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

Key Issues Facing FAA's Air Traffic Controller Workforce

Statement of
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Chairman LoBiondo and Members of the Subcommittee:

Thank you for inviting me to testify on key issues facing the air traffic controller workforce. The safety and efficiency of our National Airspace System (NAS) depend in a great part on the efforts of our nation's air traffic controllers, who manage more than 70,000 flights a day in the busiest and most complex air transportation system in the world. As the Committee is well aware, maintaining a controller workforce requires the Federal Aviation Administration (FAA) to hire, train, and effectively place enough new controllers to offset retirements, particularly at some of the busiest facilities in the NAS.

However, as my office recently reported, [1] FAA continues to be challenged with effectively staffing its controllers, particularly at its most critical air traffic facilities. In addition, FAA recently implemented a new process for hiring air traffic controllers that changed how the Agency screens potential new controllers. We are currently conducting a review of FAA's new hiring policies at the request of this Committee and will publish our findings later this year. I am able to provide initial results, which are subject to modification as we complete the audit.

My testimony today will focus on three areas involving FAA's controller workforce: first, FAA's progress and challenges addressing its controller staffing levels at the Agency's most critical facilities; second, FAA's implementation of its new hiring process; and third, significant workforce issues that require top FAA management attention and action.

IN SUMMARY

While FAA has developed staffing plans for its air traffic control facilities, the Agency still faces challenges ensuring it has enough fully certified controllers to effectively balance controller training requirements with pending retirements, especially at its most critical facilities. This is in part because FAA does not consider facility-specific information when anticipating future retirements, and lacks sufficient data to determine how many controllers it needs to effectively operate the NAS. In addition, while FAA recently introduced a new process for hiring controllers, the Agency lacked an effective implementation strategy for the new policies, and continues to face challenges in meeting its hiring goals due to the lengthy process it takes to hire and train a controller. Going forward, several issues that will materially affect the controller workforce also require FAA senior management attention. These include effectively implementing a new scheduling tool, integrating Unmanned Aircraft Systems (UAS) into our airspace, and transitioning to new Next Generation Air Transportation System (NextGen) technologies.

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[1] *FAA Continues To Face Challenges in Ensuring Enough Fully Trained Controllers at Critical Facilities* (OIG Report No. AV-2016-014), January 11, 2016. OIG reports are available on our Web site at http://www.dot.oig.gov/.

BACKGROUND

There are about 14,000 controllers working at FAA air traffic facilities, nearly 10 percent fewer than in 2009. About 10,800 of these controllers are fully certified,[2] with the remaining number comprised of both newly hired trainees and certified controllers who transferred to a different facility but have yet to complete facility-specific training at their new location.

FAA establishes staffing ranges for its air traffic controllers in its Controller Workforce Plan (CWP), an annual report to Congress on the state of the controller workforce developed by FAA's Office of Labor Analysis. The CWP is FAA's primary plan to ensure it employs enough air traffic controllers to maintain continuity of operations. According to FAA, the current total number of fully certified controllers is near the Agency's minimum controller staffing range. However, the number of all controllers (including trainees) exceeds FAA's maximum number of controller requirements (see figure 1).

