driving dramatic changes in the aviation industry. Our current system has served us well to this point. However, we face many challenges in responding to the problems of an unstable budget, the inability to finance long-term projects, competing stakeholders' interest, the inability to grow the National Airspace System for new users, and legislative priorities. Every stakeholder in the National Airspace System should work together to ensure that the United States continues to be the world leader.

Without change, we face continued funding uncertainty. We all remember the disruptions that we experienced in 2013 with sequester. In March, the FAA scaled down all modernization projects. They looked at closing 238 air traffic control towers, and they tried to close 149 of them. They tried to reduce services across many airports in this country. They stopped ATC hiring for the full year, which is still causing a rippling problem today. They furloughed air traffic controllers, causing rippling delays through our system. They went to a fix-on-fail maintenance philosophy and stopped stockpiling critical parts for essential equipment, all to meet the budget restrictions of sequester.

Currently, the FAA is working on what reductions they need to do, starting in October of next year as sequester comes back into effect. This just can't happen again. This is no way to treat this economic engine and no way to treat our National Airspace System.

You see, without change, we will continue to struggle to develop, train, implement the NextGen initiatives. Currently, NATCA and the FAA are working collaboratively, along with other stakeholders on the NextGen Advisory Committee. We are implementing and modernizing projects and deploying new equipment procedure across the country. In order to keep pace with these initiatives, we need to be properly funded, and the FAA needs to be adequately staffed, which can only happen with a stable, predictable funding system. We will continue to struggle to maintain—without a change, we will continue to struggle to maintain proper resources and staffing for our air traffic control facilities.

The air traffic controllers are the backbone to the National Airspace System. We should never short-staff our facilities. The air traffic controllers maintain a safe, orderly flow of aircraft across this country.

In addition to that, they are the subject matter experts that help us develop, implement, and train the NextGen initiatives. And they train on-the-job training for every new hire that comes into the system. This requires us to be appropriately staffed. An understaffed facility can barely keep all the positions open to run the day-to-day operations safely and efficiently. Nevertheless, they are going to have to train our controllers on new NextGen technology and equipment. Understaffing our facilities will delay modernization projects, and we will be responsible for the overcost runs.

Mr. Chairman, our National Airspace System is an American treasure. We cannot treat it like we did in 2013. Aviation is uniquely an American tradition. We need to make changes to secure a stable funding system, a proper governance so that we can continue to be the world leader, which will allow us to grow the aviation system and not shrink it. It will allow us to integrate new users, such as the UAV community and commercial airspace programs properly. And it will give us the competitive edge to continue to be the world leader in aviation.

Mr. Chairman, I thank you for the opportunity to testify in front of you today. I look forward to answering any questions you may have or the committee may have. Thank you very much.

Mr. SHUSTER. Thank you very much, Mr. Rinaldi. Thank all of you for being here today.

We have a number of Members that are in the queue for questions. Our practice, on the Republican side, whenever the gavel goes down, if you are here when the gavel goes down, you get first in the queue. Because there are so many Members, I am going to forego my questioning until the end and I will, first of all, yield 5 minutes to Mr. LoBiondo, and I will be brutal with the gavel in the 5-minute rule. Because if everybody shows up, we are going to be here for a long, long time.

So, Mr. LoBiondo, 5 minutes.

Mr. LOBIONDO. Thank you, Mr. Chairman. I don't want you to be brutal with me. Thank the panel for being here.

I think most of you know that Rick Larsen and myself have really focused in on NextGen and the implementation and how this is all coming together. So what I would like to know, starting with you Mr. Scovel, we tasked the FAA with creating a joint industry and FAA implementation plan to begin delivering short-term NextGen benefits to our airspace and its users. In October, we received a copy of that plan. Can you tell us what you think of the NAC priorities for NextGen and the FAA's implementation plan to address this?

Mr. SCOVEL. Thank you, Mr. LoBiondo. Certainly, we are aware of the NAC's recommendations to FAA and FAA's plan in October. And as you may remember, this committee has tasked my office to review FAA's plans for moving NextGen forward, especially in the near term. So FAA's commitment to the NAC recommendations has been vitally important, and we are greatly encouraged by those. As the committee knows, from reading the NAC report and FAA's response, the NAC recommended a greater commitment to performance-based navigation, which our office has endorsed for a long time now; a commitment to surface operations so that aircraft on the ground can move around the airport surface in a more efficient and effective manner; as well as DataComm, which FAA anticipates to implement in 2019. So those are the three main recommendations from the NAC which FAA has endorsed and has begun to move out on.

We would put an asterisk for the committee's consideration next to performance-based navigation. This has been a priority for the airline industry for a long time. It is one that will allow them to move their aircraft in an efficient way and will provide fuel savings as well. But FAA has had problems in developing those procedures and getting them certified. So if those problems with delays in the past were to continue in the future, the objectives for near-term success, according to the NAC's priorities, may not be realized.

Mr. LOBIONDO. Thank you. Mr. Calio, same question.

Mr. CALIO. Thank you, Mr. Chairman. I think that the—I would agree, performance-based navigation has been one of our key priorities. We helped develop the priorities that the NAC suggested. We think they are critical. The whole point of them is to move to some near-term benefits so that the stakeholders can see some benefit from investments that have to be made. Some of it is going painfully slowly, despite best efforts.

PBN is a key there. We have moved very slowly. We are going basically city by city, metroplex by metroplex, with not a lot of—showing for it. A lot has to do with the procedures being developed. We have—you know, we have the equipment on the aircraft to do it. But the process—or the procedures to get those planes to use it is not really happening very quickly. And there is a whole variety of reasons, some of which are detailed in our written testimony. It is a matter of us being able to fly, a matter of the controllers being able to use them in different places.

So if we are going to do it, it has got to be more scalable across the country, otherwise we are just going to take years and years to get it to work. Meanwhile, we have got other technologies that are being mandated that are not harmonized with others for which

the cost benefit has not been reviewed. So PBN would be the quickest way to get quick results.

Mr. LOBIONDO. Mr. Rinaldi, sorry you only have a minute, but I would like your take on this one, too.

Mr. RINALDI. We were part of the NAC initiatives. We—we agree with the initiatives. I will tell you, you know, changing major airspace and flows in and out of metroplex is not an easy task. It is not something we can just develop in the—in a, you know, sterile room and roll it out. It has to be tested and developed and continued tested with pilots and then tweaked. You know, once we implement it, we have to go back and retest it and making sure we are capturing the efficiencies we want to do. It is not an easy thing to do. It sounds like an easy thing to do but certainly not.

The one thing that will slow us down is the unstable funding. You know, the second we have to fall back and we don't have the funding to continue these initiatives, we stop all modernization projects and we just focus on running the day-to-day operation, the safe and efficient flow of airplanes.

Mr. LOBIONDO. Thank you. And Chairman Shuster is going to make sure we have stable funding.

Mr. SHUSTER. That is correct.

Mr. LOBIONDO. Thank you.

Mr. SHUSTER. With your help, Mr. LoBiondo. With that, I recognize Ranking Member Larsen for 5 minutes.

Mr. LARSEN. Thank you, Mr. Chairman.

Mr. Rinaldi, you discussed some of the—you have discussed some of the discussion about ATO reform and so on. What reservations would the air traffic controllers have regarding a change in the Air Traffic Organization?

Mr. RINALDI. Obviously, any time you make any change to a system that is as large as this and is as efficient as we are at this point, we don't want to disrupt the day-to-day operation. And we can't lose focus that currently we are running the world's safest, largest, most complex, most diverse system in the world.

So the changes that—if we were going to make changes, we have to be very precision-like, do it very methodically to ensure that we do not interrupt the safe and orderly flow of airplanes in the United States.

Mr. LARSEN. Well, Captain Moak, a similar question. You laid out some broad principles about your concerns. What specific thing—do you have specific items you would like to help us understand with regard to separating air traffic functions out from the FAA?

Mr. MOAK. Just a couple of things. First off, you know, we are having a—

Mr. LARSEN. Get closer to the mic.

Mr. MOAK. We—you know, this is kind of a high-class problem in the United States. If you read the papers and you catch the news, you know they are having accidents all over the world. But in the United States, we have the safest airspace in the world. But we don't stop there. We want to improve that. We want it to be more efficient. We want to save fuel. And there is other things we want to do, but we are doing that with the idea that we have the

safest airspace in the world with what was said earlier, best controllers, best pilots, best procedures.

So the idea that we are just going to go to another system, OK, I think we should take pause there and think through it. Now, the current system is performing quite well operationally. Our airlines have been through consolidation over the last few years. They are performing quite well. And so it gives us the ability to step back, look at it, modernize it. That is important, very important. And all you have to do is look at the DOT Bureau of Transportation statistics. And now when they report out of different metrics for the airline industry, they are much improved.

On the issues of PBN, we can do better. The controllers are trained. The pilots are trained. The airlines that Nick represents are equipped, and we have just got to keep at it. And it is—it is difficult to bring each one online, but when it is brought online, it is truly remarkable.

So I would say proceed cautiously with throwing everything out. And, again, I want to underscore the whole thing about stable funding going forward.

Mr. LARSEN. Yeah. Thanks.

Mr. Calio, you are doing a report. Mr. Engler—Governor Engler mentioned a report. MITRE is doing a report. You mentioned all the reports that have been done, a lot of reports. It seems to me that the timing of these, if we are going to be moving forward in any way, shape, or form, whether it is a larger reform or even management reforms or individual reforms, things have to come to a head pretty quickly if we are going to be moving forward here by the end of—by September 2015.

So I am hearing a tapping. That is not you, Mr. Chairman? Thank you very much. You are just impatient. It got—generally.

Have you thought through the timing for us?

Mr. CALIO. Yes. Yes, we have. We will be done shortly and we will be in to brief you. We know that you need the material. And we—from our perspective, in order to develop a position, we need to know what the facts are. And again, we are trying to do it in a dispassionate fashion so that we can take a look at our system. We are not suggesting going ahead with major changes. What we are trying to do is see if they would be worthwhile, whether they can be made and if they can, what the impact would be.

Mr. LARSEN. Yeah. OK. Thanks.

And, Governor Engler, have you all, in the BRT, thought through that flip-the-switch moment, that is, when you move from one model to the next model as you are thinking through the ideas that you are presenting here?

Mr. ENGLER. Well, I think that is part of the—part of the conversation. And, clearly, even under congressional mandate, there have been changes in the—you know, in the creation of a chief operating officer responsibility of the ATO itself. There have been iterations coming along. So I certainly would echo the comments made, the safest, largest, don't—don't mess with the way it works. But you do have a challenge, I think, inside FAA that we have heard a lot about—from other stakeholders, about you sort of got this technical buildout proposition. And I mentioned the idea of, you know, our focus on funding. That is very important. And the

key decisions to be made, even the role—one of the weaknesses we have known in the Federal budget for a long time, the lack of a capital budgeting process. And so the—the attractiveness may be being able to bond this, get this, fund it, and get it built out without financial interruption. Let that happen.

At the same time, there is a tremendous amount of work inside the FAA in the modernization of procedures and practices and the kind of training and vetting that has been discussed here today. So it seems to me there is plenty of work for everyone. That flip-the-switch moment, I think, is not so much a disruptive thing. I think it is a transition that takes place. So I think that takes time, and I don't think it is anything abrupt and certainly can't be anything that disrupts the functioning of what has worked well.

Mr. SHUSTER. Thank the gentleman.

With that, I recognize Mr. Massie for 5 minutes.

Mr. MASSIE. Thank you, Mr. Chairman.

Mr. Baker, from your written and spoken testimony, it is my understanding that you are saying that the FAA's approval process could be making general aviation more risky or less safe. And can you explain how that is? I mean what needs to change about the approval process? Is it taking too long to get technological improvements integrated into general aviation industry?

Mr. BAKER. Yeah. That is exactly right.

The idea that you have an aircraft that is 40 years old is the equivalent of having your car with an AM radio. The certification process to put an FM radio in there could take years, millions and millions of dollars. And the industry is saying it costs too much, it takes too long, and is not willing to put those upgraded products in these aircraft.

Situational awareness in the aircraft is still the number one issue that leads to accidents. Today, the iPad has added more value to situational awareness than almost anything else. But if you were to try and install that type of equipment on an aircraft today, it would take millions and millions of dollars to try and do that for the industry, and it would take years to get it done. So there should be an expedited process, because we have experimental aircraft today—they have great autopilots, great gas gauges, great situational awareness, and it is done at a very low cost. So the systems have moved very quickly, and the FAA has not moved in that process yet. For example, in the new aircraft today, it costs hundreds of thousands of dollars, but you can get it done.

Mr. MASSIE. So they need to be moving quicker. Is there anything in this FAA reauthorization that we could do in Congress to encourage that?

Mr. BAKER. Yeah. We think that there could be an opportunity to put some of these older aircraft into a legacy program or classic program to try and get some of these things expedited, these safety items, not changing the power plant and not changing the wing, but putting a good panel in some of these older aircraft, make it safer, make it easier for people to access the airspace. It could be done.

Mr. MASSIE. So while we are on the topic of technological improvements, the ADS-B adoption in general aviation, what does it

cost? What is the least costly entry point for somebody in general aviation to become compliant with the 2020 standard?

Mr. BAKER. So for the ADS-B Out, which gives the pilot in the cockpit no information—it doesn't give you any traffic or weather information, it just pings out, is about \$5,000 to \$6,000 is what we hear, installed today, on the aircraft that many are worth less than \$25,000.

Mr. MASSIE. So it is over 20 percent of the cost—

Mr. BAKER. That's correct.

Mr. MASSIE [continuing]. Of the aircraft as represented.

Mr. BAKER. You get no advantage.

Mr. MASSIE. So is it reasonable to expect some of these are going to be parked in hangars or boneyards and pilots who are pilots now aren't going to be flying because of this?

Mr. BAKER. That is the risk.

Mr. MASSIE. So there needs to be a lower cost solution. What is your organization doing to promote this lower cost solution?

Mr. BAKER. We are currently working with GAMA, General Aviation Manufacturers Association, and the FAA to say, is there some other type of portable device that could be recognized? Now, remember, the iPad wasn't even invented when ADS-B came out. Is there some type of portable, lower cost device that could be like our cell phone that is pinging out at an adequate level for these small general aviation airplanes? Remember, the ADS-B certification calls for 9 feet of accuracy—do we really need that for a little two-passenger airplane?

Mr. MASSIE. Got you.

General Scovel, while we are on the subject of technology here, the FAA seems to be behind on issuing rulings on drones and integrating, I mean, UAS, UAV whatever we want to call them, integrating them into the airspace. How far behind are they right now?

Mr. SCOVEL. Thank you. They are behind, and they are behind the mandates established by Congress in the last reauthorization from 2012.

Mr. MASSIE. So when we write this authorization, we should say "We really mean it this time."

Mr. SCOVEL. Well, yes. Absolutely. And it would certainly help everybody if the agency listened.

FAA was slow in designating its test sites. Six of them were finally designated, pursuant to the congressional mandate. But we have found that the agency's plans to develop data and to learn from the results that accrue from operations at these test sites have not been prepared to the agency's satisfaction and certainly not to the needs of the burgeoning industry. This also includes gathering safety data from UAS users currently in the system and from the Department of Defense. FAA has a lot to learn, a long way to go yet.

Mr. MASSIE. Well, I wish they were here today to defend themselves or to give me an answer to the next question. But in your estimation, when do you think they will give us some rules? I had a constituent—on behalf of a constituent, I sent a letter to the FAA 3 months ago just asking them to point me to the rules or what rules exist, and I still don't have a response to that letter. But

when do you think they might come up with some rules? They are spending the money, I understand.

Mr. SCOVEL. Yes. The so-called small UAS rule has been promised by the end of this year. I am not sure what kind of UAS your constituent may be interested in operating. But if it is a small UAS, I would say stay tuned, see what FAA can produce by the end of this year.

Mr. MASSIE. Well, it sounds like—Mr. Baker kind of hinted at an idea that could help us with drones. The accuracy, maybe we could relax some of the rules for accuracy.

Yes, Captain Moak, would you like to speak on that point?

Mr. MOAK. Yeah. There is one—one point, I think, that is being missed here. OK. In commercial aviation, OK, to keep it safe and keep our customers, our passengers safe, we need to know where all the planes are.

I am confident, working with Mark and AOPA, that we are going to be able to achieve that. But on the points that are made down here, I think, I couldn't disagree more with the analysis coming up.

We have to be using the same principles, a certification of the aircraft, the remote piloted aircraft, the drone, the operator, and the people that are operating them as we do for airlines so that we have the same safety.

Mr. MASSIE. My time has expired. But let me—let me agree with you.

Mr. MOAK. All right. We have to follow the same.

Mr. MASSIE. Look, I—having no rules doesn't benefit the air traffic—

Mr. MOAK. Exactly.

Mr. MASSIE [continuing]. Controllers, the commercial pilots, the general aviation pilots. Everybody is put at risk when there are no rules because the rest of the world is leaving us behind and you have commercial entities who are being encouraged or they encourage themselves to break the rules that don't exist. And you hear anecdotal stories of near collisions and whatnot. So I think it is incumbent upon us to get these rules so that everybody benefits.

Thank you, Mr. Chairman. My time has expired.

Mr. SHUSTER. Thank you, Mr. Massie.

And with that, I recognize Mr. DeFazio.

Mr. DEFazio. Thank you, Mr. Chairman.

Perhaps a few observations I would like the panel to think about: First off, you know, the biggest problem relates to budgets, money sequestration, all of that. This year, 83 percent of all FAA operating and acquisitions is being paid for out of the trust fund. So you could look at it and say, well, we have got a 17-percent problem. If the trust fund can cover 100 percent, we make it mandatory spending, then, we are going to have these stupid issues with shutdowns and sequestration and all those sorts of things in the future. That would help a great deal.

Secondly, I really want people to recommend improvements to FAA procurement. They are worse than the Pentagon. Now, how do we fix that? You know, it is always a moving target. We never get them to end up at a point with something that is going to work, too many change orders. I would like people to think about that.

We have a dispute over ADS-B In and Out schedules. We have a ground system, we have a mandate. Europe has a mandate. They have no ground system. Why can't we harmonize those things two things and say Europe and the United States ought to move together. We have already worked on harmonizing the electronics. Why can't we harmonize the schedule for adoption so that there will be real benefits to people, both in Europe and the United States of America? I don't know why. I would love to hear more—more about that.

And then, you know, on air traffic control, I—granted, a lot of my information is somewhat dated, but I went through a vigorous debate when I was ranking member on the Subcommittee on Aviation with Mr. Mica in 2006 on this issue, and I didn't find that there was a safer system in the world. In fact, just before we had that debate, we had a mid-air collision which killed people in Europe because they were understaffed, and the one person on duty was off somewhere doing something. You know, that is—that is an issue.

Secondly, when I looked at the productivity issues, we are virtually identical with Canada. And, you know, so, again, I think making major changes there is a steep slope. And we—but I am willing to have a thoughtful discussion about that.

And, now, I will actually get to a question, which will be directed principally to Mr. Rinaldi. You know we have got to staff up. We are going to have a lot of retirements. Other policies are forcing even more people to consider early outs. And I read in your testimony—and, again, this is a question, what is with the FAA? Why do you take people who have just graduated from the Academy and send them to the highest level facilities and, basically, engender a high failure rate? And what is the—what could the rationale or advantage be? And do you think really we could have more retention and better trained controllers if we change that?

Mr. RINALDI. Great question. And the simple answer is yes. We could have a better system and retain controllers if we—can you hear me?

Mr. DEFAZIO. It cut off.

Mr. RINALDI. How about now? Can you hear me now?

How is this? No. All mics.

Mr. SHUSTER. I don't have any power? Do I have power?

Mr. DEFAZIO. I have power. I got power. Do you know? Good. All right.

Mr. RINALDI. Hello.

Mr. DEFAZIO. There you go. All right.

Mr. RINALDI. OK. It is a great question. And, yes, we could retain more controllers if we sent them to the lower level facilities and let them develop and hone their skills, than to send them to the large, busy, complex TRACONS that we have. Our busy TRACONS are struggling with staffing right now, because it has been an FAA way to take it somebody freshly new out of the academy and then send them to an Atlanta, a New York, or a Chicago and, you know, within, you know, 6 to 8 months, they are unsuccessful and they send them to lower level facilities.

We have tried working with the agency for about 2 years now to develop a real process to develop to move the controllers at a lower level facilities where they are honing and developing their skills so

they can maintain the ability to do it at a high level, like, a New York or Atlanta or Chicago.

We are not there yet. It is—you know, we call it “FAA speed” sometimes. We should have been done with this about a year ago because the new hires that are coming out of the academy—

Mr. DEFAZIO. What—what is so hard about it?

Mr. RINALDI. Well, you are going to have to ask them what is so hard about it.

Mr. DEFAZIO. OK. All right.

Mr. RINALDI. We have some ideas. It was a drawn-out process. And we thought that—well, we thought we had a good plan and it is just—it is taking a very long time to implement it.

Mr. DEFAZIO. OK.

Mr. RINALDI. But I—You know, when you—when you take somebody straight out of academy and you send them to a busy TRACON, they are not—they don’t have the training program to teach them from—from zero—

Mr. DEFAZIO. Right. No. I have sat there. I have watched those screens. I couldn’t do it. I mean, I wouldn’t even begin to think I could do it.

Mr. Calio, do you want to respond to the idea about why not have harmonization in terms of the schedule with Europe on ADS-B? Would that eliminate some of the concerns of the airlines?

Mr. CALIO. It would not eliminate all of our concerns. This is a classic case of the FAA embracing the standard before they have reviewed the cost benefits of it and made the business case for it. As I said during my earlier testimony, we have made a lot of investments. We have equipment on the airplanes we can’t use now. Now it is mandated that we get more equipment; and we don’t know how it will work, whether the standards will change, whether the equipment will change. So harmonization is one part of it, but actually making it work and making sure there is a business case to be made for it is critical. And if you go back through all the cost overruns and all the failures and hiccups here, that is pretty consistently one of the problems. So it has got to be part of the process of how you get to where you are, where you’re just going to say, “OK. Use this equipment and I will use this equipment.”

Mr. DEFAZIO. Back to the procurement issue.

And, Mr. Rinaldi, I mean, as I understand ADS-B, we are going to get—do you think it is really critical that we have updates in real-time, as opposed to every 7 or 8 seconds? Is this going to make—which is what I understand. Because you already have transponders.

Mr. RINALDI. Well, the information—more accurate information and more timely information, especially in the interim environment where you can get, you know, constant en route update of airplanes moving at a very high speed is very, very valuable. At the lower level activity, as Mr. Baker was talking about, I am not sure that there really is a bang for our buck there, so to speak.

Mr. DEFAZIO. OK. Thank you. Thank you. My time has expired. Thank you, Mr. Chairman.

Mr. SHUSTER. Mr. Graves is recognized for 5 minutes.

Mr. GRAVES. Thank you, Mr. Chairman.

And the first question is for Inspector General Scovel. In your recent ADS-B audit report, how many commercial and general aviation aircraft are going to be affected by the—you know, with the update?

Mr. SCOVEL. Thanks, Mr. Graves. By our account—and it is an estimate—220,000 general aviation aircraft are subject to the mandate. About 18,000 commercial aircraft as well.

Mr. GRAVES. Does that include the entire existing—existing fleet?

Mr. SCOVEL. Virtually. Yes, sir.

Mr. GRAVES. Is the number changed or do you anticipate them changing any?

Mr. SCOVEL. Oh, certainly. They will move up and down. But we believe that, between now and 2020, those numbers will hold generally firm. And that is the problem, which some of my fellow witnesses have spoken to. It is the ability of the manufacturing industry to produce the equipment. It is the ability of FAA to get the equipment certified. It is simply time and space for aircraft owners to get their planes into repair facilities and repair stations so that those avionics boxes can be installed on the aircraft. It is a tough row to hoe between now and 2020.

Mr. GRAVES. My next question is probably for Mr. Rinaldi, and I also want to hear from the airlines, too. But we have a situation—you know, one of the things that NextGen has always promised us was lower costs and it is going to save us money in the long run and we can eliminate the outdated system, which is obviously, you know, passing radar or radar overall. But we all know, too, that if—with ADS-B—

[Inaudible.]

Mr. GRAVES. There we are. You can go invisible if you want to, if you pull that circuit breaker, with ADS-B and you have no way of tracking that plane. And then you hear the argument, too, well, we will just make the system permanent so it can never be shut off. But we know, in an airplane, you don't want to have a system that cannot be disabled if you have—obviously, have an electrical failure or whatever the case may be.

What worries me in this whole situation is, ultimately, we are going to be operating two systems. So we are never going to achieve any cost savings. And I would be very curious, you know, what you think, Captain, and probably, Nick, you can weigh in on that, too. And I would also like, Mr. Baker, if you could, too, but go ahead.

Mr. MOAK. So, look, we—we have a problem here and we are going to be able to work through it on ADS-B implementation and mandates. But let's be clear, ADS-B is revolutionary. It is what we need. We probably needed it 5 years ago. You have less separation. You can fly curved approaches. At 600 miles an hour, you go a long way in 7 seconds. This is where we should be going, and it is going to—it is going to help aviation tremendously, OK.

So the—the few things we disagree on, what we need to do to is be working together to address them. Cost is one of them, we get it. But ADS-B is good for the airlines, it is good for the air traffic controllers, it is good for our customers, it is good all the way

around. We just have to work through the hiccups, not let those hiccups define the problem—

Mr. GRAVES. And I would like to address—

Mr. MOAK [continuing]. Define the situation.

Mr. GRAVES [continuing]. The safety aspects of it, though, further. Again, are we going to operate two systems? Are we going to have to operate two systems?

Mr. MOAK. We—we do—we always do that. It is a transition phase. From the NDB, which you have flown, sir—from the NDB to the VOR to the tack end of the VOR for the military folks, we normally have two systems. It is rarely you can ever have a light switch on this.

And, again, that is part of—that is part of this transformative issue. It is not in 1 day. It is over a little piece of time, so—

Mr. GRAVES. Thank you.

Mr. MOAK. And you will have cost savings when you are fully implemented.

Mr. GRAVES. I will go ahead and hear from Mr. Baker.

Mr. BAKER. You know the concern that we have, with general aviation airplanes, is the cost related to the benefit. And this is just to get ADS-B Out. ADS-B In, which we think can be advantageous to have some better weather in the cockpit when using some other type of tablet device or some other device, would be a benefit. And having traffic inside the cockpit, we see as a long-term benefit. It is simply how long will it take to get the benefit?

And I do think you are right, Mr. Graves, that we are going to be operating two systems for a long time. And that was a big part of the initiative to save money here. So part of the cost-benefit for the Government, I think, is probably not accurate today.

Mr. GRAVES. Mr. Calio.

Mr. CALIO. You know, I should have stated early on that we believe that ADS-B is the cornerstone of NextGen. There are issues that I have laid out and that Captain Moak addressed that we need to work through with the FAA. The call-to-action meeting they had earlier—I guess it was last month now—was a good start, but there are still those issues that have to be resolved in order to achieve any cost savings, increased safety down the line.

And in terms of two systems, yes. As Captain Moak said, we always do. But once we get past all that, we will have a much better system, assuming we can work out the problems.

Mr. GRAVES. And, Mr. Rinaldi. I know my time has expired, but I would like to hear from you on this.

Mr. RINALDI. I think that you are always going to have two systems. To think that we are going to shut down a radar system in this country after the tragic events of 9/11 and that somebody will be able to shut off their ADS-B transponder and that we won't be able to track airplanes. And I think that, you know, ADS-B is—shows tremendous amount of value. But we can—we have to have necessary redundancy of our radar system, also.

Mr. GRAVES. Thanks, Mr. Chairman.

Mr. SHUSTER. Thank you. Mr. Capuano is recognized for 5 minutes.

Mr. CAPUANO. Thank you, Mr. Chairman.

Gentlemen, I am about to get on a plane for the fifth time in 9 days. I just want to make sure it is safe, right? We are good?

Mr. RINALDI. Yes. And thank you.

Mr. MOAK. Yes.

