# AMERICA BUILDS: THE STATE OF THE ADVANCED AIR MOBILITY (AAM) INDUSTRY

**(119–30)**

# HEARING

BEFORE THE

SUBCOMMITTEE ON
AVIATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED NINETEENTH CONGRESS

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NOVEMBER 26, 2025

**SUMMARY OF SUBJECT MATTER**

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on "*America Builds: The State of the Advanced Air Mobility (AAM) Industry*"

## I. PURPOSE

The Subcommittee on Aviation of the Committee on Transportation and Infrastructure will meet on December 3, 2025, at 10:30 a.m. ET in 2167 Rayburn House Office Buildings to receive testimony at a hearing entitled, "*America Builds: The State of the Advanced Air Mobility (AAM) Industry*." The hearing will examine the general state of the AAM industry, including implementation of relevant provisions from the Federal Aviation Administration Reauthorization Act of 2024 (P.L. 118–63) and relevant regulatory actions. This hearing will also explore the AAM industry's and state governments' perspectives on air traffic control (ATC) modernization. At the hearing, Members will receive testimony from BETA Technologies, Wisk Aero, Reliable Robotics, and the National Association of State Aviation Officials.

## II. BACKGROUND

The primary mission of the FAA is to ensure civil aviation safety.[1] In carrying out that mission, the FAA has the responsibility to certify, oversee, and regulate the safety and operations of the civil aviation sector, including integrating new entrants like AAM into the National Airspace System (NAS).[2] AAM is an emerging sector of the aviation industry which aims to develop a new air transportation system that moves people and cargo between local, regional, intraregional, and urban locations not previously served or underserved by traditional aviation utilizing innovative aircraft, technologies, and operations.[3] The term "AAM vehicle" is an umbrella term which can include electric vertical takeoff and landing (eVTOL) powered-lift aircraft, commonly referred to as air taxis, and highly automated aircraft.[4]

Furthermore, advances in technology, such as increased battery density and distributed electric propulsion, are allowing for the development of novel aircraft that

[1] FAA, *Mission*, (Jan. 22, 2025), *available at* https://www.faa.gov/about/mission.
[2] 49 U.S.C. § 106(g).
[3] FAA, NEXT GEN, CONCEPT OF OPERATIONS, V2.0, UAM, (Apr. 26, 2023), *available at* https://www.faa.gov/sites/faa.gov/files/Urban%20Air%20Mobility%20%28UAM%29%20Concept%20of%20Operations%202.0__0.pdf.
[4] FAA, ADVANCED AIR MOBILITY INFRASTRUCTURE, (June 23, 2025), *available at* https://www.faa.gov/airports/new__entrants/aam__infrastructure#:~:text=Advanced%20Air%20Mobility%20(AAM)%20aircraft,also%20accommodate%20these%20growing%20operations.&text=Vertiports%20are%20a%20type%20of%20heliport.

are potentially quieter, safe, and sustainable.[5] These improvements also led to the emergence of advanced propulsion systems which leverage all-electric, hybrid- electric, hydrogen, and hydrogen-electric technologies. Designs for these aircraft are diverse but can largely be classified as vertical takeoff and landing (VTOL), short takeoff and landing (STOL), or conventional takeoff and landing (CTOL) aircraft.

Industry reports project tremendous scalability, demand, and economic growth once these aircraft enter into service.[6] For example, an industry report estimates that the AAM market will reach $115 billion annually by 2035, employing more than 280,000 high-paying jobs.[7] Furthermore, the FAA forecasts demand for AAM services to start at approximately 42,000 annual trips in the first year of operations before growing to an estimated 2.8 million annual trips in the sixth year following entry into service.[8]

## III. FAA REAUTHORIZATION ACT OF 2024

The FAA Reauthorization Act of 2024 (FAARA24) (P.L. 118–63), which was signed into law on May 16, 2024, contained numerous provisions, across multiple titles, geared towards further enabling these technologies while ensuring the necessary infrastructure is in place to support operations upon entry into service. FAARA24 ensures that the FAA is properly positioned to support their safe integration into the NAS while fostering American innovation.[9]

### *POWERED-LIFT OPERATIONS FOR AAM AIRCRAFT*

Currently, several AAM aircraft manufacturers are in the process of certifying the design of their aircraft with FAA and plan to enter service upon this certification. With AAM aircraft operators expected to use existing operating procedures, the FAA has still faced challenges in leveraging certain existing aviation rules for the new class of aircraft. To meet entry into service target dates for AAM manufacturers and operators, and to establish a clear regulatory safety framework for powered-lift aircraft, in 2023, the FAA declared that it would publish a final Special Federal Aviation Regulation (SFAR) for AAM aircraft by "the fourth quarter of 2024."[10] Section 955 of the FAARA24 required the FAA to publish a final Powered-Lift SFAR no later than November 16, 2024, and the FAA accomplished the task a month early, announcing the final SFAR on October 22, 2024.[11]

The highly anticipated final rule, which is valid for 10 years, addresses operational and pilot certification requirements for powered-lift aircraft.[12] Under the final rule, the FAA determined that existing aircraft certification requirements were sufficient to issue traditional type certificates (TC) for powered-lift aircraft under a special class process.[13] Issuing TCs for powered-lift aircraft utilizing the special class process allows the FAA to address the novel features of unique and untraditional aircraft without the need for additional and onerous processes. Key elements of the SFAR include:

- *Aircraft Maintenance & Safety*: Existing aircraft maintenance rules will apply to powered-lift aircraft. Cockpit voice recorders are required for powered-lift aircraft with six or more seats, including aircraft in which two pilots are re-

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[5] *Id.*

[6] Lindsey Berckman et al., *Advanced air mobility: Achieving scale for value realization*, DELOITTE, (Dec. 11, 2023), *available at* https://www.deloitte.com/us/en/insights/industry/aerospace-defense/advanced-air-mobility-evtol-aircraft.html.

[7] Aijaz Hussain, *Advanced Air Mobility: Can the United States afford to lose the race?*, DELOITTE, (Jan. 26, 2021), *available at* https://www.deloitte.com/us/en/insights/industry/aerospace-defense/advanced-air-mobility.html.

[8] FAA, FAA AEROSPACE FORECAST FISCAL YEARS 2025–2045, (June 9, 2025), *available at* https://www.faa.gov/data__research/aviation/aerospace__forecasts/FY-2025-2045-Full-Forecast-Document-and-Tables.pdf.

[9] FAA Reauthorization Act of 2024, Pub. L. No. 118–63.

[10] Revise Airplane Definition to Incorporate Powered-lift Operations, RIN 2120–AL72, Unified Agenda, Off. of Info. and Reg. Affairs; *FAA Reauthorization: Enhancing America's Gold Standard in Aviation Safety, Hearing Before the Subcomm. on Aviation of the H. Comm. on Transp. and Infrastructure*, 118th Cong. (Feb. 7, 2023) (statement of David Boulter, Acting Assoc. Admin. for Aviation Safety, FAA).

[11] Press Release, FAA, *With New Rule, FAA is Ready for Air Travel of the Future,* (Oct. 22, 2024) *available at* https://www.faa.gov/newsroom/new-rule-faa-ready-air-travel-future.

[12] *Final Rule for Powered-Lift Ops is Key for AAM*, NATIONAL BUSINESS AVIATION ASSOCIATION, (Nov. 2024), *available at* https://nbaa.org/news/business-aviation-insider/2024-11/final-rule-for-powered-lift-ops-is-key-for-aam/.

[13] Integration of Powered-Lift: Pilot Certification and Operations; Miscellaneous Amendments Related to Rotorcraft and Airplanes, 89 Fed. Reg. 92296 (Nov. 21, 2024) (to be codified at 14 C.F.R. pt. 1, 11, 43, 60, 61, 91, 97, 111, 135, 136, 141, 142, and 194).

quired.[14] Flight data recorders will also be required for powered-lift aircraft with 10 or more seats.[15]

- *Aircraft Energy Reserves*: Powered-lift aircraft are required to have the same energy reserve requirements as helicopters. However, if the manufacturer can provide pre-determined aircraft routes, landing approaches and certain other information, the FAA can allow for a modified energy reserve requirement.[16]
- *Operating Rules*: The SFAR incorporates a performance-based approach that modifies current aircraft operating rules based on a powered-lift aircraft's unique capabilities. It also permits powered-lift operations under private, fractional ownership, commuter/on-demand and air tours.[17] Furthermore, existing noise regulations will apply to powered-lift aircraft.[18]
- *Pilot Certification and Training*: For a pilot to legally fly an AAM aircraft, such pilot must (1) obtain an FAA pilot certificate, (2) obtain a credential, or 'type rating,' that qualifies them to fly a category of aircraft (for AAM it is referred to as 'powered-lift'), and then (3) complete a training program for the specific model of aircraft.

The FAA has adopted an alternate framework for meeting flight time requirements and has expanded the opportunity for commercial pilots to obtain powered-lift ratings through pre-existing training programs.[19] Initially, pilots employed by AAM manufacturers may obtain experience through test flights and crew training activities necessary for aircraft certification, since there is currently no certificated powered-lift aircraft or related training program. These pilots will form of an initial group of powered-lift instructors and pilots.[20] Once the initial training programs are established, an eligible commercial pilot with an instrument rating for another category of aircraft will be able to utilize one of the following alternate pathways to gain flight experience for pilot certification:

- *First Option*: Training in a powered-lift aircraft with a single set of flight controls that are accessible by both the student and flight instructor and allow for the instructor to immediately intervene if necessary.[21]
- *Second Option*: A combination of solo flight experience in an aircraft with expanded use of level C or higher full flight simulator (FFS), which is a simulator with six-degree motion systems, realistic cockpit replicas, and advanced avionics.[22] For pilots already holding a commercial pilot certificate and seeking a powered-lift rating, the final rule reduced the pilot in command (PIC) flight time requirements from 50 hours to 35 hours, of which 15 may be accrued in a Level C or higher full flight simulator (FFS).[23] While no flight simulators for powered-lift aircraft are currently qualified, the FAA anticipates movement in the short term to provide for more flight training opportunities through simulation.[24]
- *Third Option*: AAM companies can apply for an alternative compliance, known as deviation authority, in which the FAA would consider future technological advancements that would guarantee a flight training instructor and the PIC could still take immediate full control of the aircraft.[25]

*ELECTRIC AIRCRAFT INFRASTRUCTURE PILOT PROGRAM*

Some AAM operators will leverage existing aviation infrastructure, such as airports and heliports, while others may require new facilities, such as vertiports, to accommodate growing operations.[26] Section 745 of FAARA24 establishes a five-year pilot program allowing up to ten eligible airports to acquire, install, and operate equipment to support the operations of AAM vehicles and to construct or modify re-

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[14] *Id.*
[15] *Id.*
[16] FAA, *Powered Lift Part 194 SFAR Frequently Asked Questions (FAQ)*, (Oct. 22, 2024), *available at* https://www.faa.gov/air-taxis/FAQ.
[17] *Id.*
[18] *Id.*
[19] *Id.*
[20] *Id.*
[21] *Id.*
[22] *Id.*; Briefing from FAA to Subcomm. on Aviation Staff, *Powered Lift Briefing* (Oct. 22, 2024, 1:00pm EST) (Slides on file with Comm.).
[23] *Id.*
[24] *Id.*
[25] *Id.*
[26] FAA, ADVANCED AIR MOBILITY INFRASTRUCTURE, (Oct. 15, 2024), *available at* https://www.faa.gov/airports/new__entrants/aam__infrastructure.

lated infrastructure.[27] On May 12, 2025, the FAA issued a program guidance letter (PGL) for this pilot program to provide information on how airports may prepare for participation; however, it does not include a timeline for applications.[28]

*CENTER FOR ADVANCED AVIATION TECHNOLOGIES*

Section 961 of FAARA24 directed the Administrator to develop a plan to establish a Center for Advanced Aviation Technologies (CAAT) that would support the testing and advancement of new and emerging aviation technologies, such as AAM, no later than September 30, 2026.[29] The CAAT would be responsible for facilitating partnerships between industry, academia, and other government agencies; identifying new and emerging aviation trends and technologies; and developing testing corridors or flight demonstration zones to facilitate the safe integration of AAM into the NAS.[30] After a public solicitation process, on April 23, 2025, Secretary Duffy announced that the Texas A&M University System (TAMUS) would be the managing entity responsible for establishing and operating the FAA's CAAT.[31] TAMUS was selected because of its proximity to major international airports and a FAA regional headquarters, existing infrastructure supporting advanced aviation technology testing, and strong academic programs and industry partnerships.[32] Currently, TAMUS is in the process of standing up the CAAT. Under the One Big Beautiful Bill Act (P.L. 119–21), Congress appropriated $50 million towards carrying out the requirements of section 961 of FAARA24.[33]

*EXTENSION OF THE AAM INFRASTRUCTURE PILOT PROGRAM*

To keep pace with the growing demand for AAM, state governments and municipalities are working to prepare for anticipated AAM operations.[34] The Consolidated Appropriations Act of 2023 (P.L. 117–328) established a pilot program to provide planning grants to state, local, territorial and tribal governments, transit agencies, port authorities, and metropolitan planning organizations.[35] These plans can include details on potential vertiport locations, other physical and digital infrastructure requirements, connectivity to existing transit systems, among other considerations.[36] Section 960 of FAARA24 extends this pilot program through fiscal year 2026 and makes various technical corrections.[37] To date, this program has not yet been funded.[38]

*POWERED-LIFT AIRCRAFT ENTRY INTO SERVICE*

Section 957 of FAARA24 required the Administrator to provide short-term and long-term solutions for the safe integration of AAM into the NAS, including for operations in controlled airspace.[39] Additionally, the Administrator is required to work in consultation with the exclusive bargaining representatives of air traffic controllers to evaluate the impact of AAM operations on air traffic controllers and identify and evaluate other tools to support controllers.[40] The Administrator is also required to update air traffic orders and policies to allow for the use of existing air traffic procedures, where determined safe by the Administrator, by powered-lift aircraft. Furthermore, the agency is required to establish a process for the approval of letters of agreement between ATC system facilities and powered-lift operators and infra-

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[27] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 745, 138 Stat. 1282.

[28] FAA, *Reauthorization Program Guidance Letter (R–PGL) 25–06: Planning and Project Eligibility*, (May 12, 2025), *available at* https://www.faa.gov/airports/aip/guidance__letters/R-PGL-25-05-Funding-Formula-Changes.

[29] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 961, 138 Stat. 1384.

[30] *Id.*

[31] Press Release, FAA, *U.S. Transportation Secretary Sean P. Duffy and U.S. Sen. Ted Cruz Announces Texas A&M Will Lead the Center for Advanced Aviation Technologies* (Apr. 23, 2025), *available at* https://www.faa.gov/newsroom/us-transportation-secretary-sean-p-duffy-and-us-sented-cruz-announce-texas-am-will-lead.

[32] *Id.*

[33] One Big Beautiful Bill Act, Pub. L. No. 119–21, § 40003, 139 Stat. 131. [hereinafter OBBBA].

[34] FAA, *Advanced Air Mobility (AAM) Implementation Plan: Near-term (Innovate28) Focus with an Eye on the Future of AAM*, (July 2023), *available at*: https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf.

[35] Consolidated Appropriations Act 2023, Pub. L. No. 117–328, Division Q § 101, 136 Stat. 4459

[36] *Id.*

[37] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 960, 138 Stat. 1383.

[38] Communication from FAA to Subcomm. on Aviation Staff, *[Hearing] FAA Reauthorization Implementation Oversight*, (Dec. 5, 2024, 10:30am EST) (on file with Subcomm.).

[39] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 957, 138 Stat. 1381 [hereinafter Entry into Service].

[40] *Id.*

structure providers to minimize the amount of active coordination required for safe recurring powered-lift operations.[41]

*APPLICATION OF NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) CATEGORICAL EXCLUSIONS FOR VERTIPORT PROJECTS*

Section 953 of FAARA24 directed the Administrator to apply applicable existing categorical exclusions, in accordance with NEPA, when evaluating the environmental impact of a proposed vertiport project on an airport.[42] Additionally, the Administrator is required to consult with the Council on Environmental Quality (CEQ) and take steps to establish additional categorical exclusions, as appropriate, for vertiport projects on an airport.[43] While there is no timeline associated with this provision, the FAA is in the process of updating FAA NEPA implementing procedures in accordance with this section.[44] Additionally, the FAA has begun informal consultations with CEQ on the development of new categorical exclusions for vertiport projects. Once those consultations have concluded, the FAA will submit justification for the proposed additional categorical exclusions to CEQ for formal consideration.[45]

*AVIATION WORKFORCE DEVELOPMENT GRANT PROGRAM*

The emergence of AAM will help provide new job opportunities in United States aviation, including in aerospace engineering, aircraft manufacturing, and operations.[46] To ensure a robust and highly-skilled aviation workforce, section 440 of FAARA24 reauthorizes the FAA's Aviation Workforce Development (AWD) Grant Program to fund efforts focused on growing the United States aircraft pilot and aviation maintenance workforce.[47] FAARA24 also expands eligibility for the AWD Grant Program to aviation manufacturing to ensure this critical sector also has a robust talent pool to recruit from in the coming decades.[48]

*STANDARDS DEVELOPMENT FOR VERTIPORT INFRASTRUCTURE*

The FAA uses existing policy and regulations on aviation infrastructure as a baseline for AAM vertiport guidance.[49] Industry stakeholders also work closely with the FAA to develop standards to ensure that AAM ground infrastructure is safe, reliable, and interoperable.[50] In 2022, the FAA published Engineering Brief (EB) #105 which provides initial standards and guidance for planning, designing, and constructing vertiports.[51] Among its requirements, section 958 of FAARA24 directs the agency to update EB015, and in December 2024, the FAA issued EB#105A, updating guidance on vertiport classification, landing area geometry and markings, aircraft parking, and other key modifications.[52] Section 958 also directs FAA to publish a performance-based vertiport design advisory circular.[53] To comply with the law, the FAA plans to publish a unified vertical flight infrastructure design advisory circular that will cover both heliport and vertiport design standards by mid-2027.[54]

## IV. REGULATORY ACTIONS

As nations around the world grapple with new and emerging aviation technologies, it is imperative that the United States lead in innovation and the adoption of AAM. As such, we have seen several regulatory efforts, spanning multiple admin-

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[41] *Id.*
[42] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 953, 138 Stat. 1376.
[43] *Id.*
[44] Briefing from FAA to Subcomm. on Aviation Staff, *2024 FAA Reauthorization Hill Update* (Apr. 10, 2025, 12:00pm EST) (Slides on file with Comm.).
[45] *Id.*
[46] DOT Volpe Center, RECAP: THE ADVANCED AIR MOBILITY WORKFORCE OF THE FUTURE, (Feb. 27, 2024), *available at* https://www.volpe.dot.gov/about-us/contact-us/recap-advanced-air-mobility-workforce-future.
[47] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 440, 138 Stat. 1179.
[48] *Id.*
[49] Entry into Service, *supra* note 39.
[50] *Id.*
[51] Notice of Availability, Notice of Industry Day Meeting, and Request for Comment on the Draft Engineering Brief 105 for Vertiport Design, 87 Fed. Reg. 11804 (Mar. 2, 2022).
[52] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 958, 138 Stat. 1382; FAA, *Engineering Brief No. 105A, Vertiport Design, Supplemental Guidance to Advisory Circular 150/5390–2D, Heliport Design*, (Dec. 27, 2024), *available at*: https://www.faa.gov/airports/engineering/engineering_briefs/eb_105a_vertiports.
[53] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 958, 138 Stat. 1382.
[54] Briefing from FAA to Subcomm. on Aviation Staff, *Vertiport Engineering Brief Update (Section 958)*, (Jan. 7, 2025, 2:00pm EST) (Slides on file with Comm.).

istrations, aimed at placing the United States front and center in certifying and operationalizing AAM.

*ELECTRIC VERTICAL TAKEOFF AND LANDING (EVTOL) INTEGRATION PILOT PROGRAM (EIPP)*

In a June 6, 2025, Executive Order entitled, "Unleashing American Drone Dominance," President Trump called for the establishment of an eIPP to serve as an extension of the BEYOND program to accelerate the deployment of safe and lawful eVTOL operations in the NAS.[55] The BEYOND program, formerly known as the IPP, was an initiative to accelerate the integration of unmanned aircraft systems (UAS) into the NAS. The eIPP seeks to build upon the success of the BEYOND program by facilitate partnerships between state, local, tribal, and territorial (SLTT) governments and private sector partners with demonstrated experience in powered-lift or AAM development, manufacturing, and operations.[56] Once selected, participants will test and validate operational concepts that, once certified, can be scaled at the national level. Operational concepts expected to be tested and validated include:

- Air Taxis: Short range, on demand flying powered-lift aircraft connecting to ground transport with demonstrated reduced noise impacts;
- Longer-range Fixed Wing Flights: Capable of moving people around regionally unlocking new economically viable means of air travel;
- Cargo: Powered-lift aircraft capable of providing cargo services nationwide with easier access to underserved communities;
- Logistics and Supply: Powered-lift aircraft capable of performing emergency management services, such as servicing offshore energy facilities and improving medical transport capabilities with lower costs; and
- Increasing Automation Safety: Testing powered-lift aircraft with a range of automation technologies designed to enhance safety and efficiency in AAM operations.[57]

On September 12, 2025, Secretary Duffy announced that the FAA plans to establish the eIPP, while noting that these aircraft have the potential to transform traditional aviation, expand connectivity to rural American communities, and reduce road congestion in urban environments.[58] Following Secretary Duffy's announcement, on September 16, 2025, the FAA established the eIPP and posted a document in the Federal Register seeking participants.[59] Interested applicants have until December 11, 2025, to submit proposals.[60]

## V. AIR TRAFFIC CONTROL MODERNIZATION

On May 8, 2025, Secretary Duffy unveiled a plan to build a new state-of-the-art ATC system.[61] The plan consists of several areas of focus for upgrades, including: telecommunications infrastructure, radio communications, surveillance, automation programs, and facilities.[62] By replacing and upgrading the current system, the FAA will enhance safety, reduce delays, and unlock the future of air travel.[63] To aid in this effort, the One Big Beautiful Bill Act enacted historic investments totaling $12.5 billion for ATC modernization.[64] While the FAA anticipates initial AAM operations to operate like traditional helicopter and general aviation piloted aircraft, it is anticipated that these operations will gradually rely on increasing degrees of au-

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[55] Exec. Order No. 14307, (June 6, 2025), *available at* https://www.whitehouse.gov/presidential-actions/2025/06/unleashing-american-drone-dominance/.

[56] Electric Vertical Takeoff and Landing and Advanced Air Mobility Integration Pilot Program—Announcement of Establishment of Program and Request for Proposals, 90 Fed. Reg. 44751 (Sept. 16, 2025) [hereinafter eIPP].

[57] *Id.*

[58] Press Release, DEP'T. OF TRANSP., *Trump's Transportation Secretary Sean P. Duffy Unveils New Plan to Fast-Track Advanced Air Mobility Vehicles* (Sept. 12, 2025), *available at* https://www.transportation.gov/briefing-room/trumps-transportation-secretary-sean-p-duffy-unveils-new-plan-fast-track-advanced-air.

[59] eIPP, *supra* note 56.

[60] *Id.*

[61] Press Release, DEP'T. OF TRANSP., *U.S. Transportation Secretary Sean P. Duffy Unveils Plan to Build Brand New State-of-the-Art Air Traffic Control System* (May 8, 2025), *available at* https://www.transportation.gov/briefing-room/us-transportation-secretary-sean-p-duffy-unveils-plan-build-brand-new-state-art-air [hereinafter ATC Plan].

[62] DEP'T OF TRANSP., AMERICA IS BUILDING AGAIN: BRAND NEW AIR TRAFFIC CONTROL SYSTEM (2025), *available at* https://www.transportation.gov/sites/dot.gov/files/2025-05/Brand%20New%20Air%20Traffic%20Control%20System%20Summary.pdf.

[63] *Id.*

[64] OBBA, *supra* note 33.

tonomy.[65] Any discussion on the future of our ATC system should consider all current and future users of the NAS.

*DIGITAL FLIGHT RULES (DFR)*

Digital flight, as opposed to visual or instrument flight, refers to an operating mode in which flight operations are conducted by reference to digital information, with flight-path safety and self-separation standards enabled through connected digital technologies and automated real-time information exchange.[66] Digital air traffic procedures will play a critical role in AAM infrastructure, operations, and integration into the NAS.[67] According to the National Aeronautics and Space Administration (NASA), digital flight is predicated on the adoption of four key principles: digital information connectivity and services, shared traffic awareness, cooperative practices, and separation automation.[68] Looking forward, DFR are intended to complement and add to existing operating modes utilized by traditional aviation for navigation and separation standards, such as visual flight rules (VFR) and instrument flight rules (IFR). The success of more operations will hinge on the technological advancements incorporated into an upgraded ATC system.

*LOW ALTITUDE AIRSPACE MANAGEMENT*

As new entrants continue to integrate into the NAS, government and industry must work together to develop and deploy technology that provides situational awareness to all users operating at lower altitudes. The current ATC system provides airspace awareness to traditional methods of aviation at higher altitudes. Commercial aviation operations (with the exception of takeoffs and landings) typically cruise between 30,000 feet to 42,000 feet above ground level (AGL). Conversely, general aviation often operates up to 10,000 feet AGL and can transit airspace going down to 500 feet AGL.[69] At these altitudes, controllers and pilots have a common operating picture and appropriate airspace awareness. At altitudes below 400 feet AGL, that common operating picture and awareness is not as available or accessible. Instead, new entrant operators are expected to rely upon UAS traffic management (UTM) services providing low altitude traffic management.[70] As new entrants continue to integrate into the airspace, the FAA must consider the merits of a more robust low altitude airspace management framework. Section 627 of FAARA24 directs the FAA to initiate a rulemaking process to establish or update low altitude routes and flight procedures to ensure safe powered-lift operations in the NAS and consult with relevant stakeholders.[71]

## VI. WITNESSES

- Kyle Clark, Founder & Chief Executive Officer, BETA Technologies
- Tyler Painter, Chief Financial Officer, Wisk Aero
- Robert Rose, Co-Founder & Chief Executive Officer, Reliable Robotics
- Gregory Pecoraro, President & Chief Executive Officer, National Association of State Aviation Officials

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[65] FAA, OPERATIONALIZING AN ADVANCED AIR MOBILITY ECOSYSTEM (2024), *available at* https://www.faa.gov/about/office__org/headquarters__offices/ang/redac/redac-nasops-202403-OperationalizeAAMEcosystem.