Figure 1. FAA's Air Traffic Controller and Certified Professional Controller Staffing, Calendar Years 2012 to 2016
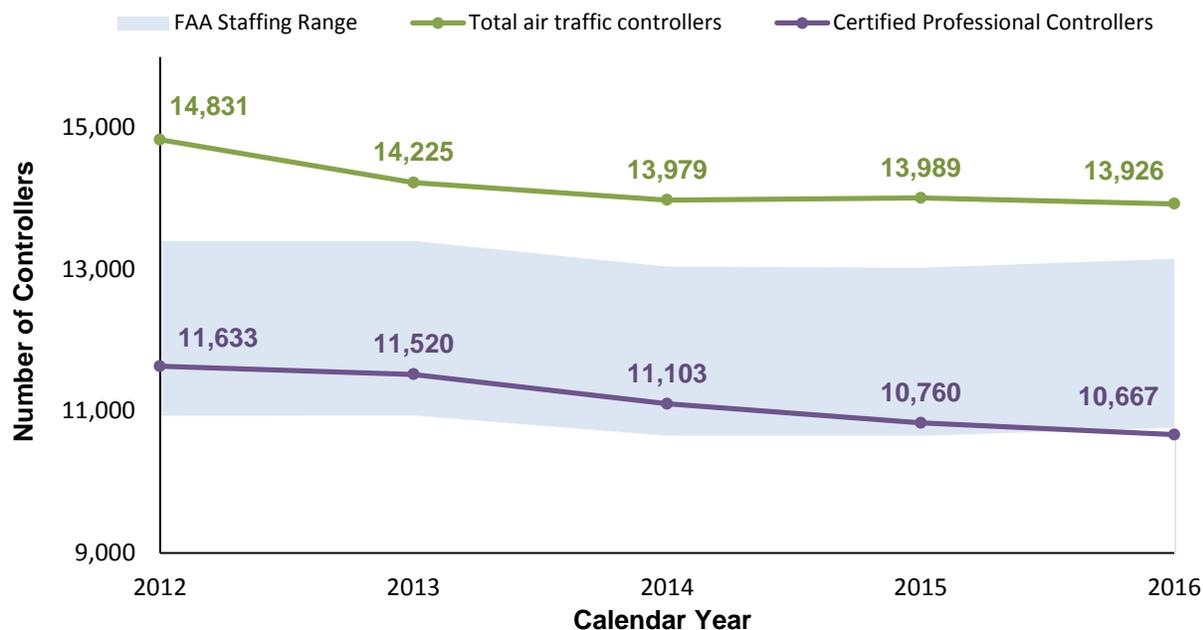
Source: OIG analysis of FAA air traffic controller staffing data as of March 19, 2016.

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[2] Certified Professional Controllers (CPCs) are controllers who have achieved full certification on all positions within their assigned areas. They also act as On-the-Job Training Instructors for all new hires.

Although all air traffic facilities are important to the operation of the NAS, we focused our most recent review on the staffing and training resources for 23 critical facilities. We selected these facilities based on airspace complexity, number of operations, and air carriers serving that location. FAA agreed that the facilities on our list were critical, but this list is not all inclusive, and we acknowledge that other facilities may also be important for supporting the NAS.

FAA CONTINUES TO FACE CHALLENGES IN ENSURING ENOUGH FULLY CERTIFIED CONTROLLERS AT CRITICAL FACILITIES

Although FAA has established a staffing plan, the Agency continues to face challenges in managing its controller resources, especially at its most critical facilities. First, FAA cannot ensure it will successfully train enough controllers to offset retirements. Second, FAA does not take into consideration facility-specific information when anticipating future retirement trends at the facility level. Finally, FAA's staffing practices are hindered by a lack of accurate scheduling and performance data, which limits its ability to accurately determine how many controllers it needs and where.

FAA Cannot Ensure It Will Have Enough Certified Controllers To Offset Retirements

FAA has developed a staffing plan based on projected gains and losses at each facility that includes expected retirements, net non-retirement losses, and planned new hires. However, many critical facilities are below FAA's minimum staffing ranges for certified controllers, including several high-impact Terminal Radar Approach Control (TRACON) facilities, such as New York, Atlanta, and Chicago TRACONs. For example, as of September 2015, Atlanta TRACON had 70 certified controllers—well below FAA's staffing range of 81–100 controllers. (See the exhibit for more details on staffing at critical facilities.) However, the facility also had 20 controllers in training who were capable of managing air traffic on certain positions.

