

ELIMINATING BOTTLENECKS: EXAMINING OPPORTUNITIES TO RECRUIT, RETAIN, AND ENGAGE AVIATION TALENT

(118-65)

HEARING
BEFORE THE
SUBCOMMITTEE ON
AVIATION
OF THE
COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES
ONE HUNDRED EIGHTEENTH CONGRESS

SECOND SESSION

JULY 10, 2024

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U.S. House of Representatives
Washington, DC 20515

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JULY 3, 2024

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on “*Eliminating Bottlenecks: Examining Opportunities to Recruit, Retain, and Engage Aviation Talent*”

I. PURPOSE

The Subcommittee on Aviation of the Committee on Transportation and Infrastructure will meet on Wednesday, July 10, 2024, at 10:00 a.m. ET in 2167 Rayburn House Office Building to receive testimony at a hearing entitled, “*Eliminating Bottlenecks: Examining Opportunities to Recruit, Retain, and Engage Aviation Talent.*” The hearing will examine provisions enacted into law by the FAA Reauthorization Act of 2024 (P.L. 118–63) that seek to mitigate and eliminate a myriad of bottlenecks plaguing the United States civil aviation workforce pipelines to ensure the American aviation industry can recruit, retain, and engage with aviation talent to remain a global leader in aviation safety and innovation. The Subcommittee will receive testimony from the Association for Uncrewed Vehicle Systems International (AUVSI); Louisiana Tech University; National Business Aviation Association (NBAA); and the Professional Aviation Safety Specialists (PASS).

II. BACKGROUND

Civil aviation contributes significantly to domestic and international economies. According to a large commercial air transportation association, commercial aviation contributes five percent of the United States gross domestic product (GDP)—the equivalent of approximately \$1.37 trillion in total economic activity in 2023—and supports more than 10 million American jobs.¹ According to the Federal Aviation Administration (FAA), United States air carrier domestic passenger growth is forecasted to average 2.5 percent per year over the next 20 years.² With commercial aviation activity beginning to exceed pre-pandemic levels and steady growth expected in the years to come, the aviation industry must recruit and retain high-skilled talent to meet both present-day and future demand.

¹ *Economic Impact of Commercial Aviation*, Airlines for America, (June 28, 2024), available at <https://www.airlines.org/impact/>.

² FAA, FAA AEROSPACE FORECAST FISCAL YEARS 2024–2044 at 2, available at <https://www.faa.gov/dataaresearch/aviation/aerospaceforecasts/faa-aerospace-forecast-fy-2024-2044>.

On May 16, 2024, the President signed H.R. 3935, the FAA Reauthorization Act of 2024 into law.³ H.R. 3935 reauthorizes the FAA's statutory authorities through Fiscal Year 2028 and addresses workforce challenges that continue to impact United States civil aviation, among other things. The bill does so by establishing opportunities to reduce barriers to entry in the civil aviation workforce, including through the modernization of FAA services and websites utilized by aviation professionals and by investing in efforts to improve career pathways for youths and students interested in pursuing careers in aviation.

In developing H.R. 3935, the Subcommittee on Aviation held a hearing on April 19, 2023, entitled, "*FAA Reauthorization: Examining the Current and Future Challenges Facing the Aerospace Workforce*," and a hearing on November 30, 2023, entitled, "*Turbulence Ahead: The Consequences of Delaying a Long-Term FAA Bill*" to inform policy solutions incorporated into H.R. 3935 that address or eliminate bottlenecks affecting the civil aviation workforce.⁴ The Subcommittee on Aviation will exercise its oversight role and responsibilities over the five-year reauthorization period to ensure the FAA implements and administers the new law in accordance with Congressional intent.

III. KEY PROVISIONS IN THE FAA REAUTHORIZATION ACT OF 2024 ADDRESSING WORKFORCE BOTTLENECKS

This hearing will focus on policy solutions incorporated in H.R. 3935 to eliminate or alleviate bottlenecks most commonly affecting pilots, aircraft mechanics, air traffic controllers, aviation safety inspectors, and other key aviation roles. These aviation professions are closely regulated, require significant training and experience to achieve FAA certification, and are essential to the safe operation of the National Airspace System (NAS). Provisions included in H.R. 3935 related to improving FAA services and appropriately streamlining regulatory processes may be highlighted during the hearing as the aviation industry's growth is highly dependent on adequate staffing, robust investment in FAA resources, and timely decision-making. Specifically, these provisions range from directing the FAA to promulgate rulemakings in a timely manner, leveraging various Federal training initiatives, and issuing airmen and operator certificates, among other responsibilities and authorities carried out by the agency.

AIRLINE PILOT WORKFORCE

The career path to becoming a United States airline pilot requires an individual to not only satisfy FAA training and instruction requirements, but also obtain qualifying flight experience. Pilot training and education can be completed at a collegiate aviation school, a non-collegiate vocational pilot school, or a non-collegiate, instructor-based pilot school.⁵ In addition, the United States military trains and certifies pilots, many of whom pursue careers as airline pilots upon exiting the military.⁶ The pipeline for individuals interested in becoming a commercial pilot and for those with established careers is not immune to bottlenecks that can both disincentivize aspiring airmen from pursuing their goal to become a professional pilot, as well as hamstring employed pilots from reentering the cockpit in a timely manner.

Notable Pilot Provisions of the FAA Reauthorization Act of 2024

Sec. 411. Aeromedical innovation and modernization working group

Pilots must obtain and maintain an FAA medical certificate to operate aircraft, and for commercial pilots, it is a requirement for employment.⁷ This section establishes a working group to review the FAA's medical processes, policies, and procedures and to make recommendations to the Administrator to ensure the timely and efficient certification of airmen. Among its tasks, this working group will assess the FAA's special issuance process, determine the appropriateness of the list of medical

³Press Release, THE WHITE HOUSE, *Bill Signed: H.R. 3935*, (May 16, 2024), available at <https://www.whitehouse.gov/briefing-room/statements-releases/2024/05/16/press-release-bill-signed-h-r-3935/>.

⁴*FAA Reauthorization: Examining the Current and Future Challenges Facing the Aerospace Workforce: Hearing Before the Subcomm. on Aviation of the H. Comm. on Transp. and Infrastructure*, 118th Cong. (2023).

⁵U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-403, *COLLEGIATE AVIATION SCHOOLS: STAKEHOLDER'S VIEWS ON CHALLENGES FOR INITIAL PILOT TRAINING PROGRAMS*, (2018), available at <https://www.gao.gov/assets/gao-18-403.pdf>.

⁶See *supra* note 9.

⁷FAA, *Mental Health & Aviation Medical Clearances ARC Recommendation Report* (April 1, 2024), available at https://www.faa.gov/sites/aa.gov/files/Mental_Health_ARC_Final_Report_RELEASED.pdf.

conditions under which an Air Medical Examiner (AME) can issue a medical certificate, and to review mental health protocols and approved medications, including any actions taken resulting from recommendations by the Mental Health and Aviation Medical Clearances Aviation Rulemaking Committee. It is expected that the FAA will respond to the working groups findings by taking necessary action to streamline the medical certification process and breakdown barriers for applicants.

Sec. 418. Pilot program to provide veterans with pilot training services

The cost of pilot training is often cited as a significant barrier to entry for individuals interested in pursuing the commercial pilot profession.⁸ Furthermore, veterans' educational assistance programs funds cannot be used to finance a private pilot certificate and thus can disincentivize veterans who are interested in pursuing a professional pilot career as the average cost of a private pilot's license is \$10,500.⁹ Section 418 works to eliminate these barriers to entry for veterans interested in aviation by establishing a pilot program to provide grants to certain flight schools to provide flight training and educational activities to veterans who have no previous flight experience. Section 418 also provides targeted financial assistance for flight training costs.

Sec. 440. Improving Federal Aviation Workforce Development Programs

The FAA Reauthorization Act of 2018 (P.L. 115–254) established the Aviation Workforce Development (AWD) Grants program to fund outreach and educational efforts focused on growing the United States aircraft pilot and aviation maintenance workforce. This program enjoys broad support from many aviation stakeholders, as it encourages collaboration between government, industry, and local entities to address skills gaps and encourage more Americans to pursue good-paying careers in aviation.¹⁰ Section 440 of the FAA Reauthorization Act of 2024 not only builds on the successes of the AWD Grants program for the pilot and maintenance talent pools, but it also establishes a new eligibility for aviation manufacturing to ensure the manufacturing sector has a robust talent pool to recruit from in the coming decades. The FAA Reauthorization Act of 2024 authorizes funding levels for the aviation maintenance, aircraft pilot, and aviation manufacturing development programs at \$20 million respectively for each of fiscal years 2025 through 2028. This section also invests \$12 million annually in the new Willa Brown Aviation Education Program to expand outreach and aviation education opportunities in low-income and underrepresented communities.

Sec. 833. National coordination and oversight of designated pilot examiners

This section requires the FAA to establish an office to provide oversight and facilitate national coordination of designated pilot examiners (DPEs). This section further requires the established office to consider whether to implement the final recommendations report issued by the DPE Reforms Working Group. Improving oversight of DPEs will improve DPE knowledge, DPE availability, and help to reduce the wait times that many general aviation pilots face when it comes to scheduling check rides with a DPE. This change in policy was recommended to the FAA by the DPE Working Group in 2021.¹¹

AVIATION MAINTENANCE WORKFORCE

Aviation maintenance workers are generally employed by commercial airlines, repair stations, and aircraft manufacturers. In general, it can take between one and three years of education or training to become a FAA-certificated mechanic and earn an airframe rating, a powerplant rating, or an airframe and powerplant (A&P) rating.¹² Similarly to commercial pilots, education and training costs remain barriers to entry for individuals interested in pursuing aviation maintenance careers and the

⁸ FAA, YOUTH ACCESS TO AMERICAN JOBS IN AVIATION TASK FORCE, FINAL REPORT, (Sept. 22, 2022) [hereinafter YIATF Report], available at https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/YIATF_Taskforce_Report%209-22-22%20FINAL.pdf.

⁹ U.S. DEP'T OF TRANSP. VOLPE CTR., DOT-VNTSC-OSTR-21-01, FORCES TO FLYERS PILOT TRAINING DEMONSTRATION EVALUATION AND RESEARCH ON PILOT CAREER PATHWAYS (2020).

¹⁰ Pub. L. No. 115–254 § 625, 132 Stat. 3405.