Mr. CAPUANO. Yeah. We are paying for it. I have been listening to this. I don't think I have heard almost anything I disagree with, as far as where we want to go. You know, we have a good system. We have to make it better. That is natural. That is American. That is good. That is a good progress.

I get a little problem, though. Everything I know that I want to make better about myself and my family and everything, costs money. Somebody has to pay for it. And we—I think I heard everybody in agreement that we are short on funds. But I am not sure that I heard anybody say where we should get those funds. So does anybody have any suggestions, because I would like to hear them?

Yes, Captain.

Mr. MOAK. I have one thing I want to say. We do need to give the FAA, or encourage the FAA, or structure the FAA to be able to use private enterprise business principles when they are putting in an infrastructure program like this.

You know, to have them doing what they are doing with one armed tied behind their back and criticizing them—

Mr. CAPUANO. I hear—I understand that, and I appreciate that, Captain.

Mr. MOAK. But that saves—that save money and that reduces the funding gap which—

Mr. CAPUANO. Well, I need a little more explanation than that. I love those generic terms that business can do everything better than anybody else. And they sound good, and they really fit on a bumper sticker, and they are good on political commercials. I am not sure what you mean by that.

What are the political—I mean, I read, you know, Mr. Engler—Governor Engler's testimony, and I agree with him. AT&T has, in his example, rightfully improved their business model. It cost them a fortune to do it. It costs a lot of money to go from middle tape system to a new 4G system. Somebody had to pay for it. In AT&T's case, it was some shareholders, but mostly expanding their business footprint and charging me more, which is fine. That is America and that is the way it works.

How are we going to expand our footprint with more people flying and how are we going to charge them more and keep them flying? Because if we don't do that, even private businesses have to make money? It is all well and good. If you are telling me there is that much waste in the FAA, I would love to hear where. And I am not saying there isn't. But show me the numbers.

Mr. MOAK. No. But—

Mr. CAPUANO. Generic statements are fine, but I need numbers.

Mr. MOAK. Congressman, we are happy to provide it for you from the Air Line Pilots Association, working with A4A and BRT. OK.

But stabilized funding, in a funding shortfall, it is a little different. You can't be working up and then, all of a sudden, have all funds shut down on an—

Mr. CAPUANO. Captain, I agree with you. I voted against the sequester.

Mr. MOAK. All right.

Mr. CAPUANO. So you are talking to the wrong guy. I think there are some other people here you got to talk to.

Mr. MOAK. All right. Well, I didn't mean it like that. But I also want to point out that occasionally some of these cell phones, not to name any names, still drop calls, despite the infrastructure improvements they put in.

Mr. CAPUANO. Well, they are trying to improve, too. But as they improve—

Mr. MOAK. Right.

Mr. CAPUANO [continuing]. It is costing them money. All I am saying is, we want to get NextGen and all the other things we are talking—somebody has to pay for it. It is either going to be taxpayers directly, or it is going to be people who use airplanes, the customer. Who else? Who else is going to do?

And if it is the customer, let's not pretend that by us, the Government, saying that we are going to expend money and simply have somebody else charge you for it, that that is not a tax. It is. I am not against that, but I don't want to kid myself. If Government takes action and costs somebody money, that is either a direct or an indirect tax. Call it whatever you want. And that includes, if you raise the cost of my airplane ticket because a private company is now running it, it is no longer a tax. Now, it is just business cost. Well, that is kind of what we do.

So who is going to pay for this? And I am all for it. And, by the way, I guess it is pretty appropriate that I am on the far left of this panel. I am not afraid of that. But for me, honesty is more important than anything else. If we are going to keep up and improve, someone has to pay for it.

Are any of you willing to say that someone should pay for it? And I am particularly interested, are you willing to say somebody other than somebody else should pay for it?

Mr. MOAK. Well, I will say—

Mr. CAPUANO. Are you willing to help pay for it?

Mr. ENGLER. Well, in fact, let me take a shot at it, Mr. Chairman. A little bit of clarity on this from the perspective maybe of some of our CEOs. One, just—just in doing the buildout, if—I believe the Federal Government ought to have a captain budget process, so I—and that is something pretty much every State has. I worked for that as a Governor in Michigan.

Mr. CAPUANO. I am in. I am in.

Mr. ENGLER. Companies have that. And the way you do a big CAPEX project, which is what NextGen is, at least in terms of technology, you would go out and say, what is the—so there is—we are going to use this system for a lot of years. So you—you do a bond issue. You would get the money there and, then, you would go out and carefully invest that money, and in—in your—you wouldn't try and go—and Captain Moak just touched on that—you can't stop and start. That is expensive.

Mr. CAPUANO. Governor, I am a former mayor. I am all for capital—

Mr. ENGLER. So I have got some money because I am going to do a better job more efficiently of spending, my money on the project. We heard the testimony from General Scovel about over-

runs, and Mr. DeFazio talked about acquisition. We can do that better. There is more money to be saved there. But, bottom line, there is also, as you heard, an array of multiple different taxes that are being collected.

We are suggesting that there is a way, among the stakeholders, to look at that, look at what other nations have done. Are there ways to make that an equitable outcome? Of course you have to pay for it. And we, as the flying public, Members of Congress who fly more than most in the public, you pay every time you fly.

And what we are saying is, can we economize the dollar you are paying to make it go and get a dollar's worth of value, not 85 cents.

Mr. CAPUANO. I am all for that. But in the final analysis, we are going to need more money to keep it up—to catch up now.

Mr. ENGLER. Yes.

Mr. CAPUANO. And if it is a capital bond, fine. But when we are finished with NextGen, there will be something else.

Drones are the next thing coming. I know, at some point, drones are going to be, you know, delivering my Chinese food. I know that. But I also know another thing, I know Captain Moak and his people need to see those drones and we are going to have to come up with a system that will allow you to do it and that is going to cost money, too.

Thank you, Mr. Chairman. Thank you for indulging me.

Mr. SHUSTER. Thank you, gentlemen.

With that, I recognize Mr. Mica.

Mr. MICA. Thank you, Mr. Chairman. And thank you for holding this important hearing on reauthorization, having been through several of them.

Probably one of my main concerns is our lack of progress on NextGen. First bill we—that I helped author, we worked on it—in the last bill, we worked on it. And, unfortunately, I think NextGen is either in the stall or reverse, and that is not acceptable.

Inspector General Scovel, is the lack of funding, has that been the major problem in not moving forward with NextGen?

Mr. SCOVEL. From our work, Mr. Mica, we don't think a lack of funding has been a problem. Certainly, the timing perhaps of that funding, the steady stream of funding. But I think that is different from a lack of funding.

In fact, in the past, the Congress has been generous even exceeding the administration's request specifically for NextGen.

Mr. MICA. And I think that is the case. Well, somehow FAA is not getting it together.

And the other thing, too, is, in order for NextGen to be implemented, everybody here has to have some benefit by—the airlines have to have a benefit; right? Mr. Calio?

Mr. CALIO. Yes. Clearly. It is a point we have made over and over.

Mr. MICA. Mr. Baker?

Mr. BAKER. Yes. Need a benefit. We don't see it today.

Mr. MICA. And the pilots? Mr. Moak?

Mr. MOAK. NextGen is the future. We need to keep moving forward.

Mr. MICA. Governor, do you know anything in business that—or business aviation that doesn't look for some benefit to—to a new system or expenditures they are called on to make?

Mr. ENGLER. Absolutely.

Mr. MICA. OK.

Mr. ENGLER. We want to get rid of those holes.

Mr. MICA. Somehow there is a disconnect. I don't—I don't think we are headed in the right direction. We have got to turn this around. And, actually, everybody who is at the table—I didn't get to you, Paul, or Mr. Rinaldi. Air traffic controllers who use the system, it has to benefit them, too; right?

Mr. RINALDI. Absolutely.

Mr. MICA. Right. Right. I saw my late and the great staff director, Mr. Coon, sitting back there texting, which I have told him not to do during the hearing.

[Laughter.]

But he and I—I remember leaving aviation. We both sort of wiped our forehead when I chaired that one. When I left as chairman, we sort of wiped our forehead. And it was a sigh of relief that there had been no major aircraft—passenger aircraft—this is in large aircraft that we had had a disaster, like the one we had in, was it, November of 2001 after 9/11.

Now, we did have small commuter and regional aircraft. Mr.—the late Mr. Oberstar and I and others, we worked—Mr. DeFazio isn't here—to do commuter safety, and we have done good there.

But I am telling you guys, the clock is ticking. It is going to happen. It can be an air traffic controller. It can be a pilot error. There is no reason the United States should not have the most advanced air traffic control system in the world, and we do not have it.

Mr. Rinaldi, have you been to Canada?

Mr. RINALDI. I have.

Mr. MICA. OK. Canada is about one-tenth our size, but they—they have a system. They are already placing themselves—they will have satellite capacity. We should be ahead of the game on this thing. But maybe it is going to take a disaster to wake people up to this. We cannot backslide on NextGen. So that is just one point.

In the mean—did you want to comment?

Mr. MOAK. Yes, sir. Congressman Mica, I also represent the pilots of Canada. And although NAV CANADA is a system we should be looking at, I just want to point out that I have also had to represent pilots that have had major aircraft accidents up there. And in this pay-to-play mode, we have to be mindful that some of their airports in the northern part, they don't—under that system, they don't have the most advanced systems. So—

Mr. MICA. But they are adopting to that faster than we are and will still soon have that if they have that capability. And it is placed from a satellite rather than a radar-based system. So that is my point, is we have got to—we have got to stay ahead of that game.

You don't want to pick anything that is outmoded as a technology. What you want to have in place is the technology that—that gives us the best coverage. And we will probably—as was tes-

tified, we will probably always have to have the backup systems because we have had and we want to maintain the safest.

But I am telling you, don't—we all need to gather again together—maybe not Mr. Scovel—but this group here can make it happen. We have got to pay for it, and some of it—it has been mostly about an 80–20 proposition. I would like to see that more self-paying. And I don't think there should be a war between the airlines and the airports. We need the facilities. Our airports need to be expanded across this country to be able to accommodate the aircraft that we have coming into play.

So one last thing: Do you all find out who are representatives to ICAO? Who is the Ambassador to ICAO?

Mr. MOAK. Senator Lawson.

Mr. MICA. OK. OK. There should never be an air—ICAO, International Civil Aviation Organization up in Montreal controls all the rules, the international rules. There should be—never be a passenger aircraft that takes off in the United States or anywhere in the world—this sets the world standards—that we don't know where that is. What happened with Malaysia Air 370 should never happen. We should know where every aircraft is.

It is the United States responsibility to take the lead in the international organization. I want all of you to write the Ambassador and say, "We need to pass in ICAO a rule that no passenger aircraft should ever be lost." OK. So that is one of the larger pictures. This should never happen again.

Am I out of time?

Mr. SHUSTER. Yup.

Mr. MICA. Yeah, I have been out of time for some time. Thank you. I will submit—just—just to be nice and not embarrass anyone, I will submit the rest of the questions later. I did want Mr. Baker to address the falling number of single-engine piston-powered aircraft and number of pilots in the United States.

Mr. SHUSTER. I believe he did that in his testimony.

Mr. BAKER. Yes, I did.

Mr. SHUSTER. So we have got that in the record.

With that, Ms. Norton is recognized for 5 minutes.

Ms. NORTON. Thank you very much, Mr. Chairman. Forgive me, I have a cold.

I agree with Mr. Mica. In the present environment, it may take a catastrophe to move this along. It is a good thing this wasn't—this hearing wasn't called "Progress on NextGen" because you have had nothing but setbacks. And it is time you were candid with the public and with this committee. It is murder flying today. It is murder. Because more people are trying to fly and you are having to be more and more cautious. That is what we need to tell the American people.

I had high hopes for NextGen because of the economic effects in our own country and because of what it means for our place in the world. But you have operated within an environment where—where you—you had to stop major NextGen programs where, you know, the environment of 20,000-plus furloughs, half a billion dollar cuts in operation, hiring freezes. You know—you know, somebody needs to be candid here and—and tell the public what I think the gravamen of your testimony is here.

Now, Captain Moak said, "Proceed cautiously." God, I wish we were proceeding at all. "Proceed cautiously to a new system." This 2020 date that was set some time ago is a fiction. And what we need to tell the public, don't we, is that they are going to have—we are going to be living with the present system for the foreseeable future.

Mr. Scovel, you are an inspector general. You are—you are supposed to tell the truth here. I mean, isn't that, in effect, what the testimony amounts to today and what the present lack of progress has meant?

Mr. SCOVEL. There are some very tight wickets to be run between now and 2020.

Ms. NORTON. Some very what?

Mr. SCOVEL. Tight wickets, in other words, for industry and for FAA to get—

Ms. NORTON. I am talking about on the public side.

Mr. SCOVEL. I am sorry. I misunderstood.

Ms. NORTON. I am talking about on the public side. The public side has to be a partner to whatever wickets the private side is trying to run.

Mr. SCOVEL. Yes. And by public, if you mean the FAA and what it must do in order to provide these enhanced air traffic control services to our national airspace, absolutely.

Ms. NORTON. So this is a system you got and what I am asking you to do is to make the system we have got as safe as you can. Because you really can't sit there with a straight face and tell me and tell the American public that the way we are going to get out of this is we are going to move to a new system, you know, the system which has high hopes, less delays, less environmental impacts, because we are not going to do that any time soon.

Yes, sir, Captain Moak.

Mr. MOAK. Just in case I—I gave the wrong impression: Our system for our customers and for our pilots, for our crewmembers is the safest system in the world.

Ms. NORTON. OK. I am not questioning your safety.

Mr. MOAK. It's very safe.

Ms. NORTON. I am telling you this—look, I don't even have to fly the way my colleagues do it. But when I do fly, I see what is happening. I can't imagine what they see.

Mr. MOAK. Right.

Ms. NORTON. It is murder, because more and more people want to fly in more and more crowded skies. I believe we have a safe system. I know it, because you slow things down to make it safe.

Mr. MOAK. And the—the other thing I wanted to add on the safe system is many of—NextGen is not defined by the 2020 mandate. It is not defined by ADS-B. NextGen is a work in progress, and many of the benefits of NextGen have already come online. And I think that is getting missed there. In fact, in my—

Ms. NORTON. Captain Moak, the FAA and nobody here is even willing to give us a target date for when the—we could say we have now made the transition and we have moved to NextGen.

Mr. MOAK. Well, many here—

Ms. NORTON. Isn't that the case?

Mr. MOAK. Well, I would say—

Ms. NORTON. I mean, for most programs—for most programs in our country, we at least have a target date. And if you don't have a target date, then it does seem to me your goal should be to keep the system we have because that is a system we are going to have for some time—Mr. Scovel didn't object to that characterization, and to keep it as safe as it can with whatever slow down, telling the public, "Yes, there will be slowdowns. But you have to understand that these slowdowns are to keep you safe." It is better to have that kind of candor than to have people being angry at the airports when you tell them that they can't get someplace when—when we were supposed to get someplace.

Now, I am not chastising the private sector. I know who is to blame here. But I am saying, now that we know what the atmosphere is like, be candid with the public so that the public does not expect anything but slowdowns for the foreseeable future.

If anybody objects to that, speak now or forever hold your peace.

Mr. MOAK. I—I can't let that stand like that, because, you know, the on-time records, the improvements, the safety, that is not a characteristic of our U.S. aviation system. We are working. It is never going to be a finite date that everything is done because it will be constantly improving all along.

The nuance problems we are working through here as a team, we will always work through them. So I would say it was a mischaracterization of the U.S. airline industry.

Mr. SHUSTER. Thank the gentleman. The lady's time has expired.

I am going to recognize myself for 5 minutes to ask a question.

I think it is pretty apparent that the process doesn't work like it should. We obviously have the safest airspace in the world—the biggest, largest airspace in the world. But when you look at Mr. Engler's example of AT&T and you can look at i—or Apple, in the last 7 years, they have had eight phones, eight iterations.

We are now, at the FAA, spending \$115 million on an—on an information system, flight information system, that they are projecting to be done in 2025. There will be probably 10 more iPhones out before the FAA gets there. And those are the kind of things that is it is just apparent the process is broken, when you look back over the last 3 decades in the 10, 11 different pieces of legislation and Executive orders that said, "Let's get this done." And I am sure that—you know, as Michael Huerta, who I think has done some good over at the FAA. But if you look back, I am sure you are going to find every FAA Administrator saying, "We are moving in the right direction." But, you know, they are moving at a snail's pace.

And so to Mr. Mica's point of view, we have got to get these things up and running. And the process doesn't work. And we all—I think, it is apparent that the money starting and stopping is a huge problem.

So, Governor Engler, coming from—you all represent businesses. But as a user, as somebody that looks at this and needs this airspace, that needs this system to work efficiently and with the benefit of how your company is operating in a technology world, a new governance model, how do you envision that working, not only from the process, but also from the funding side? And I know you have talked about it a little bit—

Mr. ENGLER. Sure.

Mr. SHUSTER [continuing]. But I won't interrupt you and I will let you lay it all out.

Mr. ENGLER. Well, at least some of the thinking is to examine these stakeholders, and many of us are at the table here today. Others are not, but would—would want to be included. And—and it really is a question of stakeholders coming together.

And nobody has made any decisions on exactly how—what a funding model would look like. That has always been a sticking point in the past. I mean, that is when it gets hard, when you start putting money. And that has been referenced here.

But, you know, one of the other Members was pressing us on money. There is a lot of money in the system, and so—and there is a recognition there still are airport needs out there. And that—so this separating this out, that is one of the reasons some of the work we have been doing is really trying to understand what funding models might look like, what options might be there, but not trying to get into that conversation. Because that really is—my sense has been, given the size of the committee, the complexity of the issue, if you can't get all the stakeholders together, we are not going to be able to show up here and be very successful. So that is going to be really, really important.

On the governance side, the same thing is true. The people who are putting up the funds who have an interest in this working, be they pilots, be they the controllers, be they certainly the commercial airlines themselves, general aviation, all will want a seat—need a seat at the table for that. There is sort of a model that was used up in Canada in terms of bringing the stakeholders together. Now, that—that really is only on sort of building out the system, the things, the technologies.

The other very key part of this never leaves the FAA, it is the whole—the safety regulations there. And I made reference to, you sort of have today the regulator, the decisionmaker on the technologies designed to enhance safety also being the decisionmaker on safety itself.

And so there is an inherent kind of conflict that exists, if you will. And what works well, I think, is some separation. The agency still has got all of the safety responsibility, plus they have got all of the operational responsibilities which are—I mean, these captains they have challenging jobs, because they have got these manuals of technical specifications. You have to comply with how you fly.

And the reason we are the safest in the world, if they find, I don't know if there is a different way to deal with wind shear, I mean, an edict goes out and pilots are almost retrained instantly on that in the commercial space. Controllers have a lot of technical things they are in charge of, and the agency is way behind on some of this stuff. And, frankly, an agency that was really focused laser-like on getting caught up there, so that as new technology was available and could be deployed, it would be an agency that would be really working well.

So I actually think, in this case, kind of realigning these responsibilities a little bit, so that everybody is doing what they are best

at doing, and picking up the pace, we get to a better place for the Nation's air traffic system.

Mr. SHUSTER. Thank you, Governor. And I think you made a good point there, which is maybe we need to be looking at all of these other different systems around the world and how they do things. The one number from NAV CAN that just actually jumped off the page at me was that we are nine times the size of the Canadian airspace. We spend 20 times as much in CAPEX as they do. And from what I have seen, and Chairman Mica has been up there, and their technology has advanced ours, and they are spending a lot less money getting technology and getting it out there quicker. So I think that is something that, you know, we need to put up there and pay attention to.

With that, I will yield 5 minutes to Ms. Esty.

Ms. ESTY. Thank you, Mr. Chairman. And as a new member of the committee, I have to say, this is one of the rare areas when I came on the committee 2 years ago, when I said oh, my God, this is a triple win. If we get NextGen right, we are helping with safety, we won't lose planes—which I was told we don't lose planes, but now we know we do. It has happened, it is better for the environment, and it is beer for communities. We don't need to expand our runways as much.

We need to find a way to get this done. So it seems to me there are two different issues: One is the funding and one is the timing. The benefits don't really accrue until we have a critical mass who have the equipment in place. So I think we need to be looking at, Mr. Chairman, a carrot-and-stick model. When we have the cost of borrowing near zero, we absolutely need to find a way right now to do this with American technology that sets the standard for the world.

And one way to do that is set a date certain by which all equipment must be retrofitted, and there are heavy penalties beyond that, and then you set together a funding corpus that you borrow from. But anybody who wants to be the late one to the table, to be the free rider, they are going to pay heavily. And that seems to me a way to help engage the market and engage Wall Street in setting out that money. The Federal Government ought to partner, but we need to set a realistic timeframe and a very heavy incentive to comply by that timeframe.

That will bring the cost of the technology down, and we would get it done before 2025. This is ridiculous; we should not have to wait that long. And clearly, we are going to need more iterations. But we risk the real opportunity right now that not only are we behind, but that other countries are going to develop and sell the technology to the world and the standard. And that is foolish. We should not do that.

Our citizens deserve the safety. Our communities deserve to have cleaner air. It is better for the environment. We deserve to not be chewing up land we do not need to, and we should get this done faster. So if anyone would care to opine on whether we think what kind of timeframe is realistic. If we could get the money together to borrow from over time, what is the time period by which realistically we could say, you have to retrofit or have new equipment to meet this model?

Mr. CALIO. Congresswoman, if you are suggesting that it is—are you talking about the airline’s need to retrofit?

Ms. ESTY. Yes.

Mr. CALIO. Well, I think here it is a very complicated question, or more complicated question. We have deadlines. We have had deadlines in the past. We have met the deadlines. We have invested money. There is \$6 billion in the trust fund right now that is unallocated. We have the money, really. The problem lies in the processes, and making sure that the equipment works, and making sure that there is a return on the investment for the equipment.

It is far more than that. I mean, just setting a deadline I don’t believe, with all due respect, is going to do anything. We have a deadline for 2020 on ADS-B, and yet, we are not harmonized with the world. The case hasn’t been made that there is going to be a return on investment for the people who are being forced to invest in it. Meanwhile we are flying around on aircraft, we have aircraft in our fleets that has equipment on it that we can’t use because the procedures are not in place to use it. It is a very frustrating situation.

Ms. ESTY. Well, then, one of those pieces that we could—to realize the benefits—obviously, we are talking about sort of these unrealized or unrecognized benefits. How do we incorporate that into the system so that, in fact, they are realized, or the incentive is there such that they do get realized by those who currently find it not to be in their interest?

Mr. MOAK. So, Congresswoman, we are making progress. You know, it doesn’t lend itself in the time that we have here, but if you go out to greener strides in Seattle, for example, they concentrated on that. They brought it on line. It saves emissions. It saves fuel. It is a safe operation. And they are trying to replicate that all over the United States. The Houston metroplex, they brought that on line. Great job there.

And again, I want to stress what I said earlier: The airlines have trained the pilots; the controllers are trained; we are working through procedures with the controllers; the airlines have invested; and the FAA continues to work, but again, private enterprise management principles applied in the public sector with the FAA; stabilized and consistent funding; all of those things allows them to do a better job. Right now they are working with their hand tied behind their back, I believe.

Mr. ENGLER. I think that your summation is excellent. I mean, you say how do you kind of make these pieces and sequence them to get them all to work. But there is a point in there that you really touched on that deserves to be picked up a little bit more, and that is on these procedures that Captain Moak just referred, that Nick Calio just referred to, that one of the recommendations of the Management Advisory Committee, and this was unanimous recommendation, is give these stakeholders more of a role in helping to prioritize what procedures need to come when so that we can get those done, because some are high value, high payoff, pretty quick return. Others have a little bit longer tail. And I think that kind of—this is what I think General Scovel will tell you about in terms of performance management. I mean, normally all of us would in our offices or in our enterprises, do it by order of priority.

Mr. SHUSTER. The gentlelady's time is expired.

Mr. Meadows is recognized for 5 minutes.

Mr. MEADOWS. Thank you, Mr. Chairman.

Mr. Scovel, let me come to you because sitting in your exact seat, we have had people before this committee with the FAA, and both the Administrator, and the person in charge of making sure that NextGen gets implemented. And when we asked for deadlines, we asked for timeframes, I see sweat pop out on their brow, and really, the plan to get it implemented, there is not an answer. And you said it was a very tight wicket. I made the analogy it is like getting a bowling ball through a wicket.

And what degree of confidence on a scale of 1 to 10, with 10 being most confident, do you have in the FAA's ability to implement most of this thing and meet the target deadlines that have been reestablished? I might add, these are not the first deadlines. These are multiple deadlines. On a scale of 1 to 10, how confident are you, and would you place your job based on that rating?

Mr. SCOVEL. Well, that is a tall order, sir. And when I mentioned tight wickets, I was referring specifically to the time between now and the mandate in 2020 for airspace users to equip.

Mr. MEADOWS. Right.

Mr. SCOVEL. ADS-B Out equipage. What happens after that is anyone's guess.

Mr. MEADOWS. So we are going to invest billions of dollars on anyone's game or guess?

Mr. SCOVEL. Yes, but I do agree with Captain Moak that it is essential, it is necessary, and it is achievable. It is a question of enough time and proper procedures.

Mr. MEADOWS. Well, it is achievable that I can run a marathon, but it is not real likely that it is going to happen in the near future, too. I mean, so from a timeframe standpoint, when do the stakeholders start to get counting on our timeframe so that they can make the proper investments? As a business guy, it concerns me greatly that we are spending millions and billions of dollars to have equipment and training ready, and yet, we are not doing our part on the Federal Government side.

Mr. SCOVEL. Well, let me just take the January 2020 mandate.

Mr. MEADOWS. Right.

Mr. SCOVEL. Realizing everything that needs to be done there in terms of automation platform renewal and modernization, ERAM is supposed to be completed—

Mr. MEADOWS. Right.

Mr. SCOVEL [continuing]. In 2015, right? STARS is supposed to be completed several years after that, DataComm is supposed to be coming on in 2019, the need to develop procedures and training for all of the controllers, the need for enough of the fleet that is going to use the system to equip so that we can have end-to-end testing. Without the end-to-end testing, we can't be sure that it is going to operate as intended.

Mr. MEADOWS. Right.

Mr. SCOVEL. And all of that by 2020?

Mr. MEADOWS. Scale of 1 to 10, 10 being the highest.

Mr. SCOVEL. I am less than 5. And I would say, probably, we don't have until 4.5 years from now in order to judge. We may have

a year and a half, 2 years, because by the time the whole thing comes out of service to equip, we won't have time to——

Mr. MEADOWS. That is right. So let me shift to Europe then, because they are in the middle of an ATC modification as well, and they are taking a different approach, which is saying make sure that all of the stakeholders have all of the stuff, and yet they are not going to make their deadlines either. So would you say that our approach is better than their approach? It is a softball.

Mr. SCOVEL. In terms of?

Mr. MEADOWS. In terms of ultimately getting what the airline industry, and what air travellers need, is it a better approach to make sure the stakeholders are equipped first, or is it better that we do what we need to be doing on the part of ground installation, et cetera?

Mr. SCOVEL. Well, the ground installation is done.

Mr. MEADOWS. Which one is better?

Mr. SCOVEL. That is about one-third of the equation.

Mr. MEADOWS. Right.

Mr. SCOVEL. We still have a long way to go.

Mr. MEADOWS. In the training and other implementation.

Mr. SCOVEL. And the stakeholder——

Mr. MEADOWS. So is our process or Europe's process better? I need you on the record to tell me which one is better.

Mr. SCOVEL. Oh, let's see. We are going to make ours work, and it is going to be done right.

Mr. MEADOWS. So is ours better?

Mr. SCOVEL. For now, for us. We have to take into account our stakeholders.

Mr. MEADOWS. It sounds like you are running for office. That is a political answer.

Mr. SCOVEL. I am trying to avoid any kind of policy input because I know that is the committee's——

Mr. MEADOWS. I am asking you that. I am asking you a direct question. Would it be better that we get rid of the process we are having and adopt theirs? OK.