FAA's efforts to maintain its workforce depends on ensuring it will train enough new controllers to offset those who retire. Our work has found that training controllers remains a key challenge, particularly at critical facilities. For example, many of the individual critical facilities we reviewed have a higher percentage of trainees than the national average. When comparing the training levels of all the critical facilities, the total percentages appear reasonable—23 percent of controllers were in training at FAA's critical facilities, compared to the national average of nearly 23 percent, as of September 2015. However, significant variation exists between each individual facility. For example, six of the 23 critical facilities we reviewed—Chicago, Dallas, Las Vegas, and Anchorage TRACONs, and O'Hare and Miami Towers—had 30 percent or more of their controller workforce in training (see exhibit). This is significant because trainees can only control air traffic by themselves on positions for which they are qualified, thus limiting where a facility manager can schedule the trainee.

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Moreover, at certain facilities, larger volumes of trainees exacerbate training challenges. Certified controllers are frequently diverted from managing air traffic to providing on-the-job and classroom training to new controllers. In our 2013[3] and 2015[4] reports on FAA's Air Traffic Controller Optimum Training Solutions (ATCOTS) contract, we recommended that FAA develop a plan to assess the availability of internal resources and verify whether controllers are available to teach training at each facility. This recommendation was aimed at helping FAA better define both its internal and external controller training requirements, but it remained open for 2 full years. FAA completed its actions to close the recommendation in 2016, well after the April 1, 2015, award of FAA's new air traffic controller training contract, known as the Controller Training Contract.

Further, high numbers of controllers in training leave uncertainty as to when a facility will achieve its target number of certified controllers. This is because training outcomes vary widely and it can be difficult to predict whether a specific individual will successfully complete training or how long it will take. There is a significant variation in the time it takes to train new controllers—training typically takes anywhere from 1 to 4 years. For example, in fiscal year 2012, en route controllers required an average of 3.1 years to complete training, and terminal controllers averaged 2.4 years.

Predicting how long it will take an individual controller to finish training is particularly difficult because each facility is unique in its size, number of operations, and complexity. Moreover, actual training times can vary widely even between trainees with a similar background at the same facility. For example, one trainee at Chicago Center took 6.4 years to complete training, while another trainee with a similar background took less than 1 year at the same facility. As a result, FAA cannot guarantee that it will have enough controllers who have completed training when it needs them.

FAA Does Not Consider Facility-Specific Information When Anticipating Future Retirement Trends at Critical Facilities

Another key staffing challenge for FAA is accurately determining how many controllers are eligible to retire and when those controllers will actually choose to retire. Accurately predicting retirements is a critical element in managing controller resources, as FAA uses these predictions when determining how many new controllers and trainees to assign to a facility. If more controllers retire in a given year than FAA anticipates, facilities could be left with significant shortages in certified controllers to manage traffic at a facility.

Anticipating retirements is of particular concern given the high number of controllers eligible to retire at FAA's most critical facilities. As of September 2015, FAA estimated that 27 percent of all fully certified controllers at critical facilities were eligible to retire.

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[3] *FAA Needs To Improve ATCOTS Contract Management To Achieve Its Air Traffic Controller Training Goals* (OIG Report No. ZA-2014-018), December 18, 2013.
[4] *FAA Has Not Sufficiently Addressed Key Weaknesses Related to Its ATCOTS Contract* (OIG Report No. ZA 2016-010), December 10, 2015.

In contrast, only 24 percent of fully certified controllers nationwide were eligible for retirement. Moreover, some individual facilities have retirement eligibility rates well above the national average. For example, at New York TRACON, 39 percent of the controllers are eligible to retire. Other facilities where 30 percent or more of the controllers are eligible include Chicago Center, New York Center, Indianapolis Center, and Houston TRACON (see exhibit).

Despite the high rates of retirement eligibility at critical facilities, FAA does not sufficiently consider facility-specific factors when anticipating future retirements. Instead, after determining how many controllers are eligible to retire, FAA relies on nationwide historical data to anticipate when they will retire, regardless of the difficulty and stress of complex locations. For example, in fiscal year 2015, only 15.9 percent of all controllers retired in their first year of eligibility. Nationwide trends also show that the majority of controllers usually retire before reaching the mandatory retirement age of 56. However, at the facility level, actual retirements may not follow these national trends, since there are many factors involved in individual controller's decision regarding when to retire, including family and financial reasons.