¹¹ AVIATION RULEMAKING ADVISORY COMMITTEE, DESIGNATED PILOT EXAMINER REFORMS WORKING GROUP, A REPORT FROM THE DESIGNATED PILOT EXAMINER REFORMS WORKING GROUP TO THE AVIATION RULEMAKING ADVISORY COMMITTEE (June 17, 2021), available at https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ARAC%20DPEWG%20Final%20Recommendation%20Report%20June%202021.pdf.

¹² U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-206, AVIATION MAINTENANCE: ADD'L COORDINATION AND DATA COULD ADVANCE FAA EFFORTS TO PROMOTE A ROBUST, DIVERSE WORKFORCE, (2020), available at <https://www.gao.gov/assets/gao-20-206.pdf>.

AWD program for maintenance technicians helps individuals finance their education through scholarships.

Notable Aircraft Mechanic Provisions of the FAA Reauthorization Act of 2024

Sec. 403. Bessie Coleman Women in Aviation Advisory Committee

According to recent projections, there is strong demand for aircraft mechanics and service technicians with an estimated 11,500 job openings available annually from 2021 until 2031.¹³ To help meet this aviation maintenance need, and other workforce needs across the industry, Section 403 establishes the Bessie Coleman Women in Aviation Advisory Committee to advise the Department of Transportation (DOT) and FAA on the recruitment, retention, education and training, and career advancement of women in the aviation industry. The Committee will consist of various aviation stakeholders, including aviation maintenance, repair and overhaul entities, and must submit reports to Congress on its progress, findings, and recommendations.

Sec. 425. Joint Aviation Employment Training Working Group

Members of the Armed Forces who are interested in becoming civilian aviation professionals including aviation mechanics, often express frustration with the portability of their skills—specifically with challenges associated with obtaining civilian FAA certifications to perform aviation jobs similar to those they performed in the Armed Forces.¹⁴ To eliminate bottlenecks in the recruitment pipeline for these individuals, Section 425 tasks an interagency working group consisting of FAA and Department of Defense (DOD) personnel to identify challenges that inhibit seamless transitions to the civil aviation workforce. This working group must also determine whether opportunities exist to increase interagency information sharing on certification pathways, including knowledge testing requirements.

Sec. 426. Military aviation maintenance technicians rule

Veterans who are interested in transitioning their maintenance skills learned while serving in the Armed Forces to the civil aviation workforce often face challenges in qualifying for a civilian mechanic certificate issued by the FAA, especially when attempting to take the civilian written mechanic exam.¹⁵ Section 426 improves this transition to the civil aviation industry by requiring the FAA to revise certain aviation regulations to create a military mechanic written competency test and to develop, as necessary, a relevant Airman Certification Standard (ACS) to qualify eligible military maintenance technicians for a civilian mechanic certificate. This section also requires the FAA to determine whether to expand testing locations on military installations to increase access to testing and to coordinate with other relevant Federal agencies to develop an outreach plan to increase awareness of career transition services.

AVIATION SAFETY INSPECTOR & SPECIALIST WORKFORCE

Every day, America's civil aviation system is responsible for safely transporting an estimated 2.6 million passengers without fear of harm or injury.¹⁶ As the demand for air travel recovers from the pandemic and continues to increase, so does the need to maintain our gold standard in aviation safety. The FAA's Flight Standards Service (FSS) and Aircraft Certification Service (AIR) aviation safety inspectors are responsible for the certification, education, oversight, and enforcement of the NAS.¹⁷ Given increased compliance requirements on manufacturers and operators, ongoing supply chain quality issues, enhanced scrutiny of safety culture across the aviation ecosystem, and the emergence of more advanced aerospace technologies in United States airspace, it is critical that this safety workforce be fully staffed to meet present day and future industry demand.

¹³ U.S. GOV'T ACCOUNTABILITY OFF., GAO-23-106769, AVIATION WORKFORCE: SUPPLY OF AIRLINE PILOTS AND AIRCRAFT MECHANICS, (2023), available at <https://www.gao.gov/products/gao-23-106769>.

¹⁴ Lindsay Bjerregaard, *MRO industry competes for transitioning military veteran talent*, AVIATION WEEK, (April 7, 2023), available at <https://aviationweek.com/mro/workforce-training/mro-industry-competes-transitioning-military-veteran-talent>.

¹⁵ *Id.*

¹⁶ *Supra* note 1.

¹⁷ *Strengthening the Aviation Workforce: Hearing Before the S. Comm. on Commerce, Space and Transportation*, 118 Cong. (March 16, 2023) (statement of David Spero, National President, Professional Aviation Safety Specialists).

Notable Safety Inspector/Specialist Provisions of the FAA Reauthorization Act of 2024

Sec. 429. FAA Workforce Review Audit

This section requires the DOT Office of Inspector General (IG) to audit any FAA workforce plan completed during the past five fiscal years related to the occupations the agency relies on to accomplish its aviation safety mission. The DOT IG must assess staffing levels and workforce retention trends, review gaps in safety-critical and senior positions, and review opportunities for FAA employees to gain or enhance expertise, knowledge, skills, and abilities, among other considerations. Furthermore, the DOT IG is required to submit a report to the FAA and Congress on the audit results and recommendations.

Sec. 430. Staffing model for aviation safety inspectors

This section requires the FAA to conduct a comprehensive review and, as necessary, revise the agency's staffing model for aviation safety inspectors. In implementing this section, the FAA must assess projected staffing needs at the office and service level, the forecasted workload of aviation safety inspectors, including responsibilities associated with overseeing aviation manufacturers and new airspace entrants, among other requirements.

Sec. 431. Safety-critical staffing

This section directs the FAA, upon completion of the required actions under Section 430, to take all appropriate actions to meet the safety-critical staffing needs determined by such revised staffing model, including potentially increasing the number of safety critical positions in the FAA's FSS and AIR offices per fiscal year under certain conditions.

AIR TRAFFIC CONTROLLER WORKFORCE

For several years, the FAA and the aviation industry have reported a need for a right-sized and qualified FAA workforce commensurate with the agency's responsibilities. The pandemic, however, only exacerbated the challenges felt by the agency's Air Traffic Organization (ATO), which has faced challenges in hiring and training controllers at a rate to meet increased travel demand.¹⁸ Air traffic controllers are highly skilled aviation professionals who undergo rigorous training at the FAA Academy in Oklahoma before being placed in a FAA facility. The process, however, of hiring and adequately training a controller is lengthy and typically takes between five to seven years of one's hiring date to reach full certification.¹⁹ In the latest Aerospace forecast for the 2024–2044 period, the FAA notes that “with robust air travel demand growth in 2024 and steady growth thereafter, we expect increased activity growth that has the potential to increase controller workload.”²⁰ Thus, it is imperative that the agency take action to reduce bottlenecks in the recruitment and training processes and increase throughput and retention at training facilities for the controller workforce.

Notable Controller Provisions of the FAA Reauthorization Act of 2024

Sec. 437. Air Traffic Control Workforce Staffing

To directly address the controller workforce bottleneck in the aviation system, Section 437 directs the FAA to set as the minimum hiring target for new air traffic controllers for each of fiscal years 2024 through 2028 the maximum number of individuals trained at the FAA Air Traffic Control Academy. It also directs the Transportation Research Board to identify the most appropriate staffing model for future air traffic controller workforce needs and requires the FAA to revise its staffing standards no later than May 16, 2025. In the interim, the FAA must adopt and utilize the staffing models and methodologies developed by the Collaborative Resource Workgroup (CRWG) (which consists of representatives from FAA's ATO and the National Air Traffic Controller Association) that were recommended in a report submitted to the FAA and referenced in the 2023 Controller Workforce Plan (CWP).

Sec. 439. Federal Aviation Administration Academy and facility expansion plan

This section requires the FAA to develop a plan to expand the FAA's capacity for educating and training developmental air traffic controllers, including resource and

¹⁸*Turbulence Ahead: Consequences of Delaying a Long-Term FAA Bill: Hearing Before the Subcomm. on Aviation of the H. Comm. on Transp. and Infrastructure*, 118th Cong., (Nov. 30, 2023) (statement of Rich Santa, President, National Air Traffic Controllers Association).

¹⁹Statement of Rich Santa, *supra* note 11.

²⁰*Supra* note 2, at 4.

staffing needs, modernization efforts, and costs. The FAA is required to submit the plan to Congress no later than one year after enactment and brief Congress on the implementation of such plan six months after submission.

NEW AIRSPACE ENTRANTS WORKFORCE

At a time of unprecedented aerospace innovation, from unmanned aircraft systems (UAS or drones) to advanced air mobility (AAM) aircraft, Congress and the FAA must provide a clear and predictable framework for these new entrants to scale safely in our skies and for these industries to grow in the United States. By ensuring the timely publication of these long-awaited rules, employers will be able to ensure their workforces are ready to scale the production of new technologies to meet operational demand. Furthermore, some new entrants stakeholders cite the pressing need for a more highly-skilled technical workforce, both in the industry and at the FAA, to foster the advancement of United States aerospace innovation.²¹

Notable New Airspace Entrant Workforce Provisions of the FAA Reauthorization Act of 2024

Sec. 428. Direct hire authority utilization

This section directs the FAA to use its existing direct hire authorities to recruit individuals for positions related to aircraft certification and aviation safety. In exercising this authority, the FAA must consider any staffing gaps in positions that support the safe integration of new airspace entrants. Furthermore, this section requires the FAA to brief Congress on the use of direct hire authorities, including how the authorities are used with respect to the FAA UAS Collegiate Training Initiative (UAS CTI), and the number of employees hired at the agency as a result.

Sec. 913. Drone education and workforce training grant program

This section requires the Secretary to establish a grant program to make grants available to educational institutions for workforce training geared towards small UAS. Section 913 authorizes \$5 million annually for this grant program through fiscal year 2028. Through the grant program, students at eligible institutions (including those participating in the FAA's UAS CTI) will be able to receive hands-on training that will provide them with the skills necessary to pursue successful careers in an UAS-related field.

Sec. 930. Beyond visual line of sight operations for unmanned aircraft systems

To provide regulatory certainty to this innovative sector, advocates have long sought an FAA rule to establish regulations to allow UAS to safely operate beyond visual line of sight (BVLOS). The FAA chartered an Aviation Rulemaking Committee (ARC) to recommend requirements for BVLOS UAS operations in 2021, and the ARC submitted its final report in March 2022. Section 930 requires the FAA to publish an NPRM within four months and a final rule within six months of enactment to establish a performance-based regulatory pathway for BVLOS UAS operations.