Mr. SCOVEL. By process, are you referring specifically to the——

Mr. MEADOWS. Well, their emphasis is more on the stakeholders. I would assume that your answer is no.

Mr. SCOVEL. No. We have to have an emphasis on stakeholders.

Mr. MEADOWS. All right. I will yield back, Mr. Chairman.

Mr. SHUSTER. Thank you, Mr. Meadows.

And with that, Mr. Lipinski is recognized for 5 minutes.

Mr. LIPINSKI. Thank you, Mr. Chairman. Thank you for holding this hearing.

I wanted to first ask Mr. Calio and Mr. Baker, we were talking already about the issue with ADS-B Out and incentives for installation of those. Let me ask specifically two things: Would financial incentives be enough? And/or should there be a greater use of best equipped, best served policy that the FAA uses? What are your thoughts on those?

Mr. CALIO. From our perspective, the airlines for America, the best incentive would be to provide equipment and a process by which we can employ the equipment and see a return on investment that the cost would not outweigh any benefits.

Mr. LIPINSKI. OK. Nothing more specific than that, OK.

Mr. Baker.

I understand that.

Mr. CALIO. We don't need a loan guarantee to invest in equipment if we know the equipment is going to work, and that we can use it and get our passengers to their destinations faster and more efficiently and safely than we do right now.

Mr. LIPINSKI. OK. Mr. Baker.

Mr. BAKER. For the general aviation marketplace, we are open to anything that helps lower the cost for installation. The general aviation marketplace has been under siege for years and years, and we are driving, on average, 40-year-old aircraft. So if there is a way to look at, you know, what are the other choices between either a portable device, some type of financial setup, anything that helps lower the cost for general aviation, we would want to consider it.

Mr. LIPINSKI. Mr. Rinaldi, what are NATCA's thoughts on the current best equipped, best served policy?

Mr. RINALDI. Well, the FAA is not doing the best equipped, best served. We are still on the first-come-first-serve, but obviously, we are not going to you know, put a Cessna that is flying at 110 knots in front of an Airbus 380 that is doing 170 on approach. We are going to move that Cessna out of the way because it is safe and orderly. Best equipped, best served would work. The problem really comes, Congressman, when it is mixed equipage, and if we don't have a high number of aircraft equipped, then we can have the greatest procedures in the world, but we are going to have to reduce it to the lowest common denominator to continue to run a safe and efficient flow.

Mr. LIPINSKI. All right. I want to move on to another issue. As many of you know, Midway Airport is in my district and suffered from thousands of canceled flights after the fire at the Aurora in or out center.

Mr. Rinaldi, I would like to express my appreciation for your hard work at NATCA, and also my appreciation for what PASS did, and the work you put into keeping our system running and to get Aurora facility back in line. I know it was a 24/7 operation and years of work were completed in less than a month, and I commend the collaborative, innovative, and diligent effort that was undertaken to manage and remedy that situation.

Mr. Rinaldi, I understand that NATCA, PASS, and the FAA work collaboratively in a working group to identify recommendations to keep systems on line, but there is still a fix-or-fail strategy in place. I am interested to learn about the status of these collaborative efforts, what recommendations have been made, and whether you believe that the recommendations will be adopted, and will finalizing NextGen mitigate the effects of emergencies that may occur in the future?

Mr. RINALDI. Well, we were excited to participate with the panel with the FAA and PASS and other stakeholders. It is still in its infancy stage. We did put it all together, and it is in the process of the review to go through the Department of Transportation at this time.

Mr. LIPINSKI. And, additionally, looking specifically at the—I know that the IG is still examining the security protocols at the

Chicago area facilities, but I am interested in learning more about what we need to do for the system as a whole. For instance, the fire suppression system at Aurora used water to put out the fire. And while that did work to put out the fire, I am wondering whether there is a need to look in all alternative suppression systems that could effectively handle fires to save lives without compromising the equipment? Are there other fixes that can be made, Mr. Rinaldi, or Mr. Scovel, if you have any answer on that one?

Mr. RINALDI. Yeah, I believe the security panel in which we also participated is looking at all options, and they are making their recommendations and phoning them up.

Mr. SCOVEL. Mr. Lipinski, we will be looking at what the agency's current plans are and also what they intend to proceed with. So I can't at this point give you a definitive answer to your question. But it clearly is a significant concern for the agency going forward, and along with the safe integration of UAS into the airspace, this will have huge ramifications for the FAA.

Mr. LIPINSKI. Thank you. I yield back.

Mr. SHUSTER. Thank you, Mr. Lipinski.

I think all our Members have questioned. I just want to thank the—oops. I always forget you, Davis.

Mr. DAVIS. You know—

Mr. SHUSTER. Mr. Davis, I will give you 6 minutes.

Mr. DAVIS. Well, thank you. Thank you. You sit in the chair, you give the guy a break, and I said I wasn't going to give it back up but you see who actually gets the chair back, and then he forgets me. Thank you, Mr. Chairman. I appreciate that. I have just used my extra minute too, Nick.

But I do want to start with Mr. Calio, and also give Mr. Baker and Mr. Rinaldi a chance to answer this. I know you touched on the edges of the \$5 billion to \$6 billion NextGen investment that the GAO reported, but there is little confidence, as I think we have seen and heard through testimony in this hearing, among the stakeholders and FAA's ability to implement NextGen. Where is that disconnect, and what return on investment is the taxpayer seeing from that process? And Mr. Calio, if you could just even expand a little bit more on what you have already talked about on that issue, I would appreciate it.

Mr. CALIO. Thank you. Congressman Davis, there are, as Captain Moak pointed out, there are benefits that already being realized. In certain areas we have put in place procedures where planes can get in quicker and take off faster. More clearly needs to be done though, the return on investment will come, I think when the—or we think when the procedures or the business processes as Captain Moak has referenced and Governor Engler addressed are put in place.

Our problem is, the system as it is currently structured and operated does not have, if you—the question came from, I can't remember which Member—if you were making a capital expenditure as a business, you would look at your return on investment, your return on capital. You would have your process laid out over long term. You know, you would approach it probably incrementally, which has not always happened with the FAA. You need those kind of business-like, private-sector decisions. It is not a general knock

on Government; it is just that we have not been doing that. And we have seen the embrace of technologies often that weren't ready, the standards set the wrong ways, and with very little input with the stakeholders most affected.

Mr. DAVIS. Thank you, Mr. Calio.

Mr. Rinaldi.

Mr. RINALDI. I think we have to look at some of the successes we do have, and although the FAA, and maybe even Congress doesn't even want to talk about transforming our platforms, our en route modernization platforms and our terminal platforms. The first things, they are the chassis in which we are going to attach a lot of the NextGen technology to, we are making progress with that. And we should be done with the en route, what we would call ERAM, in 2015, and the terminal automation, and STARS replacement by 2018.

Now, you have those on and then you can actually start attaching the technology and the ADS-B, and the SWIM, the information systems and start bringing them on line. You know, my frustration is that we are still the safest and most efficient, and we are working very hard and very collaboratively to modernize the system, and we are doing it piece by piece. We have revamped the whole State of Texas airspace, basically. We did what we call OAPM, optimizing the airspace in Houston. It is a huge success. The airlines are seeing benefits from it. You know, optimization of departures and arrivals. We now have rolled it out in north Texas also. Texas is a big State. It is big airspace. A lot of airplanes. So we did that. So now we have a playbook to move forward. It is not a flip of the switch or a snap of the fingers. We still have to continue the legacy system and run it as safe and efficiently as possible while we are doing this.

Mr. DAVIS. All right, Mr. Baker.

Mr. BAKER. Well, when we think about general aviation aircraft, if it makes sense, people will adapt.

We think there is probably close to 80 or 90 percent of the people today using some type of a GPS to move around and navigate with, whether it be portable or panel-mounted. People are starting to use a tablet, namely the iPad, in very significant ways to get weather and traffic in the cockpit at low altitudes. When there is a value, when people can see that you are getting something significantly better with which to fly the aircraft, people adapt.

We are just asking for this to be considered: what is the lowest possible cost to do that so that we get that adaptation across the system?

We are in favor of ADS-B where it makes sense. If we can get weather and traffic in the cockpit, we will be better off.

Mr. DAVIS. Thank you. Mr. Scovel, in your testimony, you raise the issue of safely integrating UAS into our airspace. Many advanced economies from Australia to Canada, to even France, have successfully integrated small UAVs into their airspace. Canada has issued over 1,500 commercial approvals compared to the FAA's 7. I mean, I think that shows that the risk-based small UAS rules, that actually, we need to unlock what I think would be rapid job creation. And the FAA partners with its counterpart foreign agencies in countless ways. Has the FAA reviewed other country's ac-

tions on small UAS and leveraged those best practices in preparing the small UAS rules?

Mr. SCOVEL. My office has done work, sir, on FAA's efforts to safely integrate UAS into our airspace. I don't know whether we have looked at FAA's review of other nations' procedures and practices. I would be happy to get back to you on that.

Mr. DAVIS. Would you please do that? I mean, in my district it is a very rural district.

Mr. SCOVEL. Right.

Mr. DAVIS. We need to make sure we have some idea of what type of possible commercial expansion in UAS technology we can utilize here in this country, and I think when you look at a 1,500 commercial approvals in Canada versus seven here, there might be something to be learned in what they have seen, and how they have integrated that into our airspace, or their airspace. So with that, I thank you for your questions—or thank you for your responses, and I yield back.

Mr. SHUSTER. I thank the gentleman and my apologies for overlooking him. I will never do that again.

Well, I want to thank everybody, especially our panelists for being here today. The final word is, let me start off by saying that I believe Administrator Huerta has done some positive things down at the FAA, but as I mentioned earlier, I think if you go back 30 years and every Administrator, you are going to say, well, that person did some positive things, and that person did some positive things. But as I look around these five chairmen on these walls here, all for the last 25 years worked to pass legislation to reform, to change the FAA, and you look back to 1992, Governor Baliles, who wrote a report, 25 years ago, if you read that report, we are talking about the same stuff.

And so I think we have an opportunity here to do something different. The process doesn't work the way it should, and I know we get a little bit here and a little bit there. The funding is not there. And if you think Congress in this environment that we are in today with the deficits, and the debt that we have is going to be able to fix this, we are not going to be able to.

So we need to look at something different, not only from the process standpoint, but from the funding standpoint, a new way forward. And we have to do it together. And right here is the core group of folks that you represent that we have got to sit down and we have got to figure out together. It is not going to be Peter DeFazio and I saying this is what we are going to do. I think if you looked over the last 1990s, and 2000s, President Clinton and President Bush both pretty much hatched it in the back room and then got slaughtered when they took it to the floor of the Senate or the House because they didn't bring the stakeholders to the table.

And I really do believe there is a way forward for us, and not everybody is going to get everything they want, but I think we can get something that is going to improve the system significantly, that is going to give us—today we have the safest. We need the most efficient. Because if we don't, I really truly believe, if we don't do something now, and I think there is an opportunity for us, we are going to continue to lose our lead in the world, and when it

comes to aviation, and you look back through history, and strewn with when America didn't step up and do what is right to get out of the way of business, we lost many, many industries.

So again, on my watch, I don't want that to happen. And I am going to continue to work with Mr. DeFazio, and Members on both sides of the aisle, and you, of course, the stakeholders, to be able to craft something. And September is the due date, so we need to strap on our helmet, and go to work and figure out how to do this. So again, I thank everybody for being here. It was a great hearing today. I appreciate it greatly. Thank you.

[Whereupon, at 12:30 p.m., the committee was adjourned.]

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

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Status of FAA's Efforts to Operate and Modernize the National Airspace System

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



Chairman Shuster and Members of the Committee:

Thank you for inviting me to testify on the Federal Aviation Administration's (FAA) efforts to more effectively operate and modernize the National Airspace System (NAS). Since 1958, FAA has overseen the safe operation of the busiest and most complex air traffic system in the world. Over the past 2 decades, Congress has enacted legislation aimed at making FAA more efficient and cost effective while improving its delivery of air traffic services and expediting modernization projects. At the request of this Committee, we are conducting an audit of FAA's efforts to implement these reforms.

My testimony today is based, in part, on our ongoing audit as well as other recently completed audits. I will focus on FAA's progress in (1) achieving productivity efficiencies and cost savings from its personnel and organizational reform efforts, and (2) improving the delivery of modernization projects and its acquisition practices with acquisition reform. I will also highlight additional issues that impact the Agency's efforts to modernize the NAS.

IN SUMMARY

FAA has taken steps to implement the provisions of reform legislation, including introducing new employee compensation systems and establishing the Air Traffic Organization (ATO). However, the Agency has not taken full advantage of its personnel reform authorities, or implemented changes that could significantly enhance air traffic operations. In general, FAA is not using business-like practices to improve its operational efficiency and cost effectiveness. As a result, FAA has experienced significant increases in its costs without appreciable increases in controller productivity.¹ FAA's acquisition reforms have similarly fallen short of their goals to improve the delivery of new technologies and capabilities, as well as cost, schedule, and performance outcomes in FAA's modernization projects and procurement of services. Finally, FAA faces significant challenges as it modernizes and operates the Nation's air traffic control system, including ongoing investment priorities for advancing the Next Generation Air Transportation System (NextGen), numerous complexities related to safely integrating unmanned aircraft systems (UAS) into the NAS, and a lack of viable business continuity plans to mitigate potential security risks to the air traffic control system.

BACKGROUND

Over the past 2 decades, Congress has granted FAA unique authorities to implement reforms that would result in increased operational efficiency, improve the Agency's

¹ FAA generally defines controller productivity as the average number of operations handled per controller at terminal facilities, or the average number of instrument flight hours handled per controller at en route facilities. Productivity can also be evaluated by measuring controller unit cost per activity or controller time-on-position.

acquisition practices, expedite delivery of new technologies, and reduce the Agency's costs.

- **Personnel Reform.** In 1995, Congress passed legislation exempting FAA from most Federal Government personnel rules and allowed the Agency to implement a new personnel management system that provided greater flexibility in hiring, training, and compensating personnel, as well as assigning personnel to duty locations.² In 1996, additional legislation was passed allowing FAA to negotiate pay with its bargaining units and requiring the Agency to establish a cost accounting system.³
- **Organizational Reform.** In April 2000, Congress passed legislation requiring the appointment of a Chief Operating Officer (COO) to oversee the day-to-day operation and modernization of the air traffic control system.⁴ In December 2000, President Clinton signed an executive order creating ATO, led by the COO, as a performance-based organization to manage the operation of air traffic services.⁵ ATO was established in 2004 after considerable planning and preparation.
- **Acquisition Reform.** In 1995, Congress granted FAA relief from principal acquisition and personnel laws and regulations, such as the Office of Federal Procurement Policy Act and the Federal Acquisition Regulation (FAR), and directed FAA to develop an acquisition management system (AMS) to meet its unique needs. FAA's AMS—implemented in April 1996—was designed to be broader, less prescriptive, and more flexible than the FAR by allowing procurement officials, based on prudent discretion and sound judgment, to employ any procedures that are not captured in AMS.

FAA'S ORGANIZATIONAL REFORMS HAVE NOT ACHIEVED ANTICIPATED OPERATIONAL EFFICIENCIES OR REDUCED COSTS

Since 1995, FAA has completed several personnel and organizational reforms, undergone multiple reorganizations, and implemented measures aimed at improving its internal operations and reducing costs. Despite these reforms, the Agency's total budget, operations budget, and compensation costs have nearly doubled, while productivity at its network of air traffic facilities has decreased substantially—largely because FAA has not effectively leveraged its personnel reform authorities or implemented business-like practices to better manage operations and costs.

² *FY 1996 Department of Transportation and Related Agencies Appropriations Act*, Section 347(a), P.L. 104-50, Nov. 15, 1995.

³ *Federal Aviation Reauthorization Act of 1996*, Sections 253 & 276, P.L. 104-264, Oct. 9, 1996.

⁴ *Wendell H. Ford Aviation and Reform Act for the 21st Century*, Section 303, P.L. 106-181, Apr. 5, 2000.

⁵ *Air Traffic Performance-Based Organization*, Executive Order No. 13180, Dec. 7, 2000.

Despite Changes to FAA's Organizational and Operating Structures, Costs Have Increased and Operational Efficiency Has Decreased

Since receiving its personnel and organizational reform authorities, FAA established ATO; implemented new performance-based compensation systems, notably the Core Compensation system;⁶ and negotiated agreements with its air traffic controller, technician, and other bargaining units. In addition, the Agency carried out multiple reorganizations in an effort to improve its operations and internal operating structures. For example, as part of its 2010 Foundation for Success initiative, FAA created Deputy COO and Chief of Staff positions in the Office of the COO, consolidated several offices, and eliminated some redundant management positions.

FAA has also taken steps to reduce operating costs. Most notably, in February 2005 FAA awarded a 10-year contract to operate flight service stations⁷ in the continental United States, Puerto Rico, and Hawaii, which were previously operated by the Agency. FAA estimated that it would achieve approximately \$2 billion in cost savings and avoidances over the 10-year life of the contract.

However, these reforms have not slowed the Agency's cost growth or improved operational productivity. Between fiscal years 1996 and 2012, FAA's total budget grew by 95 percent, from \$8.1 billion to \$15.9 billion,⁸ with its operations account increasing by 108 percent, from \$4.6 billion to \$9.7 billion (see figure 1). Also, during this timeframe FAA's total personnel compensation and benefits (PC&B) costs increased by 98 percent, from \$3.7 billion to \$7.3 billion.⁹

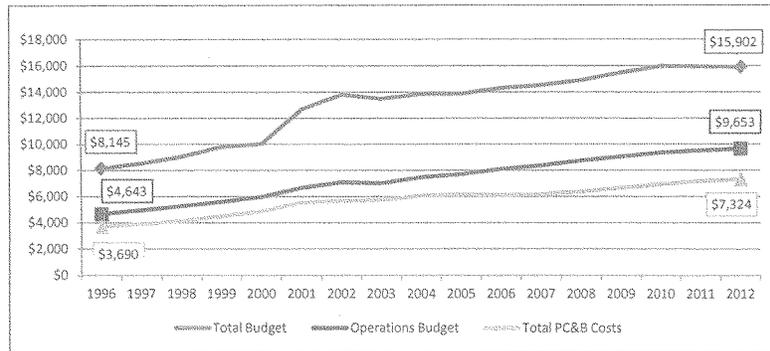
⁶ FAA's Core Compensation Plan was developed in an effort to become more performance-based. The plan replaced the traditional grade and step base pay method with broad pay bands and two forms of annual performance-based salary increases (organizational and individual).

⁷ Flight service stations provide general aviation pilots with aeronautical information such as pre- and in-flight weather briefings, flight planning assistance, and aeronautical notices. In addition, while employees at flight service stations do not control air traffic, they can provide in-flight support to pilots who are lost or in need of assistance.

⁸ In 2000, Congress passed legislation that significantly increased funding for the Airport Improvement Program and Facilities and Equipment.

⁹ In constant dollars, the total budget increased 41 percent, the Operations account increased 52 percent, and PC&B accounts increased 22 percent.

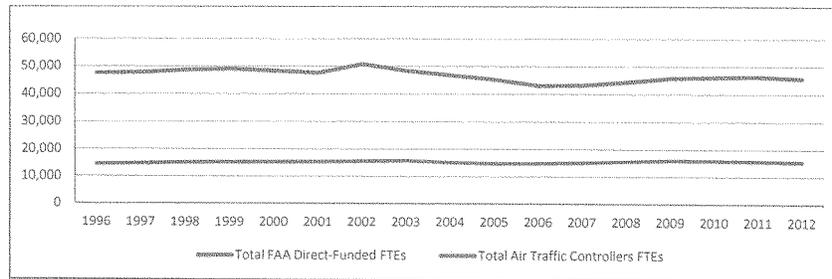
Figure 1. FAA's Total Budget, Operations Budget, and Total PC&B Costs, Fiscal Years 1996 – 2012 (Dollars in Millions)



Source: FAA

At the same time, FAA's workforce has remained relatively constant. Between fiscal years 1996 and 2012, the Agency's total number of direct-funded full-time equivalents (FTE) decreased by 4 percent, while its controller workforce has ranged from 14,360 FTEs to 15,770 FTEs (see figure 2).

Figure 2. FAA's Total Number of Direct-Funded FTEs and Air Traffic Controllers FTEs, Fiscal Years 1996 – 2012

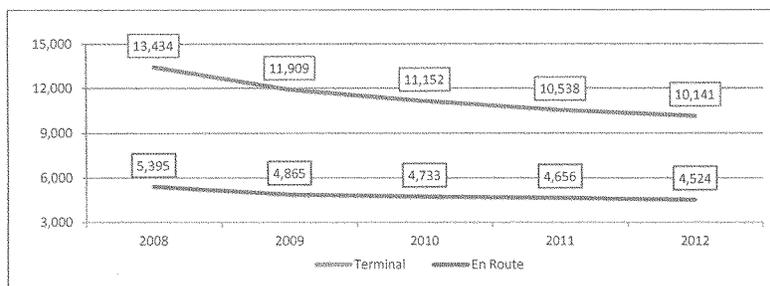


Source: FAA

Further, FAA's operational productivity has significantly decreased. Between fiscal years 1998 and 2012, FAA's air traffic operations dropped 20 percent, and between fiscal years 2008 and 2012, air traffic activities per controller dropped 25 percent at terminal facilities

and 16 percent at en route facilities—a trend we reported in July 2014 (see figure 3).¹⁰ This is consistent with the decline in air traffic during the economic recession.

Figure 3. Activities per Controller at En-Route^a and Terminal Facilities,^b Fiscal Years 2008 – 2012



Source: FAA

^aActivities at en route facilities are measured by the number of instrument flight rule hours.

^bActivities at terminal facilities are measured by the number of take offs and landings controllers monitor.

Workforce and Management Practices Impede FAA's Ability To Meet Reform Goals

FAA has not effectively leveraged the personnel reform flexibilities provided by Congress when developing new personnel systems. While FAA is exempt from most Federal personnel laws and regulations covered by Title 5, many of its personnel policies, such as premium pay, leave, and grievances, continue to mirror Federal rules—due in part to FAA's highly unionized workforce, which negotiated benefits and other personnel matters that are in line with Federal regulations. However, FAA did use its personnel reform authorities to change and expand the number of pay systems for its workforce (see table 1).

¹⁰ *FAA Lacks the Metrics and Data Needed to Accurately Measure the Outcomes of Its Controller Productivity Initiatives* (OIG Report No. AV-2014-062), July 9, 2014. OIG reports are available on our Web site at <http://www.oig.dot.gov/>.

Table 1. Comparison of FAA's Employee Compensation Systems as Compared to the Federal Governments

FAA's Employee Compensation System	Title 5
<ul style="list-style-type: none"> • Broad pay bands; • Union negotiated pay; • OPM General Schedule (GS) pay for employees in unions that have not negotiated other pay rates; • OPM Wage Grade (WG) schedule for hourly rate employees. 	<ul style="list-style-type: none"> • Government-wide GS and WG pay schedules.

Source: FAA

Moreover, FAA has not fully assessed a series of initiatives it has implemented since 1998 to determine their effect on controller productivity, operating costs, and training and hiring practices¹¹—largely because it has not established detailed baseline metrics or quantifiable goals. For example, while FAA implemented a cost accounting system and other systems to help improve efficiency, it does not regularly analyze the operational and cost data generated by these systems to determine if it could reduce costs or improve productivity. Also, FAA did not develop comprehensive business cases to fully support facility consolidations that would provide a clear picture of the total costs and potential benefits.¹²

FAA has also missed opportunities to reduce its operations costs. Notably, the Agency has not converted any of its FAA-operated towers to the Federal Contract Tower Program since 2000. Contract towers have proven to cost less and have safety records comparable to FAA-operated towers.¹³ Moreover, since 2000, the number of air traffic facilities FAA operates has remained essentially unchanged at 317, even though overall air traffic operations have decreased by 20 percent since fiscal year 1998. In addition, FAA has not pursued large-scale opportunities to consolidate current facilities to potentially reduce costs. The last large-scale consolidation of air traffic facilities occurred more than a decade ago, and since 2000 FAA has undertaken only seven small Terminal Radar Approach Control Facilities (TRACON) consolidations, and abandoned a plan to build large, integrated air traffic facilities (combined en-route-TRACON facilities).

¹¹ *FAA Lacks the Metrics and Data Needed to Accurately Measure the Outcomes of Its Controller Productivity Initiatives* (OIG Report No. AV-2014-062), July 9, 2014.

¹² *Letter to the Idaho Congressional Delegation Regarding the Review of FAA's Business Case for Moving Terminal Radar Approach Control Services from Boise, Idaho to Salt Lake City, Utah* (OIG Project ID CC-2009-099), June 30, 2010; *Letter to Congressman Neugebauer Regarding FAA's Decision To Realign the Abilene, TX TRACON Functions Into the Dallas/Ft. Worth TRACON* (OIG Project ID CC-2012-012), Jan. 17, 2013.

¹³ *Contract Towers Continue To Provide Cost-Effective and Safe Air Traffic Services, But Improved Oversight of the Program Is Needed* (OIG Report No. AV 2013-009), Nov. 5, 2012.

FAA CONTINUES TO EXPERIENCE COST INCREASES AND SCHEDULE DELAYS IN ITS MAJOR SYSTEM AND SERVICE PROCUREMENTS

Despite implementing AMS and numerous organizational changes, FAA's major system acquisitions continue to experience cost increases and schedule delays—largely because AMS does not incorporate many Government and industry best practices for avoiding or resolving systemic contract management weaknesses and underlying programmatic and organizational issues. These weaknesses have impacted the progress of NextGen programs. Delays in implementing the En Route Automation Modernization (ERAM) system¹⁴ pushed back the start of other NextGen programs such as DataComm,¹⁵ and delayed NextGen initiatives such as trajectory-based operations.¹⁶

FAA's AMS Has Not Improved Acquisition Outcomes

FAA has not accelerated delivery of new technologies and has not reduced costs or schedule as anticipated with its transition to AMS. When FAA first implemented AMS in 1996, FAA's stated acquisition reform goal was to cut acquisition costs by 20 percent and acquisition schedules by 50 percent, all within 3 years. However, between 1996 and 2004, acquisitions averaged 38 percent over budget and 25 percent behind schedule, which was consistent with FAA's performance before AMS was implemented.

While FAA has made efforts to improve and modify AMS, such as establishing procedures to minimize conflicts of interest, our ongoing audits continue to find weaknesses and gaps in AMS policies and guidance. For example, AMS lacks guidance and best practices for major information technology (IT) investments, such as requiring the use of modular contracting, which involves breaking down IT investments into manageable contract segments to reduce overall risk and support rapid delivery of new capabilities. AMS also does not provide specific guidance to assist program managers in accepting large software intensive programs, such as ERAM, which contributed to the acceptance of immature software and increased development costs.

FAA recently appointed a new acquisition executive, who made oversight of needed AMS revisions one of his first priorities. In addition, FAA is in the process of establishing an 18-month Government and industry-wide process action team and evaluation period to identify AMS strengths and weaknesses and industry-wide best practices.

¹⁴ ERAM, which processes flight data to allow controllers to manage traffic at en route air traffic facilities, is a key foundation for realizing the benefits of NextGen's transformational programs, such as new satellite-based surveillance systems and data communications for controllers and pilots.

¹⁵ FAA's DataComm program aims to provide two-way data communication between controllers, automation platforms, and flight crews.

¹⁶ Trajectory-based operations refer to a number of types of operations that use controlled trajectory to improve performance and predictability to aircraft operations. One example is Optimized Profile Descent (OPD), which uses trajectory to allow a smooth decent transition from high altitude to the runway.

Recent Organizational Changes Strengthen Project Management Controls After Contract Award

FAA has taken steps to improve its management of major acquisitions. For example, FAA implemented several organizational changes designed to streamline and prioritize NextGen management, including moving the NextGen program office out of ATO and placing it under the responsibility of the Deputy Administrator to increase visibility for the program. FAA also created a Program Management Office (PMO) to centralize its management of approved acquisitions. In addition, FAA's Joint Resource Council (JRC) began conducting quarterly acquisition briefings to keep senior executives apprised of the status of acquisitions. While these efforts are a step in the right direction, it is too soon to determine whether they will achieve their intended goals to improve the Agency's acquisition and project management.