To help better predict retirements at the facility level, facility managers may have additional information on retirement trends at their facilities. Yet most managers we interviewed stated that Headquarters did not effectively coordinate with them when determining retirement projections for their facility. For example, the facility manager at Chicago O'Hare Tower expressed concerns that his facility was only receiving 5 new controllers based on FAA's retirement projections, even though he stated 15 controllers had retired the previous year. As a result, he was concerned that the facility would not have enough experienced controllers to staff the two current control towers, which are among the busiest in the NAS. After we shared these concerns with FAA Headquarters, an FAA official took steps to address the issue.

FAA's Staffing Practices Lack Accurate Scheduling and Performance Data, Limiting Their Effectiveness

FAA also lacks a process for fully and accurately determining how many controllers it needs at each facility. FAA assigns staffing ranges for specific facilities in its CWP using two different staffing models: one for en route air traffic control centers and one for TRACONs and towers. However, as we reported in January 2016,[5] discrepancies between current facility staffing levels and FAA's plans are due in part to weaknesses in the method FAA uses to develop these models and ranges. While the model used for terminal air traffic facilities appears to be reasonable and accurate, the en route model does not yet effectively capture how many controllers are needed to manage high-altitude

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[5] *FAA Continues To Face Challenges in Ensuring Enough Fully Trained Controllers at Critical Facilities* (OIG Report No. AV-2016-014), January 11, 2016.

air traffic. In a June 2014 study,[6] a National Academy of Sciences committee highlighted a number of concerns about the validity of the en route model, stating that FAA should develop a simpler model based on observing controllers managing traffic and performing specific tasks. In our report, we recommended that FAA develop and implement a methodology for determining en route staffing ranges. FAA agreed to complete this action by September 30, 2016.

FAA's staffing models are further hindered by data limitations. For example, FAA bases its staffing in part on data from its Labor Distribution System, which records the amount of time controllers spend on position (i.e., the number of hours they spend actively controlling traffic). Identifying how much time controllers actually spend on position and how much time they perform other duties—such as recurrent training, administrative tasks, and participation in workgroups—can help FAA determine how many controllers it needs to schedule and staff. However, our 2014 report[7] found that data control and entry weaknesses may limit the effectiveness and reliability of Labor Distribution System data, and certain codes used to track specific duties were too broad to be useful. We recommended that FAA ensure that all facilities implement and use new task codes designed to better differentiate the tasks that controllers are completing. FAA agreed to complete this action by December 31, 2016. Ultimately, this information is essential to developing safe and efficient controller work schedules, given the wide variety of critical duties they perform during each shift.

FAA LACKED AN EFFECTIVE PLAN TO TRANSITION TO ITS NEW CONTROLLER HIRING POLICIES

FAA is planning to hire more than 3,400 additional controllers over the next 2 years to offset estimated future retirements. The Agency faces the significant challenge of selecting these new controllers and assigning them to air traffic facilities where they will have the best opportunity to succeed. In February 2014, FAA made several significant changes to its controller hiring process. However, FAA transitioned to its new hiring policies without an effective plan or process for implementing the new policies. While it is too soon to assess whether FAA's new policies will allow the Agency to hire all the controllers it needs, the Agency continues to fall short of its overall hiring goals.

FAA Introduced Significant Changes to Its Controller Hiring Process

FAA's decision to revise its controller hiring process was based on both internal and external reviews of its policies. For example, FAA conducted annual internal assessments of its controller workforce from 2007 through 2012, as required by law.[8] In 2011, the

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[6] National Research Council, Transportation Research Board Special Report 314. 2014. *The Federal Aviation Administration's Approach for Determining Future Air Traffic Controller Staffing Needs*. Washington, DC: The National Academies Press.
[7] *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.
[8] Equal Employment Opportunity Commission, Management Directive 715, requires all Federal agencies to perform barrier analyses to ensure the workplace is free of barriers that impede full opportunities to all persons in the workplace.

