Written Testimony of
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Committee on Commerce, Science, and Transportation
United States Senate

"U.S. Air Traffic Control Systems, Personnel, and Safety"

Thank you for the opportunity to testify on behalf of the National Air Traffic Controllers Association, AFL-CIO (NATCA) at today's hearing titled "U.S. Air Traffic Control Systems, Personnel, and Safety."

NATCA is the exclusive representative for nearly 20,000 employees, including the Federal Aviation Administration's (FAA) air traffic controllers, traffic management coordinators and specialists, flight service station air traffic controllers, staff support specialists, engineers and architects, and other aviation safety professionals, as well as Department of Defense (DOD) and Federal Contract Tower (FCT) air traffic controllers.

NATCA takes pride in its role as an aviation safety organization that stands shoulder-to-shoulder with government and industry stakeholders to ensure that our National Airspace System (NAS) remains the safest and most efficient in the world. The air traffic controllers and other aviation safety professionals who NATCA represents throughout the FAA, DOD, and the private sector are vital to the U.S. economy, ensuring the safe and efficient movement of millions of tons of cargo annually within the National Airspace System (NAS).

The NAS moves over 45,000 flights and 2.9 million passengers, and more than 59,000 tons of cargo every day across more than 29 million square miles of airspace. Although it is the safest, most efficient, and most complex system in the world, we should always strive to bolster safety, mitigate risk, and improve efficiency.

Executive Summary

The FAA's two primary accounts for running the U.S. air traffic control system are its Operations[1] (Ops) and Facilities and Equipment (F&E) budgets. Although the size of the F&E budget is roughly one-fourth of its Ops budget, F&E funding is critical for developing, testing, deploying, and enhancing the systems that air traffic controllers and other aviation safety professionals use every day to ensure that more than one billion passengers annually arrive safely at their destinations.

These safety-critical systems must be continuous monitored, maintained, upgraded, and enhanced even after they are fully deployed across the NAS, while many contain physical components that have lifecycle expiration dates. Software enhancements and cyber security upgrades are also necessary to meet the growing demands of the NAS. In addition to increased commercial passenger and cargo traffic, the rapid proliferation of space launches and unmanned aerial systems must be integrated safely into the system by the workforce that keeps it running.

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[1] NATCA supports the Department of Transportation's (DOT) Fiscal Year 2025 Operations budget request, which included an increase to $13.6 billion from the 2024 Continuing Resolution level of $12.729627 billion, in recognition that the FAA will experience several uncontrollable cost increases of over $500 million, from personnel costs such as government-wide pay increases and annualized hiring from Fiscal Year 2024. The DOT's Fiscal Year 2025 budget request also accounts for a $43 million increase to hire and train at least 2,000 new air traffic controllers to rebuild the controller staffing levels and meet current and projected traffic demands. This hiring target was established in accordance with the maximum hiring requirement in the FAA Reauthorization Act of 2024 and must increase in future years as the FAA Academy expands its capacity. In July 2024, the Senate Appropriations Committee approved this budget request in its Fiscal Year 2025 THUD appropriations bill, while the House THUD bill was slightly below that budget request amount.

F&E funding is also used to repair, update, and replace the FAA's rapidly aging physical infrastructure. Air traffic control facilities across the U.S. range from two to 82 years of age. Many controllers and other aviation safety professionals go to work every day in facilities that are plagued by leaking roofs, flooding basements that contain electronic systems, broken-down elevators and HVAC systems, and chronically backed-up bathroom toilets.

NATCA's written testimony will focus these issue including: (1) controller staffing challenges and how they negatively affect infrastructure and modernization initiatives; (2) the concerns with FAA's rapidly-aging physical infrastructure; (3) the FAA's F&E budget requests to Congress understated its needs in previous years; and (4) illustrate how we, as a nation, are falling behind in our efforts to maintain and modernize the system.

Importantly, this testimony will explain why NATCA must continue to be involved as a productive and collaborative partner across a wide range of safety, technology, and modernization programs to ensure that the FAA can deliver these initiatives to industry stakeholders and the flying public on-time and at a cost-savings to the American taxpayers.