According to FAA, the Agency has made notable improvement in its ability to deliver programs on schedule and within budget since ATO was established in 2004. FAA's acquisition results appear to show some improvement after the creation of ATO. However, FAA's methodology for measuring its progress may not provide a complete picture of its overall acquisition results—largely because it does not always account for substantial program changes, such as repeated rebaselining experienced during completed program segments. FAA acknowledges that it primarily focuses on segments currently underway when assessing its acquisition progress because it can only manage and influence outcomes on ongoing segments. Also, Agency officials stated that they use a segmented approach to acquisitions because they are not always certain of future programmatic requirements that could impact future costs.

However, the difficulty in using FAA's methodology to measure its progress over time is exacerbated by the length of capital programs, which often span decades, resulting in additional program segments and changes in scope. For example, FAA's most recent Acquisition Performance Baseline Report¹⁷ shows that the current segment for its Wide Area Augmentation System (WAAS) program (a satellite-based navigation system) is \$58.7 million under budget with a delay of just 5 months. However, FAA does not take into account its original baseline for the program. Based on our analysis, which includes all open and completed segments for WAAS as of September 30, 2013, the system is about 12 years behind the original schedule and will have a total cost increase of about \$1 billion. These two methodologies create radically different images of FAA's acquisition performance.

FAA is relying on a segmented approach to develop and implement its NextGen transformational programs, including the satellite-based Automatic Dependent Surveillance-Broadcast (ADS-B) system.¹⁸ While segmented implementation can help

¹⁷ FAA, *System Acquisition Baseline Performance Fiscal Year 2013 Update*, January 2014.

¹⁸ ADS-B is a satellite-based surveillance technology that also uses aircraft avionics and ground-based systems to provide information on aircraft locations to pilots and air traffic controllers.

reduce risk if appropriately structured and managed, it can also obscure a program's total costs, delivery, and final capabilities until all segments are completed. We recently reported¹⁹ that, although FAA completed the ADS-B ground infrastructure and mandated that air space users equip with new avionics by 2020, the program faces a number of unresolved issues, including:

- **Delivery of Pilot and Controller Services:** Currently, these services are limited because FAA has yet to complete modernizing systems that controllers rely on to manage air traffic.
- **Air Traffic System Capabilities:** FAA has yet to resolve problems uncovered during operational tests with FAA systems at several air traffic facilities. Further, FAA has yet to conduct “end-to-end” testing to ensure that all air and ground elements will work as intended, particularly in congested airspace.
- **ADS-B Benefits and Costs:** The initial system, ADS-B Out, provides little benefit to large commercial airlines, while the requirements for the more beneficial ADS-B In continue to evolve. Furthermore, the costs of the current portion of the program (ADS-B Out and current broadcast services) now outweigh projected program benefits for FAA and airspace users by \$588 million.

These are not isolated instances. Of the 15 major acquisitions that were ongoing as of September 30, 2013—which currently total \$16 billion—8 included acquisition baseline cost increases amounting to \$4.9 billion, and 8 experienced baseline delays. Most of these cost increases and delays can be attributed to WAAS, along with the Standard Terminal Automation Replacement System (STARS), another long-running program that has evolved significantly from its original cost and schedule goals.²⁰ Even still, baseline cost increases for the other six programs totaled \$539 million and baseline delays averaged 25 months.

The problems we have identified in FAA's major system acquisition programs also apply to FAA's support services acquisitions. For example, FAA did not develop accurate training requirements, provide sufficient funds for training innovations, or approve the contractor's cost-reduction proposals for its Air Traffic Controller Optimum Training Solution (ATCOTS) contract—valued at \$859 million. As a result, the contract experienced 4 consecutive years of cost overruns totaling about \$89 million, which resulted in the loss of 1 year of contract performance. Moreover, FAA paid \$17 million in award fees and \$14 million in incentives fees, even though contract goals were not met, including the goal to reduce average training time which actually increased by 41 percent.

¹⁹ *ADS-B Benefits Are Limited Due To a Lack of Advanced Capabilities and Delays in User Equipage* (OIG Report AV2014-105), Sept. 11, 2014.

²⁰ STARS aims to modernize the systems that controllers use to manage traffic at terminal facilities.

Systemic Contract Management Weaknesses and Underlying Programmatic and Organizational Issues Impede FAA's Ability To Meet Reform Goals

As our work has shown, cost overruns, delays, and poor performance on FAA's major acquisitions are traceable to longstanding management weaknesses in key areas, including:

- **Identifying requirements.** In many cases, cost increases and delays in FAA's acquisitions are due to unclear or understated requirements, including unplanned work. For example, FAA did not account for all the site-specific requirements needed for STARS to replace the legacy system at 11 large facilities that manage traffic near airports.
- **Estimating software complexity.** Underestimating the complexity of software development and the difficulty of modifying available software contributed to unexpected software costs for several acquisitions, including STARS, ERAM, and WAAS. For example, FAA has been slow to adopt best practices for information technology acquisitions such as the use of modular contracting designed to reduce cost and technical risk. FAA structured ERAM as a traditional, large-scale contract with enormous contract tasks that span several years instead of using modular contracting, which would divide the contract into manageable segments for better control.
- **Leveraging sound contracting practices to minimize risk.** FAA learned of a material technical risk during the award phase for the ATCOTS contract indicating that there was a 60- to 80-percent likelihood that training needs would not be achieved due to the limited staff hours proposed by the successful bidder. However, FAA did not require the contractor to address the technical risks before awarding the contract, and contract costs increased 30 percent in the first 2 years of the contract alone.
- **Securing reliable cost and schedule estimates.** FAA has allowed for flexibility in the documentation required for critical decisions and has made decisions without pertinent or reliable information. These practices have contributed to problems FAA has had in keeping acquisitions on budget and schedule. For example, we found that FAA's JRC conditionally approved a final investment decision for the Runway Status Lights program, before receiving detailed site engineering reports that FAA acknowledged could impact the program's cost and schedule. After reviewing the reports, the program office revised the program's cost estimate from \$248 million to \$327 million and pushed the completion date from 2011 to 2015. Last year, changes in construction requirements and lighting specifications, among other factors, required the JRC to rebaseline the program which is now expected to cost \$367 million and be completed in 2017. To control costs, FAA also reduced the number of airports receiving RWSL systems from 23 to 17.

Furthermore, FAA's problems in implementing new capabilities and realizing the full benefits of reforms associated with NextGen stem from a number of underlying programmatic and organizational weaknesses.²¹ These include (1) the lack of an executable plan, (2) unresolved critical design decisions (such as how much automation can be reasonably accommodated by a controller), (3) organizational culture and frequent turnover in NextGen leadership, and (4) undefined benefits. These weaknesses have contributed to stakeholder skepticism about NextGen's feasibility and reluctance to invest in NextGen.

OTHER KEY ISSUES IMPACT FAA'S ABILITY TO MODERNIZE AND OPERATE THE NAS

As FAA works to revamp its acquisition management practices, it faces other challenges in modernizing the Nation's air traffic control system. These challenges include responding to NextGen priorities recommended by a joint Agency-industry committee, safely integrating UAS into the NAS, and ensuring that appropriate business continuity plans are in place to mitigate potential security risks to the air traffic control system.

FAA Developed a Plan To Implement Prioritized NextGen Recommendations, But Work Remains To Fully Realize Benefits

The success of FAA's efforts to implement NextGen depends on the Agency's ability to set priorities, deliver benefits, and maintain stakeholder support. In July 2013, FAA tasked the NextGen Advisory Committee (NAC)²² to review the Agency's current plans and activities affecting NextGen implementation and recommend investment priorities, citing uncertainty around funding for NextGen projects. In September 2013, the NAC reported industry's highest priorities for NextGen, based primarily on benefits, technological maturity, and implementation readiness.²³

Based on the report, in April 2014 FAA and the NAC formed work groups to focus on developing a master implementation plan for four areas: (1) advancing the use of performance-based navigation (PBN), (2) unlocking closely spaced parallel runway operations, (3) enhancing airport surface operations through data sharing, and (4) developing data communications (DataComm) capabilities between the cockpit and air traffic control. These prioritized NextGen capabilities—which will require operators to make changes to their aircraft and flight operations centers, as well as provide

²¹ *Addressing Underlying Causes for NextGen Delays Will Require Sustained FAA Leadership and Action* (OIG Report No. AV-2014-031), February 25, 2014.

²² The NAC is a Federal advisory committee established to develop recommendations for NextGen portfolios and includes operators, manufacturers, air traffic management, aviation safety, airports, and environmental experts.

²³ NAC, *NextGen Prioritization: A Report of the NextGen Advisory Committee in Response to Tasking from the Federal Aviation Administration*, September 2013.

additional pilot training—are consistent with our work as well as those of a Government-industry task force formed in 2009.²⁴

FAA published its master plan for the four identified areas in October 2014²⁵ identifying steps that it intends to take over the next 3 years (with the exception of DataComm, which the Agency plans to implement at its high-altitude radar centers starting in 2019). FAA's plan is an important step to focus its NextGen efforts, but executing the plan and holding all parties accountable to deliver capabilities and fully realize benefits could be challenging, given FAA's history of schedule slippages and cost overruns with implementing NextGen programs.

Moreover, FAA has not always provided a clear understanding of how it will manage and execute implementation and what it will take to deliver these efforts—particularly in managing complex interdependencies among programs, such as PBN and controller automation systems, to minimize risk. We plan to issue a report this month on FAA's steps to address the NAC's recommendations and will continue to monitor the Agency's efforts with achieving NextGen priorities.

Safely Integrating UASs into the NAS Is Also a Significant Barrier to Operational Success

FAA expects that within 5 years, roughly 7,500 UAS²⁶ will be active in the United States, and that over the next 10 years, worldwide UAS investment will total more than \$89 billion. This potential investment represents an immense economic opportunity for the United States, and FAA recently took a step forward in broadening commercial UAS use by approving exemptions for six film industry companies to operate the systems on a limited basis.

However, safely integrating UAS into the NAS presents a significant challenge for FAA. As we reported in June 2014,²⁷ the Agency has not fully addressed the significant technological, regulatory, and management challenges to achieve safe integration for all UAS. These include reaching consensus with industry on standards for technology that would enable UAS to detect and avoid other aircraft, establishing an overall regulatory framework for UAS integration, and effectively collecting and analyzing UAS safety data to better understand and mitigate risks. In addition, FAA is behind in issuing a key final rule to govern small UAS operations²⁸ and has not finalized how it will leverage data

²⁴ In 2009, an FAA-commissioned RTCA task force made 32 recommendations to advance NextGen and stated that focusing on delivering near-term operational benefits, rather than major infrastructure programs, would help gain industry confidence in FAA's plans and encourage users to invest in NextGen.

²⁵ NextGen Priorities Joint Implementation Plan Executive Report to Congress. Oct. 17, 2014.

²⁶ UAS consist of systems of aircraft and ground control stations where operators control the movements of aircraft remotely.

²⁷ *FAA Faces Significant Barriers to Safely Integrate Unmanned Aircraft Systems into the National Airspace System*. (OIG Report Number AV-2014-061), June 26, 2014.

²⁸ 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.

from its six congressionally mandated test sites. Furthermore, the Agency is significantly behind schedule in meeting most UAS-related provisions in the FAA Modernization and Reform Act of 2012. These delays are due to unresolved technological, regulatory, and privacy issues and could ultimately prevent the Agency from meeting Congress's September 2015 deadline for achieving safe UAS integration.

Recent Security Issues at Air Traffic Control Facilities Indicate Potential Weaknesses in Business Continuity Plans

To safely and efficiently operate the NAS, air traffic controllers rely heavily on communication, navigation, and surveillance equipment to separate aircraft and communicate radar, weather, and flight plan information to pilots. However, recent incidents raise concerns about FAA's ability to protect and maintain operation of this vast and complex network.

Notably, in September 2014, an FAA contract employee deliberately set fire to critical equipment at FAA's Chicago Air Route Traffic Control Center. This was the second time since May 2014 that a fire at a Chicago air traffic control facility has resulted in delays and cancellations of hundreds of flights in and out of O'Hare and Midway international airports, underscoring the importance of FAA having effective controls in place to safeguard the critical equipment required to operate the NAS and effective contingency and security plans in case unforeseen incidents arise.

We recently began two reviews to examine IT security controls at large consolidated TRACONS²⁹ and to assess the business continuity plans and security measures in place at the Chicago air traffic control facilities.³⁰ We anticipate issuing reports on these reviews early next year.

CONCLUSION

Our work continues to demonstrate that while FAA has taken some action to implement the reform authorities Congress granted almost 2 decades ago, it has not achieved the large-scale efficiencies, productivity enhancements, and cost savings envisioned by these reforms. The Agency's inability to transcend ongoing problems is largely due to its failure to fully adopt sound management practices, make knowledge-based decisions, and assign clear accountability for productivity and results. With new and complex challenges on the horizon, FAA's effective and timely use of its reform authorities will be critical to meeting the Nation's current and future aviation needs.

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

²⁹ *Audit of Security Controls Over FAA's Large Terminal Radar Approach Control Facilities*, (OIG Project No. 14F3012F000), Aug. 7, 2014.

³⁰ *Audit of FAA's Contingency Plans and Security Protocols at Chicago Air Traffic Control Facilities*, (OIG Project No. 15A3001A000), Oct. 15, 2014.

**ATTACHMENT. SYSTEMIC CONTRACT AND PROJECT
MANAGEMENT WEAKNESSES IMPACTING ACQUISITION OUTCOMES**

Acquisition Problems	ERAM	ATCOTS	STARS/ TAMR	ADS-B	SWIM	RWSL	WAAS
Unclear Requirements	•	•	•	•	•	•	
Stakeholders Not Consulted	•	•	•			•	
Software Development Issues	•		•				•
Inadequate Cost Estimates		•	•		•	•	•
Poor Contractor Oversight	•	•					
Inadequate Cost Tracking or EVM	•	•					•
Inadequate Cost Realism/Price Analysis							
Ineffective Use of Incentive Awards	•	•					
Undefinitized Scope and Costs	•						•
Inadequate Risk Assessments	•	•					•
Inadequately Structured Contract	•	•		•			
No Modular Contracting or IT Best Practices	•						•
High Turnover of Contracting and Program Staff	•	•					
Inadequately Maintained Contract Files	•	•					
Testing Problems	•		•	•			

• Indicates the program had a problem in this topic.

Source: OIG analysis

Questions for the Record from Hon. Rodney Davis, a Representative in Congress from the State of Illinois, to Calvin L. Scovel III, Inspector General, U.S. Department of Transportation

Equipping with ADS-B Technology

QUESTION: When it comes to equipping with ADS-B (automatic dependent surveillance-broadcast) technology, I agree with your recommendation that FAA improve its communications with the aviation community so they understand who needs to equip as well as potential alternatives. FAA held a meeting in October and is holding another one on this topic today. **Are these the kind of steps sufficient? In addition to issuing your recommendation, are you working with them on this directly?**

ANSWER: FAA's recent outreach activities to establish better understanding of ADS-B with the aviation community and encourage user equipage, through the "Call to Action" summit on ADS-B, and the "Equip 2020" working group led by the NextGen Institute are steps in the right direction. As we noted in our report both General Aviation and Commercial Airspace users have raised legitimate concerns about the ADS-B program. However, it will be important for FAA to identify capabilities and applications for ADS-B technology that provides benefits to airspace users for among other things, enhancing the flow of air traffic, boosting airspace arrival rates, or reducing fuel consumption.

We will continue to monitor FAA's efforts to address the risks to implementing ADS-B and steps to address our recommendations. We will keep this committee informed of FAA's progress and any issues that warrant additional attention and oversight.

Federal Contract Tower Program

QUESTION: Mr. Scovel, in July, 113 House members, including myself, sent a letter to the FAA Administrator seeking a long-term strategy and plan for the Federal Contract Tower Program. I represent a district with contract towers in Bloomington, Decatur and Bethalto. I support these towers and their mission. My colleagues and I are concerned that the FAA's effort to "rightsize the NAS (National Airspace System)" will fall squarely on the back of this cost-effective program. **How would you characterize the Contract Tower Program and do you have any update since the last audit your office did in November of 2012?**

ANSWER: Our work shows that FAA's Federal Contract Tower Program is a sound and successful program. Since 1998, we have completed a total of four audits, in which we found that the Program successfully provides safe, low-cost air traffic services to users and the quality of those services is comparable to FAA operated towers. Specifically, in 2012, we found that on average, a contract tower cost about \$1.5 million less to operate than a comparable FAA tower, mainly due to lower staffing and salary levels. We also found that contract towers had a lower number and rate of safety incidents compared to similar FAA towers. We have not updated our November 2012 report.

Questions for the Record from Hon. Elizabeth H. Esty, a Representative in Congress
from the State of Connecticut, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

Industry Buy-In of ADS-B

QUESTION: Inspector General Scovel, you spoke about the FAA's struggle to implement NextGen, and cited "undefined benefits" as one of the problems with implementation. I have heard this concern as well, and I am interested to know how best to combat this. **How does the FAA intend to focus on improving benefits to users? Should Congress and the FAA consider a grant or tax incentive program—a carrot or a stick program—to increase participation and speed up industry buy-in of ADS-B?**

ANSWER: As we noted in our statement, the success of FAA's efforts to implement NextGen depends on the Agency's ability to set priorities, deliver benefits, and maintain stakeholder support. As a result, FAA has begun working with stakeholders, in particular through the NextGen Advisory Committee, to better focus its NextGen efforts to include delivering near-term benefits. The decision to use a grant or tax incentive program to help airspace user's purchase and install ADS-B avionics is a policy call for the Congress. We note that the FAA Modernization and Reform Act of 2012 included a provision stating that the DOT Secretary may establish an equipage incentive fund for general aviation and commercial aircraft users to install equipment to utilize NextGen capabilities. FAA has not yet completed the necessary steps to allow them to establish the fund.

Questions for the Record from Hon. Richard L. Hanna, a Representative in Congress
from the State of New York, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

OIG Report Recommendations

QUESTION:

In your office's June 26, 2014 Audit Report entitled "FAA Faces Significant Barriers to Safely Integrate Unmanned Aircraft Systems into the National Airspace System," there were 11 recommendations provided to enhance the effectiveness of those efforts. Five of those recommendations were unresolved at that time according to your office's assessment. **What is the status of implementing and resolving those five recommendations? What, if any new recommendations do you have for the FAA since that audit report was released?**

ANSWER:

We have resolved four of these five recommendations—meaning FAA has proposed actions that meet the intent of our recommendations. However, all five of these remain open awaiting planned FAA actions, as follows:

- FAA is developing a detailed inventory of past and ongoing research activities;
- FAA expects to implement a Quality Management System process by January 31, 2015 to verify that the UAS Integration Office is effectively coordinating with all other lines of business and field safety inspectors;
- FAA has provided the UAS test sites with a report identifying potential research areas and the FAA Technical Center has assigned a lead to coordinate data. These actions will be ongoing through December 31, 2017;
- FAA has developed a UAS Roadmap that will be updated annually with performance metrics. It is under review by the Office of Management and Budget (OMB) and will not be considered complete until OMB approves it; and
- FAA has taken some actions to improve data sharing and analysis by validating mishap data received from DoD and is working with MITRE to establish a database to be completed by September 30, 2015. However, FAA has not yet obtained other operational data from DoD, such as airworthiness data. This recommendation remains unresolved.

We have not made any new recommendations to FAA since our June report. However, other key actions needed to advance UAS integration include issuing the final rule for small UAS operations and developing an integrated budget document for UAS that clearly identifies funding needs for programs, such as air traffic control systems and operations.

Questions for the Record from Hon. Richard L. Hanna, a Representative in Congress
from the State of New York, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

Test Site Research Guidance and Utilization

QUESTION:

One of the nine recommendations in your office's June 26, 2014 audit report entitled "FAA Faces Significant Barriers to Safely Integrate Unmanned Aircraft Systems into the National Airspace System" was for the FAA to "determine the specific types of data and information needed from each of the six UAS test ranges to facilitate safe integration of UAS into the NAS." The six test sites are all fully operational and prepared to assist the FAA in this important mission. Yet from almost all accounts they continue to be given conflicting information and limited guidance by the FAA. **Why do you think this is, and what recommendations would you provide to better utilize these valuable resources?**

ANSWER:

FAA has not clearly set expectations for the six test sites and how they will advance UAS integration. FAA stated that it cannot direct the research topics at the six test sites because Federal money was not used to establish or operate the sites. FAA's initial response to our report was that if research is applicable and available, the Agency will determine what data should be collected and request results of studies and relevant data from the test sites. FAA stated this would be an ongoing activity and results would be available by December 31, 2017. However, our recommendation was specifically aimed at encouraging FAA to determine the data it needs early in the process so it can more effectively use the test sites to identify and reduce UAS integration risks.

FAA provided a list of potential research areas to each of the six test sites in October 2014 and has assigned a lead at the FAA Technical Center to coordinate how data are collected. We will continue to monitor FAA's efforts to identify and obtain critical data from the test sites that can be used to inform FAA's decisions. FAA needs to quickly determine what role the test sites will play with regard to UAS integration and what needs to be done to make the test sites successful.

UAS and NextGen

QUESTION:

What steps or considerations has the Department of Transportation taken to factor UAS integration into the planning of NextGen?

ANSWER:

FAA is only in the very early stages of factoring UAS integration into the planning of NextGen. This will be key going forward because FAA's air traffic control equipment was not developed with UAS operations in mind. For example, controllers have stated that the En Route Automation Modernization (ERAM) system, a controller automation

Questions for the Record from Hon. Richard L. Hanna, a Representative in Congress
from the State of New York, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

system for processing flight data for high altitude flights, cannot yet adequately manage UAS flight plans because they contain an unusually large amount of navigational data. This forces controllers to implement manual and time-consuming "work-arounds" for handing off UAS between facilities and airspace sectors. According to FAA, future budget requests will highlight the impacts of UAS on key air traffic control programs.

Best Practices from Other Countries

QUESTION:

Several other developed countries, including Australia, Canada, Germany, the United Kingdom, and France, have successfully integrated small UAS into their airspace. The FAA has a history of establishing productive partnerships with its counterpart foreign agencies on numerous issues. **Has the FAA reviewed the actions that other countries have taken to date regarding small UAS rules and, if so, taken any steps to leverage those best practices in preparing their own small UAS rule?**

ANSWER:

According to FAA officials, the Agency is aware of UAS developments in Australia, Canada, and the United Kingdom and is attempting to factor the experiences into the Agency's small UAS rule. FAA states that it has identified other countries' actions through attendance at international meetings, forums, and conferences. FAA engages its counterparts in other countries through participation in organizations, such as the International Civil Aviation Organization. FAA also contracted with MITRE for a study of other countries' approaches to integrating UAS. FAA stated that the regulatory structure in other countries differs from the United States, enabling them to exclude UAS up to a certain size from regulatory oversight. FAA also contends that the U.S. has more heavily trafficked airspace than other countries. As a result, FAA states a more measured approach is warranted for the United States.

UAS Organizational Structure in FAA

QUESTION:

In your assessment, do you think it would be advantageous to empower a more senior official within the FAA or DOT as a direct conduit between the FAA's UAS Integration Office and the Administrator of the FAA or the Secretary of Transportation? Alternatively, do you think it would be advantageous to provide the Manager of the FAA's UAS Integration Office with a more direct line of communication to the Administrator of the FAA or the Secretary of Transportation?

Questions for the Record from Hon. Richard L. Hanna, a Representative in Congress
from the State of New York, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

ANSWER:

This certainly will become more important as FAA moves from planning to implementation and the regulatory structure for UAS becomes more clearly defined. Our review did not assess the effectiveness of the UAS organizational structure. However, we reported challenges FAA faces given that the UAS Integration Office will still need to interface with personnel in the Air Traffic Organization who must develop airspace policy that considers the operational needs of both manned and unmanned aircraft. Beyond the ATO, the office will also have to reach out across other FAA lines of business and offices, such as Aircraft Certification and Next Generation Air Transportation System (NextGen) organizations. Industry and other Government stakeholders, such as the Department of Defense, expressed concerns about the office's ability to coordinate and align resources and to make decisions within the current structure. Moreover, a UAS rulemaking working group recommended that the UAS Integration Office be placed at a higher level within FAA to have the necessary authority and access to other FAA lines of business and offices. The key will be making sure FAA is achieving desired outcomes and objectives.

Questions for the Record from Hon. Bill Shuster, a Representative in Congress from the State of Pennsylvania, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

Segmented Approach to Acquisitions

QUESTION:

Your testimony mentions that FAA's methodology for measuring its progress may not provide a complete picture of its overall acquisition results because it does not account for substantial program changes (e.g., adjustments to the program baseline). Your testimony also notes FAA's acknowledgment that they use a segmented approach to acquisitions because they are not always certain of future programmatic requirements that could impact future costs. **What is the impact of this approach on NextGen implementation?**

ANSWER:

Breaking large acquisitions into segments can be an effective way to reduce risk and better manage the implementation of new technology. As we have noted in prior reports, FAA is relying on a segmented approach to develop and implement the Agency's NextGen transformational programs, including the satellite-based Automatic Dependent Surveillance-Broadcast System (ADS-B). However, FAA's approach masks how much a program will cost, when it will be complete, and what benefits will ultimately be delivered. For example, FAA has approved approximately \$2.7 billion for ADS-B through three segments for the ground infrastructure and some initial capabilities primarily associated with *ADS-B Out* (the broadcast of information to FAA ground systems). However, the costs and timelines for the more beneficial NextGen capabilities associated with *ADS-B In* (the display of the information in the cockpit) for boosting airport arrival rates are still uncertain because these capabilities are planned for future segments that have not yet been approved. As a result, decisionmakers do not know how much it will cost or how long it will take to realize the full benefits of ADS-B as promised by FAA.

Joint Resources Council

QUESTION:

Your testimony mentions that the FAA's Joint Resources Council gave conditional approval before reviewing all of the information on a final investment decision for Runway Status Lights. **Is this an isolated incident or has the JRC provided conditional approvals in other instances and if so, what?**

ANSWER:

The JRC's conditional approval of Runway Status Lights was not an isolated incident. Our analyses of an FAA database that documents the results of its JRC decisions show that the Agency approved final investment decisions (FID) on a conditional basis for 10 acquisition programs. The following provides examples of when the JRC granted conditional approvals on other major acquisitions:

- FAA Telecommunication Infrastructure (FTI): in 2006, the JRC conditionally approved a revised FTI transition schedule that extended how long it would take to transition

Questions for the Record from Hon. Bill Shuster, a Representative in Congress from the State of Pennsylvania, to Calvin L. Scovel III, Inspector General, U.S. Department of Transportation

existing telecommunication services to the FTI network. The approval was contingent upon further validations of the FTI schedule and the cost and benefits projections.

- System-Wide Information Management (SWIM): in 2006, the JRC conditionally approved SWIM initial investment decision for FY07 and FY08. The approval was contingent upon the development of milestones and details on specific deliverables that have been agreed to in service-level agreements with the various program offices responsible for SWIM.
- Automatic Dependent Surveillance–Broadcast (ADS-B): in 2006, the JRC approved the first two years of Segment 1 (FY07 and FY08). The approval was contingent upon successful completion of the preliminary hazard analysis, which documents the Agency plans to verify and validate how ADS-B safety requirements will be met within 60-90 days.
- Data Communications Program (DataComm): in 2012, the JRC approved implementing DataComm at 41 sites, and gave conditional approval to implement DataComm at an additional 16 air traffic towers. The approval was contingent upon an agreement to return to the JRC in FY 2013 with updated cost information.