Sec. 955. Rules for operation of powered-lift aircraft

This section requires the FAA to publish a special Federal aviation regulation (SFAR) for the operations of, and pilot requirements for, powered lift AAM aircraft within seven months of enactment. If the FAA fails to publish a final rule within 16 months, specific existing operating and training rules will apply to these aircraft until the agency publishes the final rule. Section 955 also establishes a powered-lift aviation rulemaking advisory committee to provide recommendations on the development of permanent regulations for the certification and operation of powered-lift AAM aircraft.

²¹U.S. GOV'T ACCOUNTABILITY OFF., GAO-22-105020, TRANSFORMING AVIATION: STAKEHOLDERS IDENTIFIED ISSUES TO ADDRESS FOR 'ADVANCED AIR MOBILITY', (2022), available at <https://www.gao.gov/products/gao-22-105020>.

IV. WITNESSES

- Matthew “Monty” Montgomery, Department Chair, Department of Professional Aviation, Louisiana Tech University
- Michael Robbins, President & CEO, Association for Uncrewed Vehicle Systems International (AUVSI)
- Joanne “Jo” Damato, Senior Vice President, Education, Training & Workforce Development, National Business Aviation Association (NBAA)
- David “Dave” Spero, National President, Professional Aviation Safety Specialists, AFL-CIO (PASS)

ELIMINATING BOTTLENECKS: EXAMINING OPPORTUNITIES TO RECRUIT, RETAIN, AND ENGAGE AVIATION TALENT

WEDNESDAY, JULY 10, 2024

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

The subcommittee met, pursuant to call, at 10:10 a.m., in room 2167 Rayburn House Office Building, Hon. Garret Graves (Chairman of the subcommittee) presiding.

Mr. GRAVES OF LOUISIANA. 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.

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

Mr. GRAVES OF LOUISIANA. Without objection, so ordered.

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

Chairman.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Stanton.

I now recognize myself for purposes of an opening statement for 5 minutes.

OPENING STATEMENT OF HON. GARRET GRAVES OF LOUISIANA, CHAIRMAN, SUBCOMMITTEE ON AVIATION

Mr. GRAVES OF LOUISIANA. I want to start by thanking all the witnesses for being here today. This hearing is about—it is about bottlenecks in aviation. And, of course, when you think about bottlenecks in aviation, I think that most folks probably think immediately about passengers, about commercial airlines and transportation experiences, and certainly that is a big part of it. But we need to be thinking about the future, which also includes new technology, includes commercial space launch.

And I want to just give three quick statistics just to paint a picture, not of what the aviation sector looks like today and the challenges and stressors and bottlenecks, but thinking about what it looks like in the future.

For commercial space launch, half of all licensed space launches ever have occurred in the last 5 years. I will say that again. Half of all licensed space launches ever have occurred in the last 5 years. In 2015, there were 14 authorized commercial space transportation operations, and in 2023, there were 113. By 2028, it is projected that there are going to be 338. So, just in commercial space launch.

When you go to commercial passengers, America had its busiest travel day ever on Sunday with more than 3 million passengers screened. That record that was set on Sunday broke the record that existed before that was set in just the month of June of this year. Eight or nine of the ten busiest travel days ever have occurred since May 23 of this year. And last year, airlines carried 819 million passengers on domestic flights. This year is expected to be even higher as the industry climbs to the ever elusive goal of 1 billion passengers.

In the drone space, in 2016, there were 20,000 remote pilots. Now there are over 400,000. There are currently more than 780,000 drones registered with the FAA, and that number is projected to grow in excess of 1 million just in the next few years.

So, let me say it again. You look at the stresses today. You look at the industry today. In the future, this is just going to grow greater and greater. The good news is that folks here on this dais and a lot of the great staff behind us and in this room worked tirelessly over the last 2 years, and really, really proud, working with my friend, Mr. Cohen, and others, in delivering the FAA reauthorization bill that was signed into law just a few months ago.

And that bill does address a lot of the bottlenecks that we have identified, either by giving the FAA the authority to do so or helping to give the certainty to industry to help to address some of these chokepoints or growing demands.

But one of the biggest challenges we have right now is with ATC, air traffic control, and the controllers. The FAA is approximately 3,000 controllers short right now. We took a lot of steps in the FAA bill to help to improve the hiring and to really max out hiring and move the needle in the near term, which, again, is the real pinch point in the pipeline. You are seeing great disparity with retirements in air traffic controllers and the hiring, meaning that they are not keeping pace with the hiring pipeline with those that are retiring.

And thinking about that bottleneck that hits a bit closer to home, our office has heard from Louisiana Tech in 2020 about the need for more designated pilot examiners to meet the training needs of the students.

So, it is not just about air traffic controllers. It is about ensuring that we can meet the demand for pilots. And if the designated pilot examiners are short, then it is going to have an impact on the ability of us to meet the targets on pilot demand as well.

So, look, I am not going to go through every single problem that we have and every single bottleneck that we have, but I do want to say that we cannot rest on the laurels of having this FAA bill that was signed into law. We have got to focus on implementation. We need to focus on this explosive growth of this really exciting industry in aviation. Whether it is about passenger travel, it is about

the general aviation, it is about the innovation in these new platforms, or it is about commercial space launch.

I think the FAA bill was a fantastic foundation, and I am looking forward to hearing from some of our witnesses today and hearing about your thoughts about how we move forward in implementation and, importantly, what the future looks like and what we need to be doing to facilitate this innovation and improving the passenger experience.

[Mr. Graves of Louisiana's prepared statement follows:]

**Prepared Statement of Hon. Garret Graves of Louisiana, Chairman,
Subcommittee on Aviation**

I want to start by thanking all the witnesses for being here today. This hearing is about bottlenecks in aviation. When you think about bottlenecks in aviation, most folks probably think immediately about passengers, commercial airlines, and transportation experiences. Certainly, that's a big part of it. But we need to be thinking about not just the problems of today, but the problems of the future.

For commercial space launches, half of all licensed space launches ever have occurred in the last five years. In 2015, there were 14 authorized commercial space transportation operations. In 2023, there were 113. By 2028, it's projected that there are going to be 338—just in commercial space launch. For commercial travel—America had its busiest travel day ever on Sunday, July 7, 2024, with more than 3 million passengers screened, breaking the record that had been established just one month before. In the drone space, in 2016 there were 20,000 remote pilots. Now, there are over 400,000. There are currently more than 780,000 drones registered with the FAA, and that number is projected to grow in excess of 1,000,000 just in the next few years.

We need to be concerned not just about the stresses in the aerospace industry today, but the reality that these stressors are going to grow greater and greater in the future. The good news is that folks here on this dais—and a lot of the great staff behind us in this room—worked tirelessly over the last two years to deliver the FAA Reauthorization Act of 2024, which was signed into law just a few months ago.

The bill addresses a lot of the bottlenecks that we have identified, either by giving the FAA a path forward to fix these issues or by giving certainty to the industry to help to address some of these choke points and growing demands.

One of the biggest challenges we have right now is with our air traffic controllers. The FAA is approximately 3,000 controllers short right now. We took a lot of steps in the FAA bill to help improve hiring and move the needle in the near-term, which is the real pinch point in the pipeline. You're seeing a great disparity between the retirement rate of air traffic controllers and other aviation professionals and the pace of hiring to fill those available positions. And thinking about that bottleneck that hits a bit closer to home, our office heard from Louisiana Tech in 2020 about the need for more Designated Pilot Examiners to meet the training needs of the students. If the Designated Pilot Examiners are short, then it's going to have an impact on the ability of us to meet the targets on pilot demand as well.

I'm not going to go through every single problem and every single bottleneck that we have, but I do want to say that we cannot rest on our laurels after seeing the FAA bill signed into law. We've got to focus on implementation. We need to focus on this explosive growth of this really exciting industry in aviation, whether it's about passenger travel, general aviation, innovation in these new platforms, or commercial space launches.

Our FAA bill was a fantastic foundation and I'm looking forward to hearing from our witnesses today about how we move forward in implementation and, importantly, what the future looks like and what we need to be doing to facilitate this innovation in improving the American aerospace industry.

Mr. GRAVES OF LOUISIANA. With that, I now recognize Ranking Member Cohen, 5 minutes for an opening statement.

**OPENING STATEMENT OF HON. STEVE COHEN OF TENNESSEE,
RANKING MEMBER, SUBCOMMITTEE ON AVIATION**

Mr. COHEN. Thank you, Mr. Chairman Graves.

It is obvious that when Chairman Graves goes home at night, it is not *les bons temps rouler*. It is not *beignets*. It is not *jambalaya*. It is absorbing and reading all of this stuff, and he is got it in his mind and his gut and explained it well.

He has been a great subcommittee chair. I was so looking forward to him being my ranking member next year. It is a great loss of him not going to be here to do that.

He has covered the whole terrain. And I want to thank the witnesses for being here.

We did pass a bipartisan infrastructure bill and FAA reauthorization bill. It was truly bipartisan. We call the infrastructure bill bipartisan. It was not that bipartisan. There were a couple of folks here—but the FAA reauthorization was, and this committee did a great job in getting it passed.

But we do need to implement it, because there are shortages of employees, the bottlenecks that we have seen and have been described. Airline pilots, we need more and more. Air traffic controllers, they are behind. They got slowed up during the pandemic, and we need to train more of those. Aviation maintenance technicians, inspectors, designated pilot examiners, LA Tech. All those areas need work.

Shortages of these vital members of the workforce have resulted in subpar experiences across the ecosystem of aviation, and our FAA reauthorization bill will allow us to come back and improve those areas.

We also have gaps in minority hiring all through the aviation industry. In my community, which is majority African American—and Federal Express is based there—there are great opportunities for African Americans to get employment, and they need to have training opportunities, which this bill will help with, and we need to urge and see to it that the workforce looks more like America and gives people opportunities to move up the ladder.

Air traffic controllers, it was really the pandemic that hit them, but there have been problems with wages and retirements and all of that.

Historical staffing challenges facing Air Traffic Organization technicians, such as increased workload without additional resources and training, have exacerbated this bottleneck.

This is why our FAA reauthorization bill includes provisions to maximize controller hiring, improve staffing models, and expand the FAA's resources to meet the evolving needs of our air traffic system.

My district in Memphis needs more designated pilot examiners, or DPEs. That is a need. DPEs provide required practical tests—checkrides—for aspiring pilots, but their uneven distributions throughout the country with limited incentives to serve as a DPE can pose scheduling challenges for pilot candidates.

