Written Testimony of
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Committee on Commerce, Science, and Transportation
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"Improving Air Traffic Control for the American People:
Examining the Current System"

Thank you for the opportunity to testify on behalf of the National Air Traffic Controllers Association, AFL-CIO (NATCA) at today's hearing titled "Improving Air Traffic Control for the American People: Examining the Current System." 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.

I. Executive Summary

NATCA believes that the most serious challenge facing the FAA and our National Airspace System (NAS) today is the absence of a stable, predictable funding stream. The most recent illustration of this unstable, unpredictable funding stream occurred earlier this year when the longest federal government shutdown in U.S. history ended after 35 days. That shutdown was terribly harmful because it eroded the layers of critical elements necessary to support and maintain the safety of the NAS. Every time the government is shut down, or brought to the brink of a shutdown, it has real consequences for real people.

Stop-and-go funding negatively affects all aspects of the NAS. It undermines air traffic control services, staffing, hiring and training, long-term modernization projects, preventative maintenance, and ongoing modernization to the physical infrastructure. It also slows the hiring and training process, which exacerbates the current controller staffing crisis, while preventing the timely implementation of NextGen modernization projects and integration of new users into the NAS. Without a stable, predictable funding stream, the FAA will be hard-pressed to maintain current capacity, let alone modernize the system and expand it for new users.

Although NATCA is encouraged by the enactment of a two-year budget deal, we urge Congress and the Administration to avoid another dangerous and costly shutdown of the FAA next week by passing a long-term Transportation, Housing and Urban Development Appropriations bill. We cannot afford to suffer another government shutdown this year.

NATCA also thanks the members of this Subcommittee who are co-sponsors of S. 762, the Aviation Funding Stability Act of 2019, and we urge every Senator on this committee to sign-on as a co-sponsor. NATCA strongly supports S. 762, which would provide a stable, predictable funding stream by authorizing the FAA to continue to operate in the event of another shutdown. Specifically, this critical, bipartisan legislation would authorize the FAA to continue to draw from the Airport and Airway Trust Fund in the event of a lapse in appropriations, ensuring that the FAA can carry out its mission by maintaining the safety and efficiency of the NAS.

Even today, the FAA and NATCA are working to reverse the harm caused by the shutdown, when all FAA modernization work and new user integration ceased. The shutdown caused significant delays to these projects, wasting critical resources and

federal taxpayer money. Similarly, the FAA has begun the process of addressing its aging infrastructure through a combination of realignments, sustaining and maintaining some facilities, and replacing a handful of others. However, that process is slow and has been hampered by stop-and-go funding.

Stop-and-go funding crises also exacerbate the FAA's air traffic controller staffing crisis. The FAA's Certified Professional Controller (CPC) workforce has reached a 30-year low and a significant percentage of the certified controller workforce remains eligible to retire (16%). To make matters worse, the FAA lowered its air traffic controller hiring target for this fiscal year from 1,431 to 907 as a result of the shutdown.

Moreover, the controller staffing crisis cannot be remedied simply by increased hiring by the FAA. New hires who are admitted into the Academy today will require two to five years of training before they become fully trained and capable of separating air traffic on their own. Of those who are admitted, only about 73% of students will successfully complete their Academy training and there is additional attrition once Academy graduates begin on-the-job training at their facilities. NATCA is encouraged, however, as we are starting to see some positive results from the transfer program that allows CPCs from facilities with a lower staffing need to transfer to facilities with the greatest staffing need, while the FAA also continues to place Academy graduates at certain air traffic facilities in which initial certification is more likely.

Every time the NAS is forced to endure another shutdown or a threatened lapse in appropriations or FAA authorization, the United States is at risk of losing its status as the safest, most efficient airspace system in the world. We must not let this happen again and NATCA will continue to fight for a solution to this problem.

NATCA's position on air traffic control reform remains consistent. We do not support any one particular reform model and we will meticulously review the details of any proposal before deciding whether to support or oppose it. In order to receive NATCA's consideration for support, a reform proposal must improve upon the status quo, without adopting a for-profit air traffic control model, and – at minimum – meet NATCA's Four Core Principles for Reform:

1. Any reform model must ensure that the frontline workforce is fully protected in its employment relationship.
2. Safety and efficiency must remain the top priorities within the NAS.
3. The reform model must provide a stable, predictable funding stream that adequately supports air traffic control services, staffing, hiring and training, long-term modernization projects, preventative maintenance, and ongoing modernization to the physical infrastructure.
4. Any reform model must maintain a dynamic aviation system that continues to provide services to all segments of the aviation community.

II. Our System Continues to be Plagued by an Unstable, Unpredictable Funding Stream

For years, the FAA has faced an unstable, unpredictable funding stream with interruptions that have negatively affected all aspects of the Agency. NATCA believes that this is the most serious challenge facing the FAA and our NAS today. Change is necessary to ensure a stable, predictable funding stream for the NAS. Without change, our nation risks falling behind the rest of the world and losing its status as the global leader in aviation. Globalization and innovation are driving dramatic changes in the aviation industry and, sadly, America's current structure is not keeping up.