Incentives to Implement Reforms

QUESTION:

In your testimony, you state that the FAA has failed to take full advantage of personnel and acquisition reforms that would make the agency more efficient. **Why have the benefits of these reforms not been fully realized? Does FAA lack sufficient incentives to fully implement these reforms, or is there an institutional and cultural aversion to these types of changes?**

ANSWER:

There are several reasons why FAA has not realized the benefits of its personnel and acquisition reform authorities. One reason is that while FAA is exempt from most Federal personnel laws, many of its policies, such as premium pay, leave, and grievances, continue to mirror Federal rules. This is due in part to FAA's highly unionized workforce, which has negotiated that benefits and other personnel matters be in line with Federal regulations.

Another reason is FAA has not fully implemented business-like practices that could enhance its ability to reduce costs and improve efficiency. This includes not fully using its cost accounting system to analyze costs and find additional efficiencies, and not establishing detailed baseline metrics or quantifiable goals to determine whether Agency initiatives, such as controller productivity initiatives, are successful.

In addition, while FAA's long-standing organizational culture has resulted in the Agency operating one of the safest, most efficient air traffic systems in the world, it promotes the "status quo" and does not encourage making dramatic changes in the way the Agency operates the National Airspace System or develops and acquires new technology.

Questions for the Record from Hon. Bill Shuster, a Representative in Congress from the State of Pennsylvania, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

Finally, FAA has implemented a new Acquisition Management System (AMS). FAA's AMS is broader in scope than the Federal Acquisition Regulation (FAR) in that AMS prescribes policy and guidance for the entire acquisition lifecycle—while the FAR is a set of regulations establishing contracting procedures for the federal government. To the extent AMS policy and the FAR overlap, AMS policy is written in less specific terms than the FAR and allows greater flexibility in managing acquisitions. However, our reviews have consistently found gaps in coverage and that AMS guidance is not consistently implemented. In addition, AMS guidance can be waived by the contracting officer using a “rational basis” standard.

Steps Taken by FAA to Improve AMS

QUESTION:

Your testimony states that “when FAA first implemented AMS [acquisition management system] in 1996, FAA's stated acquisition reform goal was to cut acquisition costs by 20 percent and acquisition schedules by 50 percent, all within three years. However, between 1996 and 2004 acquisitions averaged 38 percent over budget and 25 percent behind schedule, which was consistent with FAA's performance before AMS was implemented.” **Given these delays and cost overruns, what steps, if any, has the FAA taken to improve the AMS since its implementation? If steps have been taken to improve AMS, what impact have they had on FAA's acquisition record?**

ANSWER:

FAA obtained or completed four reviews, including three independent reviews within 1 to 3 years after AMS was implemented, to determine the effectiveness and initial results of AMS. FAA also obtained a similar independent assessment in 2008 to address ATO-related changes. These initial reviews had no impact on FAA's acquisition record. Overall, FAA has not completed any reviews of the adequacy and completeness of AMS guidance. FAA recently announced that it plans to assemble a process implementation team comprised of industry and government professionals to identify strengths and weaknesses of AMS and incorporate changes based on best acquisition practices.

FAA has continually modified AMS over the years on an ad hoc or issue-specific basis. However, AMS guidance is not implemented consistently and we have not identified any significant correlation between AMS changes and improvement in FAA's acquisition record. Many of these changes have resulted from findings and recommendations in OIG reports. Our recommendations have supported improvements in FAA's acquisition guidance, but the impact is not measurable. For example, FAA:

- Strengthened its conflict of interest guidance after “revolving door” weaknesses were reported for a large multiple award support services program.
- Added a detailed Pricing Guide after we reported weaknesses in FAA's practices for determining price reasonableness and added an Award Fee Guide after we informed management of significant performance measures and oversight weaknesses for CPAF

Questions for the Record from Hon. Bill Shuster, a Representative in Congress from the State of Pennsylvania, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

contracts.

- Finalized completion of a project management risk assessment guide and required more integrated baseline reviews based on our ERAM audit findings.
- Strengthened its guidance on addressing differences between independent government cost estimates and proposed prices before awarding contracts.

FAA's Cost Accounting System

QUESTION:

Your testimony mentions that while FAA implemented a cost accounting system and other systems to improve efficiency, it does not regularly analyze the operational and cost data generated by the system. **What does FAA use the cost accounting system for? In your opinion, should the FAA analyze the data to identify ways it can reduce costs or improve productivity and if so, how would that improve their acquisition record?**

ANSWER:

The main purpose of FAA's Cost Accounting System (CAS) is to track and summarize Agency costs. The information from the system can be allocated to specific organizational units and projects, and is used in compiling FAA's annual financial statements, developing internal management reports, and determining how much to charge for overflight fees. In the past, FAA has used information from its CAS to develop cost allocation studies and reauthorization proposals.

Although the primary purpose of cost accounting is to help improve management decisions and the efficiency of Agency operations, FAA does not significantly use cost accounting data to manage its operations. We believe that FAA can do more with its CAS to reduce its costs and improve productivity. This includes analyzing Agency programs to determine whether more cost efficient options exist, benchmarking productivity initiatives to determine whether they are working, and identifying differences in indirect costs and direct costs between air traffic control facilities of similar size. We note that FAA used its CAS to support the decision to contract out flight service stations.

Information from the CAS can help FAA better identify its requirements for major support acquisitions and make better investment decisions. For example in our review of ATCOTS contract management, we found that FAA did not use CAS or its associated labor distribution system to identify the amount of classroom and simulator training conducted by its air traffic controllers. Such information is critical to identify the portion of air traffic controller training that FAA plans to provide versus the training it needs to acquire through its contractor. Use of the labor distribution system and CAS would help FAA better define its contract training requirements and ensure that its overall training needs can be met through the appropriate mix of controller and contractor resources.

Questions for the Record from Hon. Bill Shuster, a Representative in Congress from the State of Pennsylvania, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

Even though it has been one year since our last ATCOTS report, FAA still has not implemented our recommendation to identify its own staff availability to conduct formal ATCOTS-related training at air traffic facilities. In this instance, CAS data could be used to help FAA identify the time that its own air traffic controllers are dedicating to training in order to accurately determine requirements for contractor training. This is one reason why FAA has experienced an \$89 million cost overrun on the ATCOTS contract and delivery of training has been delayed by 41 percent.

Utilization of Space-Based ADS-B

QUESTION:

Space-based ADS-B technology has been mentioned by some in industry as a technology that could demonstrate early benefits of ADS-B in oceanic airspace. Other countries that control portions of North Atlantic airspace are acquiring this capability and are scheduled to implement it by 2018. **What impact could the utilization of space-based ADS-B by international air navigation service providers, particularly those adjacent to United States airspace, have on the United States aviation system?**

ANSWER:

We have not conducted work specifically on space-based ADS-B surveillance for oceanic and air traffic services, or the potential impacts on the National Airspace System. However, air navigation service providers, such as Aireon and GlobalStar, have stated that space-based ADS-B has the capability to reduce separation standards from 30 to 15 miles and enable more efficient routes and varied flight paths over segments of the Pacific and Atlantic oceans. We understand that FAA is examining the implications and potential benefits of spaced-based ADS-B applications for oceanic operations. According to FAA, the Agency may have to make adjustments to the automation systems controllers rely on to manage traffic at facilities that manage oceanic traffic, such as Oakland and New York.

Operational Productivity Goals

QUESTION:

Has the FAA set operational productivity goals for itself at any time since 1997? If so, how has it measured its progress in meeting those goals?

ANSWER:

Since 1997, FAA has developed a number of operational performance goals for the Agency and the performance of the National Airspace System that can be used to examine and measure productivity. These goals have been adjusted over time based on the Department's strategic goals. Most recently, in fiscal year 2014 FAA had two goals measuring air traffic operational performance: (1) achieving an on-time performance rate of 88 percent at core airports, and (2) maintaining an average daily capacity at core airports of 58,166 or higher of arrivals and departures. FAA has also developed common metrics for measuring safety, efficiency, and

Questions for the Record from Hon. Bill Shuster, a Representative in Congress from the State of Pennsylvania, to Calvin L. Scovel III, Inspector General,
U.S. Department of Transportation

capacity, with some of these metrics addressing reporting requirements included in Section 214 of the FAA Modernization and Reform Act of 2012.

However, we believe that FAA can do a better job in developing quantifiable goals to measure Agency performance. For example, as we reported last year, FAA did not fully assess a series of initiatives it has implemented since 1998 to determine their effect on controller productivity, operating costs, and training and hiring practices, largely because it has not established detailed baseline metrics or quantifiable goals.



Testimony for the Record

**Governor John Engler
President, Business Roundtable**

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

**Hearing on
"FAA Reauthorization: Issues in Modernizing and Operating the Nation's Airspace"**

November 18, 2014

Business Roundtable
300 New Jersey Avenue, NW
Suite 800
Washington, DC 20001

Good morning, Chairman Shuster, Ranking Member Rahall. Thank you for the opportunity to join you this morning to testify on the operation and needed modernization of the nation's airspace.

I'm pleased to speak on behalf of Business Roundtable, an association of more than 200 CEOs of major U.S. companies. Business Roundtable's CEO members lead companies with \$7.2 trillion in annual revenues and nearly 16 million employees. These companies comprise more than a quarter of the total market capitalization of U.S. stock markets and invest \$190 billion annually in research and development – equal to 70 percent of U.S. private R&D spending. Our companies pay more than \$230 billion in dividends to shareholders and generate more than \$470 billion in sales for small and medium-sized businesses annually.

Aviation is critically important to all members of Business Roundtable. Today, civil aviation in the United States accounts for 5.4 percent of our GDP, contributes \$1.5 trillion in total economic activity each year, and supports 11.8 million jobs. Business Roundtable's members include leaders of major U.S. aerospace companies, but more broadly, every one of our members relies on air transportation every day as customers of cargo and passenger airlines. For example, thirty to forty percent of all daily airline passengers are making trips for business purposes.

The CEOs of Business Roundtable are global leaders in their respective industries, and they recognize the value of American leadership in aviation. The United States was, of course, site of the Wright Brothers' historic first powered flight in a heavier-than-air vehicle. Commercial airlines developed in this nation, and so did air traffic control; begun initially by a nonprofit, federally chartered corporation, air traffic control was taken over by the federal government during the Great Depression. Following World War II, commercial and general aviation boomed in the United States. As the 20th century ended, our aviation system still set the standard as not only the world's largest but also the world's safest and most technologically advanced.

Sadly, our current leadership is no longer so clear and our future leadership is in doubt. The U.S. air traffic system remains the world's largest and the world's safest. But it is no longer the most technologically advanced, and it may no longer be the world's most cost-effective. The Business Roundtable recently conducted an analysis that superimposed Canadian rates for air traffic control services on U.S. flight data, and preliminary results suggest that, in aggregate, the Canadians are delivering services for lower cost than the FAA today. Canada's cost advantage may result partly due to a less-complex airspace than the United States' – and complexity drives cost – but one would expect that the U.S. larger-scale operation would also create its own efficiencies and lower costs.

Beyond the issue of global leadership, a modernized U.S. air traffic control system would produce significant benefits for all air travelers, including the huge numbers who are traveling every day on business. Advanced technologies and procedures will enable more planes to land and take off safely on existing runways, reducing delays. Likewise, more direct flight routes at

the altitudes with the most favorable tailwinds will speed up flights and also reduce delays. Earlier this month, President Obama estimated the potential reduction in airspace delays at 30 percent. Even if that number is a little high, I was glad to hear the President acknowledge the kinds of benefits a modernized system will provide.

From the standpoint of airlines and other aircraft operators, reducing delays will mean important savings in fuel and crew time, their two largest operating costs. And with intelligent consolidation of air traffic control facilities, enabled by 21st-century technology, the unit cost of services will be reduced, yielding further cost savings for aircraft operators. Retiring many obsolete facilities and ground-based navigation aids will produce additional cost savings.

Important environmental benefits will also result. More direct routings and optimized flight paths will reduce aviation fuel consumption and thereby cut CO₂ emissions. Shorter and more-precise landing paths (like those implemented recently in Seattle) will reduce noise exposure around airports, which may make it easier to add critically needed runway capacity around the country.

Beyond cost-savings and other efficiencies, a modernized air traffic control system would also advance America's global commercial leadership by expanding export opportunities. While the U.S. has been slow to implement next generation technology, other countries — again, most notably Canada — are starting to export upgraded 21st century air traffic control technologies to other countries around the world. Overseas sale of technologies developed and deployed in the United States would allow U.S. aerospace companies to expand their global market and increase domestic employment.

Unfortunately, business leaders cannot take the future health of U.S. aviation for granted. Like many other stakeholders, we are concerned about the slow and uncertain pace of the modernization effort represented by the Federal Aviation Administration's NextGen program. Like you, we read the numerous reports by the Government Accountability Office and the Department of Transportation Inspector General documenting cost overruns and late delivery of new systems. These reports identify underlying problems that have led stakeholders to question whether we have the best model — not just for delivering NextGen but also for the ongoing operation and management of what used to be the world's most advanced air traffic control system.

A few years ago, I put together an expert group to help Business Roundtable study this problem, including former FAA and Transportation Department officials and knowledgeable aviation policy advisors. These experts with government and private-sector experience identified a series of challenges that put America's leadership in aviation at risk. All related to funding, governance, and organizational culture. Let me say a few words about each:

Funding is the most obvious problem. Last year's sequester served as a wake-up call for aviation stakeholders, with its furloughs of controllers and the near-shutdown of 149 contract towers. And the current sequester law has eight more years to go. The FAA's current annual

budget for Facilities & Equipment is now \$1 billion less than what it was projected to be five years ago. Alarming, a senior FAA official recently said the agency faces a \$5 billion funding shortfall over the next seven years. With regard to NextGen, the FAA and stakeholders are currently engaging in triage, figuring out which few projects the agency can afford to pursue in the current highly uncertain funding environment.

FAA Administrator Michael Huerta, in a speech last month at the Aero Club of Washington, said: "There is simply no way the FAA can implement NextGen, recapitalize our aging infrastructure, and continue to provide our current level of services without making some serious trade-offs." The current funding system clearly does not provide the resources that are needed.

Our CEOs look at these issues from a business perspective, of course: What the FAA is trying to do is to fund a \$20 billion capital modernization effort out of annual cash flow. This makes no business sense. Most other transportation sectors issue long-term revenue bonds to finance large capital modernization—including airports, pipelines, railroads, and even bridges and interstate highways. But bonding is something the FAA cannot do. Our federal government simply does not have a capital budget.

The second underlying problem is **governance**. Former FAA and Transportation Department officials tell me that the Air Traffic Organization answers to far too many disparate interests. It must respond to:

- the FAA Administrator
- the Secretary of Transportation
- the Office of Management & Budget
- the Government Accountability Office
- the DOT Inspector General, and
- 535 Members of Congress.

Responding to all these managing interests consumes a large amount of senior officials' time – time and attention that ought to be focused on serving aviation customers. No CEO could effectively run a business responding to such an array.

The third underlying problem is one of organizational **culture**. We need a culture of innovation that will continually modernize as technology continues to advance. Let me give you an example of what I mean:

The Chairman of Business Roundtable today is Randall Stephenson, the Chairman and CEO of AT&T. His first job working for the company that became AT&T was in 1982 working the late-night weekend shift while he was going to school, mounting magnetic tapes to back up the mainframe computers. By 2007, he'd worked his way up the ladder to become CEO. By then, AT&T was big in the world of cell phones, but "smart phones," which are ubiquitous today,

really didn't exist. AT&T spent six or seven years, according to Stephenson, to create a nationwide 3G network to deliver a mobile internet. Now, that's obsolete, supplanted by the 4G LTE network necessary to deliver data to mobile devices. But now, Stephenson says, "You look at our networks today, and well over half of the traffic that flows across our networks is coming from video." And AT&T bought DirectTV. That's a culture of innovation, of change, and AT&T is a global leader because of it.

Now compare that to what's happened with air traffic control at FAA. In the 1960's – 20 years before Randall Stephenson got his first job replacing data tapes – FAA was using a national network of ground-based radar combined with radio transmission from air traffic controllers who were monitoring that radar to control aircraft in the airspace immediately above them. Today, FAA relies on essentially the same technology – ground based-radar and voice radio transmission. A study published by the Hudson Institute early this year showed a strong status-quo bias within the air traffic organization at FAA — illustrated by slow progress on such innovations as controller-pilot data-link, global satellite-based aircraft surveillance, remote towers, and facility consolidation.

Others countries have charted a different course of action. Researchers have found that over the last two decades most other countries have restructured the way air traffic control is funded and governed—for example, in Australia, Canada, Germany, and the United Kingdom. In these and many other cases, the governments have decided that air traffic control is a high-tech service business that can be funded directly by its aviation users, who become customers, just as airlines are customers of airports. More than 50 countries have separated their air traffic control systems from their transport ministries, leading to arm's-length regulation of air safety—just like that applied to airports, airlines, and all the other components of aviation.

The FAA's own Management Advisory Council during 2011 to 2013 studied the same set of issues. Their final report issued in January 2014 made three *unanimous* recommendations:

- First, remove air traffic control funding from the federal budget, so that aviation users would pay directly for air traffic control services, and that revenue stream would be bondable. This is much like the financing system long used by America's commercial airports.
- Second, create a governing board of aviation stakeholders—not just to *advise* on technology decisions but to actually set the priorities for operations and modernization. After all, these are the users of the system, and they know their own needs better than anyone else.
- Third, separate the operation of the air traffic control system from the FAA safety regulator, providing the same arm's-length safety regulation that applies to all the other actors in U.S. aviation.

While these principles are widely accepted in other countries, those would be major changes for U.S. air traffic control. Lots of questions on whether and how to do this must be thought through to assess whether similar restructuring would be feasible here. We have been holding discussions with the principal stakeholders over the past year, working to answer these many questions. As business leaders, it's particularly important to the Business Roundtable that the business case for any new structure be sound and well thought out. Other organizations are holding similar discussions. We all hope to have fleshed-out proposals for the committee to consider next spring as Congress begins work on FAA reauthorization.

Next year's FAA reauthorization offers a critically important opportunity to bring efficiencies and technological progress to air traffic control in the United States, reaffirming the country's global leadership. Business Roundtable looks forward to working with you to achieve these important goals.

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STATEMENT OF
CAPTAIN LEE MOAK, PRESIDENT
AIR LINE PILOTS ASSOCIATION, INTERNATIONAL
BEFORE THE
COMMITTEE ON TRANSPORTATION & INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC
NOVEMBER 18, 2014
“FAA REAUTHORIZATION: ISSUES IN MODERNIZING
AND OPERATING IN THE NATION’S AIRSPACE”

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Good morning, Mr. Chairman and members of the Committee. I am Captain Lee Moak, President of the Air Line Pilots Association, International (ALPA). ALPA represents over 51,000 pilots who fly for 30 passenger and all-cargo airlines in the United States and Canada. On behalf of our members, I want to thank you for the opportunity to provide our perspectives on critical importance of modernizing our nation's airspace and aviation infrastructure and implementing NextGen. I'd like to frame my remarks today around critical aspects of modernizing the most complex airspace in the world – the U.S. National Airspace System. Those are the collaboration that is the foundation of NextGen planning and execution, the funding that is so critical to the continued success of the NextGen undertaking, and the impact that a funding mechanism should have on defining the best way to deliver the safest, most efficient air traffic control services possible.

Collaboration

NextGen addresses inefficiencies in the current ATC system, safely bringing critically needed capacity improvements to our system, improving the U.S. economy for years to come, while also increasing the overall level of safety of our aviation system. NextGen will generate growth for our nation's airlines and aviation companies and suppliers. This will lead to job growth at a time when our nation needs it the most. Aviation is vital to our country and air traffic control (ATC) system modernization through NextGen is essential to aviation. Aviation labor and industry have played a critical role in partnering with government in development and implementation of these much needed improvements.

On October 17, 2014, the FAA delivered a NextGen Priorities Joint Implementation Plan to Congress. This well-coordinated, fully integrated plan, known to and agreed upon by all stakeholders, along with supporting equipment standards, is critical. Safety initiatives, as well as hardware and software projects by a wide variety of aerospace companies and the FAA are the component parts of NextGen. They must be developed in a tightly coordinated manner on specific timelines to support critical interrelationships with a variety of US and international efforts. Planning for the individual initiatives is well underway, and there are a number of "roadmaps" toward the various goals. ALPA representatives participate on numerous government-industry groups, e.g., NGATS, RTCA working groups, and Aviation Rulemaking

Committees (ARCs) to provide the operational input on these roadmaps, operational concepts, and equipment standards.

Transforming the NAS has been likened to changing the tire on a truck while it is underway at 70 MPH. It can be done, but it must be well thought out and it will take new technologies to make it happen. ALPA is working with the FAA and industry stakeholders to insure that the airline pilot voice continues to be a part of all discussions regarding the transition from the current ATC system to NextGen. This transition must be made without affecting the excellent safety record of the National Airspace System. Similarly, Congress must involve all stakeholders in a plan to develop ways to pay for modernizing the National Airspace System without driving our airlines out of business.

In 1931, ALPA's founders chose the motto "Schedule with Safety." That era saw accident rates many times higher than those of today. ALPA was keenly aware of the continuing need to improve the safety of the air transportation system any way possible. Over the past 83 years, the National Airspace System (NAS) has changed greatly.

The ATC system in the United States has moved from the inexact (but best available) method of separating flights using radio position reports to precise, positive control using radar that now extends to nearly every part of the country. But now that capability is becoming dated and harder to maintain. With the introduction of the Global Positioning System (GPS) aircraft navigation is moving from a ground radar-based navigation system to a satellite-based navigation system and at the same time achieves levels of accuracy in positioning that are unprecedented. All types of aircraft, both large and small, are flying approaches in all types of weather using satellite-based navigation systems.

Communications have similarly evolved to lightweight and reliable radios, and use of data link technology that allows pilots to see a printed version of instructions, reducing confusion and improving reliability; yet more progress and changes are needed to enable us to use satellite based surveillance, communication, and navigation to its fullest potential.

All of these recent developments have two things in common. They've made air travel safer, and they were successfully accomplished when there was a collaborative relationship between the government, labor and industry. In each example, the labor and industry along with government worked together to develop system and equipment specifications, new controller and pilot procedures, training requirements, and the development and implementation of ground and airborne infrastructure. ALPA is working actively with the controllers through NATCA, system specialists in PASS, other industry partners, and the FAA to ensure that NextGen is yet another example of a successful collaboration leading to fundamental change to the NAS.

However, NextGen requires a new way of thinking about the NAS. No longer can we tolerate a NAS composed of a number of independent ATC systems and tools. NextGen must be an integrated blend of future technologies, procedures, and public policy reform, based on user feedback and designed to enhance system safety, increase throughput, and decrease emissions through the use of collaborative decision-making, more precise and efficient flight routes and separation standards.

Pilots and controllers literally sit at the intersection of new technology, operational measures, air traffic control procedures, and varying aircraft capabilities. This gives us a unique vantage point to see and experience firsthand what can happen if well-intended, but unrealistic operational procedures are instituted. Without thorough study, stakeholder involvement and appropriate oversight, complexity can increase, efficiency can decrease, and in some cases safety margins are eroded.

The future of air transportation will bring a combination of commercial air carriers, remotely piloted vehicles, general aviation, and commercial space flight. The airspace system of the future will involve a great many more operations and a wider variety of operations than we have today and will result in an increasingly complex environment. For the foreseeable future, the NAS must accommodate mixed equipage – a blend of old and new technologies, higher and lower performance. These differences must be acknowledged and accounted for in planning. NextGen must be a flexible and scalable system capable of accommodating any fleet mix that evolves. The American people deserve a system that will readily accommodate that new demand – safely and seamlessly.

The current U.S. ground based ATC infrastructure is imperfect, woefully outdated, the equipment's capabilities are limited, facilities are difficult to maintain, inefficiencies are a threat to success, and capacity is limited which limits the growth of commercial aviation. Paradoxically, both the fragility of the current system and the robustness of NextGen enhancements were very evident during the recent fire at the Chicago Air Traffic Control Center (ARTCC) on September 27, 2014. The damage from the fire led to a shutdown of the extremely busy facility. For four hours all flights into and out of O'Hare and Midway airports were cancelled. On the day of the fire, over 1750 flights into these airports were canceled, with other cancellations cascading throughout the NAS. After 3 days, other facilities were able to take control of the Chicago ARTCC airspace and provide ATC services at a reduced rate. Although it took 17 days to restore Chicago ARTCC to full operations, the speed with which recovery began and the level of traffic that was able to be maintained are testament to the resiliency of NextGen, a testament to the resolve and dedication of NATCA controllers, PASS technicians, and other FAA and industry employees to keep operations underway and restore operations as soon as possible and – the implementation of the Enroute Automation System known as ERAM, a key NextGen initiative, made it possible.

The NextGen program is huge and has uncertainties that can be problematic for airlines and others who are being asked to make large investments. The complexity of NextGen as it matures, and the critical need to ensure that the billions of dollars represented by this effort are spent wisely and efficiently, demands strong leadership and effective oversight. Strong FAA leadership is the key to the success of NextGen, the FAA, and the air traffic control organization. Success in leading the NextGen effort must include willingness to make hard decision in a timely manner, achieving balance between large, far-reaching technologically innovative programs and more modest near term efforts that yield immediate benefits, and staging implementation of key benefits in a continuous-improvement approach.

Administrator Huerta's reorganization of the FAA with an emphasis on air traffic control and NextGen has been instrumental to the NAS improvements and NextGen implementations seen in the past four years.

In 2013, the Senate recognized Administrator Huerta's managerial expertise in leading the FAA and unanimously confirmed him for an additional five years term. This allows him to continue his roadmap of improvements and implementation milestones. His management style and selections of key FAA positions have been praised by industry.

In previous testimony before this committee, ALPA pushed for the creation of a FAA senior management position to ensure effective coordination of all NextGen activity; instituting a government-industry advisory board made up of representatives of line pilots, controllers, and other stakeholders; and defining performance metrics against which modernization efforts can be measured are necessary components of an effective, efficient modernization effort and we urge support for these activities. We are pleased the FAA has taken steps toward these recommendations.

In October 2013, the FAA selected retired Air Force Major General Edward L. Bolton Jr. as the Assistant Administrator for NextGen. During General Bolton's Air Force career, he was responsible for several large operational and acquisition programs. In his final assignment with the Air Force, he was responsible for the formulation and execution of the Air Force's annual \$110 billion budget. This military background as both an engineer and program manager uniquely qualifies him to lead the FAA's NextGen program. In an October 2013 speech before the Air Traffic Control Association, he stated "NextGen is a complex systems engineering project. It has a huge number of interdependencies and tight schedules. We can't just turn it on or off. We can't speed it up or slow it down without ripples through the entire system."

In September 2010, the NextGen Advisory Committee (NAC) was established by FAA and we applaud their willingness to establish this partnership with industry to work toward achieving NextGen success. The NAC is supported by RTCA, a private non-for-profit association that is chartered as a Federal Advisory Committee to work in response to the requests from the FAA to develop comprehensive, industry-vetted, and endorsed recommendations for the Federal government on issue ranging from technical performance standards to operational concepts for air transportation. The goal of the NAC is to foster industry collaboration in an open and transparent manner. It includes a cross section of executives from the airlines, airports, general aviation, pilots, air traffic controllers, the Department of Defense, environmental interests, international interests and providers of air traffic control technology – all committed to ensuring a successful transition to NextGen. This public-private partnership venue is addressing the critical policies and priorities for NextGen implementation, working to reduce delays in implementation, define ways a positive business case can be made for all who must invest in NextGen, and to provide a venue for tracking progress and sustaining joint commitments. The NAC provides advice on policy-level issues facing the aviation community in implementing NextGen (modernizing the aviation system). The NAC is tackling issues that are broader than air traffic management, including safety, airports, the environment and global harmonization.

In addition to willingness to collaborate across the industry and with the FAA, stakeholders must look internally as well to identify ways to improve their individual efficiencies. For example, if airlines could reduce airline-caused delays to 2003 levels, nationwide flights delays would be reduced by 4%.

FUNDING

What about funding this system?