The FAA reauthorization will help streamline the process of obtaining a checkride by creating an FAA office to facilitate national coordination of DPEs and improving the agency's search tool to pro-

vide more information about the credentials, qualifications, and availability of designated pilot examiners.

Mental health is another issue that directly impacts the aviation workforce, and the safety of our aviation system. Being up there in that tower for long hours and the tension and the stress that you get, it is not easy. Pilots and air traffic controllers often do not get the help they need for mental health issues due to the consequences of speaking up or seeking treatment. That needs to be corrected. They need to get the medical help that they might need, because that is a stressful, stressful, stressful job.

Our aviation sector must better support mental health of our aviation workforce to ensure public safety. That is what they are looking out for.

The FAA reauthorization bill will require the establishment of an aeromedical innovation and modernization working group, which will review and make recommendations to the agency's medical processes, new policies on mental health, education, and outreach.

It creates a task group to monitor and evaluate the FAA's efforts to assist and provide more resources for the aviation workforce.

A lot more work that needs to be done, and I commend Chairman Graves for holding this hearing on this subject. I thank the witnesses for being here, and I am looking forward to your testimony.

With that, I yield back the balance of my time.

[Mr. Cohen's prepared statement follows:]

**Prepared Statement of Hon. Steve Cohen of Tennessee, Ranking Member,
Subcommittee on Aviation**

Thank you, Chairman Graves, and thank you to all of our witnesses for testifying today.

Now that we have successfully passed an overwhelmingly bipartisan FAA reauthorization bill, we must turn our attention to implementing it.

There are widespread and well documented aviation workforce challenges, spanning positions from airline pilots and air traffic controllers to aviation maintenance technicians, aviation safety inspectors and designated pilot examiners.

Shortages of these vital members of the workforce have resulted in a subpar experience across the aviation ecosystem, which is why our FAA reauthorization bill provides support for all of these groups.

It reauthorizes and increases funding for workforce development programs for aircraft pilots and aviation maintenance technicians and creates a new eligibility for aviation manufacturing workers.

Establishing and funding these critical programs will help build a pipeline for the next generation of these members of the aviation workforce.

As for controllers, the number of certified professional controllers had been trending downward in the decade prior to the pandemic.

During the pandemic, the temporary suspension of training at the FAA Academy, which prepares air traffic controllers for their jobs, significantly increased the time required to certify controllers.

The FAA is now slowly recovering from that pause, though there is still much work to be done, as most facilities across the country have a shortage of air traffic controllers.

Historical staffing challenges facing air traffic organization technicians, such as increased workload without additional resources and training, exacerbate these ongoing workforce bottlenecks.

That is why our FAA reauthorization bill includes provisions to maximize controller hiring, improve staffing models and expand the FAA's resources to meet the evolving needs of the air traffic system.

I have also recently learned of a need in certain areas, including in my district of Memphis, Tennessee, of designated pilot examiners or DPEs.

DPEs provide required practical tests, or checkrides, for aspiring pilots, but their uneven distribution throughout the country and the limited incentives to serve as a DPE can pose scheduling challenges for pilot candidates.

The FAA reauthorization bill will help streamline the process of obtaining a checkride by creating an FAA office to facilitate national coordination of DPEs and by improving the agency's DPE search tool to provide more information about the credentials, qualifications and availability of designated pilot examiners.

Mental health is another issue that directly impacts the aviation workforce and the safety of our aviation system.

Pilots and air traffic controllers often do not get the help they need for mental health issues due to the consequences of speaking up or seeking treatment.

Consequences can include a revocation of or delays in receiving medical clearances, which can result in a period of not working for multiple months.

Our aviation sector must better support the mental health of our aviation workforce to ensure public safety in the air and on the ground.

The FAA reauthorization bill requires the establishment of an aeromedical innovation and modernization working group, which will review and make recommendations to the agency's medical processes, including policies on mental health protocols, education and outreach.

The law also creates a task group to monitor and evaluate the FAA's efforts to assist and provide more resources for the aviation workforce.

We must ensure robust development of and support for all aviation workers, as they play a critical role in keeping our aviation system operating safely and efficiently.

Thank you again to our witnesses for being here today, and I look forward to our discussion.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Cohen, for the majority of your statement.

It looks like we are not visited by some folks. So, I now would like to welcome our witnesses, and thank you for being here today.

We are going to do a few quick, unanimous consent—

Mr. COHEN [interrupting]. Briefly, I would like to take a moment to explain our lighting system to our witnesses. If the light is green, forward, go, just like in a car, on the gas, you are going. But when it turns to yellow, you've got to slow down because the policemen are looking at you and might give you a ticket. You've got to slow down. If it gets to be red, you might get a citation, so, stop.

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

Mr. GRAVES OF LOUISIANA. Without objection.

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

Mr. GRAVES OF LOUISIANA. Without objection, so ordered.

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

Mr. GRAVES OF LOUISIANA. Without objection, so ordered. Thank you.

As your written testimony has been made part of the committee's record, the subcommittee asks that you limit your oral remarks to 5 minutes.

And with that, Louisiana's own Monty Montgomery from Louisiana Tech where I went to school, in my diverse college education experience, but, Mr. Montgomery, thank you for being here. You are recognized for 5 minutes.

TESTIMONY OF MATTHEW “MONTY” MONTGOMERY, DEPARTMENT CHAIR, DEPARTMENT OF PROFESSIONAL AVIATION, LOUISIANA TECH UNIVERSITY; MICHAEL ROBBINS, PRESIDENT AND CHIEF EXECUTIVE OFFICER, ASSOCIATION FOR UNCREWED VEHICLE SYSTEMS INTERNATIONAL (AUVSI); JO-ANNE M. “JO” DAMATO, CAM, SENIOR VICE PRESIDENT OF EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT, NATIONAL BUSINESS AVIATION ASSOCIATION (NBAA); AND DAVID J. SPERO, NATIONAL PRESIDENT, PROFESSIONAL AVIATION SAFETY SPECIALISTS, AFL-CIO (PASS)

TESTIMONY OF MATTHEW “MONTY” MONTGOMERY, DEPARTMENT CHAIR, DEPARTMENT OF PROFESSIONAL AVIATION, LOUISIANA TECH UNIVERSITY

Mr. MONTGOMERY. Thank you, sir.

Chairman Graves, Ranking Member Cohen, and members of the committee, thank you for inviting me to participate in today’s hearing, and thank you for your attention to aviation.

My name is Matt Montgomery. I just go by Monty. Please call me Monty. I am a former military maintainer, 20 years of Active Duty service with nuclear weapons and 11 years as a Government civil servant working for Global Strike Command.

Since I was a child way back in the 1970s, I always loved aviation and am proud to be called an airman.

I would like to bring to your attention the aviation academic training bottlenecks that we are currently facing at Louisiana Tech University.

As you may know, our university has a rich history in professional aviation, and we take pride in the quality of our programs. However, we are currently experiencing several challenges that are impacting the aviation academic training. These challenges include the availability of flight training to meet student demand, scheduling effectiveness, availability of qualified professors and instructors, funding, aircraft purchasing backlog, and factors such as designated pilot examiner availability and lack of forecasted hiring trends.

In response to these challenges, Louisiana Tech University is taking proactive measures to address the issues. We are focusing on supporting our current students in flight aviation management, and additionally, we are looking for growth opportunities for flying mechanics, air traffic controllers, and unmanned aerial systems airmen.

Despite our efforts, there are areas where we need additional support. So, this literally requires assistance in terms of funding, aircraft purchasing, professor pay gap, and better forecasting of industry, military, and corporate hiring trends. These areas are critical to our ability to overcome the current bottlenecks, to ensure we provide the required number of airmen when needed, and ensure the quality and effectiveness of our aviation training programs to support growth and adaptability.

Louisiana Tech is accredited by AABI. It is our opinion aviation schools should be accredited by an independent accrediting body such as AABI to ensure quality of training. Historically, we have seen dramatic differences on when we pick up students with pri-

vate pilot certificates from other flight schools, many times requiring extensive retraining to get to acceptable flight standards.

Moving on to partnerships. We have several partnerships with large airlines including United Aviate and Southwest Destination 225, and regional airlines including Republic Airlines, SkyWest Airlines, and Mesa Airlines. Our campus also supports Air Force ROTC, providing private pilot training to future officers. While these partnerships provide effective pipelines for our airmen into aviation, we will be looking for help from industry partners in our hard-to-fill vacancies, equipment, and helping students get flight funding.

The superior work you have done to pass the FAA Reauthorization Act of 2024 will present opportunities for us to apply for grants and obtain funding needed to bridge these gaps. However, students still need assistance, as our primary dropout indicator for students in aviation is funding. The cost of flight is just too great of a burden for most Americans, which is the primary root cause of Louisiana Tech's private pilot dropout rate that is historically at 68.2 percent.

In closing, aviation training pipelines need assistance to properly meet U.S. demands. We need to forecast better. We need additional funding assistance to procure our aircraft and equipment. We need additional assistance filling in pay gaps, and students need assistance in funding their dreams of flight. Correcting these problems will remove bottlenecks in the production of airmen and better set up the U.S. training pipeline to fill projected needs.

For reference and review, I have also submitted to the hearing record my report, titled, "Aviation Academic Training Bottlenecks: A Perspective from a Part 141 Flight Training School."

Lastly, I would like to thank every one of you who worked on the FAA reauthorization bill. On behalf of all the airmen you have helped and will be helping, your tireless efforts are greatly appreciated. We needed your help and you valiantly heard our call, so, thank you.

I am available for questions.

[Mr. Montgomery's prepared statement follows:]

**Prepared Statement of Matthew "Monty" Montgomery, Department Chair,
Department of Professional Aviation, Louisiana Tech University**

Chairman Graves, Ranking Member Cohen, and Members of this Committee—thank you for inviting me to participate in today's hearing, and thank you for your attention to aviation. My name is Matthew Montgomery, but please call me Monty. I am the Department of Professional Aviation Head for Louisiana Tech University. I am also a former military maintainer with over 20 years of active-duty experience as a nuclear weapons technician and over 11 years as a government civil servant working for the Air Force Global Strike Command (AFGSC). Since I was a child, way back in the 1970s, I always loved aviation and am proud to be called an airman.

I would like to bring to your attention the aviation academic training bottlenecks that we are currently facing at Louisiana Tech University. As you may know, our university has a rich history in professional aviation, and we take pride in the quality of our programs.