[66] NAT'L AERONAUTICS AND SPACE ADMIN., DIGITAL FLIGHT: A NEW COOPERATIVE OPERATING MODE TO COMPLEMENT VFR AND IFR (2022), *available at* https://ntrs.nasa.gov/api/citations/20220013225/downloads/NASA-TM-20220013225.pdf.

[67] NASAO AAM Multistate Collaborative, *Key Considerations of Physical and Digital Infrastructure and Exploring Minimum Service Levels*, (Aug. 25, 2025), *available at*: https://cdn.ymaws.com/nasao.org/resource/collection/C99CE82E-E91C-4F7A-A1BB-A9BEA08115A0/Key__Considerations__of__Physical__and__Digital.pdf

[68] *Id.*

[69] 14 C.F.R. §91.115 (1991); 14 C.F.R. § 91.119 (2010).

[70] Nichakorn Pongsakornsathien, et al., *Advances in Low-Altitude Airspace Management for Uncrewed Aircraft and Advanced Air Mobility*, SCIENCE DIRECT, (Apr. 1, 2025), *available at* https://www.sciencedirect.com/science/article/pii/S0376042125000119.

[71] FAA Reauthorization Act of 2024, Pub. L. No. 118–63, § 627, 138 Stat. 1243.

# AMERICA BUILDS: THE STATE OF THE ADVANCED AIR MOBILITY (AAM) INDUSTRY

**WEDNESDAY, DECEMBER 3, 2025**

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON AVIATION,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
*Washington, DC.*

The subcommittee met, pursuant to call, at 10:32 a.m. in Room 2167, Rayburn House Office Building, Hon. Troy E. Nehls (Chairman of the subcommittee) presiding.

Mr. NEHLS. The Subcommittee on Aviation will come to order.

I ask unanimous consent that the chairman be authorized to declare a recess at any time during today's hearing.

Without objection, so ordered.

I also ask unanimous consent that the Members not on the subcommittee be permitted to sit with the subcommittee at today's hearing and ask questions.

Without objection, so ordered.

And as a reminder, if Members wish to insert a document into the record, please also email it to DocumentsTI@mail.house.gov.

I now recognize myself for the purpose of an opening statement.

## OPENING STATEMENT OF HON. TROY E. NEHLS OF TEXAS, CHAIRMAN, SUBCOMMITTEE ON AVIATION

Mr. NEHLS. First, I would like to take a moment and recognize my new partner here, Ranking Member André Carson—big guy, big guy, old lawman, great guy—and congratulate him on his new role on the subcommittee. Ranking Member Carson, I look forward to working with you to tackle the challenges our aviation ecosystem is facing. We have to do it, most notably modernizing the national airspace, the NAS.

Secondly, I would like to thank each one of our witnesses. Thank you all.

We gather today at a critical and defining moment, a moment in which we are presented with two choices: either we choose to embrace and unleash American innovation, or we carry on with the status quo and watch as other nations surpass us in new and emerging technology.

Electric vertical takeoff and landing—eVTOL—powered-lift aircraft, commonly referred to as advanced air mobility, can redefine how we transport people and goods between local, regional, and urban locations not previously served by traditional aviation. Don't just take my word for it. One industry report from 2021 projects

that the AAM market will reach $115 billion annually by 2035 and bring about 280,000 high-paying jobs, 280,000.

Furthermore, advances in technology, such as increased battery density, are allowing for the development of eVTOL aircraft which have the potential to be quieter. They are going to be quieter, more efficient. There is only one issue: no one has a type certificated aircraft yet. We just don't have it done.

The FAA Reauthorization Act of 2024 recognized the importance of this emerging technology and included a subtitle dedicated to its advancement. Specifically, section 955 requires the FAA to publish a Special Federal Aviation Regulation, SFAR, regarding powered-lift aircraft by November 16 of 2024. Now it has been a year since the SFAR's publication, and I look forward to hearing from our witnesses today regarding the utility of that regulation, as well as any challenges they may continue to face on the journey to certification.

Additionally, recent regulatory actions such as the establishment of the eVTOL Integration Pilot Program highlight innovation in this space as a priority for the Trump administration. I look forward to seeing this pilot program build on the successes of the Unmanned Aircraft Systems Integration Pilot Program established in President Trump's first term.

Much of the conversation this Congress, deservedly so, has revolved around air traffic modernization. While the FAA expects initial powered-lift operations to be conducted in a manner similar to traditional aviation, it's anticipated that operations will ultimately begin to rely on increasing degrees of autonomy. As such, any conversations on the future of our ATC system should take into consideration all current and future uses of the NAS.

Once again, I would like to thank our witnesses for being here today. I look forward to hearing from you all on the state of the AAM industry.

[Mr. Nehls' prepared statement follows:]

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**Prepared Statement of Hon. Troy E. Nehls of Texas, Chairman, Subcommittee on Aviation**

First, I'd like to take a moment to recognize my new partner, Ranking Member André Carson, and congratulate him on his new role on the Subcommittee. Ranking Member Carson, I look forward to working with you to tackle the challenges that our aviation ecosystem is facing, most notably modernizing our National Airspace System (NAS). Secondly, I'd like to thank each of our witnesses for being here today.

We gather today at a critical and defining moment, a moment in which we're presented with two choices: either we choose to embrace and unleash American innovation, or we carry on with the status quo and watch as other nations surpass us in new and emerging technology.

Electric vertical takeoff and landing (e-VTOL) powered-lift aircraft, commonly referred to as Advanced Air Mobility, can redefine how we transport people and goods between local, regional, and urban locations not previously served by traditional aviation. Don't just take my word for it though; one industry report from 2021 projects that the AAM market will reach $115 billion annually by 2035 and bring about more than 280,000 high-paying jobs.

Furthermore, advances in technology, such as increased battery density, are allowing for the development of e-VTOL aircraft that have the potential to be quieter and more efficient. There's only one issue: no one has a type certificated (TC) aircraft yet.

The FAA Reauthorization Act of 2024 recognized the importance of this emerging technology and included a subtitle dedicated to its advancement. Specifically, section 955 required the FAA to publish a Special Federal Aviation Regulation (SFAR) re-

garding powered-lift aircraft by November 16, 2024. It has now been a year since the SFAR's publication, and I look forward to hearing from our witnesses regarding the utility of that regulation, as well as any challenges that they continue to face on the journey to certification.

Additionally, recent regulatory actions such as the establishment of the e-VTOL Integration Pilot Program (eIPP) highlight innovation in this space as a priority for the Trump Administration. I look forward to seeing this pilot program build on the successes of the Unmanned Aircraft System (UAS) Integration Pilot Program (IPP) established in President Trump's first term.

Much of the conversation this Congress, deservedly so, has revolved around air traffic control modernization. While the FAA expects initial powered-lift operations to be conducted in a manner similar to traditional aviation, it's anticipated that operations will ultimately begin to rely on increasing degrees of autonomy. As such, any conversations on the future of our ATC system should take into consideration all current and future users of the NAS. Once again, I'd like to thank our witnesses for being here today and look forward to hearing from them on the state of the AAM industry.

Mr. NEHLS. I now recognize Ranking Member Carson for 5 minutes for an opening statement.

## OPENING STATEMENT OF HON. ANDRÉ CARSON OF INDIANA, RANKING MEMBER, SUBCOMMITTEE ON AVIATION

Mr. CARSON. Thank you, Chairman. Thank you for your leadership, fellow law enforcement officer.

Thank you, Ranking Member Larsen and the staff.

Good morning, and welcome to our witnesses for joining today's hearing on the state of the advanced air mobility, AAM, industry.

New airspace entrants like AAM promise to deliver new and exciting societal and economic benefits to our constituents. Whether it' electric vertical takeoff and landing, eVTOL, vehicles or more conventional aircraft using alternative propulsion, this advanced technology has the potential to improve mobility options, particularly in dense urban environments like Indianapolis; boost local businesses and job opportunities; and reduce surface congestion.

But to make this vision a reality, we must ensure all stakeholders, including labor, State governments, and impacted local communities and legacy airspace users, remain at the table. Using the framework created by the 2024 FAA reauthorization, the administration and the AAM industry must clearly demonstrate that these innovations can safely operate in U.S. skies without placing additional strain on the system and our entire aviation workforce.

Which is why having a robustly funded and staffed FAA is so important.

The recent 43-day Government shutdown, the longest in our Nation's history, had a very significant consequence for U.S. aviation and is a very stark reminder of what is at stake if the FAA is made into a political pawn. A Government shutdown should never affect our air travel or force the FAA's very talented workforce to go without pay the way it did earlier last month.

That is why Chairman Graves, Ranking Member Larsen, Chair Nehls, and I proposed the Aviation Funding Solvency Act, which will ensure the FAA's aviation safety employees are paid, and the agency can continue its very important work.

The safe deployment of AAM into U.S. airspace relies on a very resilient and modernized infrastructure, whether that's physical ground infrastructure like vertiports for eVTOLs or the digital col-

lision avoidance systems that air traffic controllers need to efficiently manage these new airspace users.

This year, Congress invested $12.5 billion into revamping the Nation's air traffic control system. And as a part of those efforts, this administration and industry must consider how new entrants will be safely integrated into an already very busy U.S. airspace.

Furthermore, the AAM industry and FAA should work with State governments to ensure that impacted communities have the resources and guidance they need to develop and deploy the necessary infrastructure.

Thanks to the committee's leadership to pass the 2024 reauthorization, the FAA has created the framework that will propel a new generation of innovative aircraft. But we must make sure that AAM is integrated into the National Airspace System safely and equitably.

Thank you again to today's witnesses. You all play a very critical role in achieving this collective goal.

I look forward to our discussion. I yield back, Chairman.

[Mr. Carson's prepared statement follows:]

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**Prepared Statement of Hon. André Carson of Indiana, Ranking Member, Subcommittee on Aviation**

Good morning and welcome to our witnesses for joining today's hearing on the state of the Advanced Air Mobility (AAM) industry.

New airspace entrants, like AAM, promise to deliver new and exciting societal and economic benefits to our constituents.

Whether it's electric vertical takeoff and landing (eVTOL) vehicles or more conventional aircraft using alternative propulsion, this advanced technology has the potential to improve mobility options—particularly in dense urban environments like Indianapolis—boost local businesses and job opportunities and reduce surface congestion.

But to make this vision a reality, we must ensure all stakeholders—including labor, state governments and impacted local communities and legacy airspace users—remain at the table.

Using the framework created by the 2024 FAA reauthorization, the administration and the AAM industry must clearly demonstrate that these innovations can safely operate in U.S. skies without placing additional strain on the system and aviation workforce.

Which is why having a robustly funded and staffed FAA is so important.

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That's why Chairman Graves, Ranking Member Larsen, Chairman Nehls, and I proposed the Aviation Funding Solvency Act, which will ensure the FAA's aviation safety employees are paid and the agency can continue its important work.

The safe deployment of advanced air mobility (AAM) into U.S. airspace relies on a resilient and modernized infrastructure.

Whether that's physical ground infrastructure, like vertiports for eVTOLs, or the digital collision avoidance systems that air traffic controllers need to efficiently manage these new airspace users.

This year, Congress invested $12.5 billion into revamping the nation's air traffic control system, and as part of those efforts, this administration and industry must consider how new entrants will be safely integrated into an already busy U.S. airspace.

Furthermore, the AAM industry and FAA should work with state governments to ensure that impacted communities have the resources and guidance they need to develop and deploy the necessary infrastructure.

Some AAM stakeholders are pursuing more autonomous technology, which we'll hear more about during today's discussion.

Although these innovations may help to reduce the burden on our aviation workforce, there is no replacement for the human role in ensuring safe and efficient airspace use.

The 2024 FAA reauthorization lays the foundation for Congress, the FAA and industry to invest in the critical U.S. workforce that will design, maintain and deploy this new form of flight that should help supplement, not replace, the role of pilots in the cockpit.

Thanks to this Committee's leadership to pass the 2024 reauthorization, the FAA has created the framework that will propel a new generation of innovative aircraft.

But we must make sure that AAM is integrated into the national airspace system safely and equitably.

Thank you again to today's witnesses; you all play an important role in achieving this goal.

I look forward to our discussion.

Mr. NEHLS. Thank you, Mr. Carson. I now recognize the ranking member of the full committee, Mr. Larsen, for 5 minutes.

## OPENING STATEMENT OF HON. RICK LARSEN OF WASHINGTON, RANKING MEMBER, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

Mr. LARSEN OF WASHINGTON. Thank you, Chair Nehls and Ranking Member Carson, for holding today's hearing on AAM, a very innovative and growing aviation sector—part of that sector.

But before we discuss the promising future of aviation, we have to acknowledge the current state of the broader system, which looks much different than when this subcommittee last met 6 months ago.

Since then, U.S. aviation has been pushed to unprecedented limits—from the tragic crash of a UPS flight near Louisville, to mass flight delays and cancellations across the country, and the longest Government shutdown in U.S. history. However, thanks to the hard-working women and men of the entire aviation workforce, the traveling public's safety remained a top priority and does to this day. These dedicated individuals worked longer hours under immense pressure and scrutiny—and for many, worked without pay—yet they never wavered from their service to this country and their duty to ensure aviation safety.

We have to avoid history repeating itself. That is why I am very pleased to join Chair Graves and Chair Nehls and Ranking Member Carson to introduce the Aviation Funding Solvency Act. This bipartisan bill guarantees the aviation safety workforce will be paid and keeps the Federal Aviation Administration operating during Government shutdowns. The future of U.S. aviation and AAM depends on a fully staffed and resourced FAA. Our legislation will prevent any lapses in the agency's ability to focus on safety in the future.

This committee first explored the safe integration of new entrants, including AAM aircraft, nearly a decade ago. What was once considered an aviation technology of a distant future is happening now. In fact, I didn't invent "The Jetsons," but I think I used "The Jetsons" as a metaphor about 9 years ago when we first started talking about this. And we are not quite there yet, but these innovations are, in fact, emerging in U.S. skies.

While the potential applications of AAM—from cargo transport, to passenger air taxi service—are promising, we always have to prioritize safety. Which is why the 2024 reauthorization law directed the FAA to release a final Special Federal Aviation Regulation, or SFAR, outlining powered-lift aircraft certification, operating, and pilot qualification requirements. The SFAR creates a regulatory framework necessary to allow AAM operations to safely scale so the U.S. can remain a leader in aerospace innovation.

So, Mr. Clark, I am glad to see BETA's recent flight test of the ALIA CX300 in northwest Washington State, and I look forward to hearing more about your experience navigating this SFAR process.

Now, although certification is the main goal for many stakeholders, it cannot be the only objective. The successful adoption of these technologies depends on community acceptance and States' ability to prepare for future operations. Therefore, the AAM industry and FAA must have early, transparent, and meaningful engagement with States and local communities to ensure their priorities and concerns are addressed.

In fact, the FAA reauthorization law in 2024 creates opportunities for the voices of local communities to be heard, including by extending an FAA pilot program that I championed to help States plan for AAM infrastructure development.

So, Mr. Pecoraro, I am interested in hearing more about the important role States are playing in infrastructure development and NASAO's recommendations on improving that partnership with the FAA and industry.

And the emergence of AAM also helps create jobs in the U.S., with the latest projections estimated to be more than 280,000 high-paying AAM jobs by 2035. To help meet this demand, the 2024 FAA reauthorization invests $60 million annually to grow the pilot, aviation maintenance, and manufacturing workforces.

However, the administration has indefinitely delayed these very popular and very effective workforce grants. A highly skilled aviation workforce is critical to allowing the U.S. to leverage AAM technology and compete globally, and I urge the administration to finally issue these grants.

And with each passing year, climate change continues to be a growing threat to millions of Americans, and the electric propulsion systems employed by many of these new aircraft rely on low- and zero-emission technologies, which can significantly reduce the harmful impacts of greenhouse gases. So, continued Federal investment in cleaner aviation technologies is critical to our leadership in AAM, and it's good for local communities.

So, Mr. Painter, I look forward to learning more about Wisk's electric propulsion aircraft and necessary charging infrastructure to support your operations.

With safety as a guiding principle, the FAA reauthorization law established the necessary framework to safely scale AAM in the United States, grow the aviation workforce, invest in cleaner aviation technology, and partner with States and local communities on future operations.

So, I do want to say it may sound like I am bragging about the FAA authorization law that we passed in 2024, but you all deserve great thanks on this committee for seeing the future and taking

care of these issues, showing this committee does do its work. And frankly, I want to say I am glad we are back to work in this committee as well.

So, I look forward to exploring how we can all support the safe and efficient integration of these new entrants into the airspace.

With that, I yield back.

[Mr. Larsen of Washington's prepared statement follows:]

**Prepared Statement of Hon. Rick Larsen of Washington, Ranking Member, Committee on Transportation and Infrastructure**

Thank you, Chair Nehls and Ranking Member Carson, for holding today's hearing on advanced air mobility (AAM)—an innovative and growing aviation sector.

But before we discuss the promising future of U.S. aviation, we must acknowledge the current state of the broader system—which looks much different than when this Subcommittee last met six months ago.

Since then, U.S. aviation has been pushed to unprecedented limits—from the tragic crash of UPS Flight 2976 near Louisville, to mass flight delays and cancellations across the country and the longest government shutdown in U.S. history.

However, thanks to the hard-working women and men of the entire aviation workforce, the traveling public's safety remains the top priority.

These dedicated individuals worked longer hours, under immense pressure and scrutiny, and for many, without pay—yet they never wavered from their service to this country and their duty to ensure aviation safety.

We have to avoid history repeating itself.

That is why I am pleased to join Chairman Graves to introduce the Aviation Funding Solvency Act.

This bipartisan bill guarantees the aviation safety workforce will be paid and keeps the Federal Aviation Administration (FAA) operating during government shutdowns.

The future of U.S. aviation and AAM depends on a fully staffed and resourced FAA. Our legislation will prevent any lapses in the agency's ability to focus on safety.

This committee first explored the safe integration of new entrants, including AAM aircraft, nearly a decade ago.

What was once considered aviation technology of the distant future is happening now, and these innovations are emerging in U.S. skies.

While the potential applications of AAM—from cargo transport to passenger air taxi service—are promising, we must always prioritize aviation safety.

Which is why the 2024 reauthorization directed the FAA to release a final Special Federal Aviation Regulation (SFAR) outlining powered-lift aircraft certification, operating and pilot qualification requirements.

The SFAR creates the regulatory framework necessary to allow AAM operations to safely scale, so the U.S. can remain a leader in aerospace innovation.

Mr. Clark, I was glad to see BETA's recent test flight of the ALIA CX300 in Northwest Washington state. I look forward to hearing more about your experience navigating the FAA's SFAR process.

Although certification is the main goal for many AAM stakeholders, it cannot be the only objective.

The successful adoption of AAM technology depends on community acceptance and states' ability to prepare for future operations.

Therefore, the AAM industry and FAA must have early, transparent and meaningful engagement with states and local communities to ensure their priorities and any concerns are addressed.

The 2024 FAA reauthorization creates opportunities for the voices of local communities to be heard—including by extending an FAA pilot program that I championed to help states plan for AAM infrastructure development.

Mr. Pecoraro, I'm interested in hearing more about the important role of states in AAM infrastructure development, and NASAO's recommendations on improving the partnership with the FAA and industry.

The emergence of AAM also helps to create jobs in U.S. aviation, with the latest projections estimating more than 280,000 high-paying AAM jobs by 2035.

To help meet this demand, the 2024 FAA reauthorization invests $60 million annually to grow the pilot, aviation maintenance and manufacturing workforces.

However, the Trump administration has indefinitely delayed these popular and effective FAA workforce grants.

A highly skilled aviation workforce is critical to allowing the U.S. to leverage AAM technology and compete globally, and I urge the Administration to finally issue these grants.

With each passing year, climate change continues to be a growing threat to millions of Americans.

The electric propulsion systems employed by many AAM aircraft rely on low and zero-emission technologies, which can significantly reduce the harmful impacts of greenhouse gases.

Continued federal investment in cleaner aviation technologies is critical to our leadership in AAM, and good for local communities.

Mr. Painter, I look forward to learning more about Wisk's electric propulsion aircraft and the necessary charging infrastructure to support your operations.

With safety as the guiding principle, the 2024 FAA reauthorization establishes the necessary framework to safely scale AAM in the United States, grow the aviation workforce, invest in cleaner aviation technology, and partner with states and local communities on future operations.

Thank you again to today's witnesses.

I look forward to exploring how we all can support the safe and efficient integration of these new airspace entrants.

Mr. NEHLS. Thank you, Mr. Larsen. I would like to welcome our witnesses. Thank you. Thank you all for being here. I will briefly take a moment to explain our lighting system. There are three lights in front of you: green, go; yellow, obviously, start wrapping up; and red means conclude your remarks.

I ask unanimous consent that the witnesses' full statements be included in the record.

Without objection, so ordered.

I also ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing.

Without objection, so ordered.

I also ask unanimous consent that the record remain open today for 15 days for any additional comments and information submitted by Members or witnesses to be included in the record of today's hearing.

Without objection, so ordered.

And as your written testimony has been made part of the record, the subcommittee asks that you keep your remarks to 5 minutes.

With that, Mr. Clark, you are recognized.

**TESTIMONY OF KYLE CLARK, FOUNDER AND CHIEF EXECUTIVE OFFICER, BETA TECHNOLOGIES; TYLER PAINTER, CHIEF FINANCIAL OFFICER, WISK AERO; ROBERT W. ROSE, COFOUNDER AND CHIEF EXECUTIVE OFFICER, RELIABLE ROBOTICS CORPORATION; AND GREGORY PECORARO, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS**

**TESTIMONY OF KYLE CLARK, FOUNDER AND CHIEF EXECUTIVE OFFICER, BETA TECHNOLOGIES**

Mr. CLARK. Excellent, thank you. Thank you for having me here, Chairman Nehls, Ranking Member Carson, and all the members of the subcommittee. I want to say a special thank you to Chairman Graves.

Chairman Graves is actually, I think, the only Member of this T&I group that has flown our airplane. In fact, he flew it over the

beautiful Ozarks on about a 100-degree day last summer. And one of two things is true: either he is a very good pilot, or our plane is very easy to fly. But he did a phenomenal job in the pilot seat, and my point of bringing that up is that this is real. And of course, Mr. Larsen, we were out flying in your region of the woods not too long ago doing demonstration flights. So, aviation is moving to all-electric advanced air mobility, and we at BETA are doing it in a stepwise approach.

So, on behalf of our entire industry, and BETA Technologies specifically, thanks for having me here. My name is Kyle Clark. I am the founder and CEO of BETA Technologies. We are an American aerospace company located up in Vermont. And we have gone into this industry slightly different than the balance. We are focused on moving cargo, medical, logistics things first, and then moving into urban air mobility. We are doing this with an American workforce, an American supply chain.

And I think that this next generation of innovations will fortify America's industrial base and position the United States as a country to build the future of aviation. We have got all of the things in place to do this. We need to do a few things that Mr. Carson said, which is unblock this industry with clear and unmoving goalposts, and allow the FAA to use the tools at its disposal to get through the type certification you referenced.

When most people think about urban air mobility, they think about jumping over traffic initially. This is not BETA's initial mission. As I mentioned, cargo, medical logistics is a great, low-risk, easy application to start with before going to urban air mobility. The infrastructure exists today to do this. And by increasing these transportation options, I think we can ensure that every community can benefit from these technologies.

We are a company of aviators. Everybody at BETA is either a pilot or becoming a pilot. We have got nearly 1,000 people up in Vermont, and that gives us an extreme focus on safety.

We have designed an extremely simple aircraft with a pragmatic, stepwise approach into certification. Last summer we became the first company to get one meaningful type certification on a part of the airplane, the propeller, and we are very close to doing it on the engine. Next is the airplane that Chairman Graves flew, and next is the VTOL, all in a stepwise, buildup approach.

This approach, in my belief, recognizes the readiness and the regulatory framework today to incorporate this technology in a thoughtful, safe, and methodical way. To demonstrate this, as evidenced by a few of these examples, we have flown over 100,000 miles in this class of aircraft to more than 380 airports domestically. We have actually flown in 10 different countries. We opened the Paris Air Show with American technology this year. We flew into JFK, Atlanta, Boston, all over New York City, and most importantly, to a bunch of regional airports throughout the country that hold exceptional promise.

We are heavily energized and invested in the eVTOL Integration Pilot Program, thank you for referencing that. We see that as the ability—that will be the unlock to get us in front of China. It is the low-altitude economy that is the buzz in China right now. It is facilitating the advancement of that technology at an extreme rate.

The eIPP program allows us to launch domestic applications and operations as early as next summer, next year. We need to stay on track there to get this done.

What happened in the drone industry I don't think we can let happen in the eVTOL industry. The technology is here. The leading companies in the world are in the United States. We need the FAA to show up with us to make sure that these things get deployed.

The ask here of you in Congress, you guys may represent constituents in communities that are facing real challenges. Again, these technologies can better those communities today. Technology does make aviation safer. It is a proven fact across a long period of time. Electric aviation is fundamentally safer than traditional legacy aviation. The electric aircraft that we produce and others produce here have all of the things in it for self-awareness and external situational awareness to keep planes away from each other. That is inherent and for free in modern aircraft.

We are going to certify in the United States first. That is our strategy. We are working closely with the FAA, and we are working with our domestic suppliers. We are not asking for this process to be easy. We are just asking—as you mentioned before, we are asking for the goalpost to stay steady, for people to show up and be accountable, and for the FAA to meet their compulsory timelines that we believe should be in place for responses to things when we produce statistically relevant data sets.