I. Controller Staffing Challenges Continue to Hinder Infrastructure and Modernization Advancements

NATCA continues to be focused on improving the system-wide controller staffing shortage. A properly-staffed controller workforce is necessary in order to safely and efficiently meet all of its operational, statutory, and contractual requirements, while also having the personnel resources to research, develop, deploy, and then train the existing workforce on new processes, technology, and modernization initiatives. Without a sustainable hiring, training, and staffing model like the one outlined in the FAA Reauthorization Act of 2024, which passed both chambers with overwhelming bipartisan support, the FAA will struggle to maintain the current capacity of the system, let alone modernize or expand it for new users.

NATCA thanks the members of this subcommittee, as well as all Senators who championed the FAA Reauthorization Act of 2024. That law included many first-time provisions including directing the FAA to conduct maximum hiring for controllers for the duration of the bill and implementing expansion of the capacity of the FAA's Training Academy in Oklahoma City.

After reaching its hiring targets for air traffic controller trainees three consecutive years, including increased targets of 1,500 and 1,800 respectively the past two fiscal years, the FAA is finally starting to make some progress. After a decade of steady losses, in Fiscal Year 2023, the FAA added 15 additional Certified Professional Controllers and 15 additional trainees. In Fiscal Year 2024, the FAA added 140 CPCs and 189 trainees after accounting for attrition. Maximum hiring for the full duration of the bill will greatly assist the FAA achieve a staffing level required to meet all of its needs.

The law also requires the FAA to implement the Collaborative Resources Workgroup's (CRWG) new, more accurate operational staffing targets on an interim basis, until the Transportation Research Board – a part of the National Academies of Sciences, Engineering, and Medicine – completes a study to determine which staffing models and methodologies best account for the operational staffing needs necessary to meet facility operational, statutory, contractual

and safety requirements of the air traffic control system. Proper and timely implementation of these provisions is essential to the safety, efficiency, and technological modernization of the NAS for the years to come.

Congress must make the necessary investments in the FAA's rapidly aging physical and technological infrastructure, which need significant attention and additional funding. But, staffing and infrastructure are inextricably linked, because it requires fully certified controllers to develop, test, deploy, and train new technology, while at the same time meeting the safety and efficiency requirements of the system.

II.   FAA's Physical Infrastructure is Rapidly Aging and Many Facilities Have Exceeded Their Expected Lifecycles

The FAA operates more than 300 air traffic control facilities of varying ages and conditions. The FAA's 21 Air Route Traffic Control Centers (ARTCCs) located in the continental United States were built in the 1960s and are more than 60 years old. The FAA's Terminal Radar Approach Control facilities (TRACONs) are on average more than 25 years old. In addition, the FAA has 132 combined TRACON/towers, which, on average, are approximately 35 years old. Finally, the FAA has another 131 stand-alone Towers which average more than 30 years old.

Many FAA facilities have exceeded their expected lifecycles. Others have major systems that have exceeded their expected functional lifecycle such as roofs, windows, HVAC systems, plumbing, and elevators, which no longer perform their necessary functions. Some of these issues have led to periodic airspace shutdowns and many others have led to safety concerns for the workforce. When these major systems fail, or facilities have integrity problems, it can lead to increasing delays, which negatively affect the flying public and our economy.

The FAA is addressing its aging infrastructure through a combination of realignments, sustaining and maintaining some facilities, and replacing a handful of others. However, that process has been slow and hampered by funding constraints. The FAA will need a substantially increased investment in its F&E budget to adequately maintain, let alone, replace its aging infrastructure.

III.   Congress Has Always Met FAA's Stated Budgetary Need For Facilities and Equipment

The FAA, like much of the federal government, has faced an unstable and unpredictable funding stream for the better part of two decades. Whether due to the risks of lapsed appropriations or authorizations, such interruptions have negatively affected all aspects of the FAA, making it increasingly difficult to maintain the safety and efficiency of the NAS. Even when the Agency is not facing the threat of a shutdown, multiple administrations from both parties have submitted insufficient FAA budget requests to Congress. FAA's requests have often fallen well-short of what it truly needs to adequately address the infrastructure needs of the NAS.

