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TECHNICAL COMMISSION

Agenda Item 25: Other items to be considered by the Technical Commission

A NEW AIR TRAFFIC CONTROL SYSTEM IN THE UNITED STATES

(Presented by the United States)

EXECUTIVE SUMMARY

To keep pace with the evolving aviation landscape and ensure continued excellence in safety, efficiency, and innovation, the U.S. Federal Aviation Administration (FAA) has developed a critical 3-4 year modernization framework to reinvest in the U.S. National Airspace System (NAS). This initiative will build a more reliable, resilient, and future-ready aviation infrastructure—supporting growth while enhancing safety and operational performance.

<i>Strategic Goals:</i>	This information paper relates to the following ICAO Strategic Goals: <i>Every Flight is Safe and Secure</i> ; and <i>Aviation Delivers Seamless, Accessible, and Reliable Mobility for All</i> .
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1. INTRODUCTION

1.1 The FAA faces a rapidly growing, complex and demanding aviation sector, with commercial air travel returning to pre-COVID levels and the rapid expansion of new and innovative operations, including drones, advanced air mobility (AAM), and space launch and re-entry operations. This dynamic growth presents a unique opportunity to modernize our air traffic infrastructure and lay the foundation for a more advanced and efficient National Airspace System (NAS). While today's NAS remains safe, reinvestment in key systems and facilities will ensure safety, reliability, and efficiency are maintained—and improved—as demands increase. This paper outlines a strategic 3-4 year framework to reinvest in the U.S. NAS and accelerate this transformation.

2. DISCUSSION

2.1 The FAA has received supplemental funding from the U.S. Congress that will be used to carry out a significant modernization effort of the U.S. air traffic control (ATC) system. These funds are a “down payment” on the full cost to support development of a new, state-of-the-art ATC system designed

to meet today's challenges and tomorrow's opportunities. With the supplemental funding and existing funding, the FAA plans to make progress on the following equipment and technology upgrades.

2.2 The FAA is responding to industry calls for increased efficiency by accelerating deployment of new technologies. For example, the FAA plans to deploy the terminal flight data management tool at additional airports which will increase the use of electronic flight strips in our towers. The FAA also plans to upgrade the current traffic flow management system to an enhanced system that will enable integrated capabilities that provide reliable, consistent operational system-wide views, especially in dynamic or non-routine situations.

2.3 In addition, the FAA will replace its legacy voice switches with a more flexible Voice over Internet Protocol (VoIP)-based communication system. This upgrade increases flexibility, improves reliability, and supports next-generation operations such as dynamic re-sectorization and seamless integration with new technologies—ensuring controllers can manage growing traffic with confidence.

2.4 The FAA is streamlining and upgrading its surveillance infrastructure to deliver more consistent, reliable data. The FAA maintains hundreds of surveillance systems to monitor and manage NAS operations. Deployed over many decades, the surveillance systems provide safety-critical information to controllers, including an aircraft's position, identity and weather information, allowing them to manage air traffic safely and efficiently. Legacy radar systems provide a reinforcement to automatic dependent surveillance-broadcast (ADS-B) information, providing essential information in the event of Global Positioning System (GPS) degradation. As part of its modernization effort, the FAA plans to decrease the number of radar models from 12 to 2 cutting-edge radars which will simplify operations, reduce maintenance burdens, and enhance airborne safety and efficiency across the NAS.

2.5 Surface safety system upgrades and deployments will also occur over the next 3-4 years. The FAA will upgrade and replace parts on its Airport Surface Detection Equipment/Model X (ASDE-X) and Airport Surface Surveillance Capability (ASSC) surface movement radars that are deployed to 44 of the most complex airports. New surface awareness safety systems will be deployed to an additional 200 airports that do not currently have any surface monitoring capability. Implementing real-time surface movement awareness technology can assist in the prevention of runway incursions by depicting runways, taxiways, hold ramps, and other active movement areas to increase situational awareness of ATC personnel.

2.6 Strategically placed ADS-B stations in the Caribbean will close coverage gaps and provide precise, real-time aircraft surveillance over remote oceanic areas, enable safer routes, reduced separation, and improve search and rescue capabilities. ADS-B is cost-effective, requiring smaller, cheaper ground stations than radar, and supports general aviation, tourism-driven economies, and emerging aircraft technologies.

2.7 Air traffic flow management (ATFM) is critical for ensuring safe, efficient movements by minimizing delays and congestion through strategic coordination and planning. To address current system limitations, the FAA will deliver modern, scalable, and integrated platforms with improved reliability, usability, and operational continuity.

2.8 Alaska's aviation system is vital to its communities, and modernization efforts will also ensure continued service and safety in this unique environment. In Alaska, 82 per cent of communities lack road access and rely heavily on aviation. Planned improvements will replace and modernize automation systems, integrate advanced automation for weather graphics, flight plan processing, and emergency services. Modernization efforts will support critical services like pilot briefings, Notice to Airmen (NOTAM), and search-and-rescue coordination in areas with minimal cellphone or internet coverage. Automated and Visual Weather Observing Systems (AWOS and VWOS, respectively) and weather

cameras will also be updated and installed to provide near real-time accurate weather data in remote areas with harsh, rapidly changing conditions. Together, they enhance situational awareness, reduce weather-related accidents, and support Alaska's vast general aviation and commercial operations in areas with limited radar and infrastructure. Modernization of these flight service systems will also reduce controller workload, improve response times, and enhance safety for general aviation and commercial operations in Alaska's non-radar environments.

2.9 The FAA will also transition to Enterprise Information Display Systems (E-IDS) that will provide multiple safety benefits, including increased productivity for controllers, user efficiency, and NAS safety by displaying, entering, and distributing NOTAMs, pilot reports and access to special activity airspace schedule and status. Improving NAS resiliency by supporting faster recovery during adverse events and providing required operational position information to any other properly configured position in the NAS will support air traffic management (ATM) service providers in maintaining continuity of operations.

2.10 The FAA is laying the groundwork for a single common automation platform to replace its separate terminal ATM and enroute ATM systems. A single platform will streamline ATC by standardizing interfaces, consolidating data processing for terminal and enroute operations, and enhancing interoperability with newer technologies. Modernizing to a standardized, scalable platform will reduce the total cost of ownership, simplify integration of new technologies, accelerate deployment of new capabilities, improve cybersecurity, improve resiliency, and reduce vendor lock-in—ultimately enabling the FAA to respond more efficiently to operational changes and support future aviation growth.

2.11 Finally, the FAA will also invest in improvements for its ATC facilities, including Airport Traffic Control Towers, Terminal Radar Approach Control Facilities (TRACONS), and area control centers (ACCs) (called Air Route Traffic Control Centers or ARTCCs in the United States) throughout the NAS. The FAA will also initiate planning and land acquisition for the replacement and consolidation of its ACCs. Ultimately these efforts will help to prevent future service interruptions and uphold the operational integrity of the entire NAS.

3. CONCLUSION

3.1 The FAA is undertaking strategic investments to enhance the U.S. aviation system and ensure its readiness for the future. With unprecedented levels of traffic, innovation, and complexity on the horizon, this 3-4 year framework provides a proactive, innovative approach to transforming the NAS.

3.2 The 3-4 year modernization framework addresses critical safety needs to deliver a state-of-the-art air traffic control system. By replacing the current system and investing in our aviation infrastructure, the FAA will enhance safety in the sky, reduce delays, modernize our NAS, and unlock the future of air travel. The FAA is committed to embracing these changes and advancing the modernization of our systems to establish a safer, more efficient, and resilient NAS.

3.3 The Assembly is invited to note the information presented in this paper.