Mr. NEHLS. Thank you.

Mr. CLARK. I think I am over time. Thank you very much.

[Mr. Clark's prepared statement follows:]

**Prepared Statement of Kyle Clark, Founder and Chief Executive Officer, BETA Technologies**

Thank you Chairman Nehls, Ranking Member Carson, and the members of the Subcommittee on Aviation for the opportunity to testify on behalf of BETA Technologies at today's hearing titled "America Builds: The State of the Advanced Air Mobility (AAM) Industry."

The United States is at a pivotal moment in aviation history: new and emerging technologies present an unprecedented opportunity to cement American leadership in 21st-century aerospace innovation. AAM is more than a single aircraft—it's an entire ecosystem, one that BETA is actively shaping. We are building foundational components, infrastructure, and aircraft that will make the movement of medical supplies, cargo, and passengers safer, more affordable, and more accessible to communities around the world.

Success for our industry will result in safe, innovative products built right here in the U.S. and high-paying manufacturing jobs. At BETA, we have grown from an R&D company into a manufacturer. This progress is driven by American grit, a skilled workforce, and a largely domestic supply chain. The race is on for the U.S. to maintain its leadership in aerospace innovation, and meeting the challenge will require continued support from the federal government.

BACKGROUND ON BETA TECHNOLOGIES

BETA Technologies is a U.S. Original Equipment Manufacturer (OEM) based in Vermont with operations in New York, Washington, D.C. and North Carolina, working to redefine the aerospace industry. BETA's mission is to improve the lives of everyday Americans with practical, high-impact operations, including medical transport, organ delivery, emergency logistics, and regional passenger mobility. Our customers are eager to incorporate our products into their fleets, including:

- *Bristow*, a leader in vertical flight that provides transport for commercial and government customers, expects to use BETA's aircraft to safely and reliably

move passengers and time-sensitive cargo between regions in Louisiana, Texas, Florida and beyond.
- *UPS* plans to use our aircraft for point-to-point logistics to drastically reduce complexity and cost for missions and enable more Premium Direct service to rural areas.
- *Ryan Air* expects to enhance its services in Alaska including the delivery of food and medical supplies to communities not served by roads.
- *United Therapeutics* plans to deliver organs safely and quickly, and *Metro Aviation* plans to provide various missions including inter-hospital patient transport.
- *Republic Airways* has partnered with BETA to integrate AAM into regional passenger air travel as the airline expands service and lowers the cost of air travel.

In addition to aircraft, BETA is designing and manufacturing the core technologies that will service civil and defense markets, both in the air and under the sea. We are taking a strategic, stepwise approach to the certification of these products, starting with our electric motors, then our fixed-wing airplane, and ultimately our vertical takeoff and landing (VTOL) aircraft. This portability of technologies unlocks flexibility to innovate future generations of aircraft, which will bring important innovations to the U.S. aerospace industry. Additionally, we are taking a stepwise approach to both certification and market entry, recognizing where the regulatory readiness is today and what efforts need to be further developed to enable the future of AAM.

To this end, BETA has partnered with GE Aerospace to co-develop hybrid electric turbogenerators that we believe will bring significant enhancements to range, payload, speed, and lower cost of operations compared to existing aircraft. This complements our existing contracts with the U.S. Department of Defense to support operational needs through longer ranges, lower logistics dependency, and higher reliability.

*U.S. Manufacturing & Supply Chain*

Since our founding, BETA has grown to more than 900 employees across North America. In 2023, we opened a 188,000 square foot production facility, which is designed to support the production of more than 300 aircraft annually at maturity. Our supply chain is intentionally domestic: more than 85% of our sourcing is U.S.-based, and our suppliers support roughly 40,000 American jobs. BETA's products include:

*Electric Motors (H500 series)*: A simple design featuring dual redundancy and significantly fewer parts than a comparable legacy aircraft engine. We sell our motors to established aerospace and defense OEMs, as well as new market entrants designing electric aircraft.

*ALIA CTOL (CX300)*: Designed for all-weather operations, our fixed-wing aircraft transports six people or 200 cubic feet of cargo plus two crew members. It leverages existing airport infrastructure and flies in accordance with existing airspace procedures to enable rapid adoption. The CTOL is currently being certified under FAA Part 23 certification. Our backlog for this aircraft consists of 331 units, of which 131 units are for firm orders and 200 units for options. This represents an orderbook of over $1.3B in aircraft, all contingent upon FAA certification. This backlog continues to grow.

*ALIA VTOL (A250)*: Our VTOL enables operations from locations with or without runway access with lower operating costs. We believe our simple and efficient design enables a clear path to certification. The VTOL is being certified under Part 21.17(b). Our backlog for this aircraft consists of 560 units, of which 158 units are for firm orders and 402 units are for options. This represents a domestic and export order book of $2.5B in aircraft. This backlog continues to grow.

*ALIA Defense VTOL (MV250)*: The military variant of our VTOL enables long-range, low heat and noise signature, and the potential to operate autonomously. It is expected to carry up to one ton (approximately 2,000 pounds) with a range of over 250 nautical miles at a significantly lower operating cost than existing helicopters. This will give the U.S. warfighter a definitive tactical advantage over our adversaries.

*Larger Aircraft*—We are developing a larger aircraft initially designed to carry up to 19 passengers. We believe this product will create new opportunities for operators to realize the economic and low noise benefits of electric aviation in large aircraft and bring increased access to communities who rely on Essential Air Service.

*Charge Cube*—This is the central component of BETA's charging infrastructure. It utilizes the CCS–1 charging standard, allowing for compatibility with a broad range of electric aircraft. The Cube is certified by Underwriters Laboratories ("UL") and is Buy America, Build America compliant for FAA Airport Improvement Program (AIP) funding.

*Demonstrating Safe, Reliable Flight Operations for Modernization*

Public acceptance is critical for AAM to meaningfully scale. To demonstrate the safety and reliability of electric flight, BETA has completed thousands of flights in 10 countries and on three continents, logging more than 100,000 nautical miles and landing at over 380 airports, including in Class B and C airspace. This includes the world's first all-electric passenger flight into John F. Kennedy International Airport, as well as flights into Atlanta's Hartsfield-Jackson International Airport and other major cities, showcasing seamless integration into the National Airspace System (NAS). Our ALIA CTOL opened the 2025 Paris Air Show in front of over 50,000 aerospace professionals with a demonstration of its quiet operation, performance, and agility.

The FAA's mission is to maintain the safest airspace in the world, and as a company of aviators, we share that commitment. That's why BETA is intensely focused on building the safest aircraft possible, recognizing that advancing technology strengthens both safety *and* U.S. leadership in a competitive global market. Advancements in energy density, thermal management, and battery monitoring enable longer, more reliable flights with lower risk of failure. By expanding the boundaries of battery design and testing, we enhance aircraft performance while adding redundancy and safeguards that make flight inherently safer. This demonstrates how safety and innovation together support America's competitive advantage.

As the FAA advances efforts to modernize the NAS and air traffic control, BETA's stepwise approach to AAM—beginning with a piloted, fixed-wing aircraft—provides real-world data and operational experience that inform these efforts. These early operations are helping the NAS evolve safely and efficiently to accommodate increasingly advanced aircraft.

*Cost Efficiencies for Commercial & Government Customers*

BETA's aircraft represent significant cost advantages over new conventional aircraft based on internal estimates. Our CTOL flight into JFK used roughly $7 in energy costs, about a 95% savings compared to fuel costs of a combustion aircraft. Additional efficiencies come from substantially lower maintenance needs due to our simplified design.

In addition to our commercial customers, BETA has demonstrated the cost efficiencies of AAM to the federal government. We partnered with the Administration for Strategic Preparedness and Response (ASPR), an agency within the U.S. Department of Health and Human Services (HHS), to deploy enabling infrastructure that will support public health preparedness along the gulf coast, including in Mississippi, Georgia, Florida, Arkansas, and Alabama. This infrastructure will enable VTOLs to transport medicine, patients, and equipment in a disaster-response role in hurricane-prone areas and keep rural communities safe.

BETA is also partnering with U.S. Army Combat Capabilities Development Command (DEVCOM) to advance our flight capabilities and testing program, and further develop real-world, in-theater applications for this technology. This work comes on the heels of several aircraft deployments for DOD, in which BETA became the first AAM company to carry out a simulated CASEVAC and the first manned AAM aircraft to take part in a full-scale military exercise. Our flight demonstrations for DOD have showcased the ability to deliver military supplies while lowering the cost of transportation, all at a 100% dispatch rate.

We also have a subcontract with General Dynamics Applied Physical Sciences, manufacturing and delivering hardware and associated engineering services, in support of a Defense Advanced Research Projects Agency ("DARPA") program for undersea vehicles.

*Revitalizing General Aviation Infrastructure*

To support AAM entry into service, BETA has developed and is manufacturing infrastructure for our customers and other AAM OEMs, including Archer Aviation. This infrastructure uses an existing charging standard in use by other aircraft OEMs. Working with our customers and government partners—including states like Utah, Michigan, and Ohio—BETA is creating a network at airports across the country, with over 55 sites so far.

State and local governments play a critical role in this build-out: modest upgrades such as installing charging systems can prepare our nation's existing public airports for AAM operations and accelerate nationwide adoption, while also driving job

growth, economic development, and expanded transportation options in rural communities.

### CONGRESS CHARTING THE COURSE FOR AVIATION INNOVATION

BETA applauds Congress for passing the bipartisan FAA Reauthorization Act of 2024 (P.L. 118–63) to bring safety improvements to aviation, invest in airport infrastructure, and promote innovation. For the first time ever, a FAA Reauthorization bill included a title dedicated to AAM, recognizing the importance of new technologies for enabling U.S. leadership in aviation.

The legislation contained notable provisions for our industry, including: providing for first time ever the ability for airports to utilize AIP funding for AAM infrastructure; expanding workforce development funding to prepare future pilots and maintainers; affirming the ability for VTOLs to utilize heliports; requiring the FAA to promulgate the powered-lift Special Federal Aviation Regulation (SFAR) in a timely manner; and, extending and expanding the BEYOND program.

Finally, the legislation ensured the FAA put rulemaking and policies in place to bring this innovation to market. We welcome this progress and remain committed to working with Congress and the FAA to ensure timely implementation.

### FAA & DOT PROGRESS TO BRING AAM TO MARKET

The current Administration has demonstrated strong support to enable the AAM industry, and a commitment to U.S. leadership in aviation. The eVTOL Integration Pilot Program (eIPP), established by U.S. Transportation Secretary Sean Duffy following the Executive Order titled "Unleashing American Drone Dominance," will accelerate real-world operations for AAM. As a U.S. OEM partner, BETA is supporting state, local, tribal and territorial governments in their applications, alongside our customer-operators with proven safety records, to meaningfully demonstrate the wide range of AAM benefits to communities both urban and rural.

Additionally, the FAA has taken meaningful steps to improve the certification process and ensure entry into service for AAM applicants. This includes: timely promulgation of the SFAR and a straightforward path to pilot training with dual controls; the issuance of AC 21–17–4, Type Certification of Powered Lift, which removes the need to publish airworthiness criteria for each AAM applicant and expedites the certification basis for applicants; and, announcement of the National Aviation Authorities' roadmap for AAM aircraft type certification, which aims to make a safer, more efficient path for domestic applicants.

Finally, we look forward to the release of the U.S. Department of Transportation's (DOT) Interagency Working Group report. BETA has been pleased to collaborate with the DOT throughout the stakeholder engagement process, and we look forward to the recommendations in the report to ensure the successful scaling of the AAM industry.

### MAINTAINING GLOBAL LEADERSHIP IN AEROSPACE

U.S. market leadership in AAM is vital for our economic, national security, and global interests. At the same time, other countries, particularly China, are positioned to advance more quickly. With clear goalposts, stable policy, and adequate resourcing from the FAA, BETA's propulsion systems and aircraft will be certified here in the U.S. first, increasing the domestic supply chain and aerospace jobs. Without that, other nations will move ahead, and foreign competitors will fill the gap.

The greatest challenge for emerging technologies is the uncertainty around when and how policy and guidance is developed. When regulatory expectations shift without transparent rationale or a risk-proportionate basis, entry into service timelines inevitably slip, driving significant financial impacts across our businesses.

Likewise, certifying new technologies—including high energy-density batteries, high torque-density electric motors, distributed electric propulsion systems, and fly-by-wire flight controls—requires specialized expertise that is not yet widespread within the FAA. Given these workforce constraints, it is increasingly important for the FAA to use its technical resources effectively. The FAA's existing delegation system—intended to allow qualified, authorized industry experts to make compliance determinations on routine and low-risk activities—is not being fully applied to new technologies. New applicants are often asked to "build credibility" before receiving delegation, even when they employ experienced, FAA-authorized designees who meet all established qualification and oversight requirements. This lack of clarity creates delays for new OEMs without improving safety.

CONCLUSION

U.S. OEMs like BETA are leading this next generation of aviation and have the technology to bring our aviation system into the 21st century; now, we need the federal government's help to get it across the finish line. As Congress considers policy to ensure that the U.S. remains the safest airspace in the world while also maintaining its leadership positioning, BETA recommends the following:

- *More dynamic efforts to recruit, retain, and train* a highly skilled technical workforce to ensure the FAA can effectively evaluate and oversee innovative technologies;
- *Increased predictability and transparency* so that OEMs have clearer timelines for certification and entry into service; and,
- *More consistent use of delegation* to allow FAA specialists to focus their limited bandwidth on truly safety-critical issues, maintain rigorous oversight, and support timely certification of innovative U.S. products.

I appreciate the subcommittee's leadership and for the opportunity to testify and look forward to working with you to ensure that the promise of U.S. innovation in aviation becomes a reality.

Mr. NEHLS. Yes, thank you.

Mr. Painter, you are recognized.

## TESTIMONY OF TYLER PAINTER, CHIEF FINANCIAL OFFICER, WISK AERO

Mr. PAINTER. Good morning, Chairman Nehls, Ranking Member Carson, and members of the committee. Thank you for this opportunity to testify about the state of advanced air mobility and the industry, and how the United States can continue to lead this emerging global market.

My name is Tyler Painter, CFO of Wisk Aero, an American AAM company committed to making safe, everyday flight available for everybody. Just like the U.S.-led previous advancements in aviation, I am confident that today's investments from industry and the focus in AAM are laying the foundation for the U.S. to lead this technology revolution in mobility.

Thanks to the recent efforts of this committee and the regulatory efforts of the FAA and the DOT, the foundational state of the U.S. AAM industry is strong. However, for the U.S. to lead AAM and aviation globally, we must also prioritize the development of a regulatory framework to enable autonomy. The U.S. AAM national strategy, implemented through the new Electric Vertical Takeoff and Landing and AAM Integration Pilot Program, the eIPP, will be a key vehicle to inform that framework.

Wisk, a Boeing subsidiary, aims to be the first to design and manufacture an FAA-certified autonomous passenger-carrying air taxi. Safety is at the core of everything that we do. Our learnings over the last 15 years and six generations of aircraft will culminate in the safe integration of our Gen 6 aircraft into the National Airspace System.

Autonomy is not a new or radical advancement in aviation, but rather an evolution of what already exists today. Increasing levels of autonomy have and will continue to improve safety. Most functions on commercial aircraft involve automation today. And while Wisk aircraft do not have a pilot on board, human oversight remains critical. Remote crewmembers will supervise and communicate with air traffic control. Our aircraft will initially fly on predetermined routes and predetermined destinations. This approach

will ensure predictability and safe integration of our aircraft into today's airspace.

We are excited to launch our service in the U.S., bringing time savings to commuters and new workforce opportunities to local communities. Last year, we announced a partnership with the city of Sugar Land, Texas, to identify and assess locations for vertiports and potential training and maintenance facilities at Sugar Land Regional Airport, which will serve as a gateway for establishment of a larger Wisk network throughout the Greater Houston area.

The AAM industry is fortunate to have a forward-leaning FAA Administrator who prioritizes safety and innovation. Administrator Bedford and DOT Secretary Duffy's willingness to work with industry and chart regulatory pathways for new technologies is crucial. Our partnerships with those like Houston are strengthened by this administration's focus on AAM and the creation of the eIPP. Wisk looks forward to participating in this program.

Wisk also commends this committee and the administration's focus on modernizing the National Airspace System by building the brandnew air traffic control system. As Chairman Nehls has stated, this effort is about more than modernizing ATC, but about modernizing the entire NAS for the existing and future operations. Fortunately, there is existing technology that can both enhance the safety of today's airspace and future-proof it for autonomous operations. Wisk and our affiliate, SkyGrid, are architecting modern airspace management tools to reduce the burden on air traffic control and safely integrate increasingly autonomous aircraft into the NAS. This includes moving our systems into the digital era, embracing open architectures and digital communications, and implementing a new set of innovative flight rules to take full advantage of today's technology.

I would like to thank this committee for its bipartisan work on the 2024 FAA Reauthorization Act. A key provision was the creation of the Center for Advanced Aviation Technologies, the CAAT, in Texas. Wisk looks forward to unlocking key autonomy elements through our work with CAAT and with the eIPP.

In conclusion, I am confident the U.S. will remain the global leader in aviation, just as we have over the first century of aviation, and that we will define and lead the global AAM industry. To achieve this, we must remain focused and create and exercise a robust and practical regulatory framework that also enables autonomy. Wisk looks forward to continuing to work with you to make safe, everyday flight a reality for everyone.

Thank you, and I look forward to your questions.

[Mr. Painter's prepared statement follows:]

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**Prepared Statement of Tyler Painter, Chief Financial Officer, Wisk Aero**

Chairman Nehls, Ranking Member Carson, and Members of the Committee, thank you for this opportunity to testify about the state of the Advanced Air Mobility (AAM) industry and how the United States can continue to lead this emerging global market.

My name is Tyler Painter, CFO of Wisk Aero, an American AAM company committed to making safe, everyday flight a reality for everyone. Just like the U.S. led previous advancements in aviation, I am confident that today's investments and

focus on AAM are laying the foundation for the U.S. to lead this technological revolution in mobility.

Thanks to the recent work of this Committee and regulatory efforts of the Federal Aviation Administration (FAA) and the Department of Transportation (DOT), the foundational state of the U.S. AAM industry is strong. However, for the U.S. to lead AAM and aviation globally, we must also prioritize the development of a regulatory framework to enable autonomy. The U.S. AAM National Strategy, implemented through the new Electric Vertical Takeoff and Landing (eVTOL) and AAM Integration Pilot Program (eIPP), will be a key vehicle to inform that framework.

Wisk, a Boeing subsidiary, aims to be the first to design and manufacture an FAA-certified, autonomous passenger-carrying air taxi. Safety is at the core of everything we do. Our learnings over fifteen years and six generations of aircraft will culminate in the safe integration of our Gen 6 aircraft into the National Airspace System (NAS).

Autonomy is not a new or radical advancement in aviation, but rather an evolution of what exists today. Increasing levels of autonomy have and will continue to improve safety. Most functions on commercial aircraft involve automation today. While our Wisk aircraft do not have a pilot onboard, human oversight remains critical. Remote crewmembers will supervise and communicate with Air Traffic Control (ATC). Our aircraft will initially fly along pre-determined routes to pre-determined destinations. This approach will ensure predictability and safe integration of our aircraft into today's airspace.

We are excited to launch our service in the U.S., bringing time savings to commuters and new workforce opportunities to local communities. Texas is one location where we plan to operate. Last year, we announced a partnership with the City of Sugar Land, Texas to identify and assess locations for vertiports and potential training and maintenance facilities at Sugar Land Regional Airport, which will serve as a gateway for the establishment of a larger Wisk network throughout the Greater Houston region.

The AAM industry is fortunate to have a forward-leaning FAA Administrator who prioritizes safety and innovation. Administrator Bedford and DOT Secretary Duffy's willingness to work with industry to chart regulatory pathways for new technologies is crucial. Our partnerships, like those in Houston, are strengthened by this Administration's focus on AAM and the creation of the eIPP. Wisk looks forward to participating in this program alongside our partners.

Wisk also commends this Committee and the Administration's focus on modernizing the NAS by building the Brand New Air Traffic Control System. As Chairman Nehls has stated, this effort is about more than modernizing ATC, but about modernizing the entire NAS for existing and future operations. Fortunately, there is existing technology that can both enhance the safety of today's airspace and future-proof it for autonomous operations. Wisk, and our affiliate SkyGrid, are architecting modern airspace management tools to reduce the burden on ATC and safely integrate increasingly autonomous aircraft into the NAS. This includes moving our system into the digital era, embracing open architecture systems and digital communications and implementing a new set of innovative flight rules to take full advantage of today's technology.

I would also like to thank this Committee for its bipartisan work on the 2024 FAA Reauthorization Act. A key provision was the creation of the Center for Advanced Aviation Technologies (CAAT) in Texas. Wisk looks forward to unlocking key autonomy elements through both the CAAT and eIPP.

In conclusion, I am confident the U.S. will remain the global leader in aviation, and that we will define and lead the global AAM industry. To achieve this, we must create and exercise a robust and practical regulatory framework to enable autonomy. Execution of the AAM National Strategy, through the eIPP, will enable early operations here in the U.S. and provide insights needed to inform new policies. Wisk looks forward to continuing to work with you to make safe, everyday flight a reality for everyone. Thank you, and I look forward to your questions.

Mr. NEHLS. Thank you, Mr. Painter.

Mr. Rose, you are recognized.

**TESTIMONY OF ROBERT W. ROSE, COFOUNDER AND CHIEF EXECUTIVE OFFICER, RELIABLE ROBOTICS CORPORATION**

Mr. ROSE. Thank you, good morning. My name is Robert Rose, CEO and cofounder of Reliable Robotics. Thank you, Chairman Nehls. Thank you, Ranking Member Carson—congratulations—for

the opportunity to speak. Also, thank you to Chairman Graves and Ranking Member Larsen, as well, for your contributions to the aviation industry. They are greatly appreciated.

It really is an honor to be here. I am very excited to discuss aviation automation and autonomy, topics that are very important to me and, I believe, very important to the Nation. In fact, I believe that aviation autonomy is going to be one of the most important technology advancements for the United States this century. Let me explain why.

When I was a kid, I remember reading that aviation systems and aviation technology were one of the top five exports of the United States. And this is actually still true today. But for it to remain this way, we must continue to drive forward new safety-enhancing technology and enhancements for aircraft, including autonomy, so that we can continue to drive forward to be a prime exporter of aviation systems throughout the 21st century.

We started Reliable Robotics because of the importance of this technology to the future of the United States for both our long-term economic security, but also our national security. And we are committed to certifying autonomous systems and safety-enhancing technologies in the United States with the FAA. Founded in 2017, we now have over 150 employees in 23 States.

Reliable is developing technologies that will improve the safety and utility of commercial as well as military aircraft. These technologies include continuous autopilot engagement, terrain-aware navigation and flight planning, as well as DAA, or Detect and Avoid, and I will speak more on these in a moment.

But I want to share too I am also, in addition to Reliable Robotics, I am also the CEO of Reliable Airlines, a regional air cargo carrier based in Albuquerque. And we serve communities in New Mexico, Colorado, and the Four Corners region with air cargo services. We have now flown over 5,000 flights and have transported millions of pounds of goods over our 3 years of operation.

It is important to understand that regional air cargo is an essential lifeline for small towns and rural communities in this country. I am proud that our small airline has been able to support people and small businesses, connecting them to the world with next-day delivery services.

But regional air cargo carries greater risks than most other forms of commercial aviation. These aircraft are operated single pilot, at lower altitudes, closer to terrain, and in substantially more adverse weather conditions than large jets, and all with significantly less automation. Regional air cargo pilots will tell you that what they do is real flying.

The technology that we are certifying with the FAA will substantially enhance the safety of these operations, and our airline in Albuquerque will be the first place we deploy it. Continuous autopilot engagement and always-on autopilot that is enabled for taxi, takeoff, and landing will substantially reduce the risk of loss-of-control accidents, or LOC, which is one of the most common causes of fatal accidents in aviation.

Number two, our terrain-aware navigation and flight planning system—put simply, a flight management system that knows where the ground is—will reduce the risk of Controlled Flight Into

Terrain, CFIT, which is another one of the most common and highly preventable causes of accidents in aviation.

Finally, our DAA, or Detect and Avoid system, which uses our in-house-developed radar as well as the FAA's Airborne Collision Avoidance System, or ACAS X, algorithm will prevent mid-air collisions and save lives.

Taken separately, these technologies will go a long way toward enabling regional air cargo to reach levels of safety that rival the 121 world. But taken together, you can operate an aircraft autonomously, and that is where things get really interesting.

Autonomy and regional air cargo will spark a revolution that will enable us to connect even more communities and provide levels of service that exceed what we have today. And this same technology will also help logistics operations for the military. To paraphrase Admiral Paparo, he said recently, "We should never send a human being to do what a machine can do." Uncrewed commercial airlift in a contested logistics environment would enhance our ability to sustain, and I am proud to report that we recently won a contract with the U.S. Air Force to deploy our technology for INDOPACOM starting next year.

I want to thank this committee for giving attention to this important topic, but I also want to use this platform to give a thanks to the FAA. Their support for our program is crucial to our success, to our Nation's success. Safety is a team sport, and it is because of this unique public-private partnership that we have in aviation that we are able to move aviation safety forward. With a continued focus on automation and autonomy, I look forward to a future where the U.S. continues to be a driving force in the aviation industry, well into the 21st century. Thank you.