The most recent illustration of this unstable, unpredictable funding stream occurred earlier this year when the longest federal government shutdown in U.S. history ended after 35 days. As NATCA explained during the shutdown and since, it was anything but business as usual for aviation during the shutdown. Every day, over 70,000 flights and over two million passengers move through the NAS. Although the U.S. is home to the safest and most efficient system in the world, during the shutdown, many activities and processes that proactively reduce risk and increase safety were suspended. Even though the NAS is safer now than it was during the shutdown, NATCA believes that many aspects of the system still have not yet fully recovered. The NAS cannot endure another shutdown.

The NAS and the FAA did not automatically revert to normalcy the day the shutdown ended. It took weeks and months for some programs and services, and may take years for other aspects of the system to return to normal order, especially in the areas of new user integration, NextGen implementation, and the continued development and deployment of other safety and modernization programs. The reality that no one wants to hear is that the NAS was less safe on Day 35 of the shutdown than it was on Day 1. The system began to experience decreased efficiency and capacity as a result of the shutdown and was on the verge of unraveling.

Given the unprecedented nature and length of that shutdown, there is no question that it damaged the NAS, which supports 12 million aviation-related jobs and contributes over $1.5 trillion annually to the U.S. economy. Every time the government is shut down, or brought to the brink of a shutdown due to political disagreements that have nothing to do with aviation, it has real consequences for real people. Unfortunately, shutdowns and threats of shutdowns have become a common occurrence.

Since the start of Fiscal Year (FY) 2018, the FAA has experienced three shutdowns and 12 additional threatened shutdowns either due to a lapse in appropriations or a lapse in FAA authorization. Below is a timeline of this stop-and-go funding cycle since the beginning of FY 2018:

- Sept. 30, 2017 – Threatened Lapse in both Appropriations and FAA Authorization (CR through 12/8; and FAA Extension through 3/31)
- Dec. 8, 2017 – Threatened Lapse in Appropriations (CR through 12/22)

- Dec. 22, 2017 – Threatened Lapse in Appropriations (CR through 1/19)
- Jan. 20, 2018 – THREE-DAY SHUTDOWN (CR through 2/9)
- Feb. 9, 2018 – MULTI-HOUR SHUTDOWN (CR through 3/23)
- March 23, 2018 – Threatened Lapse in Appropriations (CR through 9/30)
- March 31, 2018 – Threatened Lapse in FAA Authorization (Extension through 9/30)
- Oct. 1, 2018 – Threatened Lapse in both Appropriations and FAA Authorization (CR through 12/7; and FAA Extension through 10/7)
- Oct. 7, 2018 – Threatened Lapse in FAA Authorization (5-year FAA Reauthorization)
- Dec. 7, 2018 – Threatened Lapse in Appropriations (CR through 12/22)
- Dec. 22, 2018 – 35-DAY SHUTDOWN (CR through 2/15)
- Feb. 15, 2019 – Threatened Lapse in Appropriations (Expires 9/30/19)
- Sept. 30, 2019 – Threatened Lapse in Appropriations (TBD)

Although NATCA is encouraged by the enactment of the two-year budget deal that ended sequestration, we are approaching another possible government shutdown when current funding expires on September 30. We urge Congress and the Administration to avoid another dangerous and costly shutdown next week. No matter the outcome, air traffic controllers and other aviation safety professionals represented by NATCA will continue to work without pay, committed to safety of the NAS. But the risks are real that safety will decline if we experience another shutdown.

NATCA thanks the leadership and members of this Subcommittee for their support and passage of a five-year FAA Authorization in October 2018, which will prevent a lapse in authorization. However, NATCA urges Congress to pass a long-term Transportation, Housing and Urban Development Appropriations bill that provides robust funding for the FAA.

NATCA also thanks the members of this Subcommittee who are co-sponsors of S. 762, the Aviation Funding Stability Act of 2019, and we urge every Senator on this committee to sign-on as a co-sponsor. NATCA strongly supports S. 762, which would provide a stable, predictable funding stream by authorizing the FAA to continue to operate in the event of another shutdown.

In short, this important bill would authorize the FAA to continue to draw from the Airport and Airway Trust Fund (Trust Fund) in the event of a future government shutdown due to a lapse in appropriations, ensuring that the FAA can carry out its mission by maintaining the safety and efficiency of the NAS. All projects, programs, and activities that were previously funded would continue to be funded out of the Trust Fund until a new appropriations bill or a continuing resolution is signed into law. This would prevent the FAA from furloughing thousands of aviation safety professionals, which reduces the safety of the NAS. It would also prevent a government shutdown from delaying the development, testing, training, and implementation of critical modernization projects and safety programs.

