

Testimony of Captain Jason Ambrosi
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Hearing on
Air Traffic Control System, Personnel, and Safety
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Chair Duckworth, Ranking Member Moran and Members of the Subcommittee, thank you for the opportunity to testify and present the perspective of the more than 79,000 commercial airline pilots of the Air Line Pilots Association, International. My name is Jason Ambrosi, and I am a current 767 Captain at Delta Air Lines and president of ALPA since 2023. ALPA is the largest pilot union in the world and the largest non-governmental aviation safety organization with a history of safety and security advocacy spanning more than 90 years. I am pleased to participate in today's discussion about air traffic systems, personnel, and aviation safety.

Let me affirm that as a current and qualified airline captain with a seat on the flight deck, our commercial aviation system is safe. However, while the U.S. aviation system remains the safest in the world, this outcome is not guaranteed. Safety is a matter of relentless vigilance, and our current success stems from decades of industry-wide efforts, and commitment to collaboration, data collection and analysis, hazard identification and mitigation, and congressional support. However, for the National Airspace System (NAS) to remain the safest and most efficient system, continuous improvements are needed to ensure that growth in traffic levels and new users do not threaten airline or system safety.

Technological and infrastructure improvements are required to efficiently manage current NAS operations, with emphasis on NextGen automation tools and airport infrastructure improvements to provide safe and efficient gate to gate operations, reduced airborne reroutes, ensure that on time arrivals proceed directly to their gate, and cargo is delivered on time. Modernization must continue to keep ahead of the demand from the wide variety of aviation users. The technologies and procedures that are needed must also contemplate new entrants into the NAS. The future of air transportation will bring a combination of commercial air carriers, unmanned aerial vehicles, general aviation, urban air mobility devices, and commercial space flight. The airspace system of the future will involve a wider and more complex variety of operations that our air traffic control infrastructure must manage safely and efficiently. Additionally, many FAA facilities exceed their lifecycles and have deficient systems that create airspace and carrier delays.

To meet the challenges of an increasingly complex airspace, ALPA has worked with the FAA, our labor partners, airlines, and the industry to deploy air traffic control modernization. One of the biggest modernization initiatives in recent history is NextGen. The capabilities that have been implemented with NextGen have increased situational awareness and provided tools to help pilots make safe decisions through performance-based navigation, data communication, and ADS-B implementation. However, the system's potential isn't being fully realized—in part because many airliners aren't properly equipped to take advantage of its updated capabilities. As a result, pilots and air traffic controllers are forced to use “workarounds” that allow us to operate aircraft with outdated equipment in today's complex system.

Increasing safety and updating air traffic control systems requires increased resources, stable and reliable funding to ensure continuous FAA operations, and greater use of the Airport and Airways Trust Fund (AATF) to allow the FAA to more effectively leverage the Trust Fund's balance. This Committee did a phenomenal job with passage of five-year bipartisan FAA reauthorization bill that helps augment and develop advanced technologies, including new surface safety technologies, equally important so-called "low tech" safety technologies for runways, lighting and signage, as well as increasing air traffic controller hiring.

Underinvestment, including for the Facilities and Equipment (F&E) account, is affecting the systems pilots and air traffic controllers use to ensure safe and efficient operations. While Congress has generally provided the funding requested each year by the FAA during the annual appropriations process, there remains a significant shortfall of funding in numerous maintenance and modernization efforts. These shortfalls have not kept up with inflation and effectively required the agency to prioritize mandatory spending to the detriment of modernization and infrastructure needs. The FAA must ask Congress for its true needs and Congress should avoid unnecessary and damaging government shutdowns, threatened shutdowns, and lengthy Continuing Resolutions (CRs) that delay these critical efforts.

Aircraft Equipage to Support NextGen Procedures

The NextGen modernization initiative has resulted in the creation of new performance-based navigation departures, arrivals, and instrument approaches. These procedures safely reduce noise, aircraft greenhouse gas emissions, and airspace congestion. However, not all of the airline aircraft can fly these new procedures. In some circumstances there may be 15-20 percent of the airline aircraft that are unable to utilize the new procedures. Unfortunately, air traffic controllers are unable to maintain the integrity of these operations with such high levels of non-equipped aircraft.