Congress has consistently provided the FAA with the resources it requests through both authorization of top-line numbers and the annual appropriations process. However, because FAA has consistently requested too little, there are significant backlogs of NAS system sustainment and ATC facility sustainment, in addition to mounting delays in the implementation of NAS modernization and system improvements as well as ATC tower and radar facility replacement.

The budgetary shortfalls also have not kept up with inflation over the past 15 years. For instance, the FAA has consistently requested only about $3 billion in annual appropriations for F&E throughout that period, even though in Fiscal Year (FY) 2024 the Agency's internal budgetary estimates showed that it needed at least $4.5 billion, with that need quickly approaching $6 billion. This loss of spending and buying power for F&E programs forced FAA into a "fix-on-fail" model by requiring it to prioritize mandatory costs, leaving little to no money for modernization and infrastructure programs.

Currently, NATCA believes that the Department of Transportation's FY25 Budget Request ($3.6 billion) for F&E is insufficient to meet the Agency's modernization and technological needs. To sustain many legacy systems, as well as to enhance and grow critical safety and modernization programs, the FAA projects that it will need $6 billion. At minimum, the NATCA projects that the FAA will need at least $4 billion to simply sustain these programs and the rest of the NAS. Investments that merely cover the costs to sustain current equipment will be insufficient to develop and implement new technologies and integrate new users into the system.

The FAA's FY 2025 budget request, for the first time in over a decade, acknowledges its true need, although not entirely through its F&E request. In addition to the $3.6 billion F&E request, FAA cites the $1 billion in funds authorized for 2025 through the Infrastructure Investment and Jobs Act as supplementing its facilities and infrastructure funding needs. It also proposes a new Facility Replacement and Radar Modernization fund that would dedicate $8 billion over the next five years – beginning with $1 billion in 2025 – to replace or modernize aging air traffic control facilities. This includes modernizing 377 critical radar systems and more than 20 air traffic control facilities. We, along with a wide array of industry stakeholders, support this request.

Recently, the FAA publicly shared its facilities and systems sustainment backlog, ongoing needs for both, and facilities and systems replacement and improvement funding requirements looking forward 30 years into the future.