III. Without a Stable, Predictable Funding Stream the NAS is at Risk of Falling Behind as the Gold Standard for Aviation Around the World

The stop-and-go funding stream negatively affects all aspects of the NAS. It undermines air traffic control services, staffing, hiring and training, long-term modernization projects, preventative maintenance, and ongoing modernization to the physical infrastructure. These funding crises slow the hiring and training process, which exacerbates the current controller staffing crisis. The lack of a stable funding stream also prevents timely implementation of NextGen modernization projects, as well as the safe and efficient integration of new users into the NAS.

1. Integration of New Users

Without a stable, predictable funding stream, the FAA will be hard-pressed to maintain current capacity, let alone modernize the system and expand it for new users, such as commercial space operations, Unmanned Aircraft Systems (UAS), and supersonic jets. Understaffing at air traffic facilities hinders the integration of new users, as well as the deployment and training of NextGen programs, procedures, and equipment. Among other effects of the shutdown, the integration of new users into the NAS was put on hold during the shutdown, and those delays will negatively affect private sector innovation – both large and small companies alike.

2. NextGen and Modernization Program Implementation Continues to Lag as a Result of the Shutdown

The 35-day federal government shutdown was terribly harmful because it eroded the layers of critical elements necessary to support and maintain the safety of the NAS. Many safety activities that proactively reduce risk and increase the safety of the NAS were suspended as a result of the shutdown. For instance, the FAA Air Traffic Organization's (ATO) Top 5 Hazards in the NAS were not being addressed, which include risks associated with Pilot Weather Reports (PIREPS), Wrong Surface Landings, Safety Alerts, Altitude Compliance, and Operational Risk Management (ORM).

Specifically, safety enhancements that prevent wrong surface landings were suspended because of the shutdown. Each year, there are more than 200 events in which an aircraft lands, or attempts to land, on the wrong runway, on a taxiway, or at the wrong airport entirely. The aviation industry, NATCA, and the FAA are working on the implementation and additional development of new technologies that would provide air traffic controllers with an early warning system designed to mitigate the risk of aircraft landing on the incorrect surface (i.e. runway, a taxiway, or at the wrong airport). Development of these new technologies was significantly delayed because of the shutdown.

Delays to these types of programs, which have already saved lives, have real world consequences. For example, in February 2019, at Philadelphia International Airport (PHL), a flight was cleared to land on Runway 35, but aligned itself on Taxiway E,

parallel to the intended runway. A runway safety enhancement in Airport Surface Detection System – Model X (ASDE-X) called ASDE-X Taxiway Arrival Prediction (ATAP) Alerting System alerted the local controller who immediately instructed the pilot to execute a go-around. The pilot overflew two commercial airplanes on the taxiway by 600 and 700 feet, respectively, on the go-around.

The ATAP system is currently enabled at 12 airports in addition to PHL: Hartsfield–Jackson Atlanta International Airport (ATL), Bradley International Airport (BDL), Baltimore/Washington International Thurgood Marshall Airport (BWI), Charlotte Douglas International Airport (CLT), Dallas/Fort Worth International Airport (DFW), Detroit Metropolitan Wayne County Airport (DTW), Houston George H.W. Bush Intercontintal Airport (IAH), Los Angeles International Airport (LAX), Orlando International Airport (MCO), Chicago O'Hare International Airport (ORD), Seattle–Tacoma International Airport (SEA), and St. Louis Lambert International Airport (STL). Prior to the shutdown, the FAA scheduled ATAP to be enabled by March 31, 2019, at approximately 20 major airports.

However, due to the shutdown, that implementation has been delayed an additional six to nine months for air traffic control facilities at 17 additional airports, including: Boston Logan International Airport (BOS), Washington National Airport (DCA), Denver International Airport (DEN), Newark Liberty International Airport (EWR), Fort Lauderdale-Hollywood International Airport (FLL), Honolulu Control Facility (HCF), Houston Hobby International Airport (HOU), McCarran International Airport (LAS), Chicago Midway International Airport (MDW), Memphis International Airport (MEM), Miami International Airport (MIA), Minneapolis-Saint Paul International Airport (MSP), Phoenix Sky Harbor International Airport (PHX), T.F. Green International Airport (PVD), San Diego International Airport (SAN), Louisville International Airport (SDF), and Salt Lake City International Airport (SLC).

Voluntary safety reporting programs, such as the Air Traffic Safety Action Program (ATSAP), also were negatively affected. Critical communication between the ATSAP review teams and furloughed staff was deferred, resulting in an inability to properly identify and mitigate safety and training deficiencies. ATSAP-X, the voluntary safety reporting program for NATCA-represented engineers and service area support staff, also was not operating, while all work on existing reported safety issues and associated mitigation activities was suspended.

In addition, some of the critical safety equipment and technology that controllers use every day is decades old and at risk of malfunctioning. Even before the shutdown, the FAA had moved to a "fix-on-fail" maintenance philosophy and had stopped stockpiling critical parts for essential operational equipment. However, because of the shutdown, critical maintenance and repair projects were delayed even more. There now is a backlog of maintenance projects at facilities around the country. Another government shutdown would make this situation even worse.