This basic measure of smart business spending — return on investment — should be the same in government and industry. The challenge often lies in determining where the waste is and what will bring a good return. As the budget debate rages in Washington, everyone, from the President to the most conservative member of Congress, should agree we need to cut programs that aren't providing a decent return on our investment and support the ones that bring back more than we put in — those that grow the economy and create jobs. These are decisions that businessmen and women make in companies large and small every day. It's fundamental to long-term success.

Commercial aviation, directly and indirectly, contributes more than \$1.3 trillion to the U.S. economy each year — or 5.6 percent of gross domestic product. Aviation generates nearly 10 million jobs. The value of air travel — leisure and business — is almost inestimable. Hotels and resorts, conference centers, rental car companies, tourist attractions, and just-in-time deliveries are not viable without reliable, efficient, affordable, and *safe* air travel. In today's economy — and even more so tomorrow's — millions of jobs depend on keeping the air travel system healthy.

Today's US air transportation system is the safest in the world. The commercial aviation accident rate is on the order of 0.0007 per 100,000 departures for passenger airlines. In other words: you are about 40 times safer in an airliner than on the safest highway system in the world. But we are at a crossroads. The US ATC system is the most complex ATC system in the world and performs well above average in comparison to other industrialized countries. Throughput is consistently 97% of capacity or demand, which is higher than most countries including the EU. The US has reduced the percent of flights delayed by ATC and the US system currently has fewer ATC-related delays than in the EU. The US has the best workers in the world and employee productivity is among the highest in the world.

However, our ATC system is getting older and while NextGen improvements are being implemented, there are many systems on our aircraft that we as pilots are unable to use to their fullest capabilities. As a result we are not as efficient as we could be and not taking full advantage of the safety potential that these systems bring. Delays in implementing new procedures and technology as well as setbacks with NextGen are impacting pilots and the customers we serve. Our colleagues in Europe have also recognized these issues and have begun localized implementation of many NextGen concepts that are still being discussed, developed, and implemented in the US. While there is collaboration between the U.S. and Europe, we risk falling behind if we do not maintain focus.

Just like the development of the transcontinental railroad in the 19th century or the interstate highway system during the 20th century, NextGen is a major step forward for the 21st century. ALPA believes that the success of NextGen requires a national aviation policy and the national resolve to support Congressional efforts to provide a long-term sustained funding stream for research, development, and implementation of NextGen components. While it may appear costly, it represents a sound investment in our future as a nation and our leadership in the

transportation world. If we expect to maintain the safety and efficiency we have come to expect, we are left with no alternative.

There is little debate over modernizing to sustain the growth in aviation and the concurrent demands on capacity. The problem is how to pay for it and who pays for it. In 1997, while a member of Congress, former Secretary of Transportation Norm Mineta chaired the National Civil Aviation Review Committee (NCARC). NCARC recommended the FAA's funding and financing system receive a federal budget treatment that ensured revenues from aviation users and spending on aviation services were directly linked and shielded from discretionary budget caps. This would ensure that FAA expenditures would be driven by aviation demand. While some movement has been made on this issue, this recommendation has not been fully implemented.

The technology components are not the biggest challenge. We have the expertise to innovate, design, build, and install the equipment. The business case – for airlines, manufacturers and suppliers – is the critical element. Airlines currently have no financial incentive to pay huge sums to retrofit fleets with state-of-the-art equipment needed only for procedures that are still being developed. Currently commercial airlines pay 17 unique taxes and fees for every ticket sold. Many of these taxes and fees collected go to FAA and to TSA but a few go to neither. Government ultimately must make the decisions on equipage requirements and timing, but is sometimes forced to develop solutions that only go part of the way in an attempt to satisfy competing objectives.

As the aviation community continues to move from planning NextGen to implementing NextGen the issue of a sustained adequate funding stream is even more urgent and the need to maintain the ability to equip aircraft with the technology necessary to realize the full benefit of NextGen becomes increasingly acute. Without a commitment from and leadership by Congress, the funding of NextGen is uncertain, and will most certainly cost even more and take much longer to implement.

Initial technological advances, e.g., Automatic Dependent Surveillance-Broadcast, or ADS-B, are key enabling technologies in the progress toward full NextGen implementation; the early benefits (ADS-B out) go to the FAA. Our industry simply cannot afford to continue to equip thousands of aircraft with expensive avionics and support the maintenance and training requirements that that implies without a funding mechanism to ensure the FAA provides the ground- and space-based infrastructure. The economic return on such airline investments (e.g., ADS-B in) will not be realized for several years, even in the best of situations. The value of the nation's air transportation system as an economic engine must be protected by ensuring a means to prevent modernization from being an investment without adequate return while the system matures.

In 2010, the FAA, following the rulemaking process, mandated ADS-B. By 2020, aircraft flying in controlled airspace in the U.S. must be equipped with ADS-B avionics that broadcast their position. Industry provided input into the selection of the 2020 date. However, industry has been slow to install ADS-B equipment in preparation for the mandate. A DOT Inspector General report, "FAA Faces Significant Risks in Implementing the ADS-B Program and Realizing Benefits." (AV-2011-002, Oct. 12, 2010) noted "The greatest risks to successfully implementing

ADS-B are airspace users' reluctance to purchase and install new avionics and FAA's ability to define requirements for the more advanced capabilities." The reluctance by users to install the required avionics is not the FAA's fault. Delaying the mandate date will not necessarily improve industry's installation schedule but will push the benefits for the FAA and users further into the future. Commercial airlines pay the majority of the cost to operate and maintain this country's ATC system and infrastructure. Funding must be comprised of a combination of Federal funds and user fees that require all airspace users to pay "their fair share." The airlines cannot afford to pay the cost of operating and maintaining our current system and for the additional expense to purchase avionics equipment that may not realize its full benefit for many years. Long term, sustained, adequate funding must pay for both operating the existing ATC system and modernizing the National Airspace System without driving our airlines out of business. As such, ALPA believes that any review of the ATC structure must also include a complete review and overhaul of the tax and fee structure imposed on commercial airlines. In addition, ALPA opposes any new commercial aviation user taxes, disguised as fees, and calls on Congress to level the playing field for airline taxes.

This reliable, sustained funding is not possible if Congress continues to legislate by continuing resolutions. The series of two dozen continuing resolutions that were passed before Sequestration forced the government shutdown in 2013 must not be repeated, and we appreciate the commitment already exhibited by this Committee to insure that the 2015 reauthorization bill is completed on time. It is our goal to be partners to help make that happen.

In 2011 and 2013, funding issues twice forced the shutdown and/or furlough of FAA employees. These two funding issues could have been avoided if a sustained funding stream was in place. Let me illustrate the impact of these two shutdowns.

The summer 2011 furloughs arose as a result of a lapse in authority for the FAA to collect Airport and Airways Trust Fund (AATF) revenues, the sole funding source for FAA's facilities and equipment (F&E) account, the Airport Improvement Program (AIP), and research, engineering, and development activities. When short-term extensions of FAA authority under the Airport and Airway Extension Act of 2011, Part III (P.L. 112-21), expired on July 22, 2011, employees working for FAA's office of airports and funded under AIP were immediately furloughed. Other employees paid from the facilities and equipment and research, engineering, and development accounts were also furloughed, as the sole funding source for those FAA programs, the AATF, could no longer collect revenue. Certain employees funded from the facilities and equipment account who inspected FAA navigation and communications equipment were ordered to stay on the job without pay because they were deemed to be essential to the safety of the air traffic system. About 4,000 FAA employees in total, roughly 9% of FAA's total workforce, were affected. As general fund moneys were available to continue paying employees, including any air traffic controllers paid out of the FAA's operations account, these employees were not immediately furloughed. A subsequent short-term extension of AIP expenditure authority and AATF revenue collection authority (P.L. 112-27) was enacted on August 5, 2011, ending the furloughs for affected FAA employees and eliminating the need for possible additional furloughs of other employees paid through the operations account.

In 2013, the budget Sequestration automatically occurred when Congress was unable to agree to a budget. In September 2012, the Office of Management and Budget (OMB) released a guiding memo to help agencies and departments understand how budgets were to be implemented. Across-the-board cuts meant Sequestration would affect each budget line in the FAA's budget. Specifically, each nondefense discretionary budget line would be cut by 8.2 percent according to the OMB. This included cutting \$792 million from the FAA's Operations budget line, which includes the controller workforce, \$229 million from Facilities and Equipment line, which maintains towers and tools such as navigation beacons, and \$14 million from the Research, Engineering, and Development line, which funds research on improving aviation safety and operational efficiency, as well as research on reducing the environmental impact of aviation.

To prioritize the required Sequestration budget cuts, the FAA used a five step process:

1. Cut travel, training, and administrative expenses as well as instituting a hiring freeze.
2. Cut contracting costs. This included the 238 contract towers as well as closing 73 towers at night.
3. Mothball on-going NextGen implementation efforts such as the Metroplex projects.
4. Defer maintenance on ATC and nav aids as well as drawing down its nav aid parts inventory.
5. Instituted furloughs for every employee (except those funded under the AIP) one day every two weeks.

Furloughs can have other effects. Air traffic controllers and other safety professionals eligible to retire are more likely to take advantage of early retirement options rather than face a situation where 8.2 percent fewer controllers are being asked to maintain the NAS with the same safety and efficiency standards as the entire workforce. Between September 2006 and July 2008, 3,312 controllers left the FAA's controller ranks. These losses were more than the natural outgrowth of an aging workforce -- of 3,312 that separated, only 35 controllers, one percent, had reached their mandatory retirement age, while 419 left the workforce before they were even retirement eligible. This mass exodus of controllers left the system staffed at only 71% of the acceptable level with the lowest number of certified professional controllers (CPCs) in 16 years. Understaffing caused a significant increase in controller workload and a subsequent need to increase the use of overtime, resulting in a dangerous and unsustainable rise in controller fatigue. Additionally, the FAA was relying far too heavily on trainees to control traffic which resulted in delays and a slowing down of the training process, creating additional safety risks.

FAA funds the NextGen modernization program are primarily funded through the Facilities and Equipment line, which would be cut by 8.2 percent, resulting in cuts of about \$160 million. Core NextGen programs include Automatic Dependent Surveillance-Broadcast (ADS-B), System Wide Information Management (SWIM), Data Communications (DataComm), and NextGen Network Enabled Weather (NEW). Sequestration slowed down NextGen at a time when the FAA and the aviation industry were finally seeing progress on programs such as En Route

Automation Replacement (ERAM) and OAPM (Optimization of Airspace and Procedures in the Metroplex). These efforts all came to a halt at a time when significant forward progress could have been made.

A NextGen slowdown also affects the economy. If research, planning, and construction spending is reduced, not only will essential modernizations be delayed, less money will be invested in the U.S. economy. An Aerospace Industries Association (AIA) study found that a reduction of 30 percent in NextGen funding could result in up to \$40 billion in lost economic output by 2021. It could cost 700,000 jobs by 2021, and as many as 1.3 million by 2035 (AIA July 2012 Report).

NextGen's enormous price tag significantly increases the economic risk of mistakes in development or implementation. In January 2009, the Government Accountability Office (GAO) removed the FAA's air traffic control modernization program from its High Risk List (HRL) for the first time in 14 years. The HRL identifies Federal programs and operations that the GAO deems as high risk due to their greater vulnerabilities to mismanagement. The FAA was initially placed on the HRL in 1995 due to its poor track record of program deployment and cost overruns. The GAO noted that management focus and willingness to attack and rectify their shortcomings were the reasons that it felt comfortable removing FAA modernization from the High Risk List.

The fact that partisan politics led to the FAA curtailing projects, furloughing employees, and the loss of hundreds of millions of dollars in tax revenue is unacceptable and must not be repeated. The safety of our air transportation system and the companies and workers who rely on it for their livelihood underscores the need for a sustained funding stream. Operating from continuing resolutions does not provide the FAA with the ability to allocate money for needed ATC system improvements in a timely manner. For the past 10 years, ALPA, during Congressional testimony, speeches, press conferences and releases has pressed for the long-term funding of the NAS and ATC infrastructure. We must get to the business of doing what's best of our country and our citizens. Every day we delay we fall further behind other regions of the world that have moved ahead without us and our airlines and their employees suffer in the global marketplace.

I began my remarks with a focus on collaboration. As we discuss varying ways to make improvements in the way ATC services are delivered, we should reflect on the value of that collaboration in achieving immediate improvements. Our experience has shown that if the FAA and industry improve communication and coordination to work collaboratively to make improvements, we achieve improvements in efficiency and effectiveness that result in benefits being delivered with no other changes necessary.

SUMMARY

- 1 **A sustained Long Term NextGen funding stream is required:** Funding is what the FAA needs to modernize and operate the NAS while giving all users access to a stable, safe, efficient aviation system. Funding must be stable and long term.
- 1 **FAA and the FAA Air Traffic Control Organization have the leadership required for the job:** The current FAA leadership is doing a great job. The FAA Administrator has brought together a solid team to move NextGen from concepts

to implementation. FAA leaders like Administrator Huerta, Deputy Administrator Whitaker, Assistant Administrator for NextGen General Bolton, and Teri Bristol, FAA ATO Chief Operating Officer all have solid backgrounds and expertise managing and implementing complex systems.

- **The FAA is doing a good job of moving NextGen forward in a timely manner with industry input and coordination:** Once an implementation date is agreed to by industry and the FAA, both sides must be held responsible for meeting the implementation schedule.
- **The NextGen Advisory Committee (NAC) is providing industry input and coordination on key, timely NextGen decisions:** NextGen is the plan — but an architect’s plans tend to work out best when the people building the house are actively engaged with the planners. The NAC fosters industry collaboration with the FAA in an open and transparent manner. It includes a cross section of executives from the airlines, airports, general aviation, pilots, air traffic controllers, the Department of Defense, environmental interests, international interests and providers of air traffic control technology – all committed to ensuring a successful transition to NextGen.

We must have a fully-funded plan that offers a systematic approach that builds on better science and improved decision support tools, advanced air traffic procedures, enhanced aircraft technology, sustainable alternative fuels, and policies to address environmental challenges. Advances in aircraft technology and renewable fuels are essential if we are to provide solutions for the energy and climate challenges for the U.S. aviation system. In aviation, this entails a commitment to the flying public to continue to focus on the safety, convenience, and confidence of the traveling public, with minimal environmental impacts on our communities.

We urge Congress to work with industry to developing an appropriate NextGen airspace management system funding mechanism and stand by to be part of the solution. We look forward to working with this Committee and to be a resource as the debate about FAA reauthorization continue.

**Committee on Transportation and Infrastructure
United States House of Representatives**

**FAA Reauthorization: Issues in Modernizing
and Operating the Nation's Airspace**

**Statement of
Mark Baker
President and CEO, Aircraft Owners and Pilots Association**

November 18, 2014



Statement Highlights:

1. The general aviation (GA) industry is under stress. Over the past decade, the private pilot population has been shrinking at a rate of more than 6,000 pilots per year. High costs and a lack of new products have reduced public interest in GA. The general aviation fleet has an average age of more than 40 years and most aircraft rely on technology that is decades old.
2. Long-term FAA Reauthorization is needed. Enactment of a long-term reform-minded FAA bill is important to help the FAA keep pace with rapid advancements in technology and complete important safety and modernization projects.
3. Third-class medical reform is long overdue. The general aviation community has waited too long for the FAA to expand the use of a medical standard that has been used successfully and safely by some pilots for more than 10 years.
4. Certification and regulatory reform are needed. The FAA's regulatory and certification processes are cumbersome and overly prescriptive and must be reformed to ensure that advanced technologies and safety improvements reach GA aircraft and operators.
5. The FAA's Automatic Dependent Surveillance-Broadcast (ADS-B) mandate is too costly. The FAA must work with industry and manufacturers to identify low-cost solutions to ensure that a large segment of the general aviation community can equip to meet the FAA's Jan. 1, 2020 deadline.

General Aviation Today

The Aircraft Owners and Pilots Association (AOPA) is general aviation's largest and most influential membership association. AOPA's mission is to effectively represent the interests of its members as aircraft owners and pilots concerning the economy, safety, utility, and popularity of flight in general aviation aircraft.

General aviation (GA) is a quintessentially American industry that comprises all flying outside of military and airline operations. Each year it contributes \$150 billion to the U.S. economy, moves 170 million passengers, and supports 1.2 million jobs. General aviation activity takes place from 5,200 public-use airports, including 3,380 that are part of the National Plan of Integrated Airport Systems

and are eligible to receive federal funding, as well as some 13,000 privately owned landing facilities.

But general aviation is facing a challenging environment that threatens to seriously compromise its economic contributions and long-term viability.

Over the past decade, the private pilot population has declined at a rate of more than 6,000 pilots per year. At the same time, the number of new single-engine piston-powered aircraft being produced in the United States has fallen dramatically, from 14,398 in 1978 to just 674 in 2013. As the number of new aircraft being produced has fallen, so has the value of the aging fleet. Today, more than 81,000 of the 188,000 certified piston-powered aircraft on the FAA registry are worth \$40,000 or less, and those aircraft have a weighted average value of \$25,800. Manufacturers and businesses providing flight training, aircraft rental and repair, engine overhauls, fuel, and other products and services all are impacted by this decline.

Unfortunately, public interest in general aviation is shrinking due to a lack of new products, high costs, and low perceived value. Advancements in technology have outpaced the FAA's ability to keep up. While the technology to make new and existing aircraft easier and safer to fly exists today, it is largely unavailable to pilots and aircraft owners as a result of a regulatory environment that hampers innovation, slows the adoption of advanced technology, and imposes high costs on both manufacturers and users of general aviation equipment.

These realities are highlighted by the fact that the general aviation fleet has an average age of more than 40 years and most aircraft rely on technology that is decades old. Widespread availability of modern equipment could make flying much easier, safer, and less expensive, giving the industry a much-needed boost at every level.

What is needed is an FAA that can keep pace with and enable the cost-effective and streamlined adoption of new technology such as electronic flight displays, digital autopilots, and advanced engine monitoring to enhance safety and keep GA competitive.

Without significant changes, it seems likely that general aviation as an industry will continue to decline and U.S. aircraft manufacturing will go the way of other once prominent industries such as textiles and steel.

When the FAA works closely with stakeholders to ensure that the regulatory environment meets the needs of system users, the result can be a partnership that effectively addresses changing needs and technology. For instance, the Piston Aviation Fuels Initiative, a government industry partnership, is moving steadily toward identifying and certifying one or more unleaded fuels for use in general aviation. Similarly, efforts to reform Airman Certification Standards have been highly successful thanks to close coordination between the FAA and GA industry.

While the general aviation community continues to make progress on safety through educational and outreach efforts, much more can be achieved by bringing advanced technologies into the cockpit of both new and old aircraft of all types.

FAA must adapt its practices, policies, and procedures to match the realities of today's environment

The United States enjoys the safest National Airspace System in the world, and the FAA and its controllers play a critical role in ensuring that safety. However, in other areas, the FAA's bureaucratic processes are hampering growth, preventing incremental safety enhancements, and ultimately increasing the cost to participate in general aviation without providing commensurate safety benefits.

General aviation needs aircraft that are simpler and safer to fly in order to spur greater participation and growth. Although technologies that could modernize the existing fleet and transform future aircraft are advancing rapidly, the FAA regulatory and certification processes are unable to keep pace, forcing the aviation community to wait, for years or even decades, to benefit from newer technologies. To support future growth and improved safety in general aviation, the FAA must revise not only its regulations, policies and guidance, but also its entire approach to general aviation oversight.

Over the years, this Committee has given the FAA both the resources and the tools necessary to carry out its mission. In fact, Congress has funded the FAA generously, increasing the FAA's budget by more than 500% since 1980 even as the number of agency employees has decreased. The system of funding the FAA through excise taxes collected on fuel, rather than a user-fee system, has proven both efficient and effective. And the FAA's nearly \$16 billion budget gives the agency sufficient resources to make needed changes in the way it oversees general aviation. The challenge facing the FAA is to use those resources to focus on its core mission, meet the needs of stakeholders, and improve efficiency organization wide.

While the FAA's desire to create a "gold standard" for safety is admirable in theory, in practice this approach of holding every change to the highest standards has had the unfortunate effect of delaying or preventing incremental safety improvements. Rather than try to eliminate every aspect of risk through the regulatory and oversight processes, the FAA would better serve the aviation community by working to manage and reduce risk.

Allowing products that offer incremental safety improvements to reach the market more quickly through a streamlined process would lower costs, simplify flying, and ultimately improve safety while boosting participation in GA. The automobile industry is a positive example of how, when allowed, technology can improve safety, enhance performance, and increase reliability while at the same time lowering costs. Today, too many promising safety advances are kept out of the cockpit while the FAA attempts to regulate away all potential risk associated with their use.

By implementing the concept of a safety continuum and moving away from a "one size fits all" approach, the FAA can ensure that general aviation safety continues to improve while the industry itself has the opportunity to grow.

The general aviation community has waited too long for medical reform

In March 2012, AOPA and the Experimental Aircraft Association (EAA) jointly petitioned the FAA to change the medical certification process for private pilots flying recreationally. The groups asked the FAA to expand the use of a standard that has been employed successfully by Sport Pilots for more than a decade. That standard allows pilots to fly recreationally without going through the cumbersome third-class medical process. Since the medical reforms instituted by the FAA for Sport Pilots have proven to be both safe and cost-effective, the general aviation community asked that the FAA take the next logical step and expand those reforms to apply to more pilots.

Under current rules, private pilots flying recreationally must undergo an exam by an FAA Aviation Medical Examiner (AME) once every five years for pilots under the age of 40 and once every two years if the pilot is 40 or older. Although virtually all medical applications are ultimately granted, thousands of applications are initially deferred each year. Affected pilots must then go through extensive testing and wait, often for months, for the FAA's Medical Branch to review and approve their applications. This process can cost pilots thousands of dollars in additional medical testing and months of time grounded while they wait. The difficult and costly process deters thousands of pilots who would ultimately be deemed medically fit to fly from even applying for a medical certificate. Many of these pilots stop flying altogether, further weakening the general aviation industry.

Members of Congress, recognizing the need for reform, have introduced legislation in both the House and Senate, known as the General Aviation Pilot Protection Act (GAPPA). GAPPA now has more than 150 co-sponsors in the House and 20 in the Senate. AOPA strongly supports this legislation and would like to see it included in the next FAA Reauthorization bill.

In the face of this strong legislative push for change, the FAA announced in April that it would pursue rulemaking to reform the third-class medical process and has completed its draft rule. The general aviation community is now anxiously awaiting the opportunity to review and comment on that proposed rule, which is currently undergoing review by the Department of Transportation (DOT) and Office of Management and Budget (OMB).

The fact that it has taken almost three years, and counting, for the FAA to review and analyze what is simply a limited expansion of an existing policy approved and successfully implemented more than a decade ago, highlights the need to reform the FAA's processes and procedures.

In 2007, the FAA estimated the cost to a pilot for a medical exam to be \$321. Adjusted only for inflation, today's average cost to a pilot for a medical exam is \$371. Coupled with an industry estimate of 180,472 pilots that would be able to fly without a third-class medical, pilots would save \$24.6 million every year. A conservative estimate also shows an annual savings of \$1.9 million to the FAA.

In a survey of the members of the Flying Physicians Association, an organization of doctors who fly including many FAA Aviation Medical Examiners (AMEs), 80 percent of respondents said they believe the third-class medical system is not necessary and does not improve safety.

And many other organizations also support medical reform, including AOPA and EAA, the AOPA Medical Advisory Board, the General Aviation Manufacturers Association, Helicopter Association International, the National Agricultural Aviation Association, the National Air Transportation Association, and the National Business Aviation Association.

Many in the aviation community have attested that medical reform also has the potential to improve safety by keeping pilots in the airplanes they are most familiar with, giving them tools to assess their fitness to fly, and fostering more honest and open interactions with their primary care physicians.

Changes to the equipment certification process are needed to make safety improvements to the general aviation fleet

Since 2008 the FAA, Congress, and industry have been working to streamline and simplify Part 23 certification standards, which cover the manufacturing and

alteration of aircraft. Although change is under way, it is moving slowly. Earlier this year the FAA announced that it would not meet the deadline set by the Small Airplane Revitalization Act (SARA). SARA was signed into law one year ago this month and requires the FAA to reform and streamline Part 23 by Dec. 31, 2015.

FAA regulations with regard to the manufacture and modification of general aviation aircraft are highly prescriptive and designed to address, in exhaustive detail, very specific situations or circumstances. As a result, they offer little or no flexibility to adapt to evolving technologies and new situations.

To illustrate the complexity of these rules, note that between 1994 and 1996, approximately 800 rule changes to Part 23 were enacted. These changes largely addressed the needs of sophisticated aircraft, but simultaneously added regulatory layers to the compliance process, which increased the cost to certify a simple airplane while limiting the possibility of introducing innovations or new technologies.

In part because of the increasingly complex and expensive regulatory requirements facing manufacturers, the number of single-engine piston-powered aircraft produced in the United States each year has fallen precipitously. In 1978, U.S. manufacturers shipped 14,398 such aircraft. In 2013, that number was just 674, according to the General Aviation Manufacturers Association. By contrast, approximately 1,000 new experimental amateur built aircraft, which do not have to comply with Part 23 regulations, are currently being registered each year.

Because of the low numbers of new certified aircraft being produced, general aviation will continue to rely on the legacy fleet for many years to come. Today, there are approximately 188,000 piston-powered general aviation aircraft registered in the United States. Although they average more than 40 years of age and have a wide variety of equipment, with proper maintenance, and the ability to upgrade systems, these aircraft can continue to be flown safely for many years to come.

To fully realize the benefits of increased safety and reduced certification costs that Part 23 reform is intended to achieve, the regulations, orders, and policies for

retrofitting existing aircraft with new equipment must also be streamlined and transformed.

While there are upgrade and modernization options available today, most require FAA approval for design, production, and installation into certified aircraft. Manufacturers must acquire these approvals for individual makes and models, significantly increasing the cost and reducing the availability to the consumer.

As an example of how regulatory requirements can slow the adoption of safety equipment, consider that it took nearly three years for the FAA to release a recent policy that streamlines the approval of angle of attack (AOA) indicators for existing aircraft. An AOA indicator is an important safety technology that could help reduce the number of accidents caused by loss of control—the leading cause of general aviation accidents. Retrofit of this technology has been slowed by the high cost, which in turn, has been largely driven by regulations.

The cost of compliance must come down if general aviation is to meet the FAA's Automatic Dependent Surveillance-Broadcast (ADS-B) Out mandate

The FAA has set a deadline of Jan. 1, 2020 for all aircraft to equip with ADS-B Out technology in order to continue flying in the busy airspace near major cities or large airports—airspace where pilots must now use a Mode C transponder which allows air traffic controllers to see the aircraft's altitude on radar.

Aircraft owners will be required to maintain their Mode C transponders and install ADS-B Out equipment. This equipment transmits information about an aircraft's altitude, airspeed, velocity, and location to ground stations allowing air traffic controllers to "see" the aircraft in real time.

For a large segment of the general aviation community, the cost of the required ADS-B Out equipment is the greatest barrier to adoption. More than 81,000 of the 188,000 certified piston-powered aircraft on the FAA registry are worth \$40,000 or less, and those aircraft have a weighted average value of \$25,800. That puts

investing at least \$5,000-\$6,000 to install equipment that will only allow aircraft to operate in the same airspace they use today well beyond the reach of many owners.

Without changes, we will see many of these airplanes and their pilots stop flying on Jan. 1, 2020, further accelerating the already alarming losses in the GA community and creating an economic shock that could seriously damage thousands of small aviation businesses nationwide.

The issue of cost was raised by AOPA in formal comments to the FAA as far back as 2008, but has yet to be satisfactorily addressed, in part because the FAA has pursued a “one size fits all” approach to equipage.

While equipment manufacturers have met the requirements set out by the FAA, these requirements were intended for the commercial airlines—one reason the cost of equipment is so high. At the same time, technology has changed, creating new, alternative possibilities for equipage.

AOPA believes the cost issue can be effectively resolved, but doing so will require alternative solutions.