[Mr. Rose's prepared statement follows:]

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**Prepared Statement of Robert W. Rose, Cofounder and Chief Executive Officer, Reliable Robotics Corporation**

Chairman Nehls, Ranking Member Carson, and members of the House Transportation & Infrastructure Committee, Subcommittee on Aviation:

Thank you for holding today's hearing to review how Congress can continue supporting innovation to enhance United States leadership in aviation safety. Through passage of the FAA Reauthorization Act of 2024, and the historic investment in air traffic control (ATC) modernization, this hearing offers a unique opportunity to discuss how we maximize these developments to eliminate accidents and accelerate innovation. My testimony will focus on the historic advancements in aviation safety-enhancing technologies that are here today and ready to be integrated into the National Airspace System (NAS). These technologies will prevent aircraft accidents and create a safer NAS for all users. Reliable Robotics is proud to be producing and certifying safety-enhancing products in the United States, and we appreciate the significant bipartisan efforts to complete FAA reauthorization. Our nation's leadership role in aviation is not guaranteed, and the focus throughout the FAA reauthorization bill on accelerating advanced air mobility (AAM), including aircraft autonomy, provides a forward-looking flight plan for the Federal Aviation Administration (FAA). Thank you for your commitment to public service and for including Reliable Robotics in this hearing.

Given the timing of today's hearing, I would like to recognize the significant efforts and personal sacrifices of all government employees, including air traffic controllers and those performing safety-critical functions at the FAA during the recent government shutdown. Reliable appreciates and supports the recent bipartisan efforts to introduce the Aviation Funding Solvency Act, which would ensure that during any future shutdowns, the NAS continues to operate safely, and the dedicated professionals who manage our nation's airspace continue to be paid. Certainty in the

operations and funding of government are crucial to companies such as Reliable, and have a direct impact on United States leadership.

Reliable Robotics was founded in 2017 to develop and bring to market aviation safety-enhancing technologies, including auto-land, auto-taxi, auto-take off, automated collision avoidance, in the air and on the ground, fully automated contingency management and full aircraft autonomy. These technologies will prevent the most common causes of fatal aviation accidents and save lives. For the commercial aviation market the Reliable Autonomy System (RAS) will enable FAA-certified remotely piloted air cargo operations which will expand service to small towns and rural communities. The RAS also includes sophisticated collision avoidance technology, made possible by our in-house developed phased array radar that will provide significant safety benefits to all NAS users.

Thanks to the FAA's dedication and the leadership of Administrator Bedford and Deputy Administrator Rocheleau, we are making significant progress on bringing certified autonomy to the Cessna 208 Caravan and will deliver transformational safety benefits in the very near future. The agency has agreed to the certification basis, detailed plans and means of compliance for our project, and members of the FAA and Reliable teams are working together on a near-daily basis. The Caravan is an 8,000-pound turboprop that is manufactured by Textron Aviation in Independence, Kansas. More than 3,000 Caravans have been delivered. This aircraft is how small communities and businesses across America receive next-day shipments, including critical medical supplies.

In addition to our work certifying the RAS and related technologies, we operate Reliable Airlines, a FAA Part 135 commercial air carrier based in Albuquerque, New Mexico that provides daily air cargo service to small and rural communities. The airline flies six Cessna Caravans, and over the next two years will become the first commercial air carrier in the United States to operate remotely piloted cargo flights that are fully integrated into controlled airspace.

Reliable is also incredibly proud to support the Department of War in its efforts to leverage dual-use aircraft autonomy for contested logistics. In his November 10 remarks announcing significant acquisition reforms to accelerate innovation, Secretary of War Pete Hegseth said:

> "We must be able to fight in this contested environment and these reforms will ensure that we can. We'll start by elevating contested logistics as a key prioritized operational problem. We're going to work side by side with our industry partners to come up with innovative solutions through experimentation and rapid prototyping and ensure that it's properly funded."

This focus on contested logistics is also shared by our military leaders in the Indo-Pacific. In testimony before the Senate Armed Services Committee, Admiral Samuel Paparo, Commander, U.S. Indo-Pacific Command said uncrewed logistics enables him to "never send a human to do something a machine can do." We are accelerating our efforts to deliver this capability to warfighters, and given that the Caravan is in-production today, Reliable is uniquely positioned to move quickly. Recently Reliable signed a $17.4 million United States Air Force contract to operate our autonomous Cessna Caravan with the Pacific Air Forces starting next year, and we are honored to support our warfighters with this transformative contested logistics capability.

The military is focused on Reliable's aircraft autonomy technology because it has a clearly defined certification path with the FAA and integrates seamlessly into all controlled airspace. Unlike costly and exquisite military UAS, the dual-use autonomous Caravan is ready to go right now and for a fraction of the cost. With a manufacturing and supply chain that is Made in America, Reliable is ready to meet the urgent need for contested logistics capabilities. The work of this Subcommittee to use FAA reauthorization as an opportunity to bring all agency lines of business together in certifying aircraft autonomy has a direct connection to United States national security, both close to home, and in the vast Indo-Pacific region.

## Implementing FAA Reauthorization: Airspace Integration and Collaboration

Since passage of the 2024 FAA reauthorization bill, Reliable has seen significant progress in how the Air Traffic Organization (ATO) and Flight Standards (FS) are collaborating on our certification project. In addition to the FAA Aircraft Certification Service (AIR) certifying equipment such as Reliable's flight computers and actuators, ATO and FS must be engaged to enable remotely piloted aircraft operations in controlled airspace. In the past, the lack of this collaboration was often seen as an impediment to the FAA leaning into innovative safety technologies. FAA reau-

thorization and the detailed focus on AAM and aircraft autonomy are having an impact and allowing companies like Reliable to move faster.

While there is more work to do on full implementation, sections 206 and 207 of the reauthorization bill provided the FAA with a detailed framework to improve the integration of remotely piloted and other AAM operations into the NAS. Standing up the Airspace Modernization Office (AMO) and transferring AAM responsibilities to the FAA's aviation safety organization are bringing leadership-level focus to innovation that was previously lacking.

As these organizational changes occur at the FAA, newly created integration functions must have leadership buy-in and the resources to succeed. Previous experiences have shown that creating stand-alone FAA integration functions for innovative technologies that are disconnected from leadership and not fully resourced will not succeed, potentially delaying certification activities. With the intense global competition the United States is facing, we cannot afford to be second in the race to high-reliability aircraft autonomy, and must remain focused on continuing to build an organizational structure at the FAA that is aligned with this goal.

This is why Reliable believes that standing up the AMO in the near-term is crucial to meeting congressional intent for the office to lead on all aspects of NAS modernization, especially those focused on the integration of innovative aviation safety technologies. To achieve its full potential, the organization must have the authority and budget to acquire and develop new capabilities, beyond the existing ATO and legacy NextGen portfolios.

In addition, under section 229, the reauthorization bill creates a leadership-level steering committee that brings together the agency lines of business responsible for integrating large uncrewed aircraft systems (UAS), like the Cessna Caravan into the NAS. Part of the group's mandate is creating or updating the FAA's strategy for integrating advanced aviation technologies. To date, the FAA has provided industry stakeholders with limited updates on this committee. We respectfully request that the agency establish a more robust process to communicate the status of this committee and identify opportunities for inputs from industry.

Finally, we appreciate the FAA's recent call for nominations to launch the "Unmanned and Autonomous Flight Advisory Committee" as required by section 916 of the reauthorization bill. This committee will provide a structured forum for industry experts to work collaboratively with the FAA executives on policy and guidance that supports safe autonomous aircraft operations. Reliable was honored to volunteer our expertise for this Committee and we are hopeful that the selection process can be completed in the very near future.

Taken together, all of these FAA reauthorization provisions clearly demonstrate that Congress understands the importance of building a culture at the FAA that fully supports innovative aviation safety technologies. Reliable is fully committed to certifying our products in the United States and we appreciate this Subcommittee's continued focus on oversight and implementation that will enable our team to move faster in reducing preventable accidents.

## IMPLEMENTING FAA REAUTHORIZATION: AIRCRAFT EQUIPAGE

We applaud the significant focus and investments from Congress on pressing ATC staffing needs and the technology and infrastructure that supports controllers. The level of commitment from across government and industry stakeholders to these efforts underscores how critical a modern ATC system is to United States competitiveness and national security. The technologies Reliable is certifying, especially in the area of Detect and Avoid (DAA) will prevent mid-air collisions and have safety-enhancing benefits for all airspace users. However to achieve these benefits across the NAS, we must re-focus on the equipment (i.e. equipage) of all airborne vehicles operating in the system.

Starting in 2020, all commercial aircraft and those general aviation aircraft operating in Class A, B, and C airspace and certain class E airspace are required to be equipped with Automatic Dependent Surveillance Broadcast (ADS–B) technology. ADS–B Out is a system that broadcasts an aircraft's precise location to ground stations and other aircraft equipped with an ADS–B In capability, enabling precision tracking by ATC and directly enhancing safety.

Aircraft equipped with optional ADS–B In technology also benefit from the Traffic Information Service-Broadcast (TIS–B), which enhances traffic awareness by displaying the location of nearby aircraft being tracked by ATC radar but not equipped with ADS–B Out. In addition, the Flight Information Service-Broadcast (FIS–B) provides important aeronautical information to the cockpit, including graphical weather.

Despite these safety benefits, the Government Accountability Office found that only 71% of aircraft currently registered in the U.S. were equipped with properly functioning ADS–B Out technology. This means that approximately 65,000 aircraft in the U.S. are presently unequipped. While these aircraft cannot operate in airspace with ADS–B mandates, or require specific exemptions, the lack of broader equipage limits safety benefits, especially at thousands of non-towered airports in the United States.

In addition to unequipped aircraft, other vehicles in the NAS, including unmanned free balloons, ultralights, and gliders, are not required to be ADS–B Out equipped, either because they were not certified with an electrical system or because of the flight rules they operate under. Providing low-cost opportunities to equip these vehicles with ADS–B Out or electronic conspicuity technology will enhance safety and improve airspace integration.

We thank members of this Subcommittee recognizing the importance of ADS–B Out equipage in the FAA reauthorization bill. Section 808 requires the FAA to complete a detailed study on current equipage levels and develop recommendations based on the data. In addition, section 810 requires the agency to report on its progress in creating an approval path for lower-cost and portable ADS–B Out technology. Given the impact these provisions have on aviation safety, we respectfully request that this Subcommittee engage the FAA to make certain that all applicable deadlines are met.

Beyond these important provisions, there is more that Congress can do to rapidly expand ADS–B Out equipage across the NAS. For example, funds should be appropriated to reinstate the successful ADS–B Out rebate program. Leading up to the 2020 ADS–B mandate, this program delivered rebates to 20,000 aircraft owners. Reinstating the program to equip 50,000 aircraft with ADS–B Out at an inflation-adjusted value will incentivize operators to invest in safety-enhancing technology. In addition, FAA accepted standards for low-cost and portable versions of ADS–B Out and other electronic conspicuity technologies should be prioritized to ensure that we break down barriers to the increased adoption of this technology.

In addition, Reliable welcomes efforts such as H.R. 4146, the Pilot and Aircraft Privacy Act of 2025 that provides robust privacy protection to ensure ADS–B data is used only for air traffic and aviation safety purposes. Advancing legislation or FAA policy that offers these protections will remove a barrier to broader ADS–B adoption.

## Leveraging ATC Modernization to Enhance Safety

Reliable Robotics appreciates the historic $12.5 billion investment in ATC modernization and the crucial oversight work this Subcommittee is performing. The FAA operates the busiest and most complex airspace in the world with more than 45,000 daily flights operating to over 5,000 public use airports. Highly trained and skilled controllers manage 16 million flights each year and deserve the most current and innovative safety-enhancing technologies to perform their jobs. To maintain United States leadership in aviation, there must be a renewed focus on leveraging the tremendous innovation from the AAM industry to enhance safety for all airspace users. For example, Reliable is leading efforts on industry consensus standards for DAA and helping to chart a path forward for Digital Flight. Connecting these efforts to the momentum behind ATC modernization is crucial, and something Reliable is honored to be a part of.

The initial ATC modernization investment provided through budget reconciliation is a unique opportunity to focus not only on safety-enhancing technologies available today, but also future technologies that will enable a safer ATC system which can accommodate new forms of air transportation and connect more communities across our nation. Reliable believes that bringing safety-enhancing technology and autonomy to existing aircraft like the Cessna Caravan is the quickest path to connecting more rural communities with air service, leveraging our more than 5,000 existing public-use airports, and fully integrating these capabilities into the NAS.

One of the most important things aviation stakeholders should focus on to achieve these goals is completing the development of the FAA's Airborne Collision Avoidance System X (ACAS X) technology, which is a safety-enhancing replacement for the existing Traffic Alert and Collision Avoidance System II (TCAS), and must be a top priority.

ACAS X leverages next generation collision avoidance logic and algorithms to provide improved alerting to pilots while reducing unnecessary alerts. (Nuisance alerts limit TCAS effectiveness, especially on approach to a busy airport). The technology also features variants that provide enhanced collision avoidance technology to heli-

copters, electric vertical take off and landing aircraft, uncrewed aircraft systems and smaller general aviation aircraft.

For aircraft operations today, and remotely piloted operations in the near future, sophisticated DAA technology will enhance safety and enable airspace integration. Making investments in the technical standards and guidance materials needed to bring this technology to market, and carefully reviewing existing equipage requirements for future collision avoidance systems is crucial to enhancing safety.

While the FAA has been funding research and development work on ACAS X since 2008, and significant progress has been made, delays continue to occur due to shifting agency priorities. Leveraging the historic focus on ATC modernization, Congress should prioritize and adequately resource the FAA ACAS X program to complete the development, standardization and implementation of this safety-enhancing technology. Specifically, the development and standardization of ACAS Xr for rotorcraft and the enhancement of ACAS Xu will enable new forms of air mobility and provide improved collision avoidance capabilities closer to airports.

Recently, the FAA published draft Technical Standard Orders (TSOs) that will implement the latest industry consensus standards on ACAS X and provide a direct certification path for DAA capabilities that leverage air-to-air radar. The Reliable team includes recognized industry leaders in radar design and development, and with these TSO updates we can accelerate our work to certify the next generation of collision avoidance technology. We thank the FAA for working across lines of business to advance these crucial TSO updates.

We also respectfully request that this Subcommittee evaluate all policy options to accelerate ACAS X adoption across aircraft already equipped with TCAS II. The improved collision avoidance algorithms that are the foundation of ACAS X can leverage existing TCAS antennas installed on aircraft. This provides a direct upgrade path that will enhance aviation safety and deliver improved collision avoidance capabilities to all NAS users, especially closer to airports and in terminal areas where TCAS performance is limited.

## UPGRADING NAS COMMUNICATIONS INFRASTRUCTURE

The ATC modernization investments contained in H.R. 1 also include $4.75 billion for FAA telecommunications infrastructure and systems replacement. Completion of the FAA's work to transition to a Voice over IP Communications Enterprise (VoICE) for its ATC communications infrastructure should be a top priority.

Including a requirement for a modern ground-to-ground voice communications network that provides real-time, safety-critical, party-line-enabled communication between users on the ground, such as remote pilots and ATC should be included in the FAA's system requirements. This capability will improve safety and reliability for all airspace users by leveraging high-reliability telecommunications infrastructure and reducing frequency congestion.

We respectfully request that this Subcommittee work with the FAA to make certain that detailed requirements and schedules for replacing legacy voice switches used in the enroute and terminal environments include ground-to-ground capability. This type of focus will help "future proof" the FAA's investments, advance aviation safety, and enable AAM operations to scale. The progress Reliable has made on certifying aircraft autonomy allows us to have detailed conversations with the FAA about how our technology will be operationalized, including ATC considerations. We appreciate members of this Subcommittee holding roundtables with stakeholders to identify ATC modernization priorities and were honored to participate in recent conversations with the AAM industry.

## ENABLING EARLY AAM OPERATIONS

Reliable applauds the U.S. Department of Transportation and the FAA for recognizing the importance of aviation safety-enhancing technology and aircraft autonomy in the Advanced Air Mobility Integration Pilot Program (eIPP). The inclusion of "automation technologies that are designed to enhance safety and/or efficiency and integrate into the NAS" as a focus area of the eIPP demonstrates how these capabilities will enable AAM.

If selected, the eIPP will enable Reliable to actively collaborate with all levels of government, including state and local partners, to conduct early operations that advance airspace integration, and demonstrate a direct path to commercialization. Including leaders from across the FAA and DOT in selected eIPP operations, and establishing clear policy objectives to be achieved will be crucial to the program's success.

* * *

Testifying before this Subcommittee is an honor and I am inspired by the dedication that each of you and your staff members have to aviation safety. The United States is closer than ever before to safety-enhancing remotely piloted aircraft operations that will transform mobility. However, this is a competitive landscape and other nations are accelerating their efforts to develop aircraft autonomy for commercial and military use cases. The FAA Reauthorization Act of 2024, and recent ATC modernization investments provide us with the tools and resources to expand United States leadership in aviation, enhance national security and provide a safer aviation system for future generations. Reliable Robotics is committed to helping secure this future and looks forward to additional opportunities to work with the Subcommittee on Aviation.

Mr. NEHLS. Thank you, Mr. Rose.

Mr. Pecoraro, you are recognized.

**TESTIMONY OF GREGORY PECORARO, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS**

Mr. PECORARO. Thank you, Chairman Nehls, Ranking Member Carson, Ranking Member Larsen, and members of the subcommittee. I appreciate you inviting me to join you today for this hearing on advanced air mobility. My name is Greg Pecoraro, and I am the president and CEO of the National Association of State Aviation Officials representing State government agencies of all 50 States, Guam, and Puerto Rico.

First, we thank you for the FAA Reauthorization Act of 2024, setting the stage for safe and beneficial AAM. We also appreciate your support for modernization of the ATC system, without which integration of AAM would be problematic.

States are preparing to enhance their role as the FAA's on-the-ground partner for AAM integration. In developing the NPIAS, thousands of airports in and around communities are well positioned to benefit from AAM operations. States will be essential for AAM operations through many functions that draw on local and regional expertise that Federal authorities cannot replicate.

AAM introduces an exciting new technology, and so several States came together to form an AAM multistate collaborative focused on what integration means in practice. The collaborative is a forum for sharing insights on policy and infrastructure to enable AAM operations, engaging with the private sector, and developing common strategies for integration. Aligning policy, planning, and infrastructure is essential for operators to give clarity on how to operate and what to expect across the different States.

The collaborative has published its first four topic papers, and is looking forward to soliciting feedback from industry stakeholders. Some key points are that policy harmonization between States and relevant standards entities is vital for cohesive governance and successful integration of AAM. While the FAA continues its preemptive role in AAM integration, Federal-State coordination is critical to successful integration.

States play a crucial role in defining and implementing minimum service levels for infrastructure, and general aviation airports are well positioned to support near-term AAM operations. But additional infrastructure investments are needed at these airports.

Several States have begun preparing for AAM operations. Some have created task forces or commissioned studies to understand AAM's impacts, identify infrastructure needs, and plan next steps. Others are preparing guidance or operating test sites to test these technologies in real-world conditions.

AAM integration creates the opportunity to rethink transportation. As aerial, point-to-point transportation becomes a reality, we will need to think about daily transportation in three dimensions. What will that mean for the rest of the transportation network as well as the economy? And what will it mean for how we finance the system?

There are several important steps that Congress and the FAA or USDOT can and should take: establishment of a formal working group consisting of senior FAA officials and the States to collaboratively rethink how we modernize our aviation system to accommodate these new operations; regular oversight of the FAA as it develops and establishes standards for planning and infrastructure requirements such as charging stations, as well as sensor and communications requirements to ensure interoperability across different aircraft types and airports; Federal funding beyond current AIP levels is important to sustain planning and infrastructure development, including increasing the annual amounts airports receive from NPE.

States recognize that Congress cannot indefinitely appropriate more funding beyond the resources of the trust fund, and are ready to work with you to develop a long-term, sustainable operational funding model that includes a contribution from the AAM industry and distributes costs equitably.

Please support U.S. DOT FAA initiatives for a broad public awareness campaign on AAM, as well as encouraging them to partner with State and local governments in this important endeavor.

And finally, we encourage continued oversight of key FAA Reauthorization Act of 2024 provisions that concern these emerging technologies.

The States and NASAO pledge our best efforts to support a successful and safe integration of AAM, working with our Federal partners and industry stakeholders. We thank you for your time today and the privilege of appearing before you. NASAO was proud to be a trusted resource for this committee and its staff.

[Mr. Pecoraro's prepared statement follows:]

**Prepared Statement of Gregory Pecoraro, President and Chief Executive Officer, National Association of State Aviation Officials**

Chairman Nehls, Ranking Member Carson, and Members of the Subcommittee on Aviation, thank you for inviting me to join you today for this hearing on advanced air mobility (AAM).

My name is Greg Pecoraro, and I am the President and CEO of the National Association of State Aviation Officials (NASAO). Founded in 1931 in the early days of aviation, NASAO represents the state government aviation agencies of all 50 states, Guam, and Puerto Rico. Our mission is to encourage and foster cooperation among the states and territories with the federal government in the development and promotion of our national aviation system in doing so we engage with our federal partners on national aviation policies on behalf of the states and in the public interest.

First, on behalf of the states, we thank you for your work to draft and pass the FAA Reauthorization Act of 2024. As you know, that legislation, which was impor-

tant to the aviation industry in many ways, also began setting the stage for a safe and beneficial AAM sector. We also appreciate your good work to support the modernization of the air traffic control system, without which integration of AAM into the system would be much more problematic. NASAO is pleased to participate in the Modern Skies Coalition, which is dedicated to supporting air traffic control (ATC) modernization.

ROLE OF STATE AVIATION AGENCIES IN THE NATIONAL AVIATION SYSTEM

State aviation agencies have always played an important role in managing the national aviation system. Within that network, the role of states in managing and promoting aviation as a vital access point to the entire transportation network is not as widely known as that of the Federal Aviation Administration (FAA). State aviation agencies, through NASAO, participate in several memorandums of understanding with the FAA to create cooperative efforts to manage the national aviation system. Ten states administer block grants for FAA Airport Improvement Program (AIP) grants to general aviation airports, many others act as channeling states [1] for the FAA, and most states provide funds to help meet the matching requirements for FAA AIP grants.

As states anticipate the launch of AAM, state aviation agencies are prepared to build on and evolve their traditional role as the FAA's on-the-ground partner in the national aviation system. State aviation agencies will be essential in enabling AAM operations through planning, zoning, site approval, licensing, airspace protection and funding, just as they have historically played for other aviation facilities. These responsibilities draw on local and regional expertise that federal authorities cannot replicate, underscoring why the states' role must adapt as AAM becomes a reality. The following section outlines these existing functions in more detail and how they may evolve to support the safe and seamless integration of AAM.

*Planning, Zoning, Site Approval*

As aviation is organized in the United States, states and local governments are responsible for aviation system planning and so will have the responsibility for planning where AAM facilities can be cited. This includes supporting local zoning decisions and land use planning to ensure that facilities are located in areas that are compatible with surrounding land uses.

There are some state aviation agencies that have exclusive authority to approve or deny all aviation facilities, including the site approval process (which encompasses both the licensing standards and zoning standards). The concept of exclusive authority for approvals by state aviation agencies assures enforceable and reasonable state-wide standards in lieu of multiple regulations that vary from community to community, and protection of airport operations to their full potential. This site approval process can vary from state to state but includes, for example, statewide airport zoning, statewide airport land use regulations, requirements for licensing and compatibility review with the ultimate goal of an aviation system coexisting with and supporting local communities.

I note that, in developing the National Plan of Integrated Airport Systems, the FAA and states together have already sited thousands of airports in and around communities that will be best able to benefit from the advent of AAM operations.

*Registering and Licensing*

In addition to their planning role, some states also register and license aircraft and operators. States may establish specific licensing requirements for aviation facilities, including vertiport and drone port operators, thus ensuring that they comply with both state and federal regulations to maintain consistency across the national airspace system (NAS).

*Airspace Protections*

The states' role in airspace protection is a similarly important, yet often misunderstood responsibility. Many states currently supplement FAA's airspace evalua-

[1] State channeling of federal airport grants occurs in various forms within numerous states. Normally, when an airport is in a channeling act state, the sponsor submits payment request information to the state, who then submits the request to the FAA. In this case, the FAA makes payments to the state, and the state then distributes the payment to the sponsor. In some cases, the state may also provide technical oversight and review, which may include state submittal of grant applications and/or closeout requests. This is based on state enabling legislation, rather than federal law. In many cases, the state also signs the grant agreements. Channeling agreements based on state enabling legislation do not need approval from the FAA Airport District Office (ADO). AIP Handbook, Chapter 2, https://www.faa.gov/airports/aip/aip_handbook/?Chapter=2

tion process with enforceable regulations on tall structures proposed near aviation facilities. These regulations may take the form of stringent height standards, zoning regulations, or requirements of local entities to ensure proper zoning near aviation facilities. Continued dialogue with state aviation agencies can help ensure the safe ingress and egress from facilities intended to serve the AAM community.

*Funding*

Many states have their own grant programs to provide financial support to airports for infrastructure development. States also fund other critical infrastructures that will be vital to AAM operations including weather data systems like the automated weather observing system (AWOS), which will provide critical real time information for AAM operations.

While the specific roles and funding mechanisms employed by states may vary depending on their governance structures and available resources, state aviation agencies will play a critical role in managing the ground infrastructure for AAM. As AAM emerges, their role will only grow more consequential. Recognizing this, state aviation agencies are taking steps now to ensure they are ready to support the industry once operations begin, including exploring ways to harmonize and develop policy, planning, and infrastructure that supports integration of AAM into the NAS.

## NASAO AAM Multistate Collaborative

Much like the early days of aviation, today we are faced with the challenge of introducing an exciting new technology into our transportation system. Advanced Air Mobility has enormous potential to improve access to the aviation system for Americans in every part of the country, creating new opportunities to move people, goods, and services in and around urban centers, as well as to more remote parts of the nation. To do so, AAM needs to be safely and efficiently integrated into the existing aviation system.

A few years ago, several states in our organization came together to form an AAM Multistate Collaborative (the Collaborative), working together to think through what that integration means in practice. Now, with nearly 40 states participating, the Collaborative serves as a forum for states to share insights on state level policies and infrastructure needs that will enable AAM operations, to engage with private sector experts to learn more about their operations and develop common strategies for accommodating AAM operations at the local level.