However, we are currently experiencing several challenges that are impacting our aviation academic training. These challenges include availability of flight training to meet student demand, scheduling effectiveness, availability of qualified professors

and instructors, funding, aircraft purchasing backlog, and factors such as designated pilot examiners availability and lack of forecasted hiring trends.

In response to these challenges, Louisiana Tech University is taking proactive measures to address the issues at hand. We are focusing on supporting our current students in flight and aviation management and additionally, we are looking for growth opportunities in providing training to mechanics, air traffic controllers, and in Unmanned Aerial Systems (UASs).

Despite our efforts, there are areas where we need additional support. Specifically, we require assistance in terms of funding, aircraft purchasing, professor pay gap, and better forecasting of industry, military, and corporate hiring trends. These areas are critical to our ability to overcome the current bottlenecks, to ensure we provide required number of airmen when needed and ensure the quality and effectiveness of our aviation training programs to support growth and adaptability.

Louisiana Tech University is accredited by the Aviation Accreditation Board, International (AABI). It is our opinion that all aviation schools should be accredited by an independent accrediting body such as AABI to ensure quality of training and standards. Historically, we have seen dramatic training differences on when we pickup students with their Private Pilot Certificate from other flights schools. Most of the time requiring extensive retraining to get to acceptable flight standards.

Moving onto our Partnerships, we have several partnerships with large airlines including United Aviate and Southwest Destination 225, and regional airlines including Republic Airlines, SkyWest Airlines, and Mesa Airlines. Our campus also supports AFROTC providing Private Pilot training to future officers. While these partnerships provide effective pipelines for our airmen into aviation, we will be looking for additional help from industry partners in our hard to fill vacancies, equipment, and help getting students scholarships and flight funding.

The superior work you have done to pass the FAA Reauthorization Act of 2024 will present opportunities for us to apply for grants and obtain funding needed to bridge these gaps. However, students still need assistance as our primary dropout indicator for students in aviation is funding. The cost of flight is just too great of a burden for most Americans which is the primary root cause for Louisiana Tech's Private Pilot dropout rate that is historically at 68.2%.

In closing, Aviation training pipelines need assistance to properly meet U.S. demands. We need to forecast better; we need additional funding assistance to procure aircraft and equipment, we need additional assistance filling in the pay gaps, and students need assistance in funding their dreams of flight. Correcting these problems will remove bottlenecks in the production of airmen and better set up the U.S. training pipeline to fill projected needs. For your reference and review, I have also submitted to the hearing record my report titled "Aviation Academic Training Bottlenecks: A Perspective from a Part 141 Flight Training School".

Lastly, I would like to thank each and every one of you who worked on the FAA Reauthorization Bill and passing this important legislation. On behalf of all the airmen you have helped and will be helping, your tireless efforts are greatly appreciated. We needed help and you valiantly heard our call, so thank you!

I am happy to answer any questions you may have.

ATTACHMENT

AVIATION ACADEMIC TRAINING BOTTLENECKS: A PERSPECTIVE FROM A PART 141 FLIGHT TRAINING SCHOOL

by Matthew "Monty" Montgomery, Department Chair, Department of Professional
Aviation, Louisiana Tech University

1. BACKGROUND.

1.1. *University Overview:*

1.1.1. Louisiana Tech University is a selective-admissions, comprehensive public university. Louisiana Tech is committed to quality in teaching, research, creative activity and scholarship, public service, and workforce/economic development. Louisiana Tech maintains as its highest priority the education and development of its students in a challenging environment within a safe supportive, diverse community of learners. Louisiana Tech University is categorized as a Four-Year selective admission research university awarding bachelor's, master's, and doctoral degrees.

1.2. *Aviation History at Louisiana Tech University:*

1.2.1. Louisiana Tech University is a pioneer in academic professional aviation and was the first Louisiana flight school to offer a Bachelor of Science degree in Pro-

essional Aviation in 1967. The program was expanded to include a Bachelor of Science degree in Aviation Management in the Fall of 1999. In 2024, Louisiana Tech University's latest expansion now offers a Master of Business Administration with an Aviation Management Concentration to support working airmen.

1.3. *Department of Professional Aviation overview:*

1.3.1. The Department of Professional Aviation is one of only two programs within Louisiana Tech University that is selective enrollments. This is due to the Department's self-regulating enrollments owing to the availability of aircraft, aviation professors, and Certificate Flight Instructors (CFI). The Department currently does this by having an American College Test (ACT) or Scholastic Aptitude Test (SAT) and Grade Point Average (GPA) requirement that is above entry requirements into Louisiana Tech University. These requirements are 23 ACT (1130 SAT) and 3.0 GPA. Once the Department has all the perspective students listed, they will be stacked via ACT/SAT and GPA requirements and taken from the top-down approach. The number taken each year is determined by Flight Operations as an estimate on how many more students it can accept based on open pilot slots (from dropouts and graduations) and CFI attrition rates. This process is under review in Summer 2024, as ACT and GPA doesn't appear to forecast effective pilots.

1.4. *Aviation Accreditation Board International (AABI).*

Louisiana Tech University is an AABI accredited university. This accreditation allows better continuity and training across member institutions ensuring standardization and harmonization of aviation training. Accreditation facilitates transfer of accreditation and credits across member universities and institutions. This provides airmen with the flexibility of increased options when transferring schools. Additionally, any institution accredited by AABI, ensures flight schools maintain standards and quality of training to include contracted flight. It is our opinion that all Part 141 aviation training schools should be accredited by an independent accrediting body such as AABI to ensure quality of training, ensure compliance with regulations, and give institutions a second opinion on their program. Lastly, accreditation ensures aviation classes offered towards a degree, are at an acceptable standard and quality.

2. AVIATION ACADEMIC BOTTLENECK PROBLEMS:

2.1. *Enrollments / Recent Demand for Aviation:*

2.1.1. In 2023, Louisiana Tech University had 270 applicants for the B.S. Professional Aviation (fixed-wing flight) degree. In 2024, that number increased to over 370 applicants. Our intake of new students is directly related to the number of aircraft we have on hand, aviation professors, and available CFIs. In 2023, we had 35 flight slots available and in 2024 we increased those available flight slots to 65 due to scheduling effectiveness changes. With our current fleet, professors, CFI population, and scheduling effectiveness we are at a maximum production capacity.

2.2. *Scheduling Effectiveness.*

2.2.1. Active scheduling is paramount to ensure aircraft are utilized at an effective rate. Lack of scheduling effectiveness will see resources sitting on the ramp and will extend periods of training to unacceptable levels. If a program has an effective schedule, schedulers will actively monitor aircraft usage, weather conditions, cancellations, and maintenance. If a Private Pilot cannot fly due to weather, the scheduler will work to fill the time slot with pilots who can. Without an active scheduling process, bottlenecks will be produced in training and resources will be wasted.

2.2.2. Additional factors in scheduling effectiveness that create bottlenecks in the production process, are weather and time of day. Private Pilot students cannot fly in many weather conditions and cannot fly at night. Active planning to maximize aircraft utilization is often "thrown out the window" due to weather conditions. This is the nature of flight training and is unavoidable, however, it remains a common problem when training airmen and can throw the best scheduling into disarray.

2.3. *Aviation Professors:*

2.3.1. Most universities have a difficult time hiring experienced pilots and mechanics to teach. This is due to:

- The pay gap between education and industry and certified mechanics.
- A significant portion of pilots and certified mechanics do not pursue a graduate degree.

2.3.2. Specifically, the pay gaps are:

2.3.2.1. For pilots, IAW the Bureau of Labor Statistics the average Pilot pay is \$171,210 (BLS.GOV, 2023). Per the latest Aviation Program Salary survey com-

pleted by Aviation Accreditation Board International (AABI) in 2022, the average pay for an Aviation Professor is \$74,285 to \$100,690 depending on location and rank.

2.3.2.2. For Aviation Mechanics, IAW the Bureau of Labor Statistics the average pay for Airframe and Powerplant (A&P) Certified Technicians (Scheduled Air Transportation) is around \$96,470 (BLS.GOV, 2023). AABI 2022 Survey indicated Aviation Mechanic Professors' average pay is around \$60,000 to \$80,000 depending on rank and location.

2.3.3. This discrepancy creates a barrier to hiring qualified and experienced personnel in education, as we cannot pay what the industry is providing. In many cases, we must hire what we can afford, which can negatively impact the quality of the aviation program. Additionally, once we have grown our own professors (students work their undergraduate degree, decide to stay and teach, and then earn their graduate degree), we lose them to higher paying industry jobs or to other universities fighting over the same limited resources pool.

2.3.4. With that said, a notable deviation is for those universities/flight schools with a military installation nearby. This proximity gives schools an additional hiring pool of retiring pilots, mechanics, and other airmen who want to stay local. This hidden gem allows Louisiana Tech to potentially get around the high market prices and obtain highly qualified airmen, due to our location near an airbase. This is further a benefit as most airmen leaving military service have completed an undergraduate degree and most Senior Non-Commissioned Officers (SNCO) and all retiring officers have their graduate degree.

2.3.4.1. Louisiana Tech University is lucky enough to have Barksdale Air Force Base near it. This gives us a large pool of potential experienced airmen to hire for aviation positions. However, we still need to get potential experienced airmen to travel 1 to 1.5 hours to Ruston to teach and then we are still competing against civil service, contractor, and industry offerings.

2.4. *Certificated Flight Instructors (CFI).*

2.4.1. Louisiana Tech's CFIs are a proven resource and are in high demand for training. We have seen many of our CFIs being actively recruited by Part 61 and Part 141 schools across the nation. This is further validated with GAO report 18-403. Specifically, "Flight instructor retention: Nearly all (16 of 18) selected school representatives cited difficulty recruiting and retaining flight instructors as a great or moderate challenge for schools' ability to train pilots. According to most school representatives (15) and other selected stakeholders, instructors who aspire to be airline pilots are rapidly accruing the flight hours necessary to qualify and are obtaining employment as soon as they are eligible. In addition, regional airlines have recently increased hiring, generating high turnover among flight instructors, who are traditionally their main source of new pilots." (GAO, 2018)

2.5. *Chief Flight Instructor.*

2.5.1. Chief flight instructor position, as indicated in the 14 CFR Part 141, Section 35 indicates the Chief Instructor must have the following qualifications (CFR, 1997):

"(1) Hold a commercial pilot certificate or an airline transport pilot certificate, and, except for a chief instructor for a course of training solely for a lighter-than-air rating, a current flight instructor certificate. The certificates must contain the appropriate aircraft category and class ratings for the category and class of aircraft used in the course and an instrument rating, if an instrument rating is required for enrollment in the course of training;

(2) Meet the pilot-in-command recent flight experience requirements of § 61.57 of this chapter;

(3) Pass a knowledge test on—

(i) Teaching methods;

(ii) Applicable provisions of the "Aeronautical Information Manual";

(iii) Applicable provisions of parts 61, 91, and 141 of this chapter; and

(iv) The objectives and approved course completion standards of the course for which the person seeks to obtain designation.