As a result of the shutdown, all FAA modernization work and new user integration ceased. The shutdown caused significant delays to these projects, wasting critical resources and federal taxpayer money. Even today, delays to the timelines for each project are having a cascading effect on other modernization projects as the FAA scrambled to restart work and deconflict waterfall timelines.

For example, we know that the shutdown cost taxpayers up to $8M in order to repeat training for controllers at five air traffic facilities related to the implementation and deployment of Enroute Controller Pilot Data Link Communications (CPDLC), most often referred to as DataComm. This system is the next generation of communication between pilots and controllers. The DataComm has been delayed significantly as the implementation waterfall was extended by 18 months.

In addition, critical construction to the physical infrastructure also stopped at airports and radar facilities across the country.

A. Delays to VOR Network Modernization Program (VORMON)

The NAS is in the process of transitioning away from a standalone VOR network (i.e. Very High Frequency (VHF) Omni-Directional Range radio ground-based navigational aide) to the more-efficient Performance Based Navigation (PBN) system. Very High Frequency Omni-directional Range Minimum Operational Network (VORMON) will eliminate redundant coverage and will provide more efficient routings in congested metropolitan areas. Conventional airways (SIDS, STARS, IAP, etc.) that were previously supported by VOR may be replaced with PBN procedures.

Typically, it takes between 24 to 36 months to design and implement a PBN procedure to replace a conventional VOR procedure. In 2018, 22 VORs were removed. In 2019 and 2020, the FAA was scheduled to remove 27 and 48 VORs, respectively. After the shutdown ended, it was a slow and gradual process to get back on track, in part because the PBN Office did receive approval to work on any projects until April 2019, which created a significant backlog.

B. Delays to Performance Based Navigation (PBN) Procedures

The modernization of the U.S. satellite-based network of PBN flight paths will help air traffic conduct Trajectory Based Operations (TBO). PBN services are laying the foundation for the NAS of the future by enabling many NextGen operational improvements, capabilities, and initiatives. Through these programs, the FAA is beginning to monitor an aircraft's trajectory including its time at points along a 3-D path so that we can anticipate the timing of arrivals at major airports. Ultimately, PBN procedures and routes save time and fuel while reducing emissions.

The FAA has already published more than 9,300 PBN procedures and routes. Before the shutdown, there were over 1,000 procedures that were being developed in collaboration with pilots, air traffic controllers, and airports. This has been significantly delayed and,

even now that the shutdown is over, it may take 24 to 36 months to continue the design and implementation process for many of these procedures. Multiple large and small PBN projects will be delayed including projects in South Florida, Las Vegas, Detroit, Cleveland, Denver, the Northeast Corridor initiative, and airspace modernization efforts at Louisville International Airport (SDF).

For instance, the Florida Metroplex project implementation schedule was delayed four to five months due to the shutdown. If there are any additional delays to DataComm, the Florida Metroplex will be put on hold indefinitely and will be delayed beyond its current funding timeline which ends in September 2021. Similarly, the Las Vegas Metroplex is on schedule to implement on May 21, 2020. However, if there are any additional delays to DataComm, it will be delayed at least an additional five to six months.

C. Time Based Flow Management (TBFM)

TBFM will enhance NAS efficiency by using the capabilities of a decision-support tool, which is already deployed at numerous air traffic control facilities. TBFM maximizes aircraft throughput and capacity within the system in order to maintain a high-level of efficiency and predictability by reducing delays, travel time, and fuel expenses. These programs also help reduce the effects on the environment including noise, emissions, and other environmental issues in the implementation and operation of the aviation system.

Improvements in TBFM core Time Based Metering capability and its trajectory modeler – an expansion of its departure capabilities to additional locations – and enhancements to departure capabilities, will enhance efficiency and optimize demand and capacity. Moreover, capabilities in this portfolio will be leveraged to enable aircraft to maintain a spacing interval behind a preceding aircraft, further improving capacity and flight efficiency. Improvements also will enable controllers to more accurately deliver aircraft to the Terminal Radar Approach Control (TRACON) facilities while providing the opportunity for aircraft to fly optimized descents.

Approximately 93 FAA facilities currently have TBFM: 20 Air Route Traffic Control Centers (ARTCCs), 28 TRACONs, and 45 Air Traffic Control Towers. However, enhancements and updates that will enable future capabilities were significantly delayed due to the shutdown.

For instance, the latest TBFM software release and hardware deployments were delayed from Spring of 2019 to the Fall of 2019. This software release contains enhancements for both the arrival and departure phases of flight to improve throughput and capacity, while reducing flight delays. Moreover, certain Northeast Corridor milestones were delayed between 6 – 12 months, such as early departure scheduling from Pittsburgh International Airport (PIT) to Philadelphia International Airport (PHL), improving PHL arrival metering, and improving Newark Liberty International Airport (EWR) arrival metering. TBFM training development to support these efforts was delayed and, in a number of cases, had to be revisited and updated due to the shutdown.