For the NextGen procedures to become the standard, instead of the exception, the commercial airline aircraft fleet needs standardized equipage capabilities that meet the navigational requirements for flying the NextGen procedures. In recent years, there have been attempts to implement NextGen procedures with the assumption that pilots will utilize workarounds to offset the limited navigation capabilities on some of the aircraft. These workarounds often add complexity and workload, which is counter to the anticipated benefits from NextGen. In reality, pilots in lesser equipped aircraft are working harder to make the aircraft comply with the NextGen way of navigating. At times, instead of flying approaches with both precision lateral and vertical guidance that is automated with the assistance of an autopilot, pilots are also asked to hand-fly non-precision approaches on some of today's airline aircraft that lack the necessary NextGen navigation capability.

While NextGen initiatives provide support for the NAS and augment pilot flying, a minimum of two pilots on the flight deck ensure redundancy that provides added awareness, expertise, and experience, factors that established and maintain today's safety standard. There is no technological or procedural pathway today or in the future that can overcome the risks introduced by reducing the flight deck complement, including technological failures or anomalies, incapacitation, and issues associated with the human-machine interface. ALPA views flight deck technology and automation as a human support tool, not a replacement. Given an FAA-Industry Working Group found that 20% of "normal" flights experience aircraft malfunctions that require human intervention, the premise of transport category aircraft operation – including FAA's scientific study of fatigue, sleep inertia, and related regulation and guidance – must be based on a minimum of two well-trained pilots on the flight deck.

CNS/ATM Improvements Would Benefit All

When Communications, Navigation, and Surveillance (CNS) capabilities are integrated with Air Traffic Management (ATM) systems, airspace management and air traffic operations become safer and more efficient. Surveillance technologies enable air traffic controllers to monitor aircraft and track their positions in real-time, increasing situational awareness and enabling proactive airspace management. Precise navigation systems enhance navigation accuracy and support optimized flight routing, attendant fuel savings, and reduced flight times. CNS/ATM contributes to increased airspace capacity, reduced delays, improved safety, and enhanced operational efficiency.

Similarly, ADS-B, and ADS-C, as well as surface detection systems like Airport Surface Detection System Model X (ASDE-X) and Airport Surface Surveillance Capability (ASSC) are currently deployed runway safety systems that help prevent surface collisions and wrong surface landings. However, ASDE-X and ASSC are fully deployed at only 43 airports. Our air traffic controller workforce needs these capabilities to be fully functioning at all of the airports where ASDE-X and ASSC are installed. ALPA has called upon the FAA to install surface safety systems at all airports with airline services. ALPA is pleased the FAA's efforts to rapidly develop a new surface capability, the Surface Awareness Initiative (SAI), has made significant progress this year. After fielding a SAI system at four airports this summer to validate the system's readiness for expansion, the FAA has expanded deployment to 14 more airports by the end of 2024. ALPA continues to call on the FAA to have a surface safety system installed at all airports with an air traffic control tower and where there are airline operations, as quickly as possible.

ADS-B represents a major advance in efficient air traffic management and pilot situational awareness, with the potential to safely increase the capacity of the NAS. However, the use of ADS-B in oceanic airspace has lagged due to the severe difficulty of deploying ground stations on the water. Therefore, the FAA's original ADS-B program never planned for ADS-B in oceanic airspace. A solution currently available to the FAA is a service called space-based ADS-B. Simply put, the aircraft's ADS-B information is received by a satellite constellation instead of ground stations and relayed to air traffic controllers. Space-based ADS-B has the potential to provide surveillance information equivalent to en route radar surveillance over the ocean. In addition to surveillance, there is the safety benefit where the space-based ADS-B continuously tracks all aircraft. Should an aircraft be required to conduct a ditching into the ocean the precise location of the aircraft will be immediately known. Some have observed that with space-based ADS-B, there may no longer be the need for "search" in "search and rescue". ALPA would support an FAA investment into Space Based ADS-B capabilities, as a supplement to the ground-based ADS-B network. The safety benefits we foresee would provide significant value.