(4) Pass a proficiency test on instructional skills and ability to train students on the flight procedures and maneuvers appropriate to the course;

(5) Except for a course of training for gliders, balloons, or airships, the chief instructor must meet the applicable requirements in paragraphs (b), (c), and (d) of this section; and

(6) A chief instructor for a course of training for gliders, balloons or airships is only required to have 40 percent of the hours required in paragraphs (b) and (d) of this section.

- (b) *For a course of training leading to the issuance of a recreational or private pilot certificate or rating, a chief instructor must have:*
 - (1) *At least 1,000 hours as pilot in command; and*
 - (2) *Primary flight training experience, acquired as either a certificated flight instructor or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least—*
 - (i) *2 years and a total of 500 flight hours; or*
 - (ii) *1,000 flight hours.*
- (c) *For a course of training leading to the issuance of an instrument rating or a rating with instrument privileges, a chief instructor must have:*
 - (1) *At least 100 hours of flight time under actual or simulated instrument conditions;*
 - (2) *At least 1,000 hours as pilot in command; and*
 - (3) *Instrument flight instructor experience, acquired as either a certificated flight instructor-instrument or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least—*
 - (i) *2 years and a total of 250 flight hours; or*
 - (ii) *400 flight hours.*
- (d) *For a course of training other than one leading to the issuance of a recreational or private pilot certificate or rating, or an instrument rating or a rating with instrument privileges, a chief instructor must have:*
 - (1) *At least 2,000 hours as pilot in command; and*
 - (2) *Flight training experience, acquired as either a certificated flight instructor or an instructor in a military pilot flight training program, or a combination thereof, consisting of at least—*
 - (i) *3 years and a total of 1,000 flight hours; or*
 - (ii) *1,500 flight hours.*
- (e) *To be eligible for designation as chief instructor for a ground school course, a person must have 1 year of experience as a ground school instructor at a certificated pilot school.”*

2.5.2. This specific position represents the biggest of our bottlenecks for personnel hiring and one exceedingly harder to fill. Discussions with several Louisiana State schools and a Texas University indicated these schools want to bring on a flight curriculum in their region however cannot due to the inability to hire a Chief Flight Instructor due to the pay differences with industry. The above certificates, ratings, and flight time are the biggest hiring barriers to starting programs within the U.S. due to the pay gap between what pilots with these types of qualifications and flight hours make within the industry and what Universities/Colleges can pay. With the quality of the flight program mainly in the Chief Flight instructor's hands, most schools are forced to increase pay for this position, which turns into increasing flight costs for students or hiring within and accepting the lack of industry experience.

2.6. Funding:

2.6.1. Our university's flight program funding is covered by student flight fees. These fees cover leases of aircraft, maintenance, insurance, flight instructor pay, and flight operations overhead (rent, electrical, internet, etc.). Since no other sources of funding are utilized, our flight fees are expensive and create a large barrier to entry for a majority of U.S. households. Currently, on average Louisiana Tech's flight costs are \$72,000, to earn a Private Pilot Certificate, Instrument Rating, Commercial Rating, and Certificated Flight Instructor endorsement. This is on top of a 4-year college tuition.

2.6.2. With these figures in mind, funding assistance isn't only needed for aviation schools. The average U.S. wide drop out rate for Private Pilots is 70% to 80% (AOPA.ORG, 2010). Louisiana Tech's Private Pilot dropout rate is historically at 68.2%. From our research, the primary root cause of the high dropout rate is that most Americans cannot afford the price of learning to fly. Many of our students try to work full time, go to school full time, and then spend their week's pay on a couple hours of flight training. Most students quickly lose hope in flight as they cannot make enough money to afford flights and to live. While student loans are available, many students do not qualify due to parents' income requirements or use most of their student loans to pay for classes, books, and fees. If we can get aviation students more help to pay for flight, it will decrease the dropout rate and increase production.

2.6.3. Lastly, this data is supported by the GAO Report 18-403. Specifically, *“High cost of training: Nearly all (16) selected schools' representatives identified the cost of a professional pilot degree program as a great or moderate challenge to recruiting and retaining pilot students. High education costs are not unique to these programs. Nonetheless, in addition to tuition, flight training fees alone often exceed*

\$50,000, well above the cap for federal financial aid available to eligible students.”
(GAO, 2018)

2.7. Aircraft Availability and Cost:

2.7.1. Louisiana Tech has 10 Cessna 172S, *Skyhawks*, 1 Cessna C172R, and 2 Piper PA-28, *Arrows*. To increase our offerings and add more students, we would need additional aircraft. Currently obtaining additional aircraft is at \$500,000 to \$627,000 depending on which aircraft and which instruments are attached. If we want a dual-engine aircraft, the Diamond 42 is around \$1.2 Million. The Cessna manufacturer (Textron Aviation) is backed up for Cessna 172's by a little over 3 years and others are 1-2 years out. If Louisiana Tech wants to remove selective enrollments by adding more aircraft, we will require 8-10 Fixed-wing aircraft to grow the program. This will cost us at least \$5 Million to procure the added fleet required. The \$5 Million could be added to our monthly overhead costs, like current aircraft, however, the flight costs are still a large barrier to flight training for most Americans. Additionally, if the pilot hiring takes a turn for the worse, we will not be able to afford the leases on the aircraft, which increases our risk to unacceptable levels.

2.8. Airframe and Power Plant Program.

2.8.1. For aviation mechanics, we need specialized tools, trainers, maintenance handling equipment, and facilities. All come at a great cost. As stated above, we cannot compete against industry pay in academia. We need mechanics as the supply and demand curve is flipped on us, forcing our maintenance bills higher and higher each year. As indicated in previous paragraphs, this cost is passed onto students, pushing aviation more and more outside of the average American's ability to pay.

2.8.2. In summary, selective enrollments are a large bottleneck in our processes, however, it is in place due to the limited availability of aircraft, professors, and CFIs. Other bottlenecks of funding, aircraft availability, and limited supply of experienced graduate degree airmen willing to take less pay to teach all greatly affect the academic production of airmen.

2.9. Other Factors:

2.9.1. *Designated Pilot Examiner (DPE).* DPEs are hard to find in Louisiana. When we do find them their costs are high and their time is limited in supporting our Part 141 operations. Due to existing regulations, our university is no longer able to obtain self-examining authority due to our pass rates falling below 90%. However, we are actively engaged with the DPEs we know of and ensuring we get maximum time for when they are in Ruston, LA.

2.9.2. *Hiring Trends.* Hiring trends for Louisiana Tech airmen have been positive for flight students. We currently have a 100% placement rate for students completing their B.S. Professional Aviation degree. Our students obtain positions performing Flight Instructing, Corporate Aviation, Regional Aviation, Military, and various other piloting positions. Louisiana Tech has partnerships with Southwest Airlines Destination 225, United Airlines Aviate, Cape Air, Republic Airlines, and SkyWest Airlines. While students have seen increased lead time into the major airlines, they are employed and building Pilot-In-Charge time with little problems. Most of our CFI-rated pilots are hired in-house and train new students until they reach around the 900 PIC hour mark. At that point, the instructors will move on to the regional partners. Lastly, we have seen a number of CFIs moving to other flight schools due to better pay or locality to home locations. This is a large indicator that our airmen are in high demand and jobs are presented to them across the region.

2.9.3. However, recent information provided by several of our industry partners gives large indicators that hiring is slowing and some airlines are cutting back routes and letting go of pilots. Specifically, Mesa Airlines indicated “The transition to a single fleet operational environment, combined with drastically reduced pilot attrition, has resulted in a temporary surplus of pilots at Mesa.” (Lotter, 2024) This information combined with other indicators, like aircraft delivery backlog/problems, airlines cutting back routes due to manufacturer delays, and pay raises keeping senior pilots longer increases the chances that our pilots may not be able to walk in airline positions like they have in the past 5 to 10 years. Our prognosis is that airline positions will be tougher to obtain due to this, however, the job market is changing in nature. As the Large-Unmanned Aerial Systems (L-UAS) market expands, the theory is certificated, and rated pilots will transition to these platforms changing as the market demands. Based on this theory, Louisiana Tech is opening discussions on supporting Unmanned Aerial Systems and partnering with Houma-Terrebonne airport to provide pilots, training, and support for their future L-UAS operations.

2.10. Aviation Medical Examiners (AME).

While there are no AMEs within Ruston Louisiana there are several 30-to-60-minute drives from our location. We currently do not see any major issues with AMEs and the FAA's website is easy to use and helps potential students find AMEs close to home. Historically, we have seen some students not understand the medications/problems they encountered when they were young and get surprised when ADHD drugs, Color Blindness, and heart conditions restrict them from flight. Due to this, we ensure all potential students applying for Professional Aviation are briefed on the AME processes and where to find the information.

3. WHAT IS LOUISIANA TECH DOING TO HELP?

3.1. Pilots:

3.1.1. We are seeking partners with local Part 141 non-university flight schools to increase our availability of flight training. We are currently building a partnership with Petroleum Helicopter International (PHI), Metro Aviation, and Part 141 non-University flight schools to start training rotary-wing pilots in Lafayette and Shreveport, Louisiana. These partnerships should increase the supply of rotary-wing pilots in the Gulf region that are in high demand with perceived low supplies. If these efforts are successful, we will expand this program into fixed-wing operations in these locations. Several Community Colleges are willing to support our students in these locations and will aid in our expansion efforts to fulfill regional pilot requirements.

3.1.2. Additionally, to provide other ways students can become airmen, we have developed a backup process for the flight program. This process allows students who were not chosen for the flight program to pursue an academic major in Aviation Management. These Aviation Management students will be prioritized as flight program candidates based on a review of their academic performance (College GPA) and will backfill flight slots as we have students change majors or graduate from the flight program throughout the year. This process is designed to give students hope to get into flight, even if their High School years were less than stellar or their testing wasn't competitive. While they wait for an open flight slot, they can still complete the basic General Education Requirements and non-flight Professional Aviation classes.

