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

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

Statement of
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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

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[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.

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[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 stations[7] 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]

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[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)
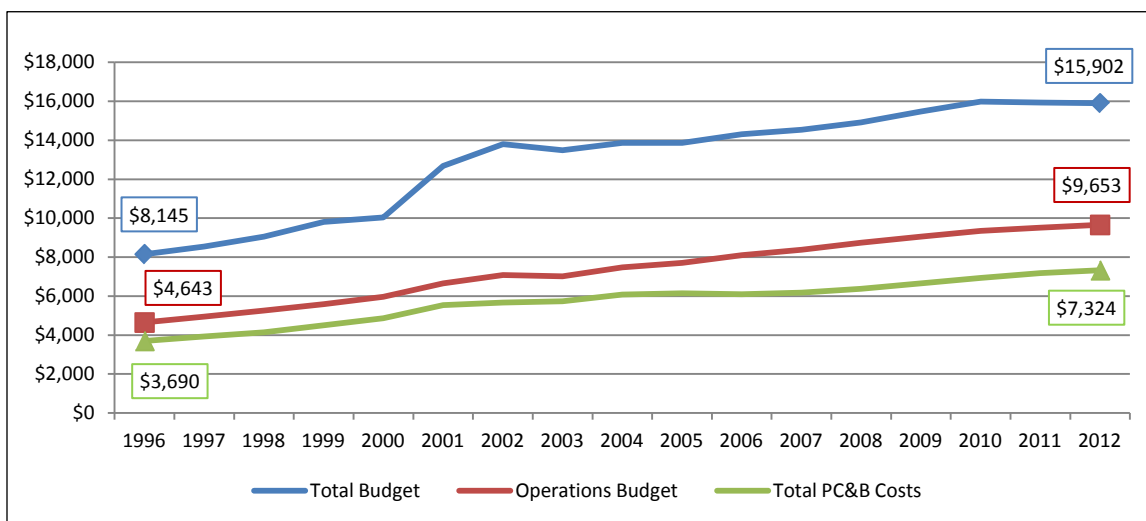
Source: FAA

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
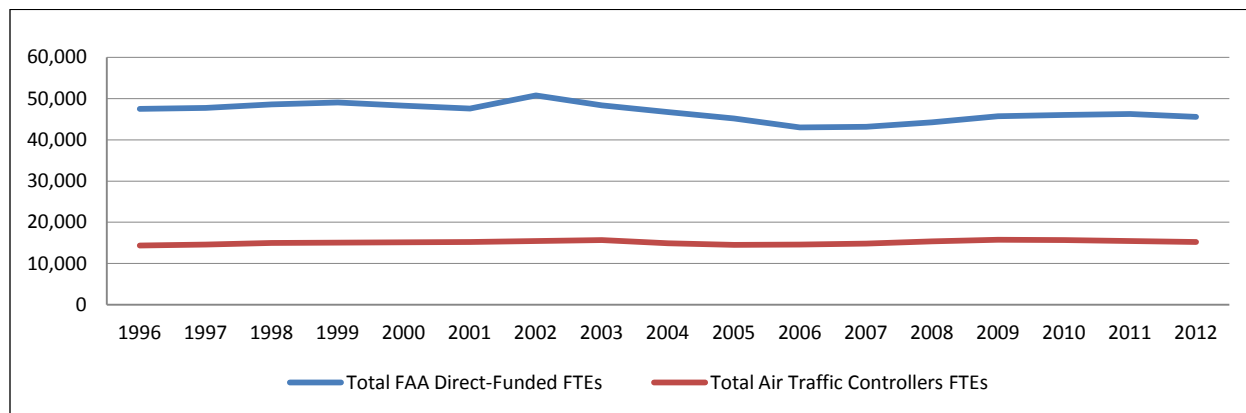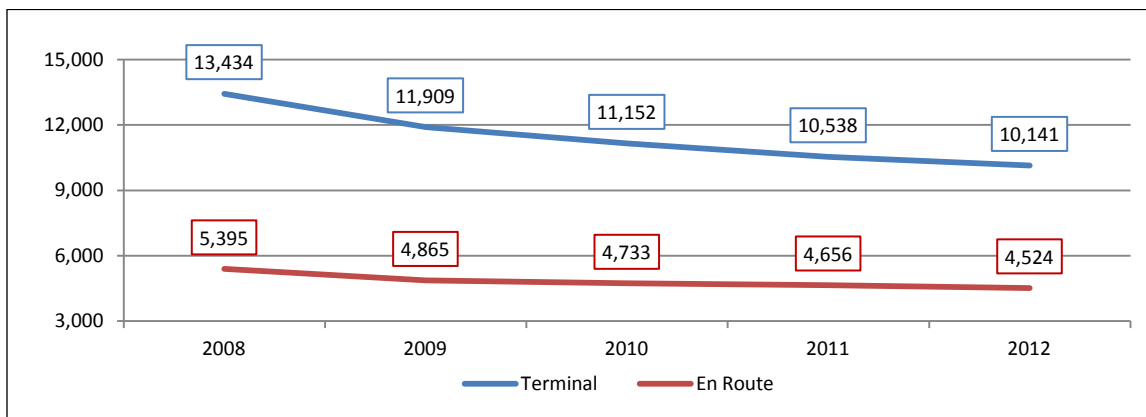

Source: FAA

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

[a]Activities at en route facilities are measured by the number of instrument flight rule hours.
[b]Activities 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).

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[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
• 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.	• 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 practices[11]—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).

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[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) system[14] 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.

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[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 rebaselinings 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 Report[17] 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

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[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 reported[19] 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.

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[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

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[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 2014[25] 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 UAS[26] 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 operations[28] and has not finalized how it will leverage data

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[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 TRACONs[29] 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.

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[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