D. Terminal Sequencing and Spacing (TSAS) Development and Deployment Further Delayed

TSAS will increase the precision of time-based spacing and will reduce the likelihood of low altitude delay vectors needed to achieve runway separation. En route controllers will use time-based metering tools to merge aircraft into arrival streams, adjust aircraft speed and path assignments to meet metering times, and assist terminal controllers with the sequencing and spacing of aircraft throughout the arrival phase of flight. Decision support tools like TSAS rely on the ability of aircraft to fly PBN arrival procedures to maximize system and individual flight efficiencies. However, TSAS initial operational capability (IOC) milestones for Denver (December 2019) and Atlanta (December 2020) were each delayed one year due to the shutdown.

E. Traffic Flow Management System (TFMS) Further Deployment Delayed

TFMS will enhance NAS efficiency by using the capabilities of a decision-support tool, which is already deployed at numerous air traffic control facilities. TFMS maximizes aircraft throughput and capacity within the system in order to maintain a high-level of efficiency and predictability by reducing delays, travel time, and fuel expenses. These programs also help reduce the effects on the environment including noise, emissions, and other environmental issues in the implementation and operation of the aviation system.

Improvements in TFMS core Time Based Metering capability and its trajectory modeler – an expansion of its departure capabilities to additional locations – and enhancements to departure capabilities, will enhance efficiency and optimize demand and capacity. Moreover, capabilities in this portfolio will be leveraged to enable aircraft to maintain a spacing interval behind a preceding aircraft, further improving capacity and flight efficiency. Improvements also will enable controllers to more accurately deliver aircraft to the TRACON facilities while providing the opportunity for aircraft to fly optimized descents.

Prior to the shutdown, there was a "Tech Refresh" for TFMS scheduled to begin January 2019. This was a major update to the hardware and operating system used by TFMS. However, due to the shutdown, it was delayed until June 2019. This created a very undesirable situation because this compressed the funding time frame for this project and forced the FAA to begin implementation during the busy summer travel season, mostly in the Northeast Corridor, and facilities had limited or reduced usage of the system during the busiest time of the year. The FAA estimates that this delay cost approximately $2.4M.

F. Delays to Terminal Flight Data Manager (TFDM) Deployment

TFDM is the surface management solution for NextGen. With growing congestion on the airport surface due to the increase in commercial air traffic nationwide, the need for efficient aircraft traffic planning on the airport ground is critical. This program was delayed due to the shutdown.

Over the life of the system, TFDM is expected to provide 313 million gallons in fuel savings, while reducing over three million metric tons of carbon emissions. The flying public also will experience fewer delays, more reliable flight schedules, improved passenger satisfaction, and improved predictability. Airlines and other flight operators will experience improved schedule predictability and crew utilization, less taxi time and fuel burn, increased reliability of connection, and reduced departure lines on the taxiway. Airport operators expect to reduce their CO_2 footprint, reduce engine noise, and experience a more balanced use of airport resources.

Air traffic services expect to benefit through automatically updated flight plans and electronic flight strips, easier rescheduling cancelled and delayed flights, fewer aircraft in the movement area and departure queue, and improved surface situational awareness at the TRACON, ARTCC, and Command Center. Most importantly, TFDM will improve safety, as controllers will experience less "heads down" time.

G. Trajectory Based Operations (TBO) Deployment

TBO is an Air Traffic Management (ATM) method for strategically planning, managing, and optimizing flights throughout the NAS by using time-based management, information exchange between air and ground systems, and the aircraft's ability to fly precise paths (PBN) in time and space. TBO deployment at the first three sites – Northeast Corridor, Denver, and Atlanta – was significantly delayed due to the shutdown.

Once fully deployed, TBO will leverage improvements in navigation accuracy, communications, surveillance, and automation to decrease the uncertainty of an aircraft's path in four dimensions – lateral (latitude and longitude), vertical (altitude) and time – which will result in significant improvements in strategic planning. However, TBO requires every participant and system to be operating on the same plan. That plan is expressed and shared through the agreed trajectory, which is used as a reference for the flight and contains estimates for arrival times at key points along the flight.

The time-based parameter provides a common planning reference across all phases of flight, including pre-departure. This facilitates planning integration across ATC domains, enables the FAA to plan against the schedule objectives of users (i.e. departure and arrival times), and allows for more dynamic planning through a constrained area such as a major weather event, metering adjustments across merge points for the convergence of major flows, or for individual aircraft being integrated into congested flows.

H. Enterprise Information Display System (E-IDS) Development and Testing Delayed

Development and deployment of E-IDS will allow controllers to access vital information while working an operational position such as approach plates, letters of agreement, weather, airport configurations, standard operating procedures, and Notices to Airmen (NOTAMs). E-IDS is currently in the development phase and, once completed, will

combine the five existing information display systems into one. Several of these existing systems are well-beyond their lifecycle and are constantly at risk of failing. This program was delayed due to the shutdown.

I. Consolidated Wake Recategorization (CWT)

CWT enables controllers to use more efficient aircraft separation standards (flying planes closer together) without compromising safety, which means that more planes can take off and land throughout the system. Currently, CWT is deployed at seven terminal facilities, with 18 more to come. Further deployment of this program was delayed due to the shutdown.