The Collaborative recognizes that aligning policy, planning, and infrastructure is essential to providing industry clarity on how to operate and what to expect across the different states. Accordingly, the Collaborative's focus is on creating interoperability of policy and infrastructure across states so that industry can expect continuity of infrastructure and operations across the country; providing a roadmap to harmonize AAM policy across participating states; providing a strategy to develop minimum infrastructure and necessary service levels across the participating states; and providing feedback to federal partners to inform developing rules, policies, and standards to ensure they can be practically implemented on the ground.

*Areas of Consensus*

The first fruits of their work have been recently published as four topic papers addressing the role of the states in AAM, policy harmonization across the states, approaches to infrastructure development, and leveraging existing aviation infrastructure for use by AAM operators. These papers document a consensus on these topics formed amongst the states, incorporate industry input, and identify priority areas for continued work. More papers will be forthcoming in the next year. They have been published to solicit feedback from federal partners as well as other industry stakeholders. The following represent some key areas of general agreement among the states so far:

- Policy harmonization between states and relevant standards entities is vital for cohesive governance and successful integration of AAM. States should work alongside federal, local, tribal, territorial, and industry partners to coordinate policy frameworks, close regulatory gaps, and build infrastructure-ready environments. This could include aligning planning efforts and infrastructure priorities; creating consistent licensing, registration, and planning protocols; promoting equity, safety, and intermodal integration; and engaging communities and industry early and often.
- States recognize the FAA's preemptive role in leading the way for AAM integration through governing the use of airspace, providing airspace configuration, and providing air traffic control and separation services. State coordination with the FAA is critical to integrating vertiports into existing airports, especially

when aligning with federal infrastructure requirements, leveraging funding opportunities, and supporting seamless operational transitions for AAM. At the same time, a lack of coordination risks duplicative efforts, public confusion, and regulatory conflict.

- States have a crucial role to play in defining and implementing minimum service levels for infrastructure, the threshold at which physical and digital infrastructure can effectively support safe, reliable, and scalable operations.
- General aviation airports are well positioned to support near term AAM operations. Many have the physical capacity to accommodate additional traffic, serve entire regions with significant population and needs, and are located near larger metropolitan areas, making them ideal hubs for multimodal connections and public safety or emergency operations. Others are located in rural areas, making them great locations for staging regional air mobility. They offer critical opportunities to connect rural communities by enabling AAM aircraft to transport both cargo and passengers. However, general aviation airports typically have light staffing. To safely integrate AAM, additional infrastructure investments are needed at these airports, including enhanced navigation, communications, and safety systems.

## STATE EFFORTS TO PREPARE FOR AAM

Several states have already begun preparing for AAM operations. While states vary on the level of their activity based on staff capacity, funding, and leadership priorities, those actively preparing are sharing their common strategies that will help others build towards operational readiness.

States are uniquely positioned to serve as a facilitator to balance federal, state, local, industry, and public interests, while advancing policies that support all stakeholders and enable industry growth. Recognizing the need for responsible investment and coordinated implementation, many states have begun their work by commissioning studies and standing up task forces to understand AAM's potential impacts and opportunities. Texas, Washington, Florida, Georgia, Virginia, Ohio, Utah, Massachusetts, North Carolina, Alaska, Colorado, Michigan, Kansas, Minnesota, Oklahoma, Pennsylvania, Arkansas, and Maryland are among the states that have undertaken this work to identify infrastructure needs, outline the necessary next steps for preparation, and make recommendations to elected policymakers. These efforts include comprehensive assessments of their existing aviation assets be they state or local facilities, to determine where AAM activities can be supported.

Some states are publishing more comprehensive guidance documents such as compatibility considerations to advance understanding and prepare for future operations. As an example, Florida has completed numerous work products to build a foundation of knowledge within the state, such as a land use compatibility and site approval guide for local governments that provides long-range and proactive planning for AAM and vertiport site approval process for on and off airport. As another example, California has a long-standing focus on airport land-use planning driven by statutory requirements. Each airport has a Local Land Use Commission that follows state guidance. Building on this framework, California is focused now on updating its guidance to incorporate vertiports and other vertical aviation infrastructure. Georgia created a community guidebook and toolkit to help local governments, urban and rural alike, start planning for AAM as part of their broader mobility plans. Last year, North Carolina launched the first five-year Advanced Transportation Mobility Strategic Plan drawing on the work of its aviation, integrated mobility, and rail divisions to build a multimodal transportation system that incorporates advanced air and ground mobility technologies and positions the state for an advanced mobility future.

Some states are working as closely as possible with relevant federal partners such as the National Aeronautics and Space Administration (NASA), to develop resources like the *AAM Community Integration Considerations Playbook*. Some states are using or even launching test sites to evaluate AAM technologies in real world conditions which will be enormously helpful in developing operational concepts. For example, in 2019, North Dakota invested in the creation of the nation's first statewide UAS beyond-visual-line-of-sight network, VANTIS. VANTIS allows drones to fly beyond visual-line-of-sight and provides the infrastructure and support to test large-scale UAS operations, opening the door to innovative applications across industries. Virginia recently launched an AAM test site program to evaluate and integrate emerging aviation technologies across Virginia's transportation system. The data collected from the test site will inform future safety frameworks, business models, and sustainment strategies for its AAM ecosystem.

A few states are even investing in charging infrastructure at airports. Massachusetts is leveraging its existing airport infrastructure as the foundation for developing airports as energy hubs. One ongoing project aims to plan, permit, and complete preliminary design of smart microgrid project at the Cape Cod Gateway Airport. This microgrid will provide the airport with resilient power for critical operations, support electric bus charging, and offer the local community more reliable and cost-effective transportation options. Michigan is funding the installation of multimodal charges at four of its airports to create a foundational intrastate charging network to support eVTOL aircraft. Many other states have created AAM advisory bodies or assigned staff to focus on AAM activities. For example, Texas has an AAM Advisory Committee which allows members of the industry to share their expertise with policymakers and state leaders, and continued collaboration will ensure state and industry work together on critical issues.

## PRIORITY ISSUES FOR STATE AVIATION AGENCIES

Looking forward, the prospect of widespread AAM integration into aviation creates the opportunity to rethink transportation. As aerial point to point transportation for people, goods and services becomes a reality we will need to think about daily transportation in three dimensions. What will that mean for the rest of the transportation network as well as the economy? And what will it mean for how we finance the system?

*Strengthen Federal-State Collaboration*

While the states recognize that the FAA must and will take the primary role in managing the aviation system, AAM promises an extensive expansion of aviation activity across the country and will require even more support from state and local governments. To ensure the safest and most effective integration, it is critical that state aviation agencies be full partners in the planning and policy development process. States seek, in partnership with the FAA, to extend current collaborative processes to AAM, clarifying grey areas and providing the ability to manage local equities. Therefore, NASAO urges the FAA to establish a formal working group consisting of senior FAA officials and the states to collaboratively rethink how we modernize our aviation system to accommodate these new operations. States are on the ground, they understand their communities, infrastructure constraints, and what is operationally feasible. A collaborative federal-state approach will ensure that national policies align with local realities. We also urge Congress to encourage and support the FAA in deepening this partnership with states, as doing so will be essential to successful integration.

*Provide Clear Planning and Infrastructure Guidance and Standards*

To that end, we urge the FAA to work closely with the states in this endeavor, which would include establishing standards for planning and infrastructure requirements, such as charging station standards, which will ensure interoperability in charging across multiple aircraft types, as well as sensor and communication requirements. States must be able to rely on national standards for infrastructure before investing in facilities or equipment that may face long-term interoperability challenges. We ask Congress to maintain regular oversight of the FAA to develop clear standards.

It is important to also note that recent original equipment manufacturer (OEM) insolvencies and the absence of an FAA-certified aircraft are causing state aviation agencies to take a measured approach until the first aircraft is certified. Without a certified aircraft in the market, it remains challenging for states to engage local stakeholders in meaningful planning discussions. State aviation agencies are focusing on what they can in the near term while manufacturers work through the certification process.

*Further Invest in General Aviation Airport Infrastructure*

Congress, along with state and local governments, has invested billions of dollars in our nation's airport infrastructure. NASAO is grateful for the recent increase in overall AIP funding levels, including increasing the apportionment for general aviation airports to 20 percent, in the FAA Reauthorization Act of 2024. As we look toward the initial phases of AAM deployment, we should leverage those existing aviation assets. General aviation airports remain some of the most underutilized components of our system and have the capacity, unlike the large commercial service airports, to support early AAM operations.

But realizing this potential will require additional investment. As with the rest of the nation's aviation infrastructure program, additional funding at the federal level beyond current AIP funding will be needed to support planning and infrastruc-

ture development required for AAM. Providing electricity to general aviation airports to support electric and hybrid electric aircraft will be costly, involving not only transmission and distribution upgrades but also new equipment. In addition, the deployment of new communication systems and navigational aids may be required to safely operate these aircraft.

Currently, general aviation, reliever, and nonprimary commercial service airports receive up to $150,000 annually through the Nonprimary Entitlement Program (NPE), far below what is needed for critical safety projects, such as pavement work, which often begins at $1 million. Airports routinely must carry over several years of NPE funds just to accumulate enough for projects. NASAO recommends increasing the maximum annual amount these airports receive from the NPE program. Additional funding would not only help maintain safety but also allow airports to begin planning now for AAM. In the long term, we will need to assess the infrastructure requirements and investments to accommodate AAM, grant assurance implications, appropriate aeronautical uses, and equitable and market-based fees for new types of participants.

At the same time, states recognize that Congress cannot just keep appropriating more funding far beyond the resources of the Airport and Airway Trust Fund. To ensure sustainable funding for services and infrastructure, states are ready to work collectively with Congress, the FAA, local, tribal, and territorial governments, and industry to develop a long-term sustainable operational funding model that distributes costs equitably. The Collaborative has already begun considering this issue, and the states will be integral to this conversation.

*A Coordinated Approach to Public Awareness is Needed*

Public awareness and acceptance of AAM activities will be critical to the success of this new mode of aerial transportation if it is to fulfill its potential. The drone sightings last year in the skies over New Jersey illustrate how a low information environment about emerging technologies can lead to misunderstandings and public anxiety. While industry and state and local governments have a role to play in this educational process, the federal government must lead in sharing information and building public trust in this new technology. We encourage Congress to support the U.S. Department of Transportation (USDOT) and FAA activities in launching a broad and aggressive public awareness campaign on the value and opportunities created by AAM, as well as encourage USDOT and the FAA to partner with state and local governments in this endeavor.

*FAA Reauthorization Act of 2024 Implementation*

Finally, we note that this Committee has already done considerable work in this area as part of the FAA Reauthorization Act of 2024. As part of your regular oversight activities, we encourage you in particular to monitor a few key provisions such as:

- Section 745, Electric Aircraft Infrastructure Pilot Program: This section establishes a five-year pilot program, which would allow up to 10 airports to invest and install electric charging equipment. This program is an important first step to implementing the necessary electrical charging infrastructure for AAM. NASAO urges Congress to ensure FAA fully implements this program in a timely manner, providing clear guidance to airports.
- Section 912, Drone Infrastructure Inspection Grant (DIIG) Program: This section establishes a grant for state, tribal, and local governments to purchase and use drones for critical infrastructure projects. NASAO urges Congress to appropriate full funding of $12 million annually for the grant program and ensure its timely launch. This program will support state, local, and tribal governments' efforts to capitalize on the benefits of leveraging drone technology.
- Section 913, Drone Education and Workforce Training Grant Program: This section establishes a grant program for educational institutions for small drone workforce training. NASAO urges Congress to appropriate full funding of $5 million annually for the grant program and ensure its timely launch. This workforce development initiative is critical to delivering the training necessary and building the skilled workforce needed for this emerging technology.
- Section 316, Weather Reporting Systems Study: This section directs GAO to study ways to improve procurement, functionality, and sustainability of weather reporting systems, including automated surface observation system (ASOS), automated weather observing systems (AWOS), visual weather observing, and

non-federal weather reporting systems. The ASOS[2] (jointly managed program by the National Weather Service (NWS), FAA, and U.S. Department of Defense) and AWOS (airport-owned and managed system that compliments ASOS) are the country's primary surface weather observing network supporting weather forecast activities and aviation operations (e.g., regional air carriers and cargo operators). Both systems are aging and in need of updated infrastructure. While the FAA/NWS are in the process of updating ASOS, States and airports are facing challenges in updating its AWOS infrastructure as the lack of suppliers and cost of installing and maintaining the systems is becoming unmanageable. This study is important to understand the full complexity of the challenges of this critical weather reporting system as it is an integral part of ensuring safety in our aviation system. The need for and importance of affordable weather reporting will only grow as vertiports are integrated into the National Airspace System. NASAO urges Congress to prioritize this study.

In all this, the state aviation agencies and NASAO pledge their best and most cooperative efforts to support a successful, efficient, and safe integration of AAM into our nation's air transportation system while working with our federal partners and industry stakeholders. We are enormously excited about the potential for increased access to aviation and look forward to participating in maintaining the nation's global preeminence in aviation.

Thank you for your time today, and the privilege of appearing before you. NASAO values its partnership with the House Committee on Transportation and Infrastructure and is proud to be a trusted resource for this Committee and its staff.

Mr. NEHLS. Thank you, Mr. Pecoraro. Thank you all for your testimony. We will turn to the panel for questions. I recognize myself.

Mr. Clark, in April, DOT announced that the Center for Advanced Aviation Technologies, CAAT, would be established in the great State of Texas. I love that. Can you talk about the role that CAAT will play in facilitating the safe integration of AAM into the NAS?

Mr. CLARK. Yes. Yes, we are thrilled about that, by the way. We have got chargers down in Texas. We have been operating down in Texas in demonstration flights with cargo carriers.

The awareness, but—look, when we get out in the field and we start doing these type of early engagements, we generate critical data. That critical data is used by our engineers, by our service team members, by our pilots, by our maintainers in training our models to make sure that we can take the benefits of advanced air mobility, which is a self-aware aircraft that is lush with data, and apply it to make a safer aviation future.

So these types of programs like in Texas are giving us that ability at a point in time when it is most valuable, when it is a nascent industry. Once things mature, it is harder to move. And by having the insight to do that early gives us that data, gives us the ability to make a better and better product, we are at the very beginning of this, right? There is so much goodness. The range, the payload, the speed of these aircraft are increasing every year.

BETA holds the four most important world records in electric aviation for range and payload, and this summer, we set both speed records in electric aviation. We need to continue that innovation and keep moving the bar forward with things like what is happening in Texas. So, thank you.

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[2] ASOS reports basic weather elements such as sky conditions, visibility, present weather conditions, visual obstructions, barometric pressure, ambient temperature, wind speed and direction, and precipitation. With more than 900 ASOS sites in the United States, these automated systems are critical to providing weather information at airports.

Mr. NEHLS. It is great to see the greatest State in the Union lead the charge.

[An aside off the record.]

[Laughter.]

Mr. NEHLS. No, I got it.

Mr. Rose, the powered-lift Special Federal Aviation Regulation, SFAR, published last October addressed operational and pilot certification requirements. Your company is unique in that it is—you are ultimately looking to certify a pilotless system. Given that, do you fit within the regulatory framework laid out in the SFAR? And if not, can you talk about the path that you will need to pursue to receive certification?

Mr. ROSE. Actually, I would refer this to Mr. Painter to answer this about the SFAR.

Mr. NEHLS. Fair enough.

Mr. PAINTER. Great. Thank you for that.

For the SFAR, it provided very good and strong initial foundational guidelines for the industry as it relates to vertical lift and how you can implement in terms of training standards and those types of things. For what Wisk is doing, we need to continue through the eIPP program to expand that to include the certification requirements and the training requirements for operations like our multivehicle supervisor.

So, the SFAR is a great foundational element, and then for us, as we look at autonomy, we expect to be able to expand policy and regulatory requirements as it relates to the eIPP program.

Mr. NEHLS. You mentioned in your statement you have a partnership with the city of Sugar Land. It is in the district. It is a great, great, great city, great little municipal airport, wonderful place. And you establish a deal there, identify and assess locations for vertiports, and potential training, maintenance facilities. Ultimately, successful integration of AAM aircraft will hinge on these partnerships between private industry and State and local government. How does this partnership set the local government up to be an early adapter to these technologies?

Mr. PAINTER. Yes, thank you for that. When we look at the city of Sugar Land and we look at the Greater Houston area, we think it is a phenomenal market and opportunity for our technology to really make a difference in the communities' lives in terms of connecting people or things in terms of moving around the Greater Houston area.

Working with the local communities in every place we look to launch our product and our service is absolutely critical, so understanding some of the constraints of the community, understanding how we will actually—any infrastructure that needs to be added. We are trying, for instance, on our charging infrastructure to use standards that the industry will use. I think BETA has taken a very similar approach in terms of the type of requirements of what the local airport will need to install.

Our expectation is that initially vertiports will be located and leverage general aviation airports in the region. So we are working with the local community to understand and assess where those airports are going to be the right place for our vertiports initially. And then over time we do expect there will be bespoke vertiports

that match traffic patterns and mobility patterns that we can service.

Mr. NEHLS. Yes, wishing you the most success, and I look forward to hearing more. Everything is sweeter in Sugar Land. Everything is sweeter in Sugar Land. So, I thank you.

I yield back the balance of my time. I now recognize Ranking Member Carson for 5 minutes.

Mr. CARSON. Thank you, Chairman.

I am curious, Mr. Rose. How are companies collaborating with labor to ensure that autonomous technology reduces the stressors associated with the workload on the workforce within the industry and improve safety as a result?

Mr. ROSE. Yes. As I mentioned in my opening statements, I think it really is important to stress how advanced automation and autonomy can improve safety and reduce risk of existing operations. I talked about a few of these; I can provide a little bit more specifics now.

Our system, because it is in always-on autopilot, enables a complete autopilot engagement from taxi, takeoff, as well as landing, and enables a fully automated landing in weather conditions that are below what is popular or most commonly operated today.

The agreement that we have with the FAA and the good work that we have been doing over the last 4-plus years—really 5 or 6 years with the FAA—has been getting approval for an advanced navigation technology that enables an aircraft to localize itself relative to a runway in zero visibility, white-out conditions.

So, typically today, if you want to fully automatically land an aircraft, there is only a handful of airports in the United States, as this committee is aware, that enable fully coupled autopilot to the surface. These cost taxpayers tens of millions of dollars to install the instrument landing system infrastructure. The technology that we are working on certifying right now with the FAA will enable any aircraft to do this without that critical infrastructure.

And as I mentioned earlier, Controlled Flight Into Terrain and loss of control at low altitudes are common causes of fatal accidents, and so this technology installed for regional air cargo and other small commercial operations we expect to dramatically improve the safety.

Mr. CARSON. Mr. Pecoraro, how has inconsistent Federal funding like the recent Government shutdown impacted State governments' ability to prepare for potential AAM deployments in local communities?

Mr. PECORARO. Well, thank you, Mr. Carson.

The shutdown certainly was challenging for State aviation agencies as they tried to ensure funding for airports. And to the extent that funding for these airports includes planning funding, or if there may have been any infrastructure plans at that airport that had to do with AAM, it certainly would have been problematic.

But we are pretty—we are really in the infancy of States planning for AAM right now. So I don't know that that would have been a big impact this year. But more broadly and to the point that you and all the senior leaders of the committee made earlier, consistency in aviation funding is always critical in this industry, because we need to make sure that the aviation industry at every

level continues to be funded fully and people can depend on the resources coming in to fulfill contracts.

Mr. CARSON. I yield back, Chairman.

Mr. NEHLS. The gentleman yields. I now recognize Mr. Perry for 5 minutes.

You want to go ahead?

Mr. PERRY. I thought you were going to Thomas first. Thanks, Mr. Chairman.

Gentlemen, great to see you. And I certainly understand you advocating for your industries, so I don't want to sound like a wet blanket here. You have got to put your best foot forward, and this is the place to do it. But I have got to live in the world of "realville," and I represent all the taxpayers that are involved in this.

So I don't think these are science fiction projects at all, but currently, as we sit here, we are dealing with crumbling runways; an ATC system, as you already know, that deals with floppy disks and prayers a lot of times; and strips being run across approach control by some man or woman, right? So that is the reality today.

As I understand it—and you can correct me if I am wrong—the aircraft that you are talking about are still hauling a battery pack that weighs as much as a Ford F–150, right? As I understand it, the BETA ALIA, at max payload, is hauling around 3,500 pounds of lithium. That is more than the Cessna 172 that I took some training lessons in.

So energy density hasn't magically tripled since last year. And I get that we have got to figure this out, and we are working towards it, and our adversaries—I am good with all that. I am good with all that. But when that aircraft is fully loaded with passengers, I am not sure what the useful range is on a 95-degree day and a density altitude airport like Phoenix or Atlanta. As I understand it, the brochure assumes sea level at 59 degrees. Well, that is awesome when you are at sea level and 59 degrees. But that ain't the case a lot of times, as you know.

Mr. Pecoraro, I appreciate what you are trying to do and what your group is trying to do, and I think we should be prepared and we should be futuristically forward-looking in preparation of that. But every dollar we spend—dollar—putting panels together and work groups and all that, that is fine. But we are talking about spending taxpayer dollars on something that is not here yet while we have problems right now, whether it is the Highway Trust Fund, whether it is aviation taxiways and facilities. Our taxpayers, I don't think, want to pay for electric charging stations for these vehicles until they are operational.

We can find investors. If this is really great—and I am not saying it's not, but if it is really great, investors who can make money will pay into this. We have real problems today, mid-air collisions, near-misses, fatigue-related errors. We have fatal needs right now, and we don't want to prioritize—don't be offended—concepts over concrete. The former administration shoveled hundreds of millions and billions of tax dollars into AAM through the CHIPS Act, the Inflation Reduction Act, NASA AAM grants, FAA IPP programs. But I think your industry has raised, like, $6 billion. That is a lot of money towards this effort, and God bless you. That is great if

investors want to do that. But we have got to be the stewards of the taxpayer money in a world where we are at $38 trillion in debt and headed right toward $39 trillion, and it is not going to stop after that.

So, my concern is, why does the American truck driver in Harrisburg or the single mom in Carlisle have to foot the bill for your industry's R&D, for your industry's R&D? I am going to point to SpaceX. As far as I know, they didn't get a $1 billion bailout every time a rocket failed and hit the launch pad and blew up. We don't want to be socializing losses and privatizing profits. That is not what the Federal Government is all about. That is not what we should be all about. And quite honestly, over time, that is what the American people are, quite honestly, sick of.

Another point is the fragile battery mineral supply, Congo cobalt, Chinese refining, single point failures. This technology right now is nearly 100 percent dependent on minerals controlled by Beijing, and that is a problem and I think we need to talk about it and address it. I am not saying that we can't fix it, but relying on child labor in Africa is not—I don't think it's a good plan.

The private sector is free to chase this enterprise. We need to build something that can fly from Pittsburgh to Cleveland in January with four adults, their luggage, and a 30-minute reserve on one charge. On one charge. We just can't beat right now, as I understand it—as you know my background—but as I see it, we can't beat the physics of a 1960s helicopter. And I am not saying we are not going to get there and that you are not going to get there. And I will tell you, when it comes to the FAA and supporting the atmosphere, the system that allows all this, we all ought to be on board, and I am on board with that. But when it comes to taxpayer money investing in this program, that is where you are going to get a struggle from me. Go ahead and do this. We should incentivize you doing this. But you have got to do this. We can't afford to.

With that, Mr. Chairman, I yield back.

Mr. NEHLS. Thank you, Mr. Perry.

Ms. Davids, you are recognized for 5 minutes.

Ms. DAVIDS OF KANSAS. Thank you, Chairman Nehls and to our new ranking member, Mr. Carson, for holding this hearing today. And thank you to our witnesses for taking the time to be here today.

For folks who might not know this, I am very excited about the future of AAM in this country. While in Congress, I have worked to help promote innovative new technologies like eVTOLs and the American businesses that construct them.

And this has already been said, but we know these air transportation systems hold tremendous potential when integrated into the existing airspace operations, both local and regionally, and particularly when we are talking about rural applications, but for sure, urban, passenger, cargo. You guys have been speaking to this, and of course, I imagine a future where I might be able to hop on a small electric eVTOL and go from my suburban house in the Kansas City metro area, to the closest airport, cutting it down from 45 minutes to 10 or 15 minutes. And no one knows this stuff better than you guys, that that future is certainly within sight.

I have had the opportunity to visit with some of the companies that are working on these exciting technologies, including some of the folks here today, and I want to make sure that we continue to move that conversation forward and figure out how the Government can work with this industry to ensure not just the success, but, as has been stated, safety is a team effort.

And I was proud in the last Congress to cosponsor and work with then-Aviation Subcommittee Chairman Garret Graves on the Advanced Air Mobility Coordination and Leadership Act, which became law, which established an interagency working group to plan and coordinate efforts related to some of the most pertinent issues that can bolster AAM and that ecosystem here.

And again, the trillions of dollars that are estimated for this kind of market are certainly exciting. And Wichita, Kansas, which I don't represent but am very proud of as the aviation capital of the world, is rich in workforce and generations of institutional knowledge in aerospace. And I know this sector is going to represent some good-paying American jobs, and I am certainly looking forward to figuring out how we can just capitalize on all this potential and lead, and not just follow, what is going on in the rest of the world.

And so, Mr. Clark and Mr. Painter, I was hoping to come to you guys first. As we look at that business horizon in this emerging sector, when we think about other countries, whether it is China or countries that we work more closely with in Europe, and we see the aggressiveness of AAM in those other places, I am curious. How do you see us—and this builds on—Chairman Nehls had asked about SFAR. And how do we make sure that we strike that balance so that we are not preventing innovation, we are keeping people safe, and we can continue to work on being world leaders in this space?

Mr. CLARK. I will start there, if you don't mind, and I think it threads directly into what Mr. Perry said: operating in a cognitive dissonance from reality.