FAA Capital Needs Exceed the Capital Budget Limits
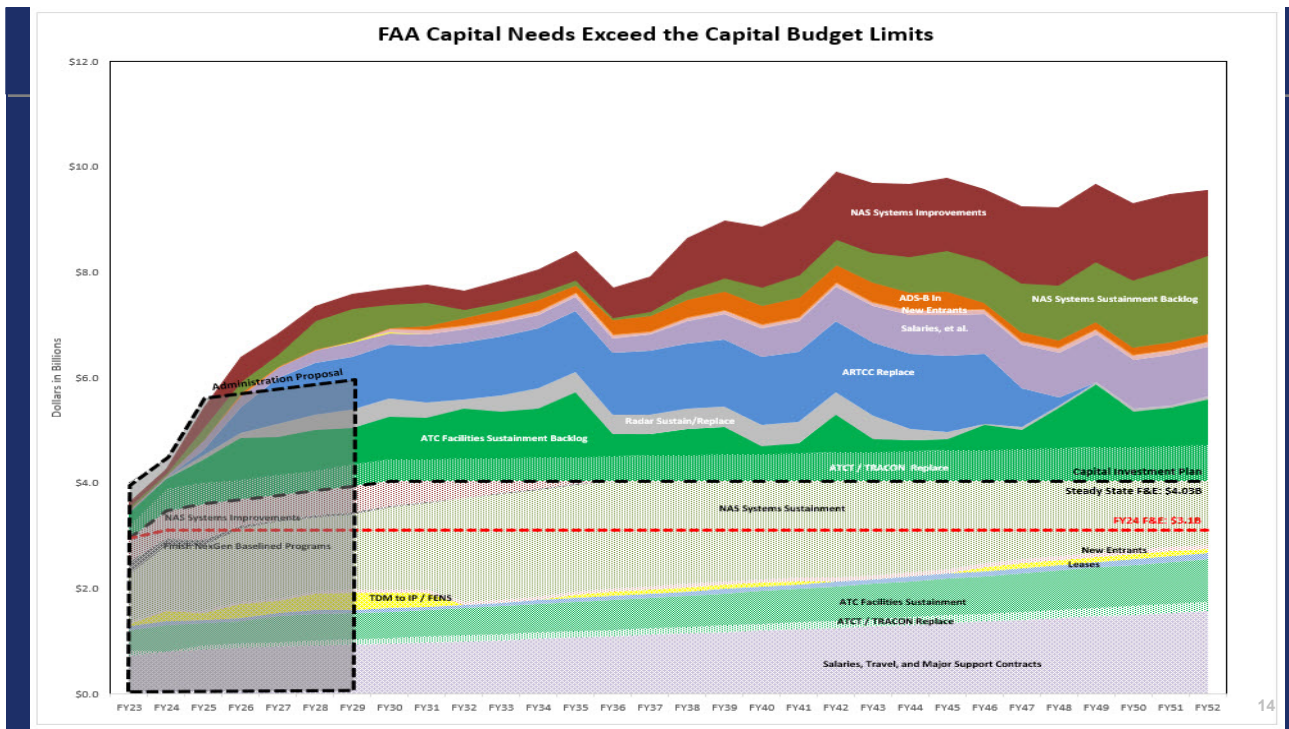
The FAA must continue to be transparent with its need for increased F&E funding so that it can meet its own equipment sustainment, replacement, and modernization needs. If not, it will continue to exacerbate the FAA's significant sustainment and replacement backlog. Failing to maintain and replace critical safety equipment that has exceeded its expected life introduces unnecessary risk into the system. These funding limitations also have prevented the FAA from designing and implementing new technologies that will improve safety.

IV.   FAA is Lagging Behind in its Efforts to Sustain and Modernize the NAS

In the coming years, the FAA will face unprecedented safety and technological challenges. The continued development and rapid proliferation of commercial space operations, advanced air mobility, unmanned aerial systems (drones), and other new entrants could jeopardize the safety and efficiency of the NAS if they are not properly integrated into the existing system. It is critical that NATCA remain involved with the safe and efficient integration of these new technologies.

For the past 15 years, the FAA and NATCA have worked together to develop and implement safety-critical modernization programs that would not be possible without our joint efforts. For instance, NATCA and the FAA have achieved collaborative and cost-saving successes on modernization programs such as En Route Automation Modernization (ERAM), DataComm, and Metroplex. Recently, the Agency and NATCA have been able to fast-track a surface surveillance situational awareness tool that will help controllers mitigate the risks associated with wrong-surface landings and runway incursions. These types of programs and initiatives enhance safety and produce efficiencies that reduce delays and save fuel, while also preserving the United States' position as the world leader in aviation.

However, under-funding for F&E will jeopardize sustainment and significantly hinder progress for many safety and modernization programs including, but not limited to: FAA Telecommunications,

En Route Automation Modernization (ERAM), Standard Terminal Automation Replacement (STARS), DataComm, Voice Switch, Airborne Surveillance, Ground Surveillance, Airport Lighting, Space Integration, Aeronautical Information, Information Management, Terminal Flight Data Management (TDFM), and Facility Replacement and Radar Modernization (FRRM).

A. The FAA's Looming Telecommunications Crisis

FAA telecommunications are the backbone of the air traffic control system. The FAA needs extensive telecommunications services and networking capabilities to support the operation of the NAS and other agency functions. The FAA Telecommunications Infrastructure (FTI) program currently provides these services and networking capabilities through a service-based contract, in which the service provider continually updates the underlying technologies. The majority of FTI's telecommunication lines function on an aging copper wire infrastructure, which is an outdated and no longer readily supported, as many local phone companies are discontinuing service to copper wire equipment throughout the country.