J. NextGen Weather Program (NWP)

NWP is a critical part of NextGen because it helps reduce the negative effects of weather on aviation, resulting in safer, more efficient, and more predictable day-to-day NAS operations. NWP will be able to provide tailored aviation weather products within the NAS, helping controllers and operators develop reliable flight plans, make better decisions, and improve on-time performance. This program was delayed due to the shutdown.

K. Northeast Corridor (NEC) Shutdown Effects

Several NEC pre-implementation and implementation milestones were delayed by the shutdown for multiple reasons, including delays to other programs such as DataComm, requirements for facility engagement, analysis preparation, and software development. Prior to the shutdown, there were 19 pre-implementation milestones and 10 implementation milestones. As a result of the shutdown, six of the 19 pre-implementation milestones and nine of the 10 implementation milestones were delayed.

For example, the following milestones incurred delays:

- Early departure scheduling from PIT to PHL was delayed five months.
- TBFM pre-departure scheduling implementation for PIT departures arriving at PHL was delayed six months.
- Implementation of Dependent Converging Instrument Approaches (DCIA) for PHL RWY 27R/35 was delayed nine months.
- Concept assessments for usage of Converging Runway Display Aids (CRDA) at EWR operations was delayed three months.
- PBN Atlantic Coast Routings were delayed nearly one year.
- Three month delay to improve departure management (departure scheduling) for departures destined for LaGuardia Airport (LGA).
- One year delay to improve arrival Time Based Management (TBM) to PHL and EWR in order to deconflict schedule with DataComm, Tech Refresh, and East Coast Airspace changes.

3. Unable to Maintain FAA's Rapidly Aging Physical Infrastructure

The FAA operates more than 300 air traffic control facilities of varying ages and conditions. The FAA's 20 Air Route Traffic Control Centers (ARTCCs) located in the continental United States were built in the 1960s and are more than 50 years old. The FAA's large, stand-alone Terminal Radar Approach Control facilities (TRACONs) are, on average, 25 years old. In addition, the FAA has 132 combined TRACON/Towers, which on average approximately 35 years are old. Finally, the FAA has another 131 stand-alone towers, which average approximately 30 years old; the oldest is over 75 years old.

The FAA has begun the process of 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 the stop-and-go funding stream.

In fact, during the shutdown, critical physical infrastructure construction projects stopped at airports and radar facilities across the country. For example, the consolidation of radar services from five facilities into Kalamazoo, Mich., was delayed 51 days. This led to increased costs to the FAA and taxpayers for engineering services, which had to be expedited and completed in a compressed time period. In addition, some of the critical safety equipment and technology that controllers use every day is decades old and at risk of malfunctioning. Even before the shutdown, the FAA had moved to a "fix-on-fail" maintenance philosophy and had stopped stockpiling critical parts for essential operational equipment. However, because of the shutdown, critical maintenance and repair projects have been delayed even more. There now is a backlog of maintenance projects at facilities around the country.

The FAA needs a stable, predictable funding stream in order to adequately maintain and replace its aging infrastructure in the coming years.

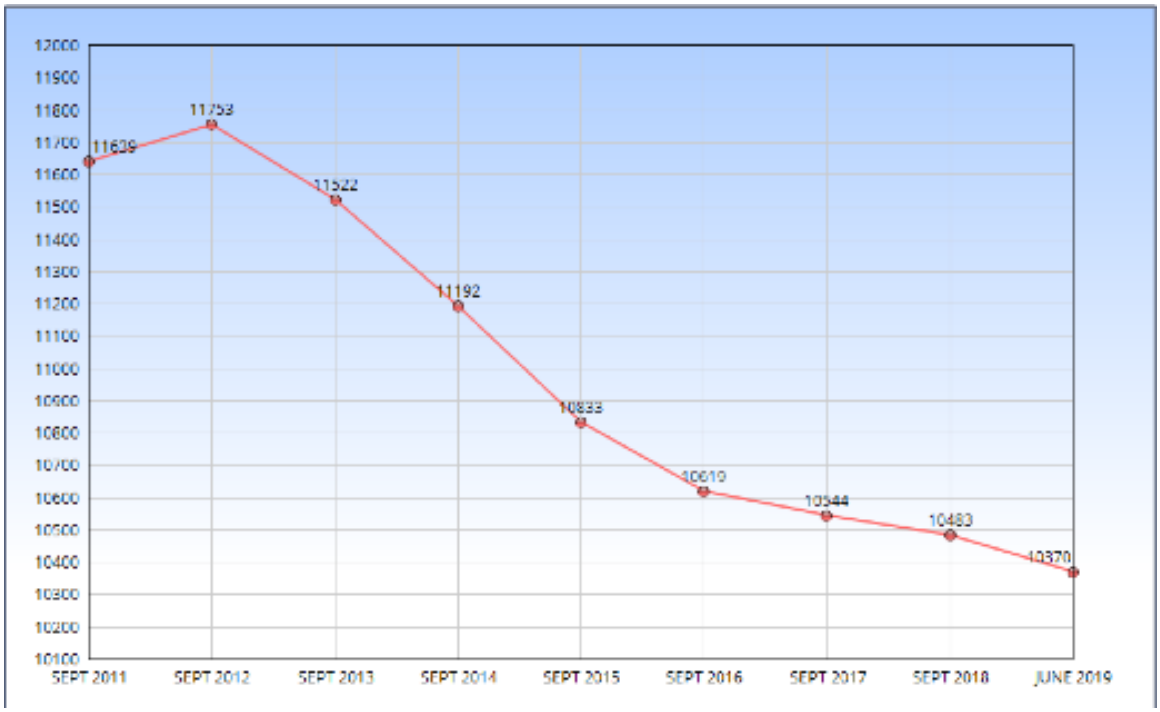
4. Air Traffic Controller Staffing Continues at a 30-Year Low