At its recent summit on ADS-B equipage, the FAA examined the barriers to meeting the mandate. We appreciate the agency’s effort to understand the general aviation community’s concerns and its willingness to acknowledge that cost continues to be a significant barrier to equipage. We look forward to working closely with FAA and industry to find solutions that will ensure near universal participation in ADS-B Out by the general aviation fleet.

However we remain concerned about a recent Department of Transportation Inspector General’s report that found the FAA’s implementation of ADS-B continues to suffer from delays, cost overruns, and technical problems that make it difficult for the FAA to fully justify taxpayers’ more than \$6.5 billion investment in the system. Among the other problems identified were technical and training issues, coverage gaps that could require an additional 200 ground stations, and the need to upgrade automation systems at more than 230 air traffic control facilities before the ADS-B ground infrastructure will provide benefits.

ADS-B is not the only element of the NextGen air traffic modernization effort that has struggled with significant cost overruns. In 2012, a Government Accountability Office audit found that 11 of 30 key NextGen contracts had exceeded projected costs by \$4.2 billion. Similarly, as far back as 2000, the House Aviation Subcommittee held a hearing to discuss the more than \$500 million in cost overruns in the Wide Area Augmentation System implementation.

Given the persistent NextGen cost overruns and implementation problems, it is critical that Congress closely monitor the FAA's modernization program during the reauthorization process and beyond.

Conclusion

In conclusion, the future of the general aviation industry depends significantly on the FAA working closely with its industry partners and changing the way it manages its responsibilities with regard to regulation and oversight. Long-term reauthorization legislation is needed to ensure the FAA has the stability and resources to carry out important initiatives.

To avoid adding to the stressors now facing general aviation, we encourage Congress, as it works through the Reauthorization process, to ensure the FAA has both proper oversight and direction to consolidate functions, improve efficiency, and direct resources where they are needed most.

By moving away from a one-size-fits-all approach and toward a system that focuses on managing rather than eliminating risk, the FAA can help support the general aviation industry while finding pathways to achieve timely and economical safety improvements.

AOPA looks forward to continued partnership with Congress, the FAA, and others in the general aviation community to right-size regulations, streamline the regulatory process, consider new approaches to lowering costs and barriers to

participation in aviation, and take other steps to developing a culture that supports general aviation and enhances safety.

On behalf of the nearly 350,000 members of AOPA, we appreciate your leadership in addressing future funding for the FAA and the agency's impact on its stakeholders.

Thank you for the opportunity to appear before this committee.

T&I Full Committee Hearing
"FAA Modernization: Issues in Modernizing and Operating the Nation's Airspace"
Congresswoman Elizabeth H. Esty Question for the Record to
Mark Baker, President and CEO, Aircraft Owners and Pilots Association
November 18, 2014

The second question is for Mr. Baker. Mr. Baker, we have a very active general aviation community in Connecticut who are extremely engaged and passionate about flying. As we implement NextGen we want to be sure that it is beneficial for all, including the general aviation community. Outside of ADS-B, are there other aspects of NextGen that are crucial to GA pilots?

Answer:

Thank you Congresswoman Esty. We appreciate your strong support for general aviation, especially for the nearly 4,000 AOPA members in your home state of Connecticut and the 1,000 AOPA members in your congressional district.

Before I respond to your specific question, I would just like to add that we would like every aircraft in the GA fleet to equip with ADS-B Out in order to meet the FAA's 2020 mandate. Equipping with this NextGen technology will help ensure that further limitations on access to airspace will not occur for our members – by the way the same airspace they have access to today. Although we have concerns and issues with the mandate for a large segment of our fleet, we believe that if it makes sense for a pilot or aircraft owner to equip then by all means they should, and many are doing so today. In some cases, it just doesn't make economic sense and we hope manufacturers and the FAA will work together to address that segment of the GA fleet.

We believe NextGen technology that provides GPS approaches in all types of weather will improve safety and efficiencies at airports across the nation. The FAA has begun deploying this technology nationwide, many at GA airports where they did not previously exist.

Another benefit of NextGen for general aviation will be from new navigation routes through busy terminal airspace, commonly referred to as T-routes. There are currently 30 T-routes in metroplex airspace around the country that give pilots the ability to navigate efficiently through busy metroplex airspace and reduce conflicts with commercial traffic.

And ultimately, NextGen will allow for direct routing and point-to-point navigation using GPS. More direct routing translates into less fuel being used and reduced flight times, delivering environmental benefits and saving time and money for GA pilots.

While NextGen is aimed at decreasing congestion and improving efficiency at the approximately 30 largest commercial service airports, it is important to remember that NextGen can bring potential benefits to all 5,000 public user airports in the United States. It is critical that the FAA include all airports in its NextGen planning with the goal of improved arrival and departure procedures and airspace access for all users.



Testimony

**FAA REAUTHORIZATION: ISSUES IN MODERNIZING AND
OPERATING THE NATION'S AIRSPACE**

**STATEMENT OF NICHOLAS E. CALIO
PRESIDENT AND CEO, AIRLINES FOR AMERICA
BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
NOV. 18, 2014**

Airlines for America (A4A) and its members¹ appreciate this opportunity to participate in the Committee's examination of the issues associated with the modernization of the nation's air traffic control (ATC) system.² This hearing is both timely and important. The Committee's assessment of those issues will serve as one of the cornerstones of Congress's development next year of Federal Aviation Administration (FAA) reauthorization legislation.

Chairman Shuster has called for a "transformational" approach to modernizing our ATC system and expediting the Next Generation Air Transportation System (NextGen). We commend the chairman for his bipartisan approach and outreach to A4A and other stakeholders for our views on ATC modernization and other important policy issues that will be addressed in the next FAA reauthorization bill. This will be no easy task, but we are committed to a fact-based search for solutions that will work to improve our ATC system.

OVERVIEW

In light of the forthcoming FAA reauthorization legislation, this is an opportune time to take stock of where our ATC system is today, what circumstances led to its current state and what challenges exist to successfully modernize the system. Airlines are entirely dependent on a modern and efficient ATC system. Air traffic control services are the crucial input for the air transportation that we provide. We neither produce nor control that input. As the presidentially-appointed Baliles Commission observed 21 years ago, "[i]n a very real sense, the federal government controls the production line of the U.S. airline industry."³ That was not an academic observation. In 2010, the FAA's National Center of Excellence for Aviation Operations Research (NEXTOR) completed a comprehensive study of the costs and effects of flight delays in the United States. It estimated that the annual cost of flight delays for our nation's economy was

¹ A4A does not represent Delta Air Lines in this testimony.

² A4A is the trade organization that represents larger U.S. scheduled passenger and cargo airlines. A4A's members are Alaska Airlines, Inc.; American Airlines, Inc.; Atlas Air, Inc.; Delta Air Lines, Inc.; Federal Express Corporation; Hawaiian Airlines; JetBlue Airways Corp.; Southwest Airlines Co.; United Continental Holdings, Inc. and UPS Airlines. Air Canada is an associate member.

³ *Change, Challenge and Competition, The National Commission to Ensure a Strong, Competitive Airline Industry, A Report to the President and Congress, August 1993, p. 6.*

nearly \$33 billion.⁴ An astounding \$16.7 billion of that amount is attributable to economic losses that passengers suffer because of delays. The status quo is clearly unacceptable – our country deserves an ATC system that:

- Makes it faster and easier for passengers to reach their destination.
- Enables airlines to save fuel and reduce noise and emissions.
- Enhances our economy in a way that creates jobs and drives aviation exports.

While we have the safest ATC system in the world, we should be striving to be the most efficient and cost-effective that we can be. Historically, the United States has been the leader in air traffic management and technology. However, the record is mixed on where we stand today.

For decades, policymakers and stakeholders have almost unanimously recognized the need to modernize our antiquated, radar-based, World War II-era ATC system. The FAA has been attempting to modernize the National Airspace System (NAS), expanding its capacity and increasing its productivity, since it launched the NAS plan in 1982. For over three decades, however, the DOT Office of Inspector General (DOT IG), U.S. Government Accountability Office (GAO) and numerous bipartisan federal airline commissions found that the FAA's progress with delivering planned NextGen capabilities has not met industry stakeholder expectations. At the subcommittee's Feb. 5, 2014, hearing on NextGen, the DOT IG warned that implementation costs for government and industry – initially estimated at \$20 billion for each – could double or triple – and that NextGen implementation may take an additional decade.

While stakeholders support NextGen, they have been unable to agree on how to address these well-documented implementation obstacles. The Committee has a historic opportunity to drive the institutional change needed to ensure that we have the very best ATC system in the world. The historic delays and cancellations that occurred in April 2012, due to the federal budget sequester-driven air traffic controller furloughs; the partial shutdown of the FAA in August 2011, due to the failure of Congress to extend the agency's authorization; and billions of dollars in cost overruns and delays in the FAA's multi-year NextGen initiative are distressing realities, but may be just the impetus needed to drive change.

Expediting the most cost-beneficial components of NextGen is one of the five pillars of A4A's National Airline Policy, which we hope the Committee will enact as part of the FAA bill.

In preparation for the next FAA reauthorization bill, we are in the process of benchmarking and developing a fact-based assessment of governance, financial and operational performance of the U.S., Canadian and European ATC models. We are also evaluating the risks and opportunities of reform as well as developing potential options for improving the current system. While our work is not yet complete, some basic observations are emerging.

Our work to date has shown that the FAA's organizational structure and funding model are hindering the agency's efforts to modernize the ATC system and implement NextGen. From an organizational perspective, many air navigation service providers (ANSPs) of other countries have a multi-stakeholder board of directors. Many of these other countries have adopted and implemented new ATC technologies and procedures faster and at lower cost than the FAA due in large part to a collaborative approach with stakeholders, who also fund the system.

⁴ *National Center for Excellence for Aviation Operations, Total Delay Impact Study: A Comprehensive Assessment of the Costs and Impacts of Flight Delay in the United States*, p. 14 (table 2-4).

In contrast to the FAA, these ANSPs have also been able to close underutilized air traffic control towers, consolidate radar facilities and make other efficiency gains.

From a funding perspective, it does not make sense to fund a long-term capital budget through an annual appropriations process. In today's budget environment, relying on annual appropriations creates significant uncertainty on the part of users as to when the FAA will actually have various NextGen capabilities in place. Annual budget allocations, subject to annual cuts and policy changes, frequently assures that planned new ATC technologies will be obsolete by the time they are operational. It also needlessly subjects our ATC system to disruption caused by budget battles on Capitol Hill, as evidenced in April 2013 following the sequester-driven air traffic controller furloughs and the partial-shutdown of the agency in August 2011. The FAA's Management Advisory Council, an 11-member board that advises the agency, sent a letter to congressional transportation policy leaders on Aug. 2, 2013, stating that sequester cuts to the FAA's budget underscored "the need to reform the policy, funding and governance structure of the FAA."

As the Committee seeks to address these long-standing obstacles to ATC modernization and NextGen implementation in the next FAA reauthorization bill, it will have to ask and answer two fundamental questions:

- Does the United States have the best governance and funding structures in place to deliver the most efficient, modern ATC system?
- Have the ATC models used by other countries enhanced safety and efficiency, and if so, can the best attributes of these models be adopted by the United States without adversely impacting safety?
- If yes, would their adoption improve our system? At what cost?

MULTIPLE INDEPENDENT REPORTS HAVE CITED ATC MODERNIZATION AND NEXTGEN COST OVERRUNS AND DELAYS

Since the early 1990s, a string of reports from presidentially appointed aviation commissions, the DOT IG, the Government Accountability Office (GAO), and independent private sector experts found that the FAA's ATC modernization and NextGen implementation efforts have been plagued by significant cost overruns and delays, calling into question the agency's ability to deliver under the existing funding and governance structure:

- **"The U.S. air transportation system must be efficient and technologically superior. For too long, too many people and products have been spending too much of their time sitting on the ground in airplanes and not enough time flying them. This is true despite the fact that a new ATC technology is available that would reduce delays and increase efficiency. New technology lies within our grasp but has been thwarted by a federal funding and procurement process that is the antithesis of a rapidly changing, high technology-driven air transportation system."**⁵

⁵ *Change, Challenge and Competition, The National Commission to Ensure a Strong, Competitive Airline Industry, A Report to the President and Congress, August 1993, p. 2.*

- “Authority and accountability are too diffused to run a 24 hour-a-day, high technology, rapidly changing operating system for a major commercial industry. Everyone responsible for the current ATC system – the FAA, the DOT, the aviation industry, the Administration and the Congress – wants to make the system work. But there are too many people in charge. The problems are systemic and require basic changes in command and control.”⁶
- “Federal budget rules are crippling. The present system of federal budget regulation is inappropriate for an air traffic control system controlling commercial operations that needs to be driven by demand for services. Budget rules that govern the federal aviation system must be revised.”⁷
- “The ATC’s problems can’t be fixed without a major reorganization. Under its current structure, the system is subject to federal budget, procurement and personnel rules designed to prevent mismanagement and the misuse of funds. The rules, however, prevent the system from reacting quickly to events, such as buying the most up-to-date technology.”⁸
- “To ensure the safety of those who fly, the FAA must frequently modernize ATC technology. But this has been virtually impossible, because the FAA’s money comes in annual appropriations. How can the FAA maintain a massive, state-of-the-art, nationwide computer system when it doesn’t know what its appropriation for next year or the years beyond will be?”⁹
- “Although FAA is recognized for safety and relative efficiency, its attempts to modernize the ATC system have been less successful. We have chronicled the difficulties FAA has faced completing what it envisioned initially in 1981 as a 10-year program to upgrade and replace National Airspace System facilities and equipment. For example, in August 1995, we found substantial cost and schedule overruns. To address these difficulties, in the past Congress gave FAA acquisition and human capital flexibilities to improve the agency’s management of the modernization program ... However, modernization difficulties have persisted.”¹⁰
- “The three [ATC] programs with the largest cost increases – totaling more than \$4 billion – are key to ATC modernization.”¹¹
- “... 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

⁶ *Avoiding Aviation Gridlock and Reducing the Accident Rate: A Consensus for Change*, National Civil Aviation Review Commission, Norman Y. Mineta, Chair, December 1997, p. 5.

⁷ *Id.* at pp. 4-5.

⁸ *From Red Tape to Results: Creating a Government that Works Better & Costs Less*, Report of the National Performance Review, Vice President Al Gore, September 1993, pp. 68-69.

⁹ *Id.*

¹⁰ *Air Traffic Control System: Selected Stakeholders’ Perspectives on Operations, Modernization, and Structure*, U.S. Government Accountability Office, GAO-14-770, September 2014, pp. 7-8.

¹¹ *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*, U.S. Government Accountability Office, GAO-12-223, February 2012, pp. 12-13.

feasibility and reluctance to invest – particularly in efforts that require airspace users to purchase and install costly equipment in their aircraft.”¹²

- In a recent GAO survey of 70 industry stakeholders on the FAA’s ability to implement NextGen, only 13 said that the agency’s overall implementation was going well.”¹³

THE CHALLENGES

We understand the importance of NextGen and are passionate about it. A4A member airlines provide the FAA with operational data, participate in pilot programs, and serve on countless NextGen working groups and federal advisory committees. But our consistent qualifier has been: “**show us the benefits, so that we can make the business case for investment.**” Regrettably, we have little to show for the \$5 billion to \$6 billion that the DOT IG and GAO estimate has been spent by the FAA on NextGen implementation to date. We agree with the DOT IG and GAO that ATC modernization and NextGen implementation are not hindered by a lack of funding or technology. Instead, internal issues related to implementation funding and procedure development and approvals often cause lengthy delays and a lack of uniform support from users. As noted above, a February 2012 GAO study found that half of all NextGen projects experienced delays, and that implementation costs had exceeded estimates by \$4.2 billion.¹⁴

Performance-Based Navigation Procedures

We simply cannot afford to wait for all of the pieces of NextGen to come together before we see benefits. In the near-term, we must focus on leveraging equipment already on our aircraft to implement the most cost-beneficial elements of NextGen that are available now, most notably performance-based navigation (PBN) procedures. The benefits of PBN for your constituents – our passengers – include more direct, and therefore, shorter flight paths; improved airport arrival rates; enhanced controller productivity; increased safety due to repeatable, predictable aircraft routings; fuel savings; and a reduction in aircraft emissions. These paybacks are why A4A’s National Airline Policy calls for the FAA to focus on developing and implementing PBN procedures at higher-volume airports as soon as possible.

We commend the FAA for working with the airline industry to implement the prioritized NextGen capabilities recommended by the NextGen Advisory Committee (NAC), which include PBN.¹⁵ These priorities are in line with prior NAC recommendations and an FAA-commissioned government-industry task force, RTCA Task Force 5, in 2009, and former Secretary of Transportation Ray LaHood’s Future of Aviation Advisory Committee (FAAC).¹⁶ Although FAA has important PBN efforts under way, including the Greener Skies Over Seattle project, the agency faces obstacles that make it uncertain when airlines and other users can expect to realize widespread benefits. Airlines have invested hundreds of millions of dollars in the on-

¹² See note 9, p. 3.

¹³ *Air Traffic Control System: Selected Stakeholders’ Perspectives on Operations, Modernization, and Structure*, U.S. Government Accountability Office, GAO-14-770, September 2014, p. 11.

¹⁴ *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*, U.S. Government Accountability Office, GAO-12-223, February 2012, p. 12.

¹⁵ The NAC is a Federal advisory committee that develops recommendations for NextGen portfolios with an emphasis on the midterm (through 2018). The NAC includes representation from affected user groups, including airlines and other operators, manufacturers, air traffic management, aviation safety, airports, and environmental experts.

¹⁶ *The Future of Aviation Advisory Committee Final Report*, U.S. Department of Transportation, April 11, 2011.

board equipment necessary to use PBN procedures; however, their opportunities to use that investment in the NAS have been spotty. They exist, to be sure, but they are far from system-wide, and there is no indication that the pace of introducing additional opportunities will accelerate any time soon. In a June 2014 report, the DOT IG cited several obstacles that hinder the FAA's efforts to increase implementation and use of PBN procedures, including outdated controller policies and procedures, a lengthy flight procedure development process, the lack of standard training for pilots and controllers, and the lack of automated controller tools to manage and sequence aircraft with differing equipment and capabilities.¹⁷ To address the lengthy development and approval process for new PBN procedures, the FAA made 21 recommendations for streamlining the process for deploying new procedures in an internal review – the NAV Lean project.¹⁸ In June 2011, FAA issued its plan for implementing the 21 recommendations and, according to a recent DOT IG report, the agency has implemented 9.¹⁹ However, the FAA does not expect to complete the entire NAV Lean initiative until September 2015. Ultimately, industry will not get the full benefits of NAV Lean – to decrease the time it takes to implement new procedures by more than 40 percent – until all recommendations are implemented. While we appreciate the collaborative efforts of the FAA, we can and must do better.

New York/New Jersey/Philadelphia Airspace Redesign

Similarly, the FAA's New York/New Jersey/Philadelphia airspace redesign program has not yet produced the benefits that were projected when it was initiated nearly two decades ago. The initiative is important given the fact that the current airspace configuration was designed in the 1960s and simply is not designed to handle today's traffic demand or accommodate future growth. Congestion and delays in the New York region cascade across the NAS. Nearly one-half of all flight delays occur in the New York metropolitan area and one-third of U.S. flights are directly affected by delays in New York. As noted above, congestion and delays cost the U.S. economy about \$33 billion per year, including \$16 billion for passengers.²⁰ Moreover, completion of this project has been described as a necessary foundation for the introduction of NextGen in this area.

Despite nearly two decades of work and over \$50 million in taxpayer funds spent, earlier this year the FAA indicated that the final phase of the initiative is being supplanted by a new process with no known start or end date. The FAA had planned to complete the third and final phase of the initiative by December 2016 – nearly four years later than originally planned. The FAA is now planning to tackle the program through a different initiative, based on the Metroplex approach that the agency is using in other metropolitan areas across the country. This involves the FAA working with industry to ease the bottlenecks by using PBN procedures to improve the flow of air traffic into and out of the airports in each area. In effect, the FAA is planning an airport-specific fix rather than a regional fix, which would provide far greater benefits in terms of mitigating congestion and delays in the nation's busiest airspace. The message from this experience is that the FAA's ability to introduce improved procedures relying on existing capabilities in a limited geographic area remains a major challenge.

¹⁷ *FAA Faces Significant Obstacles in Advancing the Implementation and Use of Performance-Based Navigation Procedures*, Office of the Inspector General, U.S. Department of Transportation, AV-2014-057, June 17, 2014, p. 2.

¹⁸ NAV Lean was a cross-agency project to streamline policies and processes used to implement instrument flight procedures in response to a 2009 joint FAA-industry task force report recommendation.

¹⁹ *Progress and Challenges in Meeting Expectations for NextGen*, Office of the Inspector General, U.S. Department of Transportation, CC-2014-023, June 25, 2014, pp. 6-7.

²⁰ See note 3.

Automatic Dependent Surveillance-Broadcast (ADS-B)

In addition, A4A and our members have supported ADS-B technology as an integral part of NextGen. It is one of the cornerstones of that program. However, ADS-B has become a classic example of the FAA embracing a technology without the requisite business review of benefits and costs to stakeholders. In fact, our 2008 comments to the FAA's ADS-B rulemaking proceeding made that very point and, regrettably, still resonate.

The FAA's approach to ADS-B Out (onboard avionics for broadcasting flight information to controllers and FAA ground systems) and the 2020 mandate is not harmonized with European and other international ATC systems and will primarily benefit the FAA, not airspace users. According to the DOT IG, FAA certification and flight-standards officials have already identified problems that could hinder the airline industry's efforts to meet the 2020 mandate.²¹ The FAA estimates it will cost all airspace users (commercial and general aviation) \$4 billion to equip for ADS-B Out. In October, the FAA held a "Call to Action" meeting with stakeholders to discuss ADS-B implementation challenges. While this is a good first step, we cannot support the current 2020 mandate for ADS-B Out until these issues are resolved.

In addition, we do not believe FAA is in the position to mandate ADS-B In (which enables the display of the broadcast information in the cockpit). As the DOT IG noted in a September 2014 report, requirements for ADS-B In continue to evolve, creating significant challenges related to developing and certifying ADS-B In avionics, raising questions about whether the technology will be available by 2020.²² Similarly, a report by the ADS-B In Aviation Rulemaking Committee (ARC), on which we served, cautioned that the air-to-air applications for 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 and certification procedures. Consequently, the ARC did not support an ADS-B In equipage mandate.

In addition to establishing technical specifications and standards, we believe the FAA should provide additional funding for airspace users to purchase ADS-B equipment and enter into additional partnerships with airlines to develop and demonstrate ADS-B applications and procedures. It may be useful for the FAA to determine how to demonstrate early benefits in the northeast oceanic airspace through the use of space-based ADS-B. FAA currently estimates the cost of the ADS-B program (through 2035) to be \$4.5 billion, an increase of \$400 million from original estimates. In a recent DOT IG report, the FAA stated that the total costs for the current ADS-B program, including funding that has already been spent, now outweigh the projected benefits of the program by as much as \$588 million.²³

Operational Impacts of the Chicago Air Route Traffic Control Center Outage

The FAA's Chicago Air Route Traffic Control Center in Aurora, Illinois, was effectively shut down for two weeks beginning Sept. 26, 2014, due to a fire set by an FAA contractor, who is now in federal custody. The incident affected airline operations for 17 days, resulting in the cancellation of 6,600 flights impacting 462,000 passengers. We are extremely grateful for the heroic efforts of the FAA, from Administrator Huerta and his executive team to the FAA air traffic controllers,

²¹ *ADS-B Benefits are Limited Due to a Lack of Advanced Capabilities and Delays in User Equipage*, Office of the Inspector General, U.S. Department of Transportation, AV-2014-105, Sept. 11, 2014, p. 11.

²² *Id.* pp. 2-3.

²³ *Id.* p. 3.

who handled more flights at Chicago O'Hare International Airport than any other airport in the country for the duration of the Chicago Center shutdown, and the technicians who had to restore and test more than 20 racks of equipment, 835 telecommunications circuits and more than 10 miles of cable at Chicago Center. However, there is something seriously wrong when a single fire can cripple our nation's ATC system. Despite some dramatic technological advances, the Chicago Center incident calls into question the efficacy of an ATC system that cannot withstand a disruption and still deliver services the travelling public expects and that users schedule to. While NextGen programs are underway that would enable air route traffic control centers to work with aircraft beyond their geographical purview, the FAA needs to develop a continuity of operations plan that ensures resiliency and that meets the agency's own efficiency measures, or remotely approaches the efficiency and economic goals of airlines. Airlines and their passengers, who pay 94 percent of all Airport and Airway Trust Fund (AATF) taxes, deserve better.

PREVIOUS REFORM EFFORTS HAVE COME UP SHORT

As noted previously, several bipartisan federal commissions that examined the state of U.S. civil aviation proposed reforms to enable modernization of the ATC system.²⁴ Those recommendations, coupled with their assessments of its shortcomings, have provided authoritative support for reform of the system. That support has not resulted in meaningful improvements. While Congress has enacted personnel and procurement reforms for the FAA in an effort to further modernize of the air traffic control system, those initiatives have had only a modest effect. Why have all these recommendations accomplished so little? While the Air Traffic Organization (ATO) is now a performance-based organization, a modest first step in the direction of serious institutional reform, there has been too little change in results.

CONCLUSIONS

The points made above make it clear that a serious examination of our ATC system – and the best possible solutions for bringing it into the 21st Century – is in order. In making that examination, we urge the Committee to keep an open mind and consider all options, including the wide-ranges of organizational and funding models that have been successfully adopted in other countries. If the Committee determines that significant reforms are not necessary – or, are politically unachievable – then we need to address the biggest bottlenecks and obstacles to progress that exist in the current system, and we may well find some solutions in the work others have already done and tested.

²⁴ National Commission to Ensure a Strong, Competitive Airline Industry, chaired by former Virginia Governor Gerald Baliles (1993); Vice President Gore's National Performance Review Commission (1993); and the National Civil Aviation Review Commission, chaired by former Secretary of Transportation Norm Mineta (1997).

National Air Traffic Controllers Association
AFL-CIO



Testimony of
Paul Rinaldi, President
National Air Traffic Controllers Association

Before the
House Committee on Transportation and Infrastructure
November 18, 2014

*“FAA Reauthorization: Issues in Modernizing and
Operating the Nation’s Airspace”*

The National Air Traffic Controllers Association (NATCA) is the exclusive representative of nearly 20,000 aviation safety professionals, including more than 14,000 air traffic controllers serving the Federal Aviation Administration (FAA), the Department of Defense (DOD), and the private sector. In addition, NATCA represents FAA's Alaska flight service specialists, FAA engineers, traffic management coordinators, aircraft certification professionals, agency operational support staff, regional personnel from FAA's logistics, budget, finance, acquisitions, and information technology divisions, as well as agency occupational health specialists, and medical program specialists.

Air traffic controllers and aviation specialists are dedicated to ensuring that our National Airspace System (NAS) is the safest and most efficient in the world. Controller skills are put to work every day as they handle an impressive volume of traffic -- they separate more than 70,000 flights each day, safely moving nearly two million passengers through our skies daily. Air traffic controllers handle these flights in the busiest and most complex airspace in the world with roughly 5,000 planes in the sky at any given moment. Additionally, in order to maintain that safety and efficiency, our controllers work to improve safety procedures, modernize the NAS, and promote new technology. We have professional controllers involved in nearly every modernization and Next Generation Air Transportation System (NextGen)-related program the FAA is currently working on.

Executive Summary

Aviation is a major driver of the U.S. economy - it drives nearly 12 million jobs that contribute \$1.5 trillion to the nation's gross domestic product. Two million passengers fly on 70,000 flights every single day. And yet the air traffic control system, which keeps the aviation system moving, continually faces unstable and unpredictable funding. While the most recent problems can be tied directly to sequestration, unpredictable funding has been a problem for many years, including Congress's difficulty in passing a FAA Reauthorization bill - it required 23 extensions before a final reauthorization was passed in February of 2012. The current political environment, budget deficit, and other extenuating circumstances have all contributed to a lack of regular order in the appropriations and budget process. As you are aware, Congress has come to rely on temporary short-term funding measures. A stand-alone Transportation, Housing and Urban Development (THUD) Appropriations bill has not been passed since 2006. Subsequent years have relied on omnibus spending packages or continuing resolutions to fund the government and Department of Transportation.