ATC Automation

There are many automation systems in the NAS that provide air traffic controllers with critical tools for the safe and efficient movement of aircraft, and they must continue to be updated. A recent update to the terminal airspace automation system has resulted in being able to track aircraft to ensure that they are lined up for the correct runway. This new capability is called the Approach Runway Verification (ARV) and is a significant safety advancement. ALPA was also pleased to see that the FAA reauthorization addresses the need for a terminal airspace automation display at small airports. Historically smaller airports have operated without any display of aircraft in the air traffic control tower, so that air traffic controllers can increase awareness of aircraft that are in the vicinity of the airport. The addition of a display in all air traffic control towers where there are airline operations is an important step in advancing safety across the NAS.

Voice and Data Communications

NextGen's Data Communications system (Data Comm) supplements radio-based voice conversations between pilots and air traffic controllers with digital, text-based messaging in the en route phase of flight. This often reduces the likelihood of missing or misunderstanding air traffic control clearances. Further, there is no need for the pilot to read back a message for accuracy. Data Comm also facilitates faster communications and can help increase operational efficiency in the national airspace. While the FAA has deployed Data Comm at air traffic control towers, the last shutdown cost taxpayers up to \$8 million to repeat training for controllers at several facilities and further delayed implementation by 18 months. Beyond fiscal support, the vicissitudes of shutdowns interfere and plague NextGen implementation.

Future Demands on the NAS

Higher fidelity CNS data and the ability to exchange this data in real time would allow better definition, geographically and temporally, of the protected airspace needed for space launch and reentry operations (both commercial and government-sponsored), and to disseminate this information to ATC and other airspace users.

ATC modernization is necessary to support the integration of UAS. Small UAS (sUAS) will operate in airspace at altitudes that are generally considered to be "below the NAS." The low altitude sUAS operations will need some form of assistance in ensuring safe separation to avoid collision with manned aircraft, other sUAS, terrain, and obstacles. The FAA's work in Unmanned Traffic Management is just getting started, and certain foundational decisions need to be made about the role of the FAA in offering low-altitude separation services. ALPA recommends that the air navigation services at low altitude be provided by the same service provider of all other airspace in the NAS. In other words, the FAA should be providing separation and surveillance services. This ensures consistent application of safety risk mitigation policies and procedures.

Funding Challenges

Although Congress has authorized the FAA with funding for multiyear modernization projects, such as automation improvements or system upgrades, the FAA has underestimated its ongoing needs for facilities and equipment funding. This dynamic has built up over more than a decade, and it creates enormous challenges for the FAA to keep massively complicated projects on course and bring them to completion. Continuing resolutions, government shutdowns, authorization extensions, and other disruptions hinder the infrastructure modernization process. With all these issues at play, modernization of a critical system becomes a series of stop, replan, and restart. This is not a reliable or efficient approach to effectively plan and execute the modernization plan for our nation's air traffic control infrastructure, which also is the world's largest and busiest airspace system. As called for in the 2024 FAA reauthorization legislation, the FAA has the opportunity and the requirement to now provide Congress with a more accurate picture of its budgetary needs for facilities and equipment. Providing the FAA the resources it needs to complete the mission, across multiple appropriation cycles, is a key area where Congress can assist in ensuring that our nation's air traffic control system will meet the needs of the millions of Americans who depend on safe and reliable air transportation.

Near Misses and Technology

Last year I testified before this Committee on addressing near misses. First, I would like to commend the Committee for important provisions to improve safety and prevent near-miss incidents. The bill not only provides funding and stability for the FAA and FAA programs, but also for the latest safety technology on runways, for the hiring of more air traffic controllers, for workforce development, and a host of

technological additives related to this hearing. Notable provisions of the legislation related to aviation safety, modernization, and expansion of additional capabilities for more airports, include:

- ALPA is pleased to see that the FAA authorization included guidance to the FAA to ensure that legacy surface safety systems including the ASDE-X system remain fully operational. When fully functional the ASDE-X system provides air traffic controllers with timely alerts that prevent accidents and near-misses.
- ALPA is also appreciative of the Committee's greater focus on runway incursions through the establishment of a policy for No Tolerance for Near Misses, which expands FAA focus on improving the ground operation of aircraft at airports, establishing the Runway Safety Council, and supporting discretionary airport grant programs for runway safety projects.

ALPA looks forward to continued collaboration with the Committee to sustain and enhance safety. Thank you for the invitation, your continued focus on safety, and the opportunity to testify.