Air traffic controller staffing has been a concern for many years. It reached a crisis level in 2015 and despite some recent progress within the FAA's hiring, training, and transfer processes, it remains a challenge, one that has been exacerbated by the shutdown.

Since 2015, NATCA has been raising concern and awareness about the staffing issue because of the disastrous effects that further staffing reductions could have on system capacity. On May 19, 2015, NATCA testified about this issue in the context of air traffic control modernization and reform before the Senate Committee on Commerce, Science, and Transportation. On December 8, 2015, NATCA addressed the controller staffing crisis at a Congressional Roundtable policy discussion held by the House Transportation & Infrastructure Committee. On June 15, 2016, NATCA testified about the controller staffing crisis before the House Transportation & Infrastructure Committee at a hearing titled "A Review of the Federal Aviation's Air Traffic Controller Hiring, Staffing and

Training Plans." Then, on May 17, 2017, NATCA again testified about the controller staffing crisis, as part of the justification for needing ATC reform, before the House Transportation & Infrastructure Committee, at a hearing titled "The Need to Reform FAA and Air Traffic Control to Build a 21st Century Aviation System for America."

The FAA's Certified Professional Controller (CPC) workforce is at a 30-year low. Controller staffing has fallen 10% since 2011, and a significant percentage of the certified controller workforce remains eligible to retire (16%). The stop-and-go funding stream for the FAA has made this problem worse. Sequestration forced the FAA to institute a hiring freeze and shutter the FAA Academy between March and December 2013. The hiring freeze compounded an already tenuous staffing situation in which the FAA had barely been able to replace retiring controllers. The FAA never made up for the sequester-related hiring freeze in 2013 and continues to lose ground despite some improvements in the areas of hiring, training, and placement.



Despite increased hiring in 2015, 2016, and 2017, the FAA did not make up for the attrition experienced from 2013 through 2017. Although the FAA has exceeded its hiring targets each of the past three years, CPC staffing levels continued to go down by 3.2% over that period. One potential solution, as part of a comprehensive hiring and training program, is to utilize the FAA Academy's maximum throughput capacity (approx. 2,000 students per year).

Even then, new hires who are admitted into the Academy today will require two to five years of training before they become fully trained and capable of separating air traffic on their own. Moreover, of those who are admitted, currently approximately 73% of students in either the Tower/Terminal or En Route options will successfully complete their

Academy training and screening before moving on to train at their facility. There is additional attrition once Academy graduates begin on-the-job training at their facilities.

Air traffic facilities that are at critical staffing levels (i.e. requiring mandatory overtime and a six-day work week to fully staff all positions) are facing a dire situation, as retirement-eligible controllers continue to retire at a high rate, and those left on the job begin the time-intensive process of training controllers who transfer in from less complex/busy facilities and/or Academy graduates. NATCA is encouraged, however, as we are starting to see some positive results from the transfer program that allows CPCs from facilities with a lower staffing need to transfer to facilities with the greatest staffing need, while the FAA also continues to place Academy graduates at certain air traffic facilities in which initial certification is more likely.

Despite this progress, the shutdown caused a ripple effect further delaying Academy training courses throughout 2019, which has and will continue to exacerbate the existing air traffic controller staffing crisis. For instance, the FAA drastically reduced its air traffic controller hiring target following the shutdown from 1,431 to 907. Although the FAA advised NATCA that it has exceeded this new lower goal, its total new hires significantly lower than what the Agency had intended to hire in FY 2019.

5. FAA's Procurement System

We urge Congress and the FAA to take a close look at Agency's procurement rules, which are fundamentally flawed in regard to planning and funding for NextGen, and to consider further procurement reform for the FAA. More than 20 years ago, the FAA Reauthorization Act of 1996 (Pub. L. 104-264) included procurement reform, which granted the FAA the authority to create its own acquisition management system and adopt its own procurement rules to allow the Agency to be more nimble in this area. However, in practice, the FAA merely created a set of procurement rules that mirror the rest of the federal government, which defeated the purpose of procurement reform.