FAA Administrator also convened an Independent Review Panel (IRP) of industry and academic professionals to evaluate how the Agency hires, assigns, and trains new controllers.

According to FAA officials, these reviews triggered further analysis, which led to the following changes to improve the hiring process in February 2014:

- Established an Executive Steering committee responsible for providing oversight of the new hiring process and for implementing the recommendations identified in the analysis of potential barriers in the hiring process

- Established the Human Resources office as the single organization to take charge and centrally manage the process from announcement through placement into the FAA Academy (a process formerly conducted by the Air Traffic Organization)

- Standardized the hiring process, eliminated multiple announcements for multiple hiring sources, and standardized the minimum qualifications for all applicants

In addition, FAA's new process opened the competition for jobs up to the general public, whereas the Agency had traditionally relied mostly upon its announcements to veterans or graduates of the 36 FAA-designated Collegiate Training Initiative (CTI) schools.[9] Table 1 lists the differences between the prior and current hiring process:

Table 1. Comparison of FAA's Legacy Hiring Process to the New Hiring Process

Legacy Hiring Process[10]	New Hiring Process
Multiple Vacancy Announcements	Nationwide Vacancy Announcements
Multiple Qualifications/Eligibility Criteria Sets/No Biodata	One Set of Qualifications/Eligibility Criteria
AT-SAT	AT-SAT & Biographical Assessment
Candidates Placed by Their Location Preference	Candidates Placed by Agency Needs
Centralized Selection Panel	No Centralized Selection Panel
Interview	No Interview

Source: OIG analysis of FAA documents.

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[9] Controller Training Initiative (CTI) schools offer 2- and 4- year non-engineering aviation degrees that teach basic courses in air traffic control and aviation administration. The program is designed to provide qualified candidates for developmental air traffic control specialist positions.
[10] FAA's Air Traffic Control Specialist hiring process, prior to February 2014.

A key change to the hiring process was the introduction of a new screening tool, referred to as the Biographical Assessment, which replaced the Experience Questionnaire[11] part of the Air Traffic Selection and Training (AT-SAT) test.[12] According to FAA, the Biographical Assessment predicts controller performance[13] through a process of asking individuals to recall and report their typical and sometimes specific behaviors or experiences, generally from an earlier time in their lives.

In February 2014, FAA implemented the Biographical Assessment with its first all-sources job announcement. FAA subsequently revised the assessment for its second all-sources job announcement in March 2015, after testing the assessment on over 1,700 certified professional controllers. FAA officials stated that testing on current controllers was conducted to improve the correlation of the questions to controller job performance.

FAA officials stated the Biographical Assessment was designed to address critical and important attributes that are key to controller performance. However, the effectiveness of the assessment will not be known until controllers hired under this process become fully certified, which could take several years.

FAA Transitioned to Its New Hiring Policies Without an Effective Implementation Process

FAA did not have a documented plan to implement its new controller hiring process. After announcing the new process in December 2013, FAA began implementing it in February 2014, a little over a month later. FAA officials stated that the Agency implemented the new process relatively quickly because the FAA Training Academy had been closed for several months due to sequestration, lending urgency to the need to hire new controllers. According to officials in FAA's Office of Human Resources, there were over 900 applicants waiting to be processed as controllers, and instead of relying on the old hiring process, the Executive Steering Committee[14] made the decision to implement the new hiring process with the first announcement in February 2014.

Stakeholders have expressed concerns about the sudden and unexpected implementation of the new hiring process. In particular, CTI program administrators[15] stated that FAA poorly managed the rollout by implementing it only 1 month after informing the CTI

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[11] Assessed whether participants possess certain work-related attributes by asking questions about past experiences.

[12] A computerized aptitude test comprised of eight subtests that vary in composition, from traditional multiple-choice question to dynamic scenarios and simulations.