As a result, air traffic controllers throughout the U.S. are experiencing a steady increase in unexpected outages of air traffic systems. Recent ground stops at airports in the New York and Washington, D.C., areas highlight the risks and consequences of telecommunication network failures. To date, there are over 30,000 services at over 4,600 FAA sites that must transition away from copper wire and onto a fiber optic cable network in order to avoid severe service disruptions and extensive flight delays.

The FAA's Enterprise Network Services (FENS) program will replace existing copper wire infrastructure with a fiber optic network. As a result, FENS will be able to provide reliable and secure communications, information services, and networking capabilities to support NAS operations and agency administration functions. This will not only help to stabilize the telecommunications network but also pave the way for cloud-based services and reduce program development and sustainment costs. However, any discontinuation or disruption to the existing copper wire services without first transitioning to fiber optic services would lead to potential safety risks and/or significant delays in air traffic services.

Because this is both a time-sensitive and a safety-critical program, the FAA is currently moving money from other safety-critical programs in order to replace legacy copper wire on a case-by-case basis. The FAA is also spending an additional $7 million per month just to maintain the legacy copper wire as they delay the fiber optic upgrades due to insufficient funding. Other FAA programs will continue to suffer funding cuts if this program is not adequately funded.

B. The NOTAM Crisis Harbinger of Future Disruptions

Even before the FAA's telecommunications crisis, the FAA was working to mitigate the risks associated with its faltering Notice to Airmen (NOTAM) system, which has been the source of significant disruptions throughout the NAS. The NOTAM system is vital for sharing and disseminating safety-critical flight information between both air traffic controllers and pilots.

However, in early 2023, a complete failure of the NOTAM system caused nationwide ground stop causing significant flight delays. Despite the known vulnerabilities and risks associated with the current system, the FAA will struggle to fund this program without increased F&E funding. At

minimum, the FAA will need $154 million just to conduct further *research* on a replacement NOTAM system, but will need $354 million to replace the broken NOTAM system.

Much like the FAA's looming telecommunications crisis, the NOTAM crisis was not at the top of any F&E priority lists until after the 2023 collapse resulted in cascading nationwide delays and ground stops. We need to learn the lessons from similar events in the past and chart another course, rather than repeat the same mistakes.

C. FAA Must Continue to Sustain and Enhance Automation Platforms

Automation platforms such as ERAM and STARS deliver flight plan and surveillance information to air traffic controllers on a real-time basis. These platforms are the foundational systems that keep our NAS operating safely 24-hours a day, 7-days a week, 365-days a year.

Over the past four years, air traffic levels have continued to grow at a rate of 6.2% per year post-COVID, excluding new entrant operations. Air traffic automation systems have components reaching end-of-life that need to be replaced. Due to historically flat F&E funding, as a result of the FAA requesting less than it needs to maintain the system, air traffic automation has been unable to meet the growing needs of the NAS reducing the efficiency of the system.

In the near future, controllers will have to rely on this inadequate technology to maintain the safety and efficiency of the NAS. Without fully funding these programs, the FAA will need at least $265 million just to maintain current functionality in FY25. However, at that level, the FAA would not be able to make additional enhancement upgrades for any of the current automation systems and some hardware replacements would be at risk. Because these platforms require continuous maintenance, it will cost the FAA $400 million in FY25 to update the hardware for these systems and enhance functionality controllers desperately need.

D. Surveillance Programs

Air traffic surveillance systems encompass Radar, ADS-B, and GPS. Although ADS-B and GPS have been extremely beneficial for improving safety and efficiency, they do not replace the need to maintain legacy radar infrastructure. Modern radar technology is more cost-effective, requires less maintenance, and offers an increase in range visibility which will allow the deployment of fewer assets and maintain the same, if not improve, surveillance visibility throughout the system.

At minimum, the FAA will need $212 million just to sustain current surveillance systems. Many components of legacy radars are past their end-of-life cycles and are no longer manufactured, while some other suppliers of ground radar equipment went out of business. Without replacing and upgrading these systems, the flying public is at risk of experiencing unexpected and significant flight delays and other disruptions to the system whenever these systems breakdown. The FAA requires $1 billion to modernize radar technology throughout the system.