The idea that our materials come from China is just wrong. That is not true. Batteries don't. Our magnets actually come from Germany, and they come through the Carolinas. We have a series of technologies that prevent mid-air collisions. And the adoption of technologies would have prevented the terrible tragedy that happened over the Potomac. All it needed was an L-band ADS–B transponder to identify that aircraft. Our aircraft come with that for free. So to think that innovation is somehow going to make things less safe is just simply not accurate.

The R&D that we are investing in here—so China is investing in this with their low-altitude economy. And they are not a bunch of idiots over there. They are hard-working people that know that this technology—Mother Nature is voting on this, and showing that we are flying meaningful distances. You know that world record I mentioned: 336 nautical miles. That covers the mission that we were just challenged with. We are already doing it.

So, we have this, like, this idea that somehow—and one more thing: batteries. Batteries, when they store energy, there is very little to no loss of conversion of that energy into propulsion. So to simply cite the battery energy density and not the net performance

of the aircraft shows a lack of systems thinking. As an engineer, we take a lot of pride in understanding the complete system so we can optimize things on a global basis.

So, back to, like, what we need to do here. Yes, we need to invest in this R&D. And no, we are not asking the FAA to invest in this R&D. We are asking the FAA to keep consistent goalposts so that when we get something working and we prove it, and we produce the objective evidence for certification, that they certify it. And we are asking that they use the right amount of delegation.

And I don't think it is helpful to gaslight or technologically gaslight science. Science is science. And when we prove that this stuff works and it costs less for people, to (inaudible) the American public of the safety and the economic benefits of this technology is a bad move.

And I do think that we need to do this on a global scale and compete with China.

Ms. DAVIDS OF KANSAS. Thank you.

And Mr. Painter, we will get to visit another time.

And I will yield back, Chairman.

Mr. NEHLS. Thank you, Ms. Davids.

Mr. Stauber, you are recognized.

Mr. STAUBER. Thank you very much, Mr. Chair.

My district in northern Minnesota is rural. And for some people, the closest place to receive healthcare is over 100, 150 miles away. And this makes air medical transport a truly lifesaving resource.

To any of our witnesses today, how can AAM be leveraged to reduce lifesaving transport times for rural patients?

And what is stopping us from deploying those capabilities today? Anyone.

Mr. CLARK. I will just say—I know I have talked a lot, but just one quick thing.

Getting into near-zero visibility with critical, lifesaving blood products, stroke medications, antivenoms, or organs is enabled by the technologies that allow us to fly in those conditions.

And another one is icing. You are up in Minnesota. These type of aircraft that we are developing can be de-iced practically, which helicopters simply can't. And that increases the reliability of the deliveries.

Mr. ROSE. Can I add as well? This is near and dear to my heart. I grew up in a small town in Oregon, and the only way that we were able to receive next-day services and same-day medical delivery was through regional air cargo services. The small town really had—it was the medical epicenter of this part of the Willamette Valley.

Technologies like normal use autoland that enable zero visibility automated landing, increase the frequency at which we will be able to perform these operations. Detect and Avoid will also make it safer and allow us to operate at higher frequencies into and out of the more congested airports that are usually the origin sources of these types of medical goods. But thank you for the question.

Mr. PECORARO. I would like to add that States are very interested in the use of AAM for aeromedical activities. In addition to the benefits of the technology, the costs are lower, the operational opportunities are greater.

And I know that in Maryland, where they have a state-of-the-art aeromedical operation where the State has purchased and owns a number of helicopters to provide this kind of transport, they are actively engaged in following this process because they are looking forward to being able to switch to an eVTOL fleet.

Mr. STAUBER. Thank you.

Mr. Rose, you mentioned the tremendous airport infrastructure that we are privileged to have in the United States and its role in connecting small and rural communities. Unfortunately, many small airports are facing reduced commercial air service or seeing routes entirely eliminated. How do you see the technologies discussed at today's hearing, including aircraft autonomy, helping to address this challenge?

Mr. ROSE. Yes, it is a great question, and I think this is a real tragedy. The United States has made tremendous investments, more than any other nation in the country [sic], building out our airport infrastructure. We have nearly 10,000 airports. I believe it is 5,000 airports are available for public use today. This is just—this is an incredible national asset that we have.

Mr. STAUBER. Right.

Mr. ROSE. And yet we have seen over the last several decades reductions in service. COVID has really accelerated a trend that had begun several decades previously. There are now many airports in the United States that have lost service, some element of service, or lost service completely, post-pandemic. And it is probably not going to come back.

Technology, more advanced automation, and autonomy is going to allow us to return services back, revitalize these regional airports. I think this is crucially important for connecting people across this country. Higher levels of automation and autonomy not only make it more safe, but also more cost effective and efficient to perform these operations. And I think we are setting the stage here in the 21st century to have a golden era, a renaissance of aviation, a new age where we will be able to fly to more places at much, much higher frequencies.

Mr. STAUBER. I think you are right. I mean, with rural America, they shouldn't take a back seat to anybody. And those of us who live in rural areas, those rural, small regional airports connect us to the world. And I think it is important. I really appreciate your support for that.

Mr. Clark, I do want to challenge you. Mr. Perry talked about the critical minerals part of it, and you talk about the batteries and cobalt and what have you. Do your batteries use cobalt?

Mr. CLARK. Yes.

Mr. STAUBER. Thirty-three percent of cobalt in this country is mined by child slave labor. That is fact. So your comment about critical minerals are—come from good sources? Mr. Perry is correct. So—and I——

Mr. CLARK [interrupting]. No, that is not what I said. What I said was that our—those things that were cited as coming from China, in our case, do not come from China. I didn't say anything about child labor and mining of cobalt.

Mr. STAUBER. I am here to tell you that 33 percent of the batteries, the cobalt in your batteries, come from China's child slave

labor. Fifteen of the nineteen industrial mines in the Congo are owned by China, and they use child slave labor.

I don't want to debate this point. What I am trying to say is, we can do it in America better. We can mine these critical minerals in America if we are allowed to do it. And I think it is really important that we don't export our environmental guilt to get to your batteries and your new technology that we all want to use, by the way. And I just want to be—I just want to make sure——

Mr. CLARK [interrupting]. No, no, we are exactly on the same page. The assumption that we need to do this more domestically, I am 100 percent on board. Our entire industry is on board with that. And we should be mining, and we should be refining, and we should be building these things here.

Mr. STAUBER. Yes.

Mr. CLARK. They don't exist right now. We should invest in that capacity——

Mr. STAUBER [interrupting]. That is not true, they don't exist. No, no, they do exist.

Mr. CLARK. Show me where to get——

Mr. STAUBER [interrupting]. I have the biggest——

Mr. CLARK [continuing]. [Inaudible] here.

Mr. STAUBER [continuing]. Untapped copper-nickel find in the world in my district. So I want to—what we want to do is mine it. So I am just trying to correct you so——

Mr. CLARK [interrupting]. You changed——

Mr. STAUBER [continuing]. The next time——

Mr. CLARK [continuing]. You changed the element.

Mr. STAUBER. No——

Mr. CLARK [interrupting]. Let's go back to the element that we——

Mr. STAUBER [continuing]. The next time——

Mr. NEHLS. Gentlemen, we have got to wrap this up.

Mr. STAUBER [continuing]. You're asked about mining, you're—the next time you're asked about mining, say yes, we can do it domestically. I am here to tell you that 33 percent of the cobalt in your batteries is mined by child slave labor. The Biden administration said it and so did the Trump administration.

Mr. NEHLS. The gentleman's time has expired. Thank you.

Mr. STAUBER. I yield.

Mr. NEHLS. Thank you so much. I now recognize Ms. Scholten for 5 minutes.

Ms. SCHOLTEN. Thank you, Mr. Chairman. Thank you to our wonderful new ranking member here, and thank you to our great panel of witnesses for coming to have this critical hearing today.

I proudly represent Michigan's Third Congressional District. Our State, and west Michigan, in particular, has a strong aerospace footprint: $30 billion in economic activity generated in the State, 166,000 jobs, 4,000 businesses generating economic activity in defense, aerospace, and homeland security, as well as Michigan being home to the largest Air National Guard base at Selfridge. We pride ourselves on being leaders in this space. We continue to innovate in the advanced air mobility space.

The region's leadership is critical to actualizing the DOT and FAA's efforts to accelerate the development and integration of cut-

ting-edge aircraft. The DOT is looking to support five pilot programs to demonstrate electric vertical takeoff and landing. Despite our usual rivalry, the States of Michigan and Ohio are coming together to work with BETA in hopes of standing up one of these pilot programs.

Mr. Clark, can you speak to how critical this pilot program could be in a State like Michigan to ensure prosperity throughout rural America?

Mr. CLARK. Absolutely, and thanks for your support. We are excited about that application as well, the DOT.

Like all the applications, but specifically in Michigan, where the State has gotten well ahead of the balance of the country by installing chargers, by engaging their universities, by investing in aerospace and defense research—we were a part of the Northern Strike exercise up there with your National Guard, so, thank you for that.

But the eIPP program, specifically in Michigan and other States, it will advance our industry by a year. When I am talking about our industry, I am talking about all of these technologies that allow us to have safer and more reliable aerospace. So by advancing this by a year, it gives us a better competitive edge globally.

So in Michigan and Ohio—I am glad you called that out; I didn't want to have to cross that bridge—in Michigan and Ohio, working together on this eIPP program is a great launching point because, in our case, we are delivering cargo, medical, and logistics to rural communities. And so you have a meaningful impact, you expose the technology to generate the data, and we get ahead of the rest of the world. So, thank you.

Ms. SCHOLTEN. Thank you. Given our State's robust manufacturing presence, it is no surprise that the State of Michigan launched the Michigan Advanced Air Mobility Initiative, as well as AAM Activation Fund to catalyze research and development. The whole-of-Government approach should absolutely be replicated on a Federal level to ensure technological advancements and our Nation's competitiveness on the national stage.

Mr. Pecoraro, can you touch on how Congress can work with States to encourage collaboration, as well as develop a smart, clear AAM planning and infrastructure framework to safely boost progress in the aviation sector?

Mr. PECORARO. Absolutely, and thank you for that question.

First of all, let me just say that I think that an important step would be for the committee to follow up on the already considerable work that you did as part of the Reauthorization Act of 2024: Section 745, Electric Aircraft Infrastructure Pilot Program; Section 912, Drone Infrastructure Inspection Grant Program; Section 913, Drone Education and Workforce Training Grant Program; and finally, Section 316, Weather Reporting Systems Study. All are critical to the development of this industry, and we would like to see, as the committee continues to monitor the FAA's activities in these areas.

Also, we would like to see funding put forward in some of these areas as well. Unfortunately, we haven't been able to see the funding follow the authorization yet. But I think those steps are critical

to being able to help the States, local governments, Tribal governments being able to advance in these areas.

Ms. SCHOLTEN. Thank you. In our ever-changing economy, it is incumbent on our committee to think through how technological innovations, including those in the AAM sector, can also create good-paying jobs throughout the Nation. That is why the bipartisan infrastructure Reauthorization Act of 2024 expanded the Aviation Workforce Development Grant program to support efforts to expand domestic aviation manufacturing, the talent pool.

To that end, it is disappointing that the current administration has delayed the distribution of recent grant cycle awards, and we must work together to get these congressionally appropriated dollars out the door, doing the good work that we set out to have them do. Mr. Clark, how else can Congress support the aviation industry to ensure that continued innovation is paired with job growth?

Mr. CLARK. I mean, so we have directly 1,000 people. We affect 15,000 jobs in this country. We are growing rapidly. We just went public, or funded to do so. And so, in order to make these jobs permanent, high paying forever, we need to get through certification. Yes, we need to support these nascent industries in the ways that you described, but getting through certification will memorialize these jobs and keep them in place.

Ms. SCHOLTEN. Thank you. I am going to get to my last question very quickly, but my district is home to Anzen Unmanned, a small business that assists AAM manufacturers in navigating FAA regulations, and I am fortunate to have seen their work firsthand. It is very impressive.

It is my understanding that as American manufacturers pursue new technologies, they are often met with opaque decisions, delayed timelines from the FAA. To ensure our economic prosperity, national security, and global dominance, we have to work with industry to develop safe, clear, and timely regulations to authorize AAM certification and service.

Opening it up to the panel—and I know I am slightly over here, but can——

Mr. NEHLS [interposing]. Yes.

Ms. SCHOLTEN [continuing]. In a word, how can Congress and the FAA work with OEMs to ensure transparency and predictable AAM regulations?

Mr. CLARK. Consistency.

Mr. PAINTER. That is a great one. Consistency and very clear guidelines in terms of the things for means and methods of compliance.

Mr. ROSE. I actually think things are trending quite positively in the last year, especially under the new leadership. I would give credit to Deputy Administrator Rocheleau and Administrator Bedford. I think it comes down to leadership and empowerment issue more than anything else in the FAA, and I think things are moving in the right direction.

Ms. SCHOLTEN. Thank you.

Mr. NEHLS. Okay, I appreciate that. I ask Members to keep it to 5 minutes, please. I am giving too much grace here, I think. I am getting taken advantage of here. Keep it to 5 minutes.

I now recognize Mr. Burchett for 5——

Mr. BURCHETT [interrupting]. Or Burchett, whichever the case may be.

Mr. NEHLS. Burchett.

Mr. BURCHETT. Tony Dorsett was Tony Dorsett until he won the Heisman. Then he became Tony Dorsett. I have not achieved the Heisman just yet, but I am in the running. So, thank you, Mr. Chairman.

And I want to thank you all for being here. Honestly, I am a little—I hate it that we are getting away from pilotless flight. My mama flew an airplane during the Second World War, and I am kind of partial to pilots, especially the female ones. Every time I get on an airplane and they see my congressional pin and they say, oh, and I always show them a picture of my mama during the war in her airplane. So, I am coming at you from that angle, if that is all right.

But how many of you all are publicly traded? I know, Mr. Clark, you just said your company just went public. How many of you all are publicly traded, your companies?

Mr. PAINTER. Wisk is a subsidiary of the Boeing Company.

Mr. BURCHETT. Okay. Mr. Rose?

Mr. ROSE. We are private.

Mr. PECORARO. We are an association of State agencies.

Mr. BURCHETT. Okay, cool. I was just curious. Mr. Clark, I was—I think Pete Stauber, my dear friend, is very passionate about his issue, and he brings up a really good point, that the—and I understand the chemical makeup is different, possibly, from maybe what you were discussing. But China is a problem. He has had these mines in his district that have literally been trying to get permitted for 30 freaking years, and that is a big problem. And I appreciate your passion in addressing that.

But I want to give you a little further opportunity to discuss the ability that you all have to get these minerals that are allegedly rare earth, but as we are finding out, a lot of them may be sort of like the diamond market. It is just sort of a created market because they limit the supply coming and going, and the Chinese are very good at that, and Washington is very greedy to do whatever the lobbyists tell us. So maybe you could address that.

Mr. CLARK. Yes, thank you for that opportunity.

First, I think my passion is only in technical correctness because I am a scientist. I was a science teacher for a period of time. I just want to make sure that when we are saying something about data or whatever, we are accurate in our words and accurate in our data.

I 100 percent agree with you. First of all, by the way, my daughter is a pilot, as well. I have a whole family of pilots. I am a pilot, a flight instructor. I love to fly. Our aircraft initially is piloted, but I do see the benefit in certain applications of unmanned applications, specifically on the minerals.

There is no lack of these minerals. That is well, well known. It is the technologies to efficiently and cleanly refine them. The extraction of these minerals and then the refinement to a concentrate and then down to the point that we can use them in magnets, that we can use them in batteries, that is the missing link. And it is a technology that we let evaporate because China had a 50-year

plan, they economically crushed the market, all the American companies went out of business, and we lost the technology. That is the key thing.

We used to make—in my former business, we made electrochemical mining power supplies for exactly doing this. So unfortunately, I have a deep understanding of how this process works and how that was decimated. We need to invest in the technology to be able to do this.

The permitting is a whole other issue that absolutely we need to agree on, but the permitting is held up because we haven't advanced the technologies to cleanly extract this from typically a radioactive base, by the way. That is the problem in extraction of these minerals. We need to invest in it as a country. And I know that is not what this hearing is about, but it is existential to missile systems that I used to develop—I developed the electrification of the Patriot missile system—to our types of airplanes, to electric vehicles, to hybrid vehicles, and, ironically, even to ICE engines. These things are dependent on rare earth minerals for things like sensors and generators and alternators, all of these things.

So, I 100 percent agree with you. It needs to happen and we need to invest in it now. And we need to get in partnerships with other countries that have the specific rare earths necessary for the advancement of these industries.

Mr. BURCHETT. You mentioned something that reminded me, during the Reagan administration—I am a motorcycle guy. I own several——

Mr. CLARK [interposing]. Same.

Mr. BURCHETT [continuing]. Several old bikes, all kickstart, no fuel injection in the Burchett stable. But I remembered when the Japanese flooded the market on 1,000cc motorcycles. I guess in the early 1980s, I was probably just out of high school, but I remember watching that. And they flooded the market with 1,000cc and above bikes. And of course, that is all that Harley made, and it literally—they were making a terrible motorcycle at the time, obviously. Then the families and the groups, about seven, eight of them, got together, pooled all their resources, mortgaged their homes, their retirements and everything, and Reagan put tariffs on the big bikes coming from overseas, and it stopped them and allowed Harley time to get back into it.

And the Chinese are doing exactly that. It is the Walmart model on gas stations. They flood the market with cheap products, put everybody out of dadgum business, and then they come in and they own the market. And I hope you continue in this——

Mr. CLARK [interrupting]. You know——

Mr. BURCHETT [continuing]. In your quest and we tell those Chinese they can eat their dadgum rare earth minerals, and we will get them right here.

Mr. CLARK [continuing]. I was shown a satellite picture and a couple of closeups of a direct copy of our airplane in China. I shared this with the Secretary of the Air Force. The Secretary of the Air Force then got catalyzed to lean into these programs. They are copying what we are doing. We have the edge right now is the point.

Mr. BURCHETT. Right.

Mr. CLARK. We have the edge right now. We need to unblock our certification path and be consistent——

Mr. BURCHETT [interrupting]. If you have an idea for legislation like I have gone over, you call me. I want to get involved, because I don't trust the Chinese as far as I can throw the dadgum dome off the Capitol, and I would like to get involved with that. Thank you, brother.

Mr. NEHLS. Thank you, sir.

Mr. Johnson.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman, and also to the ranking member, for convening this hearing. And thank you for the witnesses for your testimony today.

The aviation industry has been hit hard this year. Shutdowns, budget cuts, and poor treatment of aviation workers have left our skies and our workforce struggling. And this is happening as advanced air mobility offers our Nation the opportunity to modernize and rebuild our aviation sector, which will provide opportunities for innovation and job growth.

Advanced air mobility will create good jobs in manufacturing, engineering, and in operations. It will foster greater connectivity with rural areas, ease traffic congestion in crowded cities, and provide people with more choices for travel and transport. It is about building a safe, efficient, and sustainable aviation system over the next generation, and I am proud to say that it was the Congress that set this foundation in place with the FAA Reauthorization Act of 2024 with the rules, funding, and vision needed to safely bring this technology into our skies.

But a vision is only as good as the action behind it. Mr. Pecoraro, general aviation airports will play a critical role in integrating advanced air mobility into our national airspace. These airports are often closer to communities and can serve as hubs for air taxis and cargo. However, many of these airports remain underfunded and face challenges in upgrading infrastructure, hiring staff, and meeting safety requirements. What specific funding mechanisms or potential adjustments to the Non-Primary Entitlement program would provide the most immediate and practical support for States and local communities to prepare their airports for AAM integration?

Mr. PECORARO. Thank you for that question, Mr. Johnson. I think you have hit on a critical point, and that is, while we have a large network of federally funded airports across the country, the smaller GA airports don't often receive some of the funds that they need to keep their infrastructure as well maintained as they would like, and also to take advantage of these new opportunities.

One of the things that we proposed during the reauthorization discussion, along with ACI-North America, was that we revised the Non-Primary Entitlement grant program. As you know, those numbers, $150,000 a year, have been in place for many, many years, for decades. And you really can't buy much for $150,000 anymore. And if you bank the funds over 4 years as you are allowed, $600,000 still doesn't buy you very much. It doesn't even buy you a planning study to try and do the work that you need to do to get ready for advanced air mobility.

So, what we proposed was reform of the NPE program on a graded scale, so that we take a look at using the asset study classifications that the FAA is now applying to funding to allocate different levels of funding to some of these airports so that they would have a little bit more money and more resources.

We also suggested that States have the ability to act as transfer points for these funds so that States could help airports in their States be able to move these funds back and forth between each other so that when an airport is ready to use it, the funds will be available to it and other airports that aren't ready can set those funds aside.

So reforming the NPE will be a tremendous help in fixing this.

Mr. JOHNSON OF GEORGIA. All right, thank you.

Mr. Clark, in your testimony, you mentioned that over 85 percent of BETA's supply chain is U.S.-based, supporting roughly 40,000 American jobs. As AAM continues to grow, the ability to source components domestically will be critical not only for economic development, but also for national security, resilience, and supply chain stability. What steps can be taken at the Federal, State, and industry levels to further strengthen domestic sourcing, incentivize American manufacturing, and ensure that AAM remains a long-term driver of high-skill jobs and innovation in the United States?

Mr. CLARK. Yes, thank you for the question. I went to a tech school, and I was on the board of the local tech school for a long time, really focused on bringing high school students into the trades and into technology. That is the foundation, making sure that we have an education system that gives people the tools they need to produce the goods, the technological goods, the factories, and the technology that we consume.

But I am going to state the obvious. The supply chain is moot if we don't get these airplanes in the air and flying. You guys in Georgia have done a phenomenal job. There are five regional airports in Georgia where our chargers are already in place and operating. We have been flying down there, as you know. So getting these things in place, getting through certification, making sure that we have clear and consistent rules from the FAA will create the opportunity to leverage our domestic supply chain, and that is what we have done at BETA. We have said we are going to focus on a domestic supply chain.

It's a realization that in a nascent industry with a high degree of innovation, you want that stuff very close so that your suppliers can innovate with you. And this is happening in semiconductors, it is happening in magnets, it is happening in compute. And that is what we are focused on. So continued investment in the tools to keep the technology here through education and awareness, investing in our trade schools is very important to me to make sure that we keep that supply chain domestic, because it all starts with the people that are producing these critical, critical technologies for our industry.

Mr. JOHNSON OF GEORGIA. Thank you, and I yield back.

Mr. NEHLS. The gentleman yields. I now recognize Mr. Mann.

Mr. MANN. Thank you, Mr. Chairman, I want to thank you for hosting this hearing. And thank you all for being here today. Fas-

cinating conversation. It is incredible, the things that you all are doing.

I represent the Big First district of Kansas. Aviation is a critical industry in my State, with roughly 100 general aviation airports, several commercial regional airports, and a huge footprint in aviation aerospace manufacturing.

Kansas is also home to several industry-aligned education and research institutions that are leading the way in the most critical areas of aviation and aerospace technology and manufacturing. Their focus on advanced air mobility, autonomous systems maintenance, and in manufacturing are crucial in developing a talented pipeline for the workforce and in keeping the United States at the forefront of adopting this technology.

Continuing on the theme of workforce that I appreciate the gentleman from Georgia kind of opened, for you, Mr. Clark, the FAA Reauthorization Act we passed last year extended the Aviation Workforce Development Grant program to advanced air mobility. Kansas State University Salina College of Technology and Aviation, located in my district, produces professional pilots, maintainers, and UAS operators. How can partnerships with programs like K-State Salina help the AAM ecosystem to flourish?

Mr. CLARK. Yes, I am glad you brought it up. So the pilots—actually, these AAM aircraft are very easy to fly. In some cases, you don't even need a pilot. But the maintainers are actually really important as well. I am glad you brought that up.

So how do we do that? We make sure—and we work closely with NIAR, we work closely with the surrounding universities that work closely with NIAR to make sure that a part of their curriculum includes the things that are necessary to keep these airplanes flying safely and to develop the engineers that continue to work on it. We have programs within our company, for example, where people go through—they get their pilot's license, everybody gets their pilot's license for free in our company. They also have the option to get their A&P mechanics license. And those make the best engineers to bring safe and reliable products forward. We want to see that mirrored in the education system.

And I will tell you that, like, you guys are doing it right, and we are trying to mimic what you have done around Wichita and in Kansas. And I think there needs to be more of that focus on the job-specific training, whether it be the softwares, the technologies, the modeling techniques that are used to make safe and reliable aircraft.

And I will use this just to say one thing. We went down to Kansas, and we did all the modeling on some of those—advanced modeling in the world—with NIAR. We dropped lithium-ion batteries, 600 pounds of them at a time from 50 feet in the air, hit the ground. No fire, no outgassing, no challenges whatsoever because of the science behind it. That doesn't happen when you drop a bag of gasoline. And this happened down at NIAR because of the advanced research.

Mr. MANN. Because they are able to do it. No, that is right.

The next question again for you, Mr. Clark. The thing about rural—you know NIAR, but then we also have a lot of rural airports in Kansas. Some rural general aviation airports already have

the infrastructure. We have the airspace and the community relationships needed for early advanced air mobility operations. Your company has emphasized the value of using existing airport infrastructure to support AAM operations. What do AAM companies need from these rural airports and their university partners to support R&D, flight testing, and the early operational trials?

Mr. CLARK. Yes, absolutely, and it is the early operational trials. We are through R&D flight testing, right?

Mr. MANN. Yes.

Mr. CLARK. We know the systems work. We are building conforming articles and putting them out in the world. In my account, there are 4,300 applicable airports in the United States to bring these types of goods and services, medical products, and move people. They need a very small investment in infrastructure in some cases. There are degrading runways or degrading tarmacs. We need to invest in that infrastructure. We need to maintain the instrument approaches there. And in our case, we need to invest in a small amount of charging. And in no cases are we asking for the Federal Government to pay for that charging. What we are asking for consistently is the Office of Airports to allow for that permitting to go smoothly and cleanly and allow us to operate efficiently to get this stuff installed. It is a tiny bit of infrastructure.