3.1.3. Lastly, we are actively waiting for the FAA Aviation Workforce Development Grant to open for 2024. Our hope is to be awarded grants to support buying new aircraft and equipment and supplement growth opportunities. The opportunities the 118th Congress has established in the FAA Reauthorization Act of 2024, will help us out significantly if we can ensure we apply for and support grant applications within the University.

3.2. Mechanics:

3.2.1. Louisiana Tech Aviation Industry partnerships within the state. Currently, we are working with PHI and potentially Metro Aviation to have their mechanics train our students to obtain their Airframe and Powerplant certifications in tandem with Louisiana Tech's B.S. Aviation Management degree. This new partnership should help those companies by training our students to their standards and providing a ready-trained force at their fingertips. Additionally, the new credentialing helps Louisiana Tech by our industry partners providing the training, equipment, and engines/aircraft to allow our academic program to offer our degree with an aircraft maintenance focus, making our Aviation Management degree more valuable to students.

3.3. Air Traffic Controllers:

3.3.1. We have submitted our application to the FAA for the Air Traffic-Collegiate Training Initiative at the standard level. This opportunity will make our B.S. Aviation Management degree more valuable and allow our students to get into the pipeline to the FAA training center, with 5-weeks off their training. If we can get funding for ATC simulators and get an ATC Professor, we intend to expand this program into the enhanced version. However, as previously stated, the pilots and mechanics industry pay gap will be another barrier to hiring highly qualified ATC professors.

3.4. MBA with Aviation Concentration.

Louisiana Tech University has partnered their College of Business with the Aviation Department to generate a graduate-level aviation degree at Louisiana Tech. If demand for this program is great, we plan to use this as a springboard to establish a Master of Science in Aviation Management degree.

3.5. Unmanned Aerial Systems (UAS).

3.5.1. *14 CFR Part 107*. Louisiana Tech's Department of Professional Aviation is building proposals to start a Minor and Certification in Small-UAVs. While this project has just started our goal would be to provide the grounds schools, aviation weather, and aviation law classes to support any degree within the University adding a Minor in Small-UAVs. Initial interest in the program is high and we hope to expand this program to include any state agency that wants to get their first responders Part 107 certified. Once the program is established, we will work on accrediting a B.S. in Aviation Management with a Concentration in Small-UAVs, a Minor in Small-UAVs, and a Concentration in Small-UAVs.

3.5.2. *Large-UAS (L-UAS)*. Louisiana Tech University is currently developing a CEA (Cooperative Endeavor Agreement) with the Houma-Terrebonne Airport Commission (HTAC) and the UAS Gulf of Mexico Center of Excellence (UGC) to provide L-UAS support. This support will provide certified pilots to assist with the certification of L-UAS, build a new flight pipeline for L-UAS certified pilots at Louisiana Tech, and share training equipment with HTAC & UGC in developing the next generation of L-UAS airmen. Once this program is established, we expect to offer a B.S. Professional Aviation (Large-UAS) degree.

3.5.2.1. L-UAS will affect our production of fully qualified pilots. This is due to current standards for L-UASs (over 55 lbs.), requiring a waiver certificate from the FAA until Beyond Visual Line of Sight (BVLOS) becomes the certified norm by FAA. From past experiences, the FAA required the pilot (under the Part 333 Program) to be a certified on Private Pilot. This added program will require more aircraft and CFIs, increasing the resource and financial strains on our aviation program. Moreover, educating and training our students on this emerging technology.

4. WHERE LOUISIANA TECH UNIVERSITY NEEDS HELP.

4.1. Funding.

Louisiana Tech's aircraft leases, maintenance, and flight operations overhead is covered solely by student flight fees. Any increases in cost due to maintenance increases, professor/instructor pay increases to retain, and overhead increases (rent, utilities, etc.) is directly passed onto our students. U.S. residents are already struggling with the high cost of flight training and most cannot afford it. Any assistance to bridge this financial gap will help us reduce flight costs and open up aviation to more citizens.

4.2. Aircraft Purchasing.

Any financial support in the procurement and payment plans designed for state universities/colleges is needed and would be appreciated.

4.3. Professor Pay Assistance.

Assistance to level the pay gap is needed to retain highly qualified pilots to train the next generation of pilots. Whether this support comes from assistance from the aviation industry paying back the training pipeline through providing pilots from their pools or from finding new innovative ways to fill the pay gap, we need external resources that avoid further pushing additional financial burdens onto students.

4.4. Future aviation research and data sharing.

We need better forecasting methods in aviation training to be able to project positions at least 4-years out. Effective forecasting would allow universities to efficiently project student enrollment we need to attain while simultaneously lowering schools' risks and ensuring schools are meeting industry demands. This forecasting should include Unmanned Aerial Vehicles Pilots (both Small and Large), Fixed-Wing Pilots, Rotary-Wing Pilots, Airframe and Powerplant Mechanics, ATC controllers, and aviation management. Without data-driven forecasting, we risk a misappropriating significant resource on aircraft, airport improvements, equipment, and personnel based on immediate needs, when in 4-years we may not have the same demand, wasting an extensive amount of resources. This potential waste of resources exposes schools to a significant financial risk of not being able to pay for the leases, overhead, and annual maintenance if/when demand turns downward. For this, we recommend the establishment of a training forecast body to anticipate demands and communicate that information to our flight schools to better provide training needs.

5. SUMMARY

5.1. In closing, Aviation training pipelines need assistance to properly meet U.S. demands. We need to forecast better; we need additional funding assistance to procure aircraft and equipment, we need additional assistance filling in the pay gaps,

and students need assistance in funding their dreams of flight. Correcting these problems will remove bottlenecks in the production of airmen and better set up the U.S. training pipeline to fill projected needs.

5.2. Lastly, I wanted to thank each and every one of you who worked on this Act on behalf of all the airmen you have helped and will be helping. We needed help and you valiantly heard our call. So, on behalf of every pilot, mechanic, air traffic controller, and general aviation airmen, Thank you.

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Mr. GRAVES OF LOUISIANA. Thank you, Mr. Montgomery.

I want to let Members know that I told Mr. Montgomery last night that we were going to take him on a brief Capitol tour last night, and I think we kept you out till maybe 11:30 at night last night. No alcohol was involved, but we did have him out way past his bedtime in the Capitol because it is such a cool building. We were all over the place in all the nooks and crannies. So, I appreciate you being here today, and I apologize for keeping you up late last night.

Mr. COHEN. Thank you. I appreciate your testimony. As I was telling the chairman, Louisiana Tech reminds me of some great football games with Memphis State back in the 1950s and 1960s. They had real good games.

Mr. Robbins, you are next, and you are recognized for 5 minutes.

TESTIMONY OF MICHAEL ROBBINS, PRESIDENT AND CHIEF EXECUTIVE OFFICER, ASSOCIATION FOR UNCREWED VEHICLE SYSTEMS INTERNATIONAL (AUVSI)

Mr. ROBBINS. Thank you, Chairman Graves and Ranking Member Cohen, and distinguished members of the committee. My name is Michael Robbins, and I am the president and CEO of AUVSI, which is the world's largest trade association representing uncrewed systems, robotics, and autonomy. And I am honored to be with you today representing our members from the UAS, or drone, industry, as well as the advanced air mobility, or AAM, industry.

I am also delighted that my son Jack could be here today. Jack is 13, interested in aviation, and represents a potential member of the future world-leading aviation workforce here in America.

As you know, the United States leads the world as the gold standard for aviation safety. However, to safeguard our position as the world leader, and to recruit, retain, and engage the aviation workforce of the future, we must continue to advance the policy

and regulatory framework to integrate advanced aviation technologies.

The United States Congress, led by the tremendous bipartisan leadership of this subcommittee, and the full Transportation and Infrastructure Committee, put the Nation on the right path with the recent passage of the FAA Reauthorization Act which is now law. And AUVSI is tremendously grateful to the members of this committee and your hard-working staffs for the years of investment into this foundational legislation. You have set the standard for how Congress should work effectively to advance good public policy. Thank you.

We are now at a pivotal time in aviation history with drones and advanced air mobility aircraft unlocking significant benefits in both safety and technology leadership. With those benefits will come significant economic activity and workforce opportunities.

As you know, drones offer a cost-effective solution for critical operations, including public safety and utility inspection, critical maintenance, precision agriculture, and more. And AAM is revolutionizing propulsion systems, battery technology, and flight controls, unlocking new segments not served by traditional aviation and enhancing workforce productivity and safety. Companies are opening high-rate production facilities across America and creating thousands of high-quality manufacturing jobs to build the aircraft required to meet the current and future demands.

And drones and AAM are opening aviation careers to a broader and more diverse workforce, including workers with physical disabilities, those without advanced technical degrees, and rural workers who do not live near economic centers of legacy aviation.

The true potential for workforce growth, however, will only be realized when the regulatory frameworks are in place for aircraft certification and operations. The forthcoming beyond visual line-of-sight rulemaking for drones and the powered-lift SFAR for electric vertical takeoff and landing aircraft are required for the U.S. to remain the world leader in aviation safety and to build the workforce of the future. Without these regulatory frameworks in place, innovation will be stifled, operations will remain limited, and the drone and AAM industries will be unable to scale in the near term in the United States.

So, industry stands ready to work with the FAA to get these rules done right and on a timeline that unlocks the full potential of advancing aviation safety, workforce growth, and U.S. economic opportunity.

Further, at this key moment, the need to modernize and expand our industry and Government workforce has never been more urgent. A few quick points.

First, the FAA's future hinges on real dollar increases, not just a reshuffling of existing staff. New funds are needed for the FAA to hire new subject matter experts capable of tackling the unique challenges of drones and AAM integration.

Second, full funding of the workforce development and grant programs included in the FAA Reauthorization Act is critical.

And third, integrating a curriculum from elementary school through community colleges and 4-year universities that support the drone and AAM industries is essential. Drones and AAM-spe-

cific training must include innovative, cost-effective, and safe certification methods.

And AUVSI is proud to partner with numerous Collegiate Training Initiative schools as part of our advanced drone training program, Trusted Operator, to provide a higher level of drone knowledge, flight proficiency, and safety and risk management practices that are valued by employers and customers of commercial drone operations.

In conclusion, on behalf of AUVSI and our members, I want to thank Chairman Garret Graves for his leadership of the subcommittee, and as the cochair of the House Unmanned Systems Caucus, along with Representative Titus.

I echo Representative Cohen's sentiments. Your leadership has been tremendous in advancing aviation safety and putting advanced aviation at the forefront of the minds of both Congress and the regulators.