[13] OPM policy states that biographical data measures include items about past events and behaviors reflecting personality attributes, attitudes, experiences, interests, skills, and abilities validated as predictors of overall performance for a given occupation.

[14] Established by the FAA Administrator to provide oversight for the new hiring process and responsible for implementing recommendations identified in the Barrier Analysis. The Committee included the Deputy Administrator and the Head of Human Resources.

[15] CTI was designed to establish partnerships with higher educational institutions to broaden the employment opportunities in the aviation industry, particularly among air traffic controllers.

program administrators of the change, even though the new hiring process eliminated the role of the CTI program when hiring new controllers.

In addition to the changes introduced by the new hiring policies, FAA did not establish an effective tracking system to monitor candidates as they moved through the hiring process. According to FAA officials, many of the applicants were delayed entry by well over a year, and in some cases 2 years, because of the length of time it took applicants to complete the onboarding process. FAA officials told us that they cannot readily determine where applicants are at any time in the process and had to review three different databases (Human Resources, Security, and Medical) to determine an applicant's status.

According to FAA officials, the Agency is planning to address this issue but has not yet established a timeline for doing so. Specifically, in October 2015, approximately 20 months after implementing the new hiring process, FAA established an internal review team to identify noted inefficiencies with the new hiring process. The internal review team has recommended changes to improve the process, including how to better inform applicants of their responsibilities in completing the medical and security screening and track applicants through the process. However, FAA's timeline for implementing improvements remains uncertain, and FAA has not determined when or what further changes will be implemented.

While It Is Too Soon To Assess the Overall Impact of the New Hiring Policies, FAA Continues To Fall Short of Its Hiring Goals

FAA has not met its hiring goals since the implementation of the new hiring process. FAA told us this was due to several hiring and training challenges, which included restoring hiring activities following sequestration, reopening the Academy, and addressing concerns with the onboarding process. The FAA Academy was closed from April 2013 to December 2013, and FAA issued one controller hiring job announcement in fiscal year 2014 and two in fiscal year 2015. Given the length of time it takes to move a controller through the process, it is too soon to determine whether controllers hired through FAA's new hiring process will complete training at the Academy and the facility at a more successful and faster rate.

One of FAA's biggest challenges under the new process has been improving its timeline for bringing new controllers on board. Specifically, FAA experienced delays with moving applicants through the new process for the first vacancy in February 2014. Seven months after this announcement, about 10 percent (155) of the 1,593 applicants selected had progressed to the Academy, while over 90 percent remained somewhere within the hiring process. According to FAA, this was due in part to the difficulty of advancing applicants through the onboarding process. By October 2015, the situation improved, as 741, or roughly half, of the applicants progressed to the Academy or were placed at a facility. However, FAA still lacks metrics on the time it should take an applicant to

advance through the hiring process, and many remaining new hires have not initiated the onboarding process. As a result, FAA remains challenged in meeting its hiring goals and ensuring it has enough certified controllers to offset retirements.

FAA FACES SIGNIFICANT ISSUES THAT WILL AFFECT ITS CONTROLLER WORKFORCE

Going forward, a number of issues that will materially affect the controller workforce also require FAA's attention. Our office has made several recommendations aimed at improving FAA's ability to efficiently manage its workforce while at the same time meeting the demand for emerging technologies. In particular, FAA must implement a controller scheduling tool to increase productivity, prepare controllers to safely manage increasing UAS traffic, and determine the impacts of new NextGen technology on controller productivity and workload.

Effectively Implementing a Controller Scheduling Tool Could Increase Efficiencies and Productivity

Effective scheduling is critical to maximizing controller productivity and maintaining NAS efficiency. However, as we stated in our January 2016 report, significant disagreement exists between Headquarters staff and air traffic managers on staffing practices. Air traffic facility managers told us they did not understand or fully accept FAA's staffing plans and ranges, which are developed by FAA's Office of Labor Analysis. Examples of criticisms from the facility managers include not accounting for high training attrition, unusually long training times, and new technology deployment.