IV. Any Air Traffic Control Reform Proposal Must Meet Our Four Core Principles

A stop-and-go funding stream for the NAS is unsustainable. These crises wreak havoc on the system, delay critical modernization and infrastructure projects, and exacerbate the current controller staffing crisis, which has resulted in a 30-year low of CPCs. Every time the NAS is forced to endure another shutdown or a threatened lapse in appropriations or FAA authorization, the United States is at risk of losing its status as the safest, most efficient airspace system in the world. We must not let this happen again and NATCA will continue to fight for a solution to this problem. In order to receive NATCA's support, any ATC reform proposal must meet our four core principles. We will oppose any proposal that fails to meet our four core principles.

1. NATCA's Four Core Principles For ATC Reform

NATCA's position on air traffic control reform remains consistent. We do not support any one particular reform model and we will meticulously review the details of any proposal before deciding whether to support or oppose it. In order to receive NATCA's consideration for support, a reform proposal must improve upon the status quo, without adopting a for-profit air traffic control model, and – at minimum – meet NATCA's Four Core Principles for Reform:

1. Any reform model must ensure that the frontline workforce is fully protected in its employment relationship. It is crucial to maintain NATCA members' pay and benefits, including retirement and health care, along with our negotiated agreements for their work rules, and indemnification for our members for acts within the scope of their employment.

2. Safety and efficiency must remain the top priorities within the system. We cannot allow maintenance to lag or a reduction in staffing to save money. The NAS must be fully staffed to ensure both safety and efficiency, and to maintain capacity.

3. A stable, predictable funding stream must adequately support air traffic control services, staffing, hiring and training, long-term modernization projects, preventative maintenance, and ongoing modernization to the physical infrastructure. Stop-and-go funding crises slow the hiring and training process, which exacerbate the current controller staffing crisis. The lack of a stable funding stream also prevents timely implementation of NextGen modernization projects and the integration of new users.

4. Any reform model must maintain a dynamic aviation system that continues to provide services to all segments of the aviation community, from commercial passenger carriers and cargo haulers to business jets and to general aviation, from the major airports to those in small communities and rural America. We cannot emphasize enough how important it is that our system continues to provide services to the diverse users of the NAS. The United States has a vibrant general aviation community that relies on us, while the economic success of rural America also is connected to access to the NAS through serving even the most remote areas.

2. NATCA Strongly Supports the Aviation Funding Stability Act of 2019 Because It Meets Our Four Core Principles

NATCA strongly supports S. 762, the Aviation Funding Stability Act of 2019, (and its companion in the House, H.R. 1108), which would allow the FAA to continue to operate in the event of another shutdown. In short, this important bill would authorize the FAA to continue to draw from the Airport and Airway Trust Fund (Trust Fund) in the event of a future government shutdown due to a lapse in appropriations, ensuring that the FAA can carry out its mission by maintaining the safety and efficiency of the NAS.

All projects, programs, and activities that were previously funded would continue to be funded out of the Trust Fund until a new appropriations bill or a continuing resolution is signed into law. This would prevent the FAA from furloughing thousands of aviation safety professionals, which reduces the safety of the NAS. It would also prevent a government shutdown from delaying the development, testing, training, and implementation of critical modernization projects and safety programs.

NATCA has thoroughly reviewed the Aviation Funding Stability Act of 2019 and has determined that it meets our Four Core Principles for Reform. This bill will provide a stable, predictable funding stream for the NAS by preventing future government shutdowns from affecting the FAA, as each of the FAA's four budget lines would be protected: Operations (Ops); Facilities and Equipment (F&E); Research, Engineering, and Development (RE&D); and Grant-in-Aid to airports (Airport Improvement Program, AIP). The FAA also would not have to stop hiring or suspend training during a government shutdown. NATCA strongly supports this legislation.

NATCA thanks all Senators who are co-sponsors of this bill, and we urge every Senator on this committee to sign-on as a co-sponsor to S.762 to ensure the FAA will continue to operate in the event of another shutdown..

V. Conclusion

The most serious issue currently facing the FAA is the unstable, unpredictable funding stream, which jeopardizes the safety, efficiency, and capacity of the NAS. The continued dependence on continuing resolutions and prevalence of government shutdowns (real or threatened) all have negative consequences for the operation and improvement of the NAS. There is no doubt that this status quo has been broken for some time.

The most recent 35-day government shutdown wreaked havoc on the NAS and all NATCA members. That shutdown left the NAS less safe than it was before the shutdown began, as it took weeks and months for many modernization programs and other services to return to normal order, while it may take years for other aspects of the system to do the same. Another government shutdown this year would make this situation even worse.

Every time the NAS is forced to endure another shutdown or threatened lapse in appropriations or FAA authorization, the United States is at risk of losing its status as the safest, most efficient airspace system in the world. We cannot let this happen again and NATCA will continue to fight for a solution to this problem, such as our vigorous support for S. 762.

NATCA thanks Chairman Cruz and Ranking Member Sinema, as well as Chairman Wicker and Ranking Member Cantwell, for the opportunity to offer testimony on this critical issue.