And I want to give you three facts. It is over $23,000 a foot to put in rail. It is about $2,000 a foot to put in a highway. And it is about 20 cents a foot to connect two rural airports with a little bit of infrastructure on each end. Orders of magnitude difference and we get the same benefit. We efficiently move goods and people.

Mr. MANN. Yes. No, that is great. Well, I just ask everyone to keep the rural aspect of this in mind. Huge opportunity, huge need, huge opportunity as well. I know many of you are already focused on that.

So, thank you, Chairman. With that, I will yield back the balance of my time.

Mr. NEHLS. Thank you.

The gentleman yields. Ms. Gillen, you are recognized.

Ms. GILLEN. Thank you, Mr. Chairman, and thank you, Ranking Member, for holding this hearing. Thank you to our witnesses for appearing before us today.

So, I represent New York's Fourth Congressional District on Long Island. And the communities that I represent are in close proximity to two of the busiest airports in the world: JFK and LaGuardia. And as a result of that, unfortunately, that means a lot of the people that I represent and people in my neighboring congressional districts are subject to an unbelievable excessive amount of noise from being so close to the airports. And it seems that in these communities, flights take off as frequently as every 90 seconds. I, in fact, opened a campaign office at the edge of the Queens border, and I was outside talking to somebody, and I could not believe the volume of the noise coming from the airspace above. So, this has a significant impact on my constituents' health and mental well-being.

So, Mr. Clark, your company, BETA Technologies, is developing a new generation of aircraft that can help reduce aviation noise by as much, you say, as 90 percent, which is something that is wel-

come to my ears. So, in June, I know your company partnered with the port authority and you completed your first passenger-carrying flight with a fully electric aircraft to the East End of Long Island and landing at JFK. So, do you believe that this technology can be deployed widely across the aviation industry, and especially in such a congested airspace?

Mr. CLARK. Yes. Great question, yes. I got to personally fly that with the first passengers into JFK. It was awesome.

Ms. GILLEN. Yes.

Mr. CLARK. And we did this for about $7 on electricity. And the reason I bring that up in the context of noise is this: when you use less energy, you can waste less energy. A more efficient aircraft is inherently quieter. Noise is wasted energy. That is all it is, right? It doesn't do anything productive except annoy people. And that is not what we are trying to accomplish in aviation.

And I will tell you a quick little story. I was flying in an air show down in Arkansas in our electric airplane, and in come the World War II fighters. They do their air show portion. I come in on the electric airplane, and the air boss gets on the radio and goes, "You are going to need to do that again. Nobody was looking."

And I was like, "Oh," and I come back around, and they make an announcement.

And he goes, "A third time. I will get everybody looking to the left." They didn't know where I was coming from because it was so quiet. Electric aviation is inherently quieter because of the efficiency, but we purposefully design our aircraft to do that.

And I think there is another thing that is not talked about. A helicopter is always hanging on its rotor. It is taking off on its rotor, it is hanging on its rotor, it is landing on its rotor. These advanced air mobility aircraft, they take off and for, like, 30 seconds they are pushing the air down to make the airplane go up. And then they are flying very cleanly on a highly efficient wing with an electric motor almost silently through the sky. You wouldn't even look up if it went over the top of Long Island. And I have flown a bunch around Long Island, both in helicopters, airplanes, and in our electric aircraft.

Ms. GILLEN. And what about deploying it through such congested airspace?

Mr. CLARK. Yes, it is a great question. So, a self-aware aircraft is also situationally aware. Situational awareness allows us to have safe flight in congested places. And I think this is a really important concept, that we can do all the ATC modernization that we need to do, but it is like the groom showed up to the wedding, where is the bride? Well, the bride has to be us bringing airplanes that bi-directionally communicate over data links to ensure that we have good, safe separation and situational awareness, both for the controllers and for the pilots in the airplane.

So, our technologies coming into the airspace, especially in the low-altitude regime, need to be bi-directionally cooperative within ATC modernization. And undermining the path to certification through a moving goalpost and changing rules is the way that we keep that ATC modernization from really capturing what it can be, which is a complete holistic system for safe and reliable air travel.

Ms. GILLEN. Thank you. I look forward to hearing more, but I quickly wanted to get to—we heard testimony about how this technology can import medical transport delivery. I believe Mr. Clark or Mr. Painter, you talked about increasing the speed and reliability of organ delivery. That is very important to me. My sister was 6 years old, she needed a liver transplant. She got a call, and there was no flight, even in New York, available. And my parents had to drive her to Pittsburgh to get her transplant. So, I would love to hear more about how this technology can improve situations like that for people in that——

Mr. CLARK [interrupting]. Yes, absolutely. Helicopters are grounded because of weather too often. These aircraft are all-weather aircraft that allow us to increase the reliability. It lowers the cost and the dispatch rate because simpler aircraft is higher. So now we have lowered the cost so more people get access to it, we have a higher dispatch rate, and we can fly in all weather. That is goodness for medical transport.

Ms. GILLEN. Great, thank you. My time is up. I also would have liked to have heard from you, Mr. Painter.

Mr. NEHLS. I now recognize Mr. McDowell for 5 minutes.

Mr. MCDOWELL. Thank you, Mr. Chairman, and thank you to the witnesses for joining us today.

Mr. Clark, following the President's Executive order in June of this year, the FAA solicited applications for the pilot program for eVTOL aircraft deployment. And I understand that BETA is partnering with the NCDOT on an application. What would that mean for my constituents in central North Carolina if that project were selected?

And how could that contribute to rural prosperity in my district?

Mr. CLARK. Yes. It is—so I was down at our Raleigh office on Monday. We have a large number of employees down there. We are in a bunch of your airports right now, including TTA, and we do have a, I think, a very, very strong proposal to increase rural access to medical cargo and logistics in North Carolina. And as you know, it is partnering with a couple other States, because aviation should not be constrained to a single State.

So, how does it exactly do that? It lowers the cost of access. And the case that I find fascinating is actually moving telemedicine equipment to increase the level of technology that is applied to the noncentralized hospitals. And what that does is fascinating to me, as well, is that when your grandmother or grandfather gets sick, the unfortunate reality is if you live in a rural place—I am up in Vermont, we live in a rural place—you have to transport that person to a centralized hospital, and that takes the balance of the family out of work. It takes them out of school. It may make them lose their job, taking care of their father or their mother.

By bringing the products, the blood products and the people in some cases, and the telemedicine equipment to the satellite hospitals, which is one of the many missions that we are pursuing, allows those families to keep their jobs, stay close to their loved ones. And I find that a very compelling mission, not to mention what we just talked about, which is the reliability of the transport of organs and other critical, very, very time-sensitive, low-shelf-life medicines.

Mr. MCDOWELL. Sure. So you said in your testimony that the electric aircraft are safer than traditional aircraft. How?

Mr. CLARK. So batteries are an engineered product. And I know that we take a lot of spears. That is kind of how you can identify a pioneering industry, you get a lot of spears in the back. Batteries are an engineered product. They carry a lot less energy, and it is a controlled amount of energy. It is safer because we get to design that product to handle all of the potential crashes, non-normal conditions in any such way.

The aircraft is also self-aware, so it tells you well in advance of any type of potential failure that something is going to go wrong, because—we have 13,000 cells in our airplane. Every single one of them is monitored. And batteries don't just up and poof; they tell you a long time in advance.

Now, if you are a small, Chinese electric scooter with no self-awareness, it gives batteries a bad rap. But safe and reliable batteries are what we are putting into these airplanes. And then it goes on.

And I will ask, if you don't mind, Robert to discuss some of the autonomy stuff. But a self-aware aircraft is the first kernel of an autonomous aircraft, which increases the safety.

Mr. MCDOWELL. Let me switch gears here a little bit. Mr. Painter, what is the single biggest issue that we should consider as Congress when we are crafting regulation, any additional regulation for these new technologies?

Mr. PAINTER. Yes, thanks for the question. When we think about the comments that have been made throughout the day, this industry is an entirely new growth vehicle for aviation. And industry, both from entrepreneurial all the way to the biggest aerospace company in the world, are investing significantly in this marketplace. So, looking for a partnership with policy in terms of what needs to change to enable AAM to actually become a reality and moving through the certification process, clear guidelines with the FAA. Allowing the FAA to focus also on safety, but also how innovation makes the airways safer.

So, one of the things I applaud, the downpayment of the brandnew air traffic control system for $12.5 billion. As it relates to autonomy, we think it is really exciting when you look at the first products coming to market. As Mr. Clark has talked about, BETA is going to be out there with a piloted version. And then in certain applications, we see the real way to scale this industry into congested airspace, into rural areas is actually with an autonomous solution. And the reason for that is integration into the national airspace.

How do you actually have predictable flight? How do you actually reduce air traffic control burden? And a lot of that is moving away from voice command, moving toward digital communications. So, the investment that the U.S. Government, we suggest, would continue to make is in modernizing the national airspace. And industry will bring the right technologies to bear of how do we actually integrate our aircraft into that airspace.

Mr. MCDOWELL. Well, thank you, and thank you all for being here.

Mr. Chairman, I yield back.

Mr. NEHLS. The gentleman yields. I now recognize Ms. Norton.

Ms. NORTON. Thank you. This is a question for Mr. Clark.

As cochair of the Quiet Skies Caucus and the Member who represents the District of Columbia, which is plagued by airplane and helicopter noise, I support advanced air mobility technology that can reduce aviation noise. I am pleased we were able to get advanced aviation mobility provisions included in the FAA Reauthorization Act of 2024.

Advanced aviation mobility that allows the electric vertical takeoff and landing would be especially beneficial to airport-adjacent communities like DC, since takeoffs and landings are a source of aviation noise.

Mr. Clark, in your testimony, you mentioned the noise benefits of electric airplanes and helicopters. Could this technology be incorporated into the Federal Government helicopters that frequently fly over the District of Columbia?

Mr. CLARK. Yes, thank you for your question. So, I am pleased, as well, that it was put into the Reauthorization Act. It is a really important recognition that our business and our industry is growing.

Not only can the technologies be incorporated into the helicopters that we consistently see up and down the Potomac, but it should replace those. A lot of those executive transport helicopters, the safety can be increased by these types of aircraft. And ultimately, I do think that our generals and our dignitaries here should be carried around in aircraft that are not polluting the noise up and down the Potomac, costs less, and are safer. There is no question that it can do that.

One of the things about the commercial traffic in and out of DC—and elsewhere, but specifically into Reagan—20 percent of all flights are under 200 miles right now. That is within striking distance of our aircraft and other people's in this industry today. That is a huge reduction, and battery energy density and other technologies are increasing the performance of this aircraft on a regular basis. This was my senior thesis in college, by the way, more than 20 years ago. That is when I started this whole adventure in BETA. Battery energy density has tripled since the first time that I put all of this together. That means that the range more than triples.

So, we can not only do it with all the helicopters you referenced going up and down the Potomac, but we can do it for transient airplanes that are coming in from the regions around Washington, DC.

Ms. NORTON. Mr. Clark, what else can Congress do to facilitate the development of low-noise, advanced aviation mobility?

Mr. CLARK. Yes, I think your continued support and alignment with the FAA is most important.

Our industry, as pointed out previously, is well funded, the technology works, we are flying all over the world. We are flying in Norway, we are flying down in New Zealand. We are flying all over the country. What we need is the unlock of type certification.

And so when the FAA and us agree to a particular set of rules, those rules have to be consistent, and they have to be held accountable, the FAA does, for timely responses to our entire industry.

Once we spend the millions and millions of dollars we do to prove something is safe, we need the FAA to adjudicate on that efficiently, and we will realize the dream and the world that we just kind of described out over here in the Potomac.

Ms. NORTON. I yield back.

Mr. NEHLS. The gentlelady yields. I now recognize Mr. Onder for 5 minutes.

Dr. ONDER. Thank you, Mr. Chairman, and thank you for all our witnesses being here today.

Advanced air mobility, AAM, is transitioning rapidly from conception to reality. These aircraft and technologies can improve safety, increase access to rural communities, support emergency responses, and boost American manufacturing. However, that future relies on the FAA properly enforcing the laws Congress passes and doing so in a way that encourages innovation rather than hinders it.

Mr. Rose, I was reading your testimony. I was very pleased to see on page 5 you shouting out H.R. 4146, the Pilot and Aircraft Privacy Act of 2025, or PAPA. That is my bill, which you said "provides robust privacy protection to ensure ADS–B data is used only for air traffic and aviation safety purposes," exactly the point of the bill. If ADS–B is being used by, I will say, bad actors to monetize airport landing fees, that is going to discourage folks from employing ADS–B or adopting ADS–B in the first place, or turning it off if they are not.

You mentioned in your testimony 65,000—I assume mostly general aviation aircraft—currently lack ADS–B Out. And I think the FAA on purpose required—I am a pilot myself, and I adopted ADS–B Out right away because I am an instrument-rated pilot, so I fly in Class Bravo and Charlie airspace all the time. So, those 65,000 aircraft, they are mostly, I would imagine, in rural, nontowered airports. What can we do to encourage adoption?

Because I don't think I am quite ready to mandate ADS–B Out on a crop duster or someone's Piper Cub that they fly on the weekends, not venturing far out of the flight pattern.

Mr. ROSE. I think this is a great topic. Thanks for bringing attention to this.

Dr. ONDER. Thank you.

Mr. ROSE. I think it is very unfortunate that ADS–B in 2025 is not more broadly adopted across the United States.

Dr. ONDER. Yes.

Mr. ROSE. It is really about safety.

Dr. ONDER. And I remember when I first heard about the mandate. I was a relatively new private pilot at the time. And I called my local aviation shops at Spirit of St. Louis Airport, where my plane was, and I started talking to them, and everyone wanted to sell me a new navigator, or a new glass panel or something, and then I ran into an article in one of AOPA's publications: You can do ADS–B Out for $3,500. And I think now there are even portable options that are less expensive than that.

Mr. ROSE. I mean, that's it. It's about privacy and it's about cost, and also what ADS–B could potentially be used for. And I don't think it should be used for fee collections. It should be used primarily for safety and collision avoidance and situational awareness

in the cockpit. I think it is very unfortunate the conversation has shifted more towards fee collections.

Dr. ONDER. Okay, yes.

Mr. ROSE. I am very——

Dr. ONDER [interrupting]. Yes. It reminds me of red light cameras, which was an issue in Missouri for a while.

You also mentioned, Mr. Rose, that the FAA has been developing ACAS X since 2008, but progress remains delayed. What is the main bottleneck there at the FAA?

And how might we accelerate the deployment?

Mr. ROSE. Well, it's two things. It's industry and the FAA. So the industry, I think, with the exception of Reliable Robotics, I think, has failed to bring this technology to market quickly.

Dr. ONDER. Okay.

Mr. ROSE. That is our radar that we are developing in-house, which will be the first commercially developed electronic scanned array antenna radar. We will utilize the FAA's ACAS X algorithm for collision avoidance purposes, and this will then give the FAA something to regulate.

I also just very recently in—actually, during the Government shutdown, the FAA continued to work on safety-enhancing technology certification, and they just recently published two TSOs for comment—I think we have until the end of the month now—that would put out new standards that would utilize ACAS X. So I really think the FAA should be commended for that work.

Dr. ONDER. Terrific, thank you.

I yield back, Mr. Chairman.

Mr. NEHLS. The gentleman yields. I now recognize Mr. Stanton for 5 minutes.

Mr. STANTON. Thank you very much, Mr. Chairman.

Advanced air mobility is moving into an exciting area and holds a lot of promise, especially for aviation-dependent States like my home State of Arizona. I am excited to have leaders like Governor Hobbs and Mayor Gallego, and great companies like Honeywell, who have helped position Arizona as a national leader in aviation innovation.

But AAM is entering a period of real-world pressure, where the technology is racing ahead but the systems on the ground are struggling to keep up. Around the world, other countries are already adapting: China has certified eVTOL aircraft for commercial use; Europe is steadily moving forward toward routine demonstrations. These other countries are gaining the operational experience that positions them as leaders and ultimately determines how these systems function, both commercially and militarily.

Here at home, momentum is slowing because we are falling behind on the ground. Although this technology is advancing quickly, the FAA has not yet certified an AAM aircraft. And airports, utilities, and local governments are still trying to understand how this new category of aviation fits into systems never designed for it.

As the committee continues its important work, we need more than enthusiasm. We need clarity. How will the FAA and industry demonstrate AAM under real-world conditions with real operational evidence? How do these aircraft operate in mixed airspace? How much workload do they add for controllers and legacy opera-

tors? How does charging affect the grid? How do we preserve emergency and public safety priorities under this stress? These are important questions, and the answers should come from environments capable of generating decision-quality data.

In Arizona, we have had to solve these challenges out of necessity, forcing coordination across systems long before AAM entered the picture. When I served as mayor of Phoenix, our aviation system faced demands few regions encountered, all at once: rapid growth, heavy commercial activity, constant training flights, long distances between communities and Tribal nations, and year-round emergency operations in extreme heat. If AAM can operate predictably in Arizona, it is a strong indication that it could work in many other parts of the country. And that is the kind of evidence I hope that this committee hears more about. With that, my first question is for Mr. Pecoraro.

Based on what you are hearing from State aviation officials and airport directors, where are the biggest gaps between operational planning AAM requires and what the FAA is preparing for now?

Mr. PECORARO. Thank you, Mr. Stanton, for that question.

I think what the States are most looking forward to seeing from the FAA is a lot more clarity on some of the issues that you were talking about. We need clearer ideas and final plans for what vertiports need to look like. We also are very interested in seeing national standards on charging equipment. We don't want to see airports having to equip with different ways to support different aircraft. That is very expensive and counterproductive. So, those are some of the types of things that we really need to see more quickly.

What the States need to have is the opportunity, in a formal way, to be consulted by the FAA in discussing these issues. Standards don't make sense if you can't meet them, and so we need to be able to work together to try and set standards that work across the industry.

Mr. STANTON. That's great. And the next question is for Reliable Robotics.

Mr. Rose, your testimony mentioned that increased collaboration between the FAA's Air Traffic Organization and Flight Standards division has allowed the agency to make needed progress on certification projects. Can you expand on that a little bit, on how this partnership has facilitated this work, and what further changes are needed to support AAM?

Mr. ROSE. As I mentioned earlier, I think this does ultimately come down to leadership. And so things are trending in the right direction under the current administration.

To give you some details on the challenge, when you are talking about bringing a new technology to the airspace system like what we are developing at Reliable, this requires very close coordination not only between the Aircraft Certification Office, but also the Air Traffic Organization, Flight Standards, and the safety organizations within the FAA. And historically, the FAA has not had mechanisms to allow alignment between these stovepipes of excellence, if you will.

Mr. STANTON. All right.

Mr. ROSE. So there is some new language in the FAA Reauthorization Act that just passed last year—thank you—that encourages better collaboration through this new safety coordination program. And so I think that has helped unstick this.

But also, the current leadership has done a lot to pull things together within the agency, and we are trending in the right direction.

Mr. STANTON. Thank you so much. I am out of time, so I will submit my final question in writing for later answering, and I will yield back.

Mr. NEHLS. The gentleman yields. Thank you, Mr. Stanton.

Ms. Pou, you are recognized.

Ms. POU. Thank you so very much, Mr. Chairman.

Our region is uniquely positioned to benefit from advanced air mobility through quicker commute times, reduced ground congestions, and new avenues for economic growth. But it also is uniquely vulnerable if strong safeguards are not present. Advanced air mobility may well be the next frontier in transportation, but if AAM is going to lift off, we must confront several challenges head on.

First and foremost is the air traffic controllers crisis. The tristate space is already among the busiest and most complex in the world. Even before the shutdown, Philadelphia TRACON faced repeated equipment failures. Meanwhile, New York TRACON remains chronically understaffed. Controllers are working exhausting schedules simply to maintain safe airspace. Introducing AAM aircraft into this space cannot place even more strain on our overtaxed air traffic controllers.

So, FAA must have a clear, viable plan for, one, integrating AAM aircraft into our airspace; two, ensuring adequate oversight over increasingly automated flight systems; and three, establishing necessary controller staffing level and training to ensure safety.

Second, residents like mine in Clifton and other communities are already living with nonstop helicopter activity, including tourism and commuter shuttles that pass all day long. As AAM testing begins around Newark, Teterboro, and along Hudson corridor, innovation cannot come at the expense of quality of life. This means ensuring clear Federal noise standards for new aircraft classes, proactive engagement with local and State governments, and fully funding the fiscal year 2023 AAM Infrastructure Grant pilot program so States and municipalities can prepare responsibly.

New Jersey and New York are doing their part. The port authority, the NJDOT, and the regional planners are studying potential routes and environmental impact, but State efforts alone aren't enough. We need strong Federal leadership and FAA coordination before these aircraft enter routine use.

Let me just ask this one question to Mr. Pecoraro. Sorry I killed your name there, pardon me. New Jersey is home to a major commercial airport like Newark Liberty and highly active airports like Teterboro in my district. What resources do States need most from the FAA to help airports prepare for AAM, especially as it relates to funding, planning, infrastructure standards?

And how would we ensure that communities' needs are respected by Federal authorities?

Mr. PECORARO. I think you already have a strong infrastructure in the area around those airports for public input is my understanding, and hopefully that is able to be maintained going forward as we discuss advanced air mobility operations.

I think that one thing, as we have talked about here today, is that those operations will be cleaner and quieter, and I think that is going to be a big contribution towards public comfort with advanced air mobility operations.

Beyond that, to the initial part of your question, funding for planning is key. It is important that we be prepared for the integration of this activity. We all know it is not going to happen next month, but it is coming soon, and airports need to be prepared, and we need to be discussing these issues and creating more public awareness, and particularly what I like to call public engagement with local elected officials. Too few local elected officials, State legislators who are going to have to make critical funding and planning and zoning decisions around these types of operations, are even aware that this is imminent. And I think that there is a big job to be done very soon in trying to make people more aware of that.

Ms. POU. Thank you so very much. I have 2 seconds. Let me just say I thank you for that. Local and State officials are absolutely critical in making this work. There are many, many questions on multiple other areas, especially on labor and other types of needs, as well as training and staffing. But thank you so very much.

Thank you, Mr. Chairman, I yield back.

Mr. NEHLS. Thank you.

Ms. Hoyle, you are recognized for 5 minutes.

VOICE. [Inaudible.]

Mr. NEHLS. Oh, you don't?

Ms. HOYLE OF OREGON. No, sir.

Mr. NEHLS. No? Very well. Thank you.

I don't believe we have any further questions from members of the subcommittee, so, I conclude this hearing.

I think this is a step in the right direction. We had these roundtables, and it's bipartisan, and I think these roundtables—yesterday we had one—I see some of the folks sitting behind you were at the roundtable. I think that's a step in the right direction. But yes, it's including everybody. It's AAM, it's all of it. And you have my commitment that your voices will be heard. Your concerns will be heard as we continue to modernize the NAS, or ATC, whatever you want to call it. But I believe this is a step in the right direction.

It's good to be working with my new minority member here. It's going to be fantastic. And God bless you all.

This subcommittee stands adjourned.

[Whereupon, at 12:29 p.m., the subcommittee was adjourned.]

# SUBMISSIONS FOR THE RECORD

**Statement of the Association for Uncrewed Vehicle Systems International, Submitted for the Record by Hon. Troy E. Nehls**

Chairman Nehls, Ranking Member Carson, and Members of the Subcommittee:

Thank you for the opportunity to submit this statement for the record and for hosting three AUVSI member companies—Wisk Aero, Reliable Robotics, and BETA Technologies—at this hearing. AUVSI represents the full advanced air mobility (AAM) ecosystem, including manufacturers, operators, autonomy developers, technology suppliers, and service and infrastructure providers developing the next generation of aviation. Our members are investing in American manufacturing, high-tech jobs, and new aircraft and infrastructure that can strengthen mobility, safety, and national security.

The United States is at an inflection point. The decisions made now by the United States Congress and the Department of Transportation (DOT) and Federal Aviation Administration (FAA) will determine whether the nation leads the global AAM landscape or risk falling behind. Companies advancing electric aircraft, remotely piloted systems, advanced automation, and autonomous passenger services are demonstrating why domestic leadership matters. These technologies carry dual-use value across civilian mobility, logistics, emergency response, and defense.

*AUVSI encourages Congress to advance progress in five priority areas*:

## 1. ACCELERATING CERTIFICATION AND INTEGRATION OF AUTOMATED AND AUTONOMOUS AIRCRAFT

Autonomy and advanced automation already underpin core commercial aviation functions. Applying these technologies to new aircraft designs can reduce human-factor risks, improve situational awareness, avoid mid-air collisions, and create more consistent performance. Continued research, validated performance data, and iterative standards engagement with the FAA, NASA, and standards bodies are essential. AUVSI supports a risk-based certification approach grounded in measurable safety outcomes. The FAA Reauthorization Act of 2024 created new authorities and structures for reviewing these technologies, and sustained congressional oversight will ensure the agency has the clarity and resources needed to implement this mandate.

The Special Federal Aviation Regulation released by the FAA in October 2024 was a critical step towards enabling the electric vertical take-off and landing (eVTOL)-segment of the AAM industry to launch and scale. Looking forward, it is imperative that the FAA and the AAM industry work in lockstep to apply lessons learned from operations authorized under the SFAR and the AAM eIPP to long-term, performance-based rulemakings that establish a clear, phased path from today's piloted and remotely piloted operations to increasingly automated and, ultimately, autonomous AAM services. This includes timely policy and guidance on certification of automated and autonomous functions, operational approvals, and integration into the NAS at scale. Significant work remains to define and implement the autonomy roadmap to enhanced safety and operational efficiency. AUVSI urges the FAA to prioritize this effort and stands ready to work closely with the agency and Congress so that the full benefits AAM aircraft can be realized.