Ultimately, staffing decisions are driven by the work schedule, which determines the number of controllers that are allowed to take leave on a daily basis and how many are expected to work operational positions during each shift. In January 2016, we recommended that FAA make better use of a scheduling tool it already has some experience with, known as the Operational Planning and Scheduling (OPAS) tool. OPAS is a system that aims to optimize scheduling practices through a commercially available scheduling program used by other countries, including Australia, Canada, and Germany.

In at least one case, FAA has already tested OPAS to reevaluate the number of controllers it needs at one facility, Atlanta Center. As we reported, FAA's Office of Resource Optimization analyzed the current Atlanta Center controller work schedule structure using OPAS and concluded that some efficiency could be gained. However, FAA does not currently consider the tool's results when determining facility staffing ranges in the CWP. This leaves FAA with multiple methods for assessing staffing needs, large discrepancies between each method, and continued disagreement with facilities regarding staffing. FAA partially concurred with our recommendation to incorporate OPAS into its future schedule plans. While FAA agreed to develop a method to uniformly analyze the

scheduling practices at facilities by September 30, 2016, the Agency disagreed that OPAS was necessary to complete this.

Introducing UAS Technology Into the NAS Will Present New Challenges for Controllers

The rapidly expanding use of UAS technology is presenting new challenges for air traffic controllers. While FAA has approved over 5,000 small UAS for operations away from airports, the Agency has also approved some large UAS to operate in the NAS in airspace that manned traffic typically use. The challenges controllers will face as UAS integrate into the NAS were illustrated in a July 2012 FAA study, which simulated UAS operations at small- to medium-sized airports.[16] The study found that introducing only *four* unmanned aircraft into the simulated airspace system had significant impacts on safety, efficiency, and controller workload. As more UAS are approved, the influx of UAS operations will only further increase the challenges for controllers.

For example, FAA is still working to develop the procedures, training, and tools for controllers to effectively manage large UAS in the same airspace as other aircraft. Controllers told us they must segregate UAS from other traffic. For example, controllers at one air traffic control facility handling large UAS operations told us that they always shift manned aircraft away from UAS because they were not aware of the specifics of individual UAS missions and performance characteristics, such as differing airspeed capabilities and rates of climb.

While FAA has provided some guidance on air traffic policies and procedures, air traffic personnel expressed concerns about the lack of training and guidance in certain areas, such as how to handle a "lost link" event. In 2014,[17] we recommended that FAA establish a timeline for developing standardized training and procedures for air traffic controllers in managing UAS operations in the NAS. FAA concurred with our recommendation and plans to introduce additional training in July 2016, and complete it by December 2016.

We also recommended that FAA assess and determine the requirements for automated tools to assist air traffic controllers in managing UAS operations in the NAS. This is important because FAA's air traffic control equipment was not developed with UAS operations in mind. For example, controllers told us that the En Route Automation Modernization (ERAM) system, a controller automation 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. FAA concurred with our recommendation and expects to

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[16] FAA, *Multi-UAS Operational Assessment: Class D Airspace Simulation Report,* July 2012. According to an FAA official, the purpose of the study was to intentionally stress the system to determine whether the Agency needs to develop new policies or perform further research. The study was conducted at the William J. Hughes Technical Center.

[17] *FAA Faces Significant Barriers To Safely Integrate Unmanned Aircraft Systems Into the National Airspace System* (OIG Report No. AV-2014-061), June 26, 2014.

complete actions to determine the requirements for automated tools to assist controllers by September 30, 2017.