The most recent funding problem involves the rigid rules known as sequestration set forth by the 2011 Budget Control Act. That law required Congress to pass a budget that achieved \$1.3 billion in spending reductions or face the consequences of indiscriminate, across-the-board spending cuts. When Congress did not reach an agreement on a budget that cut \$1.3 billion, sequestration cuts went into effect in March 2013. Sequestration cuts have affected programs throughout the federal government. The end result at the FAA has been a mix of lower annual appropriations increases, and periods of indiscriminate cuts such as those in April 2013 that resulted in the FAA being forced to furlough its employees, including air traffic controllers. Sequestration has also had a substantial effect on the FAA's ability to plan for the future of the NAS. It will continue into Fiscal Year (FY) 2023. Over the next eight years, these cuts will fundamentally change the way our aviation system works. At this time, the NAS is inclusive and accessible, but continued sequestration cuts put rural towers at serious risk. In all likelihood, rural service will be greatly limited by the end of the sequestration period in FY 2023, creating burdens for those citizens while having a dramatic impact on general aviation, as well as corporate flights.

While NATCA sees many other problems and challenges for the FAA, we believe that funding is the primary issue to be addressed with the utmost urgency. The NAS is a 24/7 operation, and the FAA's aviation specialists and air traffic controllers must continue to run that system while simultaneously working on research, development, testing, and the implementation of technology modernization, as well as training new hires to become fully certified controllers (CPCs). Stop-and-go funding increases costs and creates delays for all modernization efforts. Specifically, the instability makes planning for complex modernization projects impossible: when trying to budget over multiple years, the FAA needs to know what to expect. In that regard, the threat of budget cuts can be as bad as the cuts themselves. Funding uncertainty has meant that the FAA has been unable to hire and train a sufficient number of new controllers for the past year, and funding uncertainty also led to the April 2013 furloughs, which resulted in severe delays nationwide. Even potential shutdowns, furloughs, and budget cuts are significant to the system. All of these concerns can be addressed with stable, predictable, and adequate funding. Congress and the FAA must work together to provide stable, predictable, and adequate funds for the FAA to continue running the safest, most efficient, and most complex airspace in the world.

Funding ATC: Current Funding Structure

The current funding structure requires that the FAA draw from both the Airport and Airway Trust Fund (AATF), as well as the general fund, which is funded through general appropriations by Congress. While the AATF has been a relatively stable source of revenue over the past five years, the general fund has been subject to sequestration cuts as well as other funding disruptions that have affected the FAA and the federal government as a whole.

Airport and Airway Trust Fund: In 2012, AATF had revenues of \$12.5 billion, and maintained a cash balance of more than \$10 billion. Since FY 2009, the AATF has provided 66-71 percent of the FAA's total annual funding. The remainder comes from general appropriations. Long-term viability of the AATF is a concern because it is dependent on airline ticket sales, and both flight volume and ticket prices have the potential to fluctuate. However, the FAA forecast predicts that traffic will increase between 2014 and 2024, with an increase of about 3 percent between 2014 and 2019.

FAA Budget Accounts: FAA funding that is subject to the appropriations process has not increased at the same rate in recent years as it has historically. Historic funding levels for the FAA have generally been between \$15 and \$16 billion annually. FY 2014 was \$15.814 billion (compared to \$15.77 in FY 2013, and \$15.9 in FY 2012).

Operations and Maintenance: This accounts for about 60 percent of total funding, and funds air traffic operations and aviation safety programs. The appropriated amount dropped from \$9.653 billion in FY 2012 to \$9.148 billion in FY 2013.

Airport Improvement Program: The AIP provides federal grants for projects such as new runways, and taxiways, runway lengthening, rehabilitation, and repair. The funds are generally distributed as a formula grant or discretionary grant. The Passenger Facility Charge (PFC) provides a source of non-federal funds intended to complement AIP spending. PFC is a local tax imposed by an airport on each boarding passenger, and can be used for a broader range of projects than AIP funds. PFC is currently capped at \$4.50/person, and are collected by the airlines and remitted to airports.

Research Engineering, and Development: This account funds research on improving aviation safety and operational efficiency and reducing environmental impacts of aviation operations.

Facilities and Equipment (F&E): This account provides funding for the acquisition and maintenance of air traffic facilities and equipment, and for engineering, development, testing, and evaluation of technologies related to the federal air traffic system.

NextGen: Funding for NextGen modernization projects is more than \$1 billion annually, and comes through the F&E account. Spending for FY 2011-2014 (requested) was as follows: \$883 million, \$935 million, \$944 million, and \$1,002 million. The majority of the funding is allocated to ADS-B and DataComm. While it is certainly true that NextGen has suffered delays and cost-overruns, those problems are not simply because the FAA cannot oversee such a complex modernization effort. In reality, NextGen presents significant challenges in development and implementation that are unique to aviation and air traffic control. For example, in order for NextGen technology to be of use, aviation stakeholders must adopt NextGen technology. In order to encourage equipage, the FAA has been informally employing a “best equipped, best served” standard in which airlines that equip early will benefit through preferential treatment in flight routing and in the arrival and departure phases of flight. ADS-B also provides intrinsic benefits such as up to the minute traffic and weather data that could greatly help small general aviation aircraft.

Trends: In recent years, we have seen an increased reliance on the AATF, and the Operations budget has not increased at the same steady rate since sequestration cuts officially took place in January 2013. The FAA has been increasingly funded through excise taxes and less through general appropriations – for example, in FY 2010, 66.6 percent of FAA funding came from the AATF, while it increased to 71.5 percent in FY 2013. Between FY 2010 and FY 2013, the AATF contributed: \$10.6 billion, \$11.5 billion, \$12.5 billion, and \$12.9 billion, respectively.

FAA Funding Has Been Disrupted

Because the FAA is reliant on the appropriations process for part of its funding, it is susceptible to disruptions that occur when the appropriations process is not functioning smoothly. Over the past three years, the FAA has been negatively affected by numerous funding problems, all of which have left it without the ability to fulfill long-term projects or meet hiring and staffing requirements. This section highlights these sources of disrupted funding to show that a wide range of problems can affect the FAA’s regular budget and planning process.

The Federal Aviation Administration Reauthorization Act: FAA Reauthorization is the authorizing measure that establishes, continues, or modifies FAA programs and activities. This was delayed over three years with 23 extensions before finally being signed into law in February 2012. In the interim, the FAA had limited ability to alter its budget allocations. Congress has already begun looking at the next Reauthorization, which we hope will be completed by 2015 when the current authorization expires.

2011 Partial Government Shutdown: When an agreement could not be reached on the 21st FAA authorization extension, the FAA was partially shut down for two weeks during the summer of 2011. This cost the government nearly \$30 million a day in lost revenue and delayed modernization projects and left FAA employees without pay for a significant period of time. Although Congress later awarded backpay, those aviation safety specialists had to experience funding uncertainty at a personal level, resulting in low morale and a loss of confidence in the funding system. During that shutdown, the AATF experienced a lapse in revenue collection authority (\$30 million a day), and a subsequent extension renewed that revenue collection authority and ended the furloughs.

2013 Sequestration Cuts: Sequestration cut nearly \$493 million from the FAA’s Operations budget, \$142 million from its Facilities and Equipment budget, and \$8.6 million from its Research, Engineering, and Development budget. These sequestration cuts were not the result of a research-driven strategy to

increase safety and efficiency, but rather for the sole purpose of saving money. Sequestration cuts, which are currently on hold for FY 2014 and FY 2015 but will resume in FY 2016 through 2023, have had many negative effects on the NAS. For example, preventative maintenance is being delayed. This means that engineers must contend with a fix-on-fail policy, forcing them to wait until equipment breaks before replacing it. This creates an inherent safety concern, in addition to the types of delays that result from furloughing FAA employees. These funding cuts are problematic and will continue until Congress finds a way to end sequestration. Until then, our NAS is in jeopardy of falling behind on efficiency, capacity, and most importantly, safety.

2013 Sequestration Furloughs and Threatened Tower Closures: In April 2013, sequestration forced the FAA to furlough every employee, including air traffic controllers, and consider closing towers in order to achieve the mandated spending cuts. The sequestration cuts to the FAA Operations budget were directly responsible for the April 2013 air traffic controller furloughs, which led to massive delays: During the week of April 21-27, 2013 delays jumped to 13,694, nearly triple the 5,103 delays in the same week in 2012.

2013 Federal Government Shutdown: By the end of the fiscal year in October 2013, Congress still had not passed appropriations bills to fund the government in FY 2014. When October 1st arrived, the government was forced to shut down. With that, the FAA was forced to shut down, leading to another furlough of FAA employees. The Office of Management and Budget (OMB) estimates that total furloughs government-wide cost the government \$2.5 billion in retroactive pay and benefits for furloughed workers who were unable to do their jobs during that period.

Lack of Appropriations Bills: In 2013, Congress did not pass a stand-alone FY 2014 THUD Appropriations bill. Currently, it is not likely that Congress will pass one for FY 2015 either. Congress has come to rely on temporary, short-term funding measures - continuing resolutions. As a matter of fact, a stand-alone THUD Appropriations bill has not been passed since 2006. Subsequent years, including this year, have relied on omnibus spending packages or continuing resolutions to fund the government. The FAA cannot be expected to accomplish modernization projects without the funding stability provided by an individual appropriations bill.

Consequences of Unstable, Unpredictable Funding

As a result of the unstable and unpredictable funding that the FAA has been forced to accept, we are seeing negative consequences and additional challenges. One primary concern is the safety of the NAS, which is put into jeopardy every time budget cuts force the FAA to delay maintenance and infrastructure improvements. Another problem is under-staffing, which was worsened by the closure of the FAA's training Academy for the majority of 2013. It reopened in January 2014, but was not able to train its maximum capacity in FY 2014. In addition to the personnel problems, funding uncertainty has created an environment in which the FAA cannot plan for essential modernization projects. Design, testing, and implementation stages of major projects have all been delayed or, in some cases, permanently put on hold.

1. Operational & Redundancy Concerns: The NAS is a complex system that is designed to rely on redundancy to protect safety. In order for this to happen, the system must be fully staffed and equipped with the proper tools and technologies in order to react quickly to any problem that arises. Recent funding problems have challenged the FAA's ability to do this. For example, the 2013 government shutdown forced the FAA to halt important aspects of maintenance of the air traffic control system. Delays in maintenance put the technology that air traffic controllers rely on at risk of failing or malfunctioning. Low priority was given to preventative maintenance as technician hours were reduced. Critical infrastructure maintenance and improvements were also in jeopardy during this shutdown, and have been slowly

ramping back up since the shutdown. This is unacceptable in an environment where precision is essential. In addition to lack of maintenance, FAA working groups were unable to meet during the most recent 2013 government shutdown, delaying implementation of new airspace and safety procedures. All of these issues increase the probability for future safety problems. Safety should be the government's first priority. The FAA and aviation safety professionals put safety above all else, but when the physical infrastructure is deficient, safety may be at risk.

2. Inadequate Staffing: The NAS relies on trained air traffic controllers and aviation safety professionals to operate the safest, most efficient and complex airspace in the world. A lack of fully certified air traffic controllers negatively affects the FAA's ability to train new hires, develop and implement modernized technology, and efficiently control traffic. Of nearly 14,100 air traffic controllers, over 2,500 are currently eligible to retire. That's close to 18 percent of the system. In order to maintain current system capacity, the FAA must continue training the next generation of air traffic controllers, but is limited by the time it takes to train new hires (two to four years), and the capacity of the training system (throughput at the training Academy is about 1,800 per year with approximately 25 percent failing). Today, more than 300 fewer fully certified controllers are working than in January of this year (12,442 today compared to 12,774 in January 2014). That is a two percent decrease in fully certified controllers while traffic has increased by 13 percent over the same period. The FAA can barely hire and train new hires fast enough. Aviation safety specialists, especially air traffic controllers, are the backbone of the NAS. Neglecting the human component of the NAS will affect both the safety and the efficiency of the system in both the near and long-term.

- **Staffing Imbalance and Critically Staffed Facilities:** If the current situation continues unchecked, the NAS will see an increased number of understaffed facilities, inadequately staffed facilities, and critically staffed facilities. Inadequately staffed facilities are those that do not have enough controllers to open all of their positions, require controllers to work too long on position, work extended shifts, and require controllers to work six-day weeks (the last three examples require using overtime). All of these could translate into reduced capacity, meaning fewer planes in the sky and greater potential for delays. A critically staffed facility is one that often cannot open all positions even with the use of overtime or other tactics employed by inadequately staffed facilities. Unfortunately, some of the busiest and most complex airspace relies on facilities that are inadequately or critically staffed. The extended work days and weeks also leads to significant fatigue problems with the workforce, one of the highest priority safety concerns identified by the National Transportation Safety Board (NTSB).

Understaffed facilities are already becoming inadequately or critically staffed facilities. New York TRACON (N90) and Chicago TRACON (C90) present a special problem because Academy graduates rarely, if ever, achieve full certification at these facilities due to the complexity of the airspace these two TRACONS control. Any new hire must first train at another facility and become fully certified before transferring to either of these two facilities in order to have a higher likelihood of success. And even then, there's no guarantee that a new trainee will succeed. As of October 1, 2014 N90 has 145 CPC's, 45 of whom are eligible to retire. That means roughly 31 percent of N90s fully trained controllers could leave at any time. N90 has five airspace areas, but in 2014 eight CPCs are eligible to retire from the radar approach control area that services Newark Airport. If all eight were to retire before anyone can be trained to replace them, it would not be possible to safely maintain the same number of operations per day there.

- **Effect on NextGen:** Understaffing also hinders facilities throughout the country from deploying NextGen programs, procedures, and equipment. At many larger air traffic facilities, there are not enough fully certified controllers to cover positions for those controllers who would be released to work on NextGen, or for those who need to be trained on NextGen. Specifically, Atlanta TRACON

may not be able to deploy Terminal Automation and Replacement Modernization (TAMR) at the facility due to its inability to staff the operational positions and simultaneously train on the new equipment. They could not achieve this even if the FAA used mandatory overtime at the facility. They also cannot release air traffic controllers to work on Metroplex procedures that would be implemented in the Atlanta area, allowing for more efficient flight routes.

- **Disruptive Furloughs:** While the staffing problem has been created gradually, the April 2013 furloughs provide a concrete example of what happens when the system is understaffed by ten percent, the amount of FAA employees that were furloughed during that week. In April 2013, sequestration forced the FAA to furlough every employee, including air traffic controllers. This led to massive delays. As mentioned earlier, during the week of April 21-27, 2013 delays nearly tripled from 5,103 delays in the same week in 2012 to 13,694 delays. It should be emphasized that furloughing a mere ten percent of FAA employees caused three times the number of delays, and that was with optimal weather conditions.

3. Hiring and Training Challenges: As explained above, air traffic controllers and other aviation safety specialists are the backbone of the NAS. These men and women require training over the course of two to four years before being fully certified, so replacing retiring controllers is a process that takes time and additional staffing to accomplish.

- **Hiring Freeze:** Sequestration forced the FAA to cut its Operations budget, which resulted in furloughs for all FAA employees. Those cuts also led the FAA to institute a hiring freeze between March 2013 and December 2013. This hiring freeze compounded an already tenuous staffing situation in which the FAA is barely able to replace retiring controllers with new trainees. New hires who were admitted into the Academy again beginning in January 2014 require between two to four years of training to become fully trained and capable of separating traffic independently. They must be trained by current air traffic controllers, taking those controllers away from their primary job of separating traffic. Thus, facilities that are already at critical staffing levels (defined as requiring overtime and six-day weeks to fully staff all positions) are facing a dire situation as some of the over 2,500 controllers eligible to retire begin retiring, and those left on the job begin the intensive process of training Academy graduates.
- **Placement:** Once new hires graduate from the FAA Academy, another challenge comes in the form of the FAA's flawed and inefficient placement and transfer process of employees. Many facilities are in desperate need of qualified transfers, and many employees want to transfer to higher-level facilities that need additional staffing. Transferring these employees from low and mid-level air traffic facilities to higher-level facilities would put them in a position to succeed, thereby opening positions at the lower and mid-level facilities for air traffic control trainees from the Academy to fully certify. Instead, air traffic control trainees from the Academy have been placed at higher-level facilities, which typically have a higher attrition rate than the nationwide average of 25 percent for trainees. This works against the FAA's efforts to efficiently hire and train new controllers.

It is imperative that the FAA move forward with its plan to direct hire experienced military, DOD, and civilian controllers outside of the single source announcement that it is currently using. This would allow experienced controllers to be directly placed in facilities bypassing the Academy and reducing the training time by as much as 3-4 months, depending on where they are placed after hiring. As many of these already-experienced developmentals would be placed at lower to mid-level facilities, this would allow experienced controllers from these facilities to move up to more complex facilities and provide some relief to critically staffed air traffic facilities.

4. Delays in Modernizing the NAS (both physical infrastructure and technology): Shutting down the federal government forced important work on modernization projects to stop, inevitably leading to an increase in delays to the implementation of new technology and procedures. As described above, inadequate resources in the form of time and staff has compounded the problem. Below are several key modernization projects that had already been delayed due to the April 2013 furloughs and sequestration cuts.

- **En Route Automation Modernization (ERAM):** Initially scheduled to fully replace the old system in August 2014, the replacement for the decades-old En Route Host computer and backup system used at 20 FAA Air Route Traffic Control Centers nationwide was pushed back to March 2015 due to the April furloughs, a delay that cost more than \$42 million. During the economic uncertainty of 2013, the FAA had to postpone software tests, operational tests, and controller training to save money. New York Center and Washington Center were forced to retrain their entire workforce, delaying operations by months. This in turn delayed the discovery of issues requiring software engineering to resolve and prevented the facilities from continuing ERAM operations. Any further delay could threaten the completion date of March 2015 and add significant additional cost.
- **Terminal Automation Modernization and Replacement (TAMR):** Modernizing radar systems at the nation's major airports, as well as every TRACON in the nation – some of which are nearly 50 years old – is absolutely necessary if the FAA is to successfully deploy NextGen technologies. Nearly all of the nation's 253 terminal facilities will be impacted by TAMR. TAMR's mission is to combine and upgrade multiple air traffic control technologies to a single, state-of-the-art platform called the Standard Terminal Automation Replacement System (STARS). STARS will maintain the safety and increase the efficiency of the NAS. Sequestration cuts and the 2013 government shutdown caused a ripple effect for testing and deployment, creating delays. However, the TAMR program continues to hit major milestones and achieve Acquisition Program Baseline (APB) dates. TAMR is now in full deployment and technical refresh mode in all three phases, having successfully installed STARS at Dallas, Boise, Kalamazoo, Allentown, Austin, and most recently Billings and Denver. Technical refresh upgrades are completed or under way at Philadelphia, Miami, Seattle, Tampa, Orlando and Salt Lake City. NATCA subject matter experts (SMEs) are working in all areas of the TAMR program and finding solutions to problems that have plagued modernization efforts in the past. Currently, installation of equipment and modernization projects are underway in TRACON facilities across the country including: Northern California, Southern California, New York, Atlanta, Denver, Chicago, Louisville, St. Louis, Minneapolis, Potomac, Fort Myers, Harrisburg, Tampa, Seattle, Salt Lake, and Orlando. The FAA and NATCA have been working diligently to keep TAMR and STARS more or less on target despite funding challenges. Staying the course and finishing this project is absolutely necessary to facilitate many NextGen programs.
- **Optimization of Airspace & Procedures in the Metroplex (OAPM):** Also known as Metroplex, this project works to increase the efficiency of airspace by improving procedures. These changes will provide economic benefits for airlines, as well as fuel savings that are beneficial for the environment. We know from the FAA's initial testing at the Washington, D.C. location, for example, that annual fuel savings are exceeding estimates. According to the FAA, savings total as much as \$19 million each year and result in a reduction of 75,000 metric tons of carbon. The April 2013 furloughs due to sequestration and the subsequent October shutdown significantly slowed the progress that was being made at nine test sites across the country resulting in a lost opportunity for efficiency and sustainable economic benefits for end users such as airlines.
 - The Southern California test site was due to begin final implementation of procedure changes in December 2015. Now, as a result of the April 2013 furloughs, implementation will be

delayed until March 2017. Part of the reason for the delay is that although the April furlough was only one week, it took another three months to reassemble the team. According to the FAA, those delays prevented estimated savings of \$10-16 million a year in fuel, and 34,000-78,000 metric tons of carbon.

- The Houston test site was due to begin final implementation in December 2013. That was delayed until May 2014 due to the April furloughs. Again, the shutdown further delayed progress. FAA has estimated that Houston's savings will be \$9.2-\$26 million dollars in fuel savings each year. They did finally implement in May 2014, and are currently working through a post-implementation analysis. Once that analysis is completed, we will know how much in actual savings they are experiencing (compared to the projected \$9-26 million estimate).
- North Texas was implemented in September 2014. The furloughs and shutdown delayed the implementation by a matter of months. Phoenix will begin design and implementation in November 2014. At this time it has experienced slightly less than a year of a delay due to sequestration cuts.

5. Continued Cuts to Federal Employee Pensions and Benefits: Recently, Congress had to trim the budget, and one of the first places they look is federal employee pension and benefits. Many air traffic controllers are considering retiring when they are eligible and earlier than planned in order to lock in their benefits and avoid additional costs. This compounds the challenge of fully staffing the system with certified controllers, especially when considering the lengthy training period required for an air traffic control trainee to reach certification as a CPC. We have repeatedly seen a variety of bills introduced that attempt to limit the pay and benefits of federal employees. With a significant segment of our workforce eligible to retire, the length in which it takes to certify new hires, and the staffing shortages in many of our facilities, we are concerned that harmful legislation will drive many to retire, exacerbating the already concerning staffing situation.

6. Potential Tower Closures: When sequestration cuts were initially announced, the FAA was prepared to close towers. In fact, the FAA released a list of FAA towers that were under consideration for closure. Ultimately tower closures were avoided, but they could become a necessity at any point. Many of the towers that could be targeted for closure in the future service low volume areas and rural communities that otherwise would not have commercial aviation services. In addition, service could become unavailable for general aviation, military exercises and flight schools at these airports. These closures could also mean a reduction in services for airlines, commercial interests and private pilots who rely on towers at smaller airports and for secondary services like pilot training.

7. Potential Loss of Contract Towers: Another eventual consequence of continued sequestration cuts could be the more than 100 Federal Contract Towers (FCT) throughout the country. Last February, the FAA released a list of towers that could be closed. As with the FAA towers on the list, none were actually closed at that time, but the potential remains. The closure of FCTs has far-reaching consequences because it will affect general aviation and the rural communities that depend on the services provided. Even temporary closures would result in significant impacts. Workloads would increase dramatically for the FAA facilities that would have to take over the services of the FCTs just as those facilities will be facing reduced staffing due to sequestration cuts resulting in furloughs. These developments would have a significant negative impact on the safety and efficiency of the system nationwide.

Contract towers also provide crucial support to our nation's military and private enterprises. The tower at Lone Star Executive Airport in Texas is home of one of only two Apache helicopter maintenance units in the country. In Kinston, North Carolina, the airport handles traffic from many companies, as well as the

Air Force, Marine, Coast Guard and Forest Service aircraft. It also has an 11,500 foot runway that can be used by the Presidential Fleet, including Air Force One. And Kissimmee Airport near Walt Disney World has grown from 58,000 operations in 1997 to 128,000 annually.

8. Economic Impact: Indiscriminate cuts that continue for the next eight years will ultimately result in fewer flights and increased delays, creating a ripple effect that will hurt airlines, pilots and flight crews, private aviators, airport employees, passengers and the many businesses, large and small, that depend on a vibrant aviation sector to survive and thrive. Airlines and air freight companies, which already are struggling to be profitable, will suffer more. The U.S. economy is anchored by aviation - it drives nearly 12 million jobs that contribute \$1.5 trillion to the gross domestic product. Two million passengers fly on 70,000 flights every single day. Corporations that depend on air services to transport their goods will undoubtedly suffer as well. The negative effects on the aviation system due to sequestration could become permanent, or be difficult if not impossible, to reverse once they have taken effect. This applies particularly to tower closures, as a closed tower cannot easily be re-staffed and reopened. As sequestration cuts and other reductions in federal spending continue beyond FY 2015, the implications of the cuts will result in a NAS that looks and performs very differently from the safe and efficient model that exists today.

Conclusion

The NAS and the FAA workforce are in a transition period. The FAA is working to implement NextGen modernization projects that will deploy new technology and equipment. In order to keep pace with these modernization projects and the rest of the world, the FAA needs to be properly funded and staffed, which can only happen with stable and predictable funding. We all have a stake in this economic engine, which contributes \$1.5 trillion annually to our GDP and employs 12 million Americans. Congress, the FAA, and industry will need to work together to ensure that our NAS remains the safest and most efficient airspace in the world.



The following comments are offered by the Louisville Regional Airport Authority (LRAA) in response to the hearing on November 18, 2014 by the House Committee on Transportation and Infrastructure entitled, "FAA Reauthorization: Issues in Modernizing and Operating the Nation's Airspace."

We certainly concur with Chairman Shuster's comment that we must work together to ensure that the United States remains the world leader in aviation. As part of that collaborative process, we believe it is appropriate and timely to share with you some real-world insight and experiences that may help guide all of us in achieving that goal.

In the years since its enactment in 1958, the FAA has developed and implemented various means to regulate aircraft operators, airlines, airports and the federal airspace principally through 14 CFR Part 77. However, these regulations codified using the notice and comment protections provided under the Administrative Procedure Act, have been augmented over the years with additional requirements including Program Guidance Letters, Technical Orders, Advisory Circulars and Handbooks.

In some instances, many supplemental administrative requirements are contradictory to the regulations codified in Part 77. This has resulted in requirements that cannot be easily and clearly enforced by state and local law nor easily understood by aviation **practitioners** such as airport administrators, planners, engineers and other professionals—including many in the FAA.

For example, most recently in discussions surrounding our reliever airport, the FAA's Southern Region directed the LRAA to consider lighting obstructive trees and other natural vegetation growth that were penetrating the Visual Approach Surface guidance contained in Part 77 20:1. This directive was in direct contradiction to the guidance established by FAA Engineering Brief #91, which instructs the airport sponsor to cut, trim and clear trees penetrating that same surface.

In many cases, new operational and performance rules and mandates emanate from flight divisions and the Air Traffic Division within the FAA. These divisions often have little or no understanding of the long term effects these mandates have on airspace architecture, airport operators, state statutes, local ordinances or airline flight operations.

The regulatory vacuum that has developed within FAA now confounds industry partners and often creates confusion within FAA itself. For example, the migration of aircraft design performance standards into mandated federal regulations and operational requirements is making obsolete the time-tested federal airspace management tools such as Part 77 and vital airport infrastructure—as well as state and local zoning statutes.

The overall effect of this overlay of administrative federal mandates compromises one of our most valuable assets—our navigable federal airspace and its ability to support the commercial aeronautical needs of the nation. Also, a failure to update Part 77 to return us to some logical, easily understood regulatory scheme will hamper the many positive effects that Congress hopes to achieve under the deployment of NextGen.

We believe that this increasingly confusing web of quasi-regulations can only be addressed by Congress directing the FAA to review its airspace management practices where they impact airplane, airport and airspace performance, develop coherent standards for compliance and airspace preservation and embed those changes in a revised, re-codified Part 77.

In addition, there should be a moratorium on any new, agency-issued guidance, orders or other administrative actions, impacting the federal airspace architecture—and the use thereof—until a newly, revised FAR Part 77 is developed with the engagement afforded stakeholders by the Administrative Procedure Act. Congress should use its oversight authority to monitor and review this important regulatory undertaking.

We look forward to further discussing these aviation-related issues with you and other stakeholders to preserve our position as the world’s leader in aviation.

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Louisville Regional Airport Authority
December 2, 2014