E. NATCA Involvement Critical in Every Phase

It is critical that NATCA remain a productive and collaborative partner throughout development, testing, training, and implementation across a wide range of safety, technology, and modernization programs. NATCA's continued involvement will ensure that the FAA continues to deliver these

initiatives to industry stakeholders and the flying public on-time and at a cost-savings to the American taxpayers. If NATCA representatives were not involved throughout the entirety of the process, many modernization programs would be delayed and experience cost overruns, because they would need to go through extensive, costly, and time-consuming revisions following development, during testing, and even after implementation.

V.   Conclusion

In order to enhance aviation safety, efficiency, and modernize FAA physical and technological infrastructure, Congress must prioritize investment in F&E funding. Meeting the FAA's F&E budgetary needs for Fiscal Year 2025 and beyond will finally allow the Agency to address its significant backlog of facility and equipment maintenance, repair, and replacement. This increased funding also will allow the FAA to fund critical modernization programs that enhance safety while continuing to expand the NAS to account for the development and rapid proliferation of commercial space operations, advanced air mobility, unmanned aerial systems (drones), and other new entrants that must be properly integrated into the existing system.
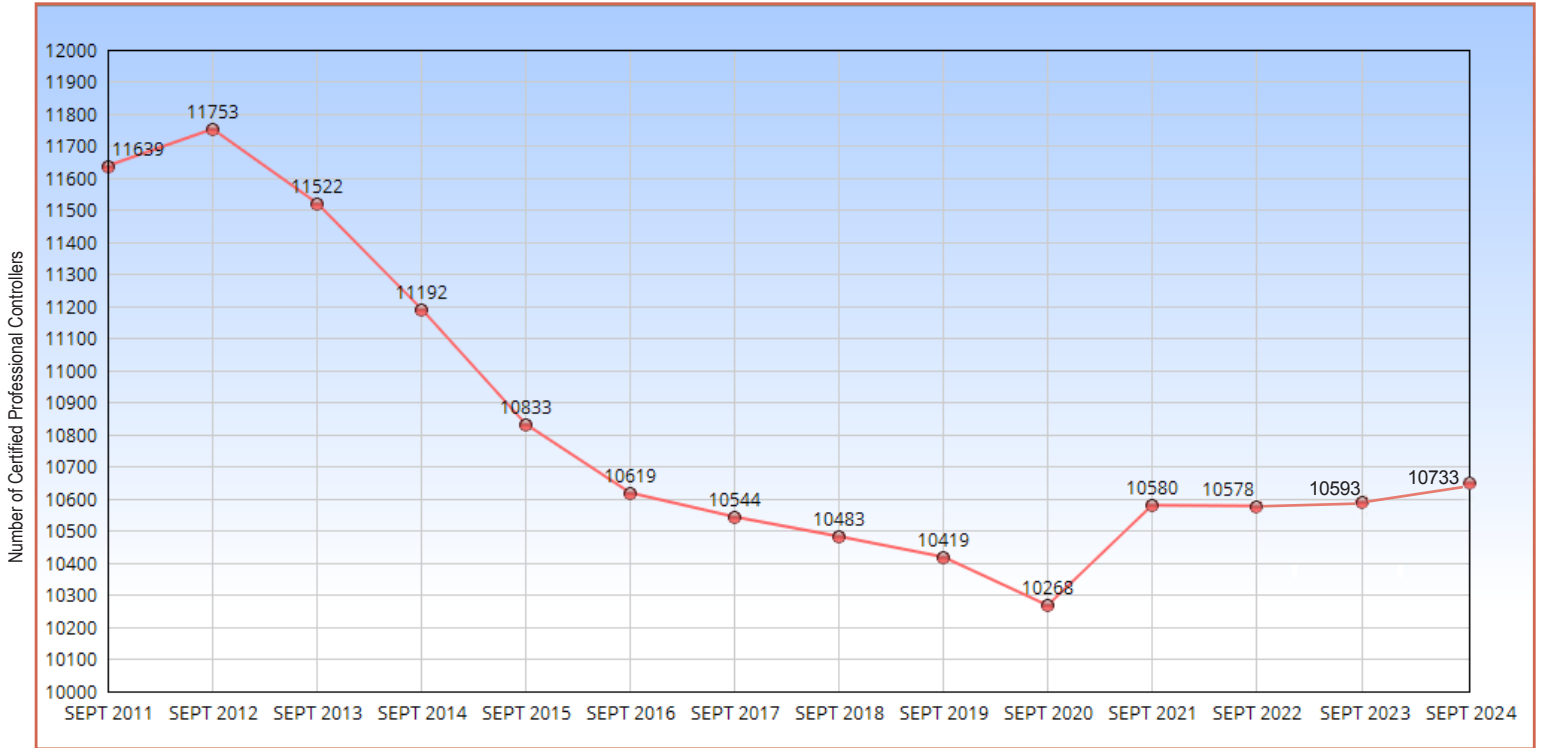
It is critical that NATCA remain directly involved throughout the safe and efficient integration of new technologies including research, development, testing, deployment, and training. NATCA's continued involvement will ensure that the FAA continues to deliver these initiatives to industry stakeholders and the flying public on-time and at a cost-savings to the American taxpayers.