NextGen Technologies Will Impact Controller Training and Productivity

Many of FAA's envisioned NextGen capabilities rely on a number of transformational programs that are expected to provide benefits and improve efficiency for airspace users and controllers. However, FAA has yet to determine the impact of these technologies on controller training, staffing, and productivity. For example, the $1.6 billion Data Communications (DataComm) program is expected to improve safety and boost controller productivity by allowing controllers to communicate with pilots via digital text messages, rather than relaying information by voice over radio, which is more time consuming and less precise. The productivity enhancements from DataComm technology could be substantial and could shed light on how much additional traffic the existing controller workforce could safely handle with a key NextGen technology. However, FAA has not yet fully quantified the expected benefits of this technology or the impacts on the size of the controller workforce.

Another example of new technology that will impact controllers is the $2.7 billion Automatic Dependent Surveillance–Broadcast (ADS-B) system, which is central to FAA's NextGen plans to transition from a ground-based radar system to a satellite-based system for monitoring and managing air traffic. ADS-B is expected to improve safety and increase capacity by allowing controllers to use the more precise ADS-B surveillance information to better aid pilots and controllers during all phases of flight. However, despite a mandate to equip with some ADS-B technology by 2020, airspace users have not equipped in large numbers of their aircraft, and FAA has not fully developed rules and procedures that would allow controllers to use ADS-B exclusively to separate and control air traffic in terminal and en route environments. In 2010, we recommended that FAA further quantify and validate the productivity enhancements from displaying ADS-B information on controller displays and the additional automation needed to maximize benefits of the technology. FAA is still working to address our recommendations.

FAA has also not yet determined or quantified the impact these new capabilities will have on air traffic controller workload and staffing. Our office is currently reviewing FAA's progress in realizing benefits from ADS-B, DataComm, and other NextGen transformational programs, and we expect to issue our report later this year.

CONCLUSION

Controller staffing has been a longstanding issue for FAA, yet the Agency continues to struggle to accurately determine how many controllers it needs, along with meeting its significant training and hiring goals, particularly at its critical facilities. Sustained senior management attention and actions to address our prior recommendations are needed to

ensure that FAA can maintain a robust workforce in a dynamic air traffic environment. Our office remains committed to helping FAA identify ways it can improve the efficiency, productivity, and effectiveness of its controller workforce, both now and into the future. We will continue to keep this Subcommittee apprised of our findings and recommendations in these important areas.

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

EXHIBIT. STAFFING AT FAA'S CRITICAL FACILITIES AS OF SEPTEMBER 2015

Facility	Staffing Ranges					CPCs Retirement Eligible	Percent CPCs Eligible
	Min	Max	CPCs	Trainees	Percent Training		
Anchorage Tower/TRACON	20	25	18	16	47%	1	6%
Atlanta TRACON	81	100	70	20	22%	15	21%
Atlanta Tower	42	51	44	6	12%	6	14%
Chicago TRACON	83	101	66	34	34%	15	23%
Denver TRACON	64	78	55	16	23%	5	9%
Dallas TRACON	78	95	54	38	41%	12	22%
Denver Tower	32	40	37	3	8%	8	22%
Newark Tower	28	34	27	9	25%	7	26%
Houston TRACON	79	96	71	18	20%	21	30%
John F. Kennedy Tower	29	35	27	8	23%	7	26%
Las Vegas TRACON	40	48	38	18	32%	2	5%
LaGuardia Tower	26	32	30	8	21%	7	23%
Miami Tower	81	99	60	29	33%	17	28%
New York TRACON	174	213	144	52	27%	56	39%
O'Hare Tower	59	72	49	23	32%	11	22%
Potomac TRACON	136	166	141	24	15%	19	13%
Southern California TRACON	193	235	204	39	16%	55	27%
Albuquerque Center	165	202	154	32	17%	30	19%
Chicago Center	279	341	313	61	16%	113	36%
Washington Center	253	310	281	33	11%	75	27%
Indianapolis Center	248	303	257	67	21%	83	32%
New York Center	236	288	225	83	27%	76	34%
Atlanta Center	314	384	325	38	10%	88	27%

Note: Highlight indicates CPC level below staffing range minimum. These numbers were updated from the September 2014 data we used in our January 2016 critical facilities report.