## 2. MODERNIZING THE NATIONAL AIRSPACE SYSTEM (NAS)

Congress's investment of $12.5 billion dollars in air traffic control (ATC) modernization is a vital downpayment. Many core NAS systems remain decades old and will require predictable, sustained funding to modernize and enhance resiliency. While the current ATC can handle initial AAM operations into service, scaled AAM operations, like the broader aviation network, will depend on upgrades to communications infrastructure, surveillance systems, automation services, and ground-to-

ground communications that support remote piloting. Expanding electronic conspicuity, completing next-generation collision avoidance capabilities, and increasing equipage across the NAS will enhance safety and reduce controller workload. These improvements will serve both existing air carriers and emerging AAM operators.

3. ADVANCING THE AAM NATIONAL STRATEGY AND EIPP

The AAM National Strategy and the Advanced Air Mobility Integration Pilot Program offer an unprecedented opportunity to create an integrated, whole-of-government approach. Unlike prior pilot programs, the eIPP is statutorily directed to inform rulemaking, not isolated demonstrations. It should support missions with direct public benefit such as medical delivery, cargo distribution, and rural mobility. Early operations must involve all relevant FAA lines of business and provide actionable data for frameworks that scale safely into routine service on an accelerated timeline to ensure global competitiveness.

4. STRENGTHENING THE INDUSTRIAL BASE AND NATIONAL SECURITY LEADERSHIP

AAM technologies align directly with Department of War priorities such as contested logistics, distributed sustainment, and tactical resupply. Recent prototype operations supported by the United States Pacific Air Force (PACAF) illustrate how dual-use systems can provide value in austere and demanding environments. Domestic manufacturing of aircraft, avionics, and propulsion systems strengthens supply chain security and ensures that national security benefits flow through American workers and communities. Congress should continue supporting policies that reinforce U.S. leadership in certification, automation, and advanced manufacturing.

5. DELIVERING COMMUNITY AND ECONOMIC VALUE

AAM can complement existing rural aviation services, support medical distribution networks, and reduce surface congestion. Electric aircraft may provide cost-effective service for airports that have lost or never had commercial connectivity. Public acceptance will depend on visible benefits and early engagement with local governments, first responders, and community stakeholders. Noise management, vertiport siting, emergency coordination, and infrastructure planning must be transparent and community-driven.

CONCLUSION

Advanced air mobility presents an opportunity for the United States to lead the next era of aviation with safer, cleaner, and more scalable systems. The bipartisan work reflected in the 2024 FAA Reauthorization Act and Congress's commitment to NAS modernization have established the foundation. Continued oversight, sustained investment, and cross-agency alignment will enable emerging technologies to transition from demonstration to daily service, strengthening mobility, national security, and American competitiveness.

AUVSI appreciates the Subcommittee's leadership and looks forward to continued collaboration with Congress, the FAA, and state and industry partners.

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**Letter of December 2, 2025, to Hon. Troy E. Nehls, Chairman, and Hon. André Carson, Ranking Member, Subcommittee on Aviation, from Andre Sutton, International Vice President, Air Division Director, Transport Workers Union of America, Submitted for the Record by Hon. André Carson**

DECEMBER 2, 2025.

The Honorable TROY NEHLS, Chair,
The Honorable ANDRÉ CARSON, Ranking Member,
*Subcommittee on Aviation,*
*Committee on Transportation and Infrastructure, U.S. House of Representatives.*

DEAR CHAIR NEHLS AND RANKING MEMBER CARSON,

On behalf of the more than 160,000 members of the Transport Workers Union of America (TWU), I offer the following statement for the record as part of the Subcommittee on Aviation's hearing entitled *America Builds: The State of the Advanced Air Mobility (AAM) Industry*. The TWU is the largest airline union in the U.S., representing mechanics and dispatchers, as well as flight attendants, ramp workers, and other essential airline workers. Our members operate and maintain nearly 50%

of all public transit rides; and we are the largest union on Amtrak's Northeast Corridor. All of these workers and many others will be directly affected by the introduction and normalization of AAM.

To maintain safety standards in our airspace, AAM should be required to import standards for maintenance and dispatching from the larger air system, which continues to be the safest mode of transportation ever. Additionally, AAM must be addressed in the context of the other existing modes already operating in the environments AAM seeks to serve, specifically those already served by public transportation and commuter rail lines. The TWU strongly believes that existing labor standards in these modes should never be weakened as new entrants integrate into the existing market—in many cases competing with federally funded infrastructure with well over a century's worth of public investment.

### AAM AIRCRAFT MUST MEET EXISTING MAINTENANCE STANDARDS IN OUR AIRSPACE (PART 43 STANDARDS)

DOT and FAA explicitly extended the applicability of 14 CFR Part 43 to powered-lift aircraft in Special Federal Aviation Regulation (SFAR) 120 finalized in 2024. FAA should ensure this requirement is universally enforced and reject all waiver/exemption requests that would allow operators to undermine this essential requirement.

AAM aircraft present an increased risk to our transportation system due to maintenance issues. Lower-flying aircraft operating closer to buildings and the ground have a reduced response time for pilots to overcome mechanical issues during flight. Additionally, it is likely that these aircraft will engage in significantly more take-offs/landings than traditional aircraft; these critical phases of flight pose the highest risk of each flight, so increasing their relative number will also increase the overall risk of the operation compared to today's air system. These concerns make the role of well-trained, certified maintenance technicians even more important to AAM than legacy operations.

There is no question, given this increased risk, that the workers maintaining and overhauling AAM aircraft must be required to possess traditional Airframe and Powerplant certifications from the Federal Aviation Administration (FAA)—potentially with additional certifications depending on how the technology develops. These certifications have proven to generate well-trained, safety-minded maintenance technicians. The certifications test the basic physics of flight—which will remain identical for AAM as for other aircraft—as well as troubleshooting and component repair, skills which will be essential to building a competent technician workforce for the industry.

Furthermore, utilizing the same set of certifications will maintain existing labor standards in the industry. Qualified, certified mechanics would not need to work at low-wage firms seeking to undercut labor standards as long as their training qualifies them for better jobs at airlines or elsewhere. This approach would also help ensure that the existing work being done by the FAA and others to expand and diversify the maintenance technician pipeline also benefits this new industry instead of potentially requiring duplicative efforts.

### CERTIFIED DISPATCHERS MUST BE CONSIDERED A CRITICAL PART OF AAM OPERATIONS

As noted above, the increased risk associated with AAM necessitates more qualified personnel throughout AAM operations. Dispatching functions are one area where this is particularly true. Dispatchers maintain operational control of aircraft on the ground, handle flight planning, run weight and balance calculations, identify emergency landing sites, and otherwise ensure the safety of the aircraft from the ground in the same way pilots do in the air. For large-scale commercial operations, they are essential to the safety of our airspace.

While smaller commercial aircraft operations governed under FAR Part 135 allow pilots to perform the responsibilities of a dispatcher,[1] many proposed AAM operations make that approach unreasonable or impossible. AAM developers are already marketing remotely piloted or autonomous aircraft for these operations. While the TWU believes it is unlikely that uncrewed aircraft will ever demonstrate a sufficient level of safety to carry passengers low to the ground in urban areas, such a possibility makes the role of dispatchers critical to overseeing safe operations. Certified dispatchers are required to keep aircraft grounded in unsafe weather conditions, a

[1] We note that while part 135 operators are allowed to fly without a dispatcher, the largest part 135 operators all employ licensed dispatchers as part of their operations for both safety and efficiency.

function that will become sacrosanct for AAM as these aircraft will have less ability to fly around adverse conditions; they redirect aircraft as needed to avoid potential hazards in-flight (an occurrence which could increase for AAM as they navigate through urban environments lower to the ground where smoke from fires, law enforcement cordons, and other traffic restrictions become more applicable to air users); these duties and others must continue to be vested in a licensed professional trained in and responsible for the safety of our airspace.

There is no question that complicated AAM operations must be required to utilize certified aircraft dispatchers in order for this technology to be safe at any commercially viable scale.

AAM MUST NOT BE INCENTIVIZED TO COMPETE AGAINST EXISTING MODES OF TRANSPORTATION

The federal government has invested trillions of dollars over more than 200 years into our nation's commuter railroads and public transportation systems. The TWU believes that our government must remain technology-neutral in its work and ensure that AAM is not being preferenced over other existing modes of transportation in and around our cities.

Preferences can come in many forms including direct subsidies, more lenient safety exceptions or certification requirements, and misapplication of existing federal standards. The TWU is particularly concerned that AAM effectively operating as public transit or as a commuter railroad without the labor, environmental, and community standards common in those industries. Public transit workers, for instance, are protected by employee protective arrangements (49 USC 5333(b)) which prevent federal funding from undermining existing labor standards. Commuter rail workers are entitled to participate in railroad retirement benefits (which include sick leave and unemployment, as well as retirement benefits). These industries have developed around these standards which have helped ensure that the jobs in them are high-quality jobs. Allowing AAM operators to siphon passengers out of these modes without applying similar requirements will create perverse incentives to evade important obligations to workers and undermine labor standards across the entire transportation sector.

To the extent that localities and operators treat AAM as equivalent to public transportation or commuter rail service (i.e., if a public transportation authority oversees AAM service), the appropriate modal rules must be in place to maintain labor and other standards even if such a standard is not part of the FAA's regulations. While the TWU believes that AAM's safety overseer should be the FAA, the reality of the operating environment these aircraft will be within requires the full participation of the Federal Railroad Administration (FRA) and the Federal Transit Administration (FTA) to adequately regulate this new technology.

The TWU appreciates this Subcommittee's focus on AAM. We look forward to working closely with you to ensure that AAM is developed safely, prioritizes workers, expands access to transportation across the country, and retains and creates high-quality jobs.

ANDRE SUTTON,
*International Vice President, Air Division Director,*
*Transport Workers Union of America.*

# APPENDIX

## QUESTION TO KYLE CLARK, FOUNDER AND CHIEF EXECUTIVE OFFICER, BETA TECHNOLOGIES, FROM HON. VALERIE P. FOUSHEE

*Question 1.* Mr. Clark, in your testimony, I was interested to read about the work BETA Technologies is doing throughout my home state of North Carolina. With advancements in electric vertical takeoff and landing aircraft, how could this technology be used during natural disasters to provide urgent medical supplies and other resources to hard-to-reach areas, like we saw in western North Carolina during Hurricane Helene?

*ANSWER.* Advanced Air Mobility (AAM) aircraft like those BETA Technologies is developing can play a meaningful role in disaster response by reaching communities that are cut off when roads, bridges, or traditional infrastructure are compromised—conditions that were experienced across North Carolina during Hurricane Helene—at a lower operating cost.

Specifically, BETA's electric vertical takeoff and landing (VTOL) aircraft are designed to operate from hard-to-reach locations without runway access and can transport critical medical supplies, equipment, and personnel directly to hospitals, clinics, or emergency staging areas without relying on intact road networks. For example, a VTOL could move blood products, medications, generators, or communications equipment from a regional airport to a rural hospital when ground access is limited or unsafe.

Similarly, BETA's electric conventional takeoff and landing (CTOL) airplane can support disaster response by rapidly moving equipment and personnel between regional airports when ground transportation is disrupted. Because CTOL airplanes can operate from existing runways with lower operating costs and zero emissions, they are well suited for sustained relief missions—such as shuttling supplies from logistics hubs to affected regions. In a disaster scenario, CTOL airplanes can complement VTOL operations by serving as the backbone of an airlift network, enabling faster, cleaner, and more resilient response efforts.

North Carolina is already taking important steps to bring these capabilities to the state, and BETA is actively supporting those efforts. We are partnering with the North Carolina Department of Transportation (NCDOT) on its proposal for the eVTOL and AAM Aircraft Integration Pilot Program (eIPP), issued by the Department of Transportation (DOT) through the Federal Aviation Administration (FAA). NCDOT's proposal is focused on building resiliency by connecting healthcare facilities, airports, and logistics hubs—particularly in rural and disaster-prone areas. This initiative is intended to show how next-generation aircraft can strengthen healthcare systems, as well as emergency preparedness and response across the state.

BETA also has a strong and growing presence in the Research Triangle region of North Carolina. Since 2023, we have maintained an engineering and software development team in Raleigh, now employing more than 35 people, with plans to continue expanding. We are also deploying the enabling infrastructure needed to make these AAM missions possible throughout the state. BETA installed North Carolina's first aviation-specific electric aircraft charger at Raleigh Executive Jetport, located near communities in your district. This charger is already operational and represents a critical building block for future emergency, medical, and public-service operations using electric aircraft. In addition, BETA responded to NCDOT's request for information to explore the acquisition of a zero-emission aircraft for state use—the first such effort by any state.

We look forward to continuing our partnership with stakeholders across North Carolina to bring AAM operations to the state—providing real, practical support to North Carolina communities before, during, and after natural disasters, while creating high-quality jobs and enabling infrastructure at the same time.

## QUESTIONS TO ROBERT W. ROSE, COFOUNDER AND CHIEF EXECUTIVE OFFICER, RELIABLE ROBOTICS CORPORATION, FROM HON. JIMMY PATRONIS

*Question 1.* Thank you for your testimony today. I understand that Reliable is working with the FAA on improved detect and avoid technology that could prevent tragic mid-air collisions. Do you feel the FAA is moving fast enough to adopt these technologies, and can you describe how these efforts will enhance aviation safety for all airspace users.

*ANSWER.* Completing development of the FAA's Airborne Collision Avoidance System X (ACAS X), which is a safety-enhancing replacement for the existing Traffic Alert and Collision Avoidance System II (TCAS), should be a top priority for the agency. Recently, the FAA published draft Technical Standard Orders (TSOs) that will implement the latest industry consensus standards on ACAS X and provide the certainty that industry needs to continue investing in this technology. The public comment period for these TSO updates recently closed, and making certain that the FAA quickly reviews the comments and formally publishes the updates is crucial.

Providing adequate resources to the FAA program office tasked with ACAS X implementation is also important. In the United States Senate report for the Transportation, Housing and Urban Development and Related Agencies (THUD) bill for FY 2026, $16 million is provided for the FAA to "to complete the development and standardization of the airborne collision avoidance system [ACAS] program, to support UAS, small UAS, and rotorcraft operations." Similar funding is not provided in the House THUD bill report for FY 2026, and any efforts that this Subcommittee can make to advocate for this funding during final appropriations negotiations would be helpful.

Finally, Reliable was pleased to see that the Rotorcraft Operations Transparency and Oversight Reform (ROTOR) Act (S. 2503) requires the FAA to develop a comprehensive ACAS X Action Plan. This will bring stakeholders from the FAA and industry together to accelerate work on ACAS X and how the technology can be deployed as a safety-enhancing upgrade to TCAS II. Either through the ROTOR Act, or another legislative vehicle, Reliable believes that rapidly advancing this Action Plan will enhance aviation safety.

*Question 2.* Mr. Rose, thank you for participating in today's hearing. Recently, the Department of War identified contested logistics as a critical technology area. My understanding is that AAM could play a role in providing dual-use contested logistics capabilities. Do you think the United States is positioned to lead in this area, and are these technologies being adequately prioritized across government, including by the FAA?

*ANSWER.* Many of the AAM technologies discussed at the Dec. 3 hearing could play a significant role in providing contested logistics capabilities to our warfighters. The military is focused on Reliable's aircraft autonomy technology because it has a clearly defined certification path with the FAA and integrates seamlessly into all controlled airspace. Unlike costly and exquisite military UAS, the dual-use autonomous Cessna 208 Caravan (C208) is ready to go right now and for a fraction of the cost.

From an FAA perspective, Reliable has seen an increased emphasis on dedicating agency resources to certifying autonomy for existing aircraft such as the C208. This has included the agency committing resources from the Air Traffic Organization (ATO) and Flight Standards (FS) to engage in detailed planning for initial operations. Continuing these efforts, with a focus on including leaders from ATO and FS with the necessary decision-making authority to review planned operations is crucial. While the military does not require FAA certification for contested logistics capabilities, providing a dual-use capability will reduce acquisition costs and more rapidly deliver the technology.

China is already operating large uncrewed cargo aircraft, and United States leadership is not guaranteed. In addition to increased emphasis on improved coordination across FAA lines of business, the United States must remain engaged at the International Civil Aviation Organization (ICAO). Currently, ICAO is working on the global standards for large UAS operations, and committing technical experts from the FAA and DOT to this work is important. If the United States is not engaged, we risk being left behind as other nations adopt these ICAO standards.

*Question 3.* Mr. Rose, we appreciate your testimony today. You mentioned the significant investments that Congress is making in ATC modernization which are crucial to United States competitiveness and national security. In your opinion, is the initial $12.5 billion investment enough to enable the innovations we are hearing

about today, or will additional investments and capabilities be required for the United States to lead?

*ANSWER*. Reliable Robotics appreciates the historic $12.5 billion investment in ATC modernization and the crucial oversight work this Subcommittee is performing. We defer to the FAA and Congress on the need for additional investments beyond $12.5 billion, but believe that adequate and consistent funding for ATC modernization is crucial.

While much of the initial funding is focused on upgrading existing FAA facilities and infrastructure, which is important, there are specific focus areas important to AAM implementation. For example, completion of the FAA's work to transition to a Voice over IP Communications Enterprise (VoICE) for its ATC communications infrastructure should be a top priority. Our understanding is that H.R. 1 included $4.75 billion for this effort.

As these investments begin, including a requirement for a modern ground-to-ground voice communications network that provides real-time, safety-critical, party-line-enabled communication between users on the ground, such as remote pilots and ATC should be included in the FAA's system requirements. This capability will improve safety and reliability for all airspace users by leveraging high-reliability telecommunications infrastructure and reducing frequency congestion. As this Subcommittee performs oversight activities related to ATC modernization, making certain that detailed requirements and schedules for replacing legacy voice switches used in the enroute and terminal environments include ground-to-ground capability will help "future proof" these investments.

Beyond the initial ATC modernization investments, we must re-focus on the equipment (i.e. equipage) of all airborne vehicles operating in the system. For technologies including ADS–B and ACAS–X, identifying common sense policies that expand equipage across all forms of aviation will enhance safety. This could include rebate programs for certain operators and opportunities to carefully review existing equipage mandates, such as TCAS and identify opportunities to phase-in improved technology including ACAS X.

*Question 4.* Mr. Rose, thank you for testifying today. The FAA reauthorization bill made significant structural changes to the agency, including standing down the NextGen organization and creating new functions to coordinate AAM policy issues across agency lines of business. Do you believe that these reforms are helping the FAA move faster, or is the United States still at risk of falling behind other nations in terms of aviation safety innovations?

*ANSWER*. Reliable Robotics appreciates the significant efforts in the bipartisan FAA reauthorization bill to focus all agency lines of business on the certification of safety-enhancing aircraft autonomy. To date, transitioning AAM work at the agency to the Aviation Safety organization has been helpful in involving FAA leaders with decision making authority more directly in certification projects. In addition to this change, the reauthorization bill also requires creation of the Airspace Modernization Office (AMO).

To set the AMO up for success, it must have the authority and resources to work across the entire Air Traffic Organization (ATO) and other FAA lines of business. In the past, similar efforts to establish integration or modernization functions at the FAA have failed, because resources weren't properly allocated and there was inadequate buy-in from agency leadership. To avoid these failures, the AMO should be established as a separate office, outside of the ATO, with a direct reporting line to the FAA Administrator. In addition, components of the Program Management Organization (PMO) that focus on acquiring and operationalizing new or modernized ATC capabilities should be located within the AMO.

Since Congress intended the AMO to focus on the highest priority modernization efforts, it must be separate from maintenance and support functions, which are important, but not aligned with objectives for the new office. Establishing the AMO as a distinct organization, with necessary components from the PMO and prior NextGen organizations will enable it to coordinate with all lines of business involved in the integration of new airspace users and technologies. While many of the prior NextGen functions can serve as a starting point for the AMO, to achieve its full potential, the organization should have the authority and budget to acquire and develop new capabilities, beyond the existing ATO and NextGen portfolios.

*Question 5.* Mr. Rose, thank you for the testimony today. You mentioned the tremendous airport infrastructure that we are privileged to have in the United States, and its role in connecting small and rural communities. Unfortunately, many small airports are facing reduced commercial air service, or seeing routes entirely eliminated. How do you see the technologies discussed at today's hearing, including aircraft autonomy helping to address this challenge?

*ANSWER*. Bringing safety-enhancing technology and autonomy to existing aircraft like the C208 is the quickest path to connecting more rural communities with air service, leveraging our more than 5,000 existing public-use airports, and fully integrating these capabilities into the National Airspace System (NAS). The C208 is an 8,000-pound aircraft that uses conventional jet fuel, can transport 3,000 pounds of cargo, can operate from short runways, and more than 3,000 have been delivered.

In the near-term, there is an existing business case to leverage aircraft like the autonomous C208 for regional air cargo operations. While air carriers transported less than 1% of total cargo tonnage in the U.S., the value of this cargo is nearly 80 times greater than cargo transported by truck. The high value of these shipments means that connecting more small communities with safe, efficient, and frequent air cargo service will drive economic growth now and into the future. This demand for high-priority air cargo service, coupled with our existing public-use airports in the United States creates a powerful use case for regional air cargo service.

Unlike other forms of AAM requiring costly electric charging infrastructure or new landing facilities, the Reliable Autonomy System (RAS) brings additional capabilities to existing aircraft like the C208. This means that today, we can utilize existing regional air cargo aircraft such as the C208 modified with FAA-certifiable autonomy to enhance safety and connect more communities. Focusing on these near-term operations will also help establish repeatable procedures to fully integrate aircraft autonomy and remotely piloted operations into the NAS.

In addition, the level of aviation safety-enhancing technology and innovation seen in large commercial aircraft is not available in regional cargo aircraft such as the C208. Studies have found that equipping aircraft like the C208 with advanced safety technologies would eliminate nearly 70% of fatal accidents. Most aviation accidents are caused by "inadvertent errors made by flight crewmembers" and could be prevented by FAA-certified aircraft automation and remote piloting technologies. Taxi, takeoff and landing are the most accident-prone phases of flight, and safety technologies like those being developed by Reliable will save lives.

## QUESTIONS TO GREGORY PECORARO, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS, FROM HON. VALERIE P. FOUSHEE

*Question 1.* My home state of North Carolina is the birthplace of aviation and the state continues to make tremendous strides in advancing this technology. Mr. Pecoraro, in your testimony, you discuss North Carolina's five-year Advanced Transportation Mobility Strategic plan that draws on not only aviation, but also integrated mobility and rail divisions.

In this multimodal approach, where do you see Artificial Intelligence contributing to an advanced air mobility future?

*ANSWER*. Congestion and increased mobility are at the heart of managing any transportation system. Artificial intelligence (AI) has the potential to make a significant impact on a multi-modal transportation system's efficiency, safety, and sustainability. AI can help transportation systems improve such areas as traffic management, autonomous vehicles, smart parking systems, public transit optimization, freight and logistics, sustainability initiatives, safety enhancements, and infrastructure monitoring. The key will be the ability of a transportation system to provide constant reliable data to allow an AI assist to meet its potential.

Data and communication are especially critical for advanced air mobility (AAM) activities. AI has the potential to play a crucial role in the development of AAM by enhancing automation functions which should improve safety as well as operational efficiency. AI technologies, especially machine learning and reinforcement learning can be integrated into different aspects of AAM, allowing aircraft that are autonomous to make better decisions more quickly than a human operator. AI systems can monitor aircraft systems and performance to increase safety and indicate preventative maintenance. As AAM is integrated into multi-modal travel, AI can increase efficiency of connections and transfers to ensure a more seamless transportation experience for people and goods.

*Question 2.* Mr. Pecoraro, building on the topic of AI, how is the industry integrating AI into ground control and air traffic control operations to maximize safety in advanced air mobility?

*ANSWER*. In the near term, AI will help reduce workload for pilots on board AAM helping them concentrate on flying or monitoring the aircraft. Advances in AI will help AAM aircraft to function without a pilot while maintaining a high degree of safety. For example, AI will help guide aircraft to navigate through the airspace by

ensuring that other aircraft are detected and avoided, the aircraft can adapt to changing weather conditions, and routing through less congested airspace. Further, AI will be a force multiplier for operators allowing one person to supervise multiple aircraft leading to more efficient operations. AI also can analyze flight corridors to reduce costs, risks, and community impacts to ensure impacts are not concentrated in certain communities. Additionally, AI will help create optimal routing to best manage schedules and siting of vertiports and AAM infrastructure to best route people and cargo through multiple modes of transportation.

The industry is looking to AI to complement current ground and air traffic control operations. Automation has been utilized extensively in air traffic control but advances in AI look to increase efficiency even more. With less traffic controllers because of retirements, burnout, and the lack of a pipeline of qualified workers, AI can be used to strategically deconflict aircraft. In other words, AI can automatically pre-plan flights and route aircraft to deconflict aircraft from each other. AI can further help relieve workload from controllers so they can actively manage AAM if it becomes necessary to do so.

*Question 3.* Mr. Pecoraro, in what ways can states invest in burgeoning advanced air mobility programs, like we've seen in North Carolina?

*ANSWER.* States can play a pivotal role in accelerating AAM by taking a strategic approach similar to what we've seen in North Carolina. The North Carolina Department of Transportation's Advanced Transportation Mobility Strategic Plan [https://www.ncdot.gov/divisions/aviation/advance-mobility/Documents/advanced-mobility-executive-summary.pdf] outlines a number of "action items" that can offer as a useful blueprint. These include:

- Building a broad public understanding through an aggressive public education and engagement strategy for AAM;
- Identifying policies that support integration of AAM technology at airports;
- Identifying key physical and digital infrastructure needed in the state to support AAM technology integration, and a plan to invest in and/or upgrade those infrastructures;
- Developing policies that emphasize the environmental benefits of AAM technology;
- Developing a workforce and economic development strategy that attracts industry investment, creates well-paying jobs, and develops, attracts, and retains talent to fill those jobs; and
- Collaborating with stakeholders, including federal agencies, to help advance the state of the industry.

Many states are already working individually or together along these lines. Within our organization, nearly 40 states are working together in our AAM Multistate Collaborative to think through these issues and develop consensus papers to assist each other and inform the FAA and other industry stakeholders. These efforts demonstrate that states have a critical role in shaping the future of AAM, and many are already laying the groundwork to ensure this new technology is integrated safely.

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