Of course, none of this is possible without adequate staffing of the system. FAA must continue to hire and train the next generation of air traffic controllers. Congress' mandate to maximize controller hiring over the next five years can only be accomplished if FAA's Operations budget needs are also met.

NATCA looks forward to working members of this Subcommittee, the full Committee, the appropriators, as well as all other Members of Congress, aviation stakeholders, the incoming Administration, and the FAA to achieve these and many other mutually beneficial goals.

Thank you for holding this important hearing and providing the opportunity to testify.

Air Traffic Controller Staffing: 2011-2024

Chart: Number of Certified Professional Controllers, SEPT 2011 – SEPT 2024

- SEPT 2011: 11639
- SEPT 2012: 11753
- SEPT 2013: 11522
- SEPT 2014: 11192
- SEPT 2015: 10833
- SEPT 2016: 10619
- SEPT 2017: 10544
- SEPT 2018: 10483
- SEPT 2019: 10419
- SEPT 2020: 10268
- SEPT 2021: 10580
- SEPT 2022: 10578
- SEPT 2023: 10593
- SEPT 2024: 10733

FISCAL YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
On-Board	15,236	15,063	14,461	14,059	14,010	14,050	14,009	14,285	14,193	13,830	13,715	13,418	13,448	13,777
CPC	11,639	11,753	11,522	11,192	10,833	10,619	10,544	10,483	10,419	10,268	10,580	10,578	10,593	10,733
CPC-IT	965	1,143	1,187	1,200	1,218	1,259	1,205	1,320	1,414	1,309	1,031	943	985	953
DEV (Including AG)	2,632	2,167	1,741	1,667	1,959	2,172	2,260	2,482	2,360	2,253	2,104	1,897	1,870	2091
AG	676	671	440	665	936	878	883	980	882	873	917	643	762	878
Retirement Eligible	3,064	3,224	3,077	2,982	3,355	2,915	2,410	1,842	1,004	1,143	≈1,000	515	526	463
FAA Planned To Hire	829	981	1,315	1,286	1,772	1,619	1,781	1,701	1,431*	910	910**	1,020	1,500	1800
FAA Actually Hired	824	925	554	1,112	1,345	1,680	1,880	1,786	1,010	920	510	1,026	1,514	1811

*FAA reduced its FY 2019 hiring target from 1,431 to 907 following the 35-day government shutdown.

**FAA reduced its FY 2021 hiring target from 910 to 500 due to the COVID-19 pandemic and increased its hiring targets for FY 2022 – 2024.

These data are prior to the Collaborative Resource Workgroup's recommendation to establish new CPC staffing targets for FAA's 313 air traffic control facilities.

CPC: Certified Professional Controller
CPC-IT: Certified Professional Controller in Training (fully certified elsewhere, transferred to a new facility and began training there)
DEV: Developmental (trainee)
AG: Graduate of the FAA Initial Classroom Training Academy in Oklahoma City, newly hired, and started at their first facility as a trainee