Your leadership is going to be sorely missed in the 119th Congress, sir, but we know that you are going to continue to serve our Nation in meaningful ways for many decades in the future.

Thank you.

[Mr. Robbins' prepared statement follows:]

Prepared Statement of Michael Robbins, President and Chief Executive Officer, Association for Uncrewed Vehicle Systems International (AUVSI)

INTRODUCTION

Thank you, Subcommittee Chairman Graves, Subcommittee Ranking Member Cohen, Full Committee Chairman Graves, Full Committee Ranking Member Larsen, and distinguished members of the Committee and Subcommittee. My name is Michael Robbins, and I am the President & CEO of the Association for Uncrewed Vehicle Systems International (AUVSI), the world's largest industry association representing the uncrewed systems, robotics, and autonomy industry. Our members create systems that operate in the air, on the ground, and in the water across the civil, commercial, and defense domains. Today, I am honored to appear before the Aviation Subcommittee representing our members in the Uncrewed Aircraft Systems (UAS or drones) and Advanced Air Mobility (AAM) industries.

The topic of today's hearing—recruiting, retaining, and engaging aviation talent—is of tremendous importance to the long-term resiliency of the aviation industry, and specifically the advanced aviation industry and the future of U.S. aviation leadership. To safeguard our position as the global aviation leader, and to build the aviation workforce of the future, we must continue to advance the policy and regulatory frameworks that integrate advanced aviation technologies into the National Airspace System (NAS), which will ensure the U.S. remains the gold standard for aviation safety.

The United States Congress, led by the tremendous bipartisan leadership of this Subcommittee, and the full Transportation and Infrastructure Committee, put the nation on the right path with the recent passage of the Federal Aviation Administration (FAA) Reauthorization Act of 2024 (P.L. 118–63). The law contains dozens of critical provisions in support of aviation safety and will ensure the regulatory pathway for drones and AAM is based on fundamental risk-based safety principles. This will guarantee continued U.S. leadership in the decades ahead and help to build the aviation workforce of the future. AUVSI and our members are tremendously grateful to the Members of this Committee, and your staffs, for your years of investment into this foundational legislation. On behalf of AUVSI and our members, thank you.

We are at a pivotal moment in aviation history, with drones and AAM aircraft unlocking significant benefits in both safety and technology leadership. With those benefits will come tremendous economic activity and workforce opportunities. Drones offer a cost-effective solution for critical operations including public safety, package delivery, precision agriculture, utilities maintenance, infrastructure inspec-

tions, and much more. AAM is revolutionizing propulsion systems, battery technology, and flight controls, unlocking new areas not served by traditional aviation and enhancing workforce productivity and safety. Companies are opening high-rate production facilities and creating thousands of high-quality manufacturing jobs at an increasing rate.

The true potential for workforce growth, however, will only be realized when the regulatory frameworks are in place for aircraft certification and operations. Two important and time sensitive rulemakings are underway at the FAA which will help to determine the future path of the drone and AAM industries, respectively. The forthcoming Part 108, or Beyond Visual Line of Sight (BVLOS) rulemaking for drones, and the Powered-Lift Special Federal Aviation Regulation (SFAR) for electric vertical takeoff and landing (eVTOL) aircraft, are required for the U.S. to remain the world leader in aviation and aviation safety and to build the workforce of the future. Without these regulatory frameworks in place, innovation will be stifled, operations will remain limited, and the drone and AAM industries will not be able to scale in the near term in the United States and will likely look for opportunities to expand outside the U.S.—something we have already seen happen. Industry stands ready to work with the FAA to get these rules done right, and to get them done on a timeline that unlocks the full potential of advancing aviation safety, workforce growth, and U.S. economic opportunity.

At this pivotal moment, the need to modernize and expand our industry and government workforce has never been more urgent. AUVSI highlights four areas where Congressional action will have an impact:

First, the FAA's future hinges on real dollar increases, not just a reshuffling of existing staff. New funds are needed for the Agency to hire subject matter experts capable of tackling the unique challenges of AAM and UAS integration. Congress has mandated that the Agency integrate new entrants into the NAS, and we stand ready to support them in doing so. Industry can attest that, while the current civil workforce is highly dedicated and skilled, it is rooted in legacy aviation technologies. The FAA must invest in a workforce comprised of experts in new aviation technologies, including advanced automation and autonomy, who embrace safety modernization and risk-based regulations, and who do not default to applying traditional aviation ideologies to the UAS and AAM segments of the industry, which are anything but traditional. Further, FAA should implement continuous education and training programs for FAA employees to ensure they remain current with the latest advancements in aviation technologies and safety protocols, including advanced avionics, autonomy, and electric propulsion.

Second, there is significant unrealized opportunity to address the pilot and skilled worker shortages by leveraging automation, artificial intelligence (AI), and autonomy. AUVSI member companies are focused on making the most out of what technological evolutions can provide to the development of human skills. To this effect, an adequate and skilled use of automation, AI, and autonomy are undeniably tools to develop advance flight safety and operational efficiency and to support the training of the highly sought after workforce in the aviation industry. Autonomy is becoming a tool to provide support to crew members in situations where human factors reportedly impacted flight safety. This idea of complementing human skills can naturally be transferred to enhance the training of human crews and be transferred to other essential domains of the aviation industry such as manufacturing and maintenance. Furthermore, drones and AAM aircraft can perform specific, repetitive tasks, such as delivering medical supplies to hospitals and providing shuttle services to offshore oil rigs, that free up the availability of pilots for more complex aviation operations and keep human beings safer.

Third, full funding of the workforce development programs included in the FAA Reauthorization Act of 2024 is critical. The law establishes a new aviation manufacturing workforce development program and other grant programs to support education and recruitment, which Congress must now fund. The UAS industry specifically requests Congress' support for the Drone Infrastructure Inspection Grant (DIIG) Act and the Drone Education and Workforce Training Grant Program. Similarly, the AAM industry specifically requests that Congress fully fund the Electric Aircraft Infrastructure Pilot Program and the AAM Infrastructure Pilot/Grant Program at the authorized levels in the legislation.

Fourth, investing in Science, Technology, Engineering, Aerospace, and Math (STEAM) education is crucial for our country's future. We need more affordable higher education options in the U.S., as the current system is unsustainable for most American students. Integrating a curriculum from elementary school through community college and four-year universities that supports the UAS and AAM industries is essential. Drone and AAM-specific training must include innovative, cost-effective, and safe certification methods. AUVSI is proud to partner with numerous

Collegiate Training Initiative (CTI) schools as part of our drone training program, Trusted Operator, which provides advanced training beyond the minimally prescriptive operating regulations, such as the FAA’s Part 107. Working together, AUVSI and CTIs provide higher level of drone knowledge, flight proficiency, and safety and risk management practices that are valued by employers and customers of commercial UAS operators. The certification is administered by public and private universities, and for-profit training providers that are accredited by AUVSI to ensure a consistent level of training for students while allowing institutions to adapt the program to fit their educational needs.

Finally, I want to highlight that industry recognizes its own responsibility for workforce development. Industry leaders are engaging the future of the workforce through initiatives like Youth Fly Days, “Learning by Doing” programs, scholarships, apprenticeship and mentorship programs, partnerships with key organizations like the Girl Scouts of the USA and various high schools around the nation, hosting youth internship programs, veteran focused programs and hiring initiatives, and much more. Drones and AAM are also opening aviation careers to a broader and more diverse workforce, including workers with physical disabilities, those without advanced technical degrees, and rural workers who do not live near economic centers of legacy aviation.

To ensure the continued growth and safety of the aviation industry in the U.S., we must invest in a diverse, skilled, and adaptable workforce. This includes expanding funding, developing innovative training programs, and supporting accessibility across the board. AUVSI appreciates the Committee’s and Subcommittee’s leadership in these efforts, and we look forward to working together to build a strong future for aviation.

FAA REAUTHORIZATION PROVISIONS

The FAA Reauthorization Act of 2024 includes multiple provisions that will positively impact the aviation workforce writ large, including ensuring the regulatory framework required for the UAS and AAM industries is in place to allow the industries to scale and grow. The Reauthorization also contains key provisions focused on workforce recruitment and retention both at the FAA and within the broader industry. We are encouraged that the Subcommittee keenly focused on directly investing in workforce development and training, while also enacting commonsense policy to remove certain barriers that consistently stand in the way of attracting more talent into the aviation ecosystem.

Beyond Visual Line of Sight (BVLOS) Rulemaking

Industry delivered to the FAA the FAA-chartered UAS BVLOS Aviation Rulemaking Committee (ARC) report in March of 2022—twenty-eight (28) months ago—however, we do not yet have a draft rule from the FAA.¹ Accordingly, AUVSI appreciates the oversight of Congress on the BVLOS/Part 108 rulemaking, specifically Section 930 of the FAA Reauthorization Act of 2024, which directs the FAA to issue a notice of proposed rulemaking (NPRM) within four (4) months of enactment to establish a performance-based regulatory pathway for UAS to operate BVLOS. That means we should have a draft rule no later than September 16, 2024.

Section 930 also directs the FAA to issue a final rule sixteen (16) months thereafter. That mandate is certainly welcome, but with that timeline a rule is still approximately eighteen (18) months away from today, and twenty (20) months after enactment. Accordingly, while the rulemaking is underway, the FAA must continue issuing waivers and exemptions to enable BVLOS operations on a risk-based and performance-based basis. This is essential to unlocking the positive economic impact of drone operations, including the corresponding growth in drone-related jobs and the advancement of aviation safety.

AUVSI urges Congress to hold the FAA accountable to the key timelines on releasing the BVLOS rule enacted as part of the FAA Reauthorization Act of 2024. We urge the FAA to release the NPRM, or draft BVLOS rule, now, so that all interested stakeholders can study and comment on the draft rule and continue moving the regulatory rulemaking process forward. For a draft rule, perfect should not be the enemy of the good, nor the enemy of forward progress. Further, we need not take the full twenty (20) months mandated by Congress to get the rule finalized. AUVSI and our members stand ready to work with the FAA and others in industry to ensure a timely rule that enhances safety and unlocks the full economic and workforce potential of drones.

¹ https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/5424

AUVSI further emphasizes the requirement of an approval process for associated elements, which is mandated by Section 932 of the FAA Reauthorization of 2024. As defined in the legislation, a third-party service supplier means an “entity other than the FAA that provides a distributed service that affects the safety or efficiency of the national airspace system.” This includes safety-critical communications, such as command and control (C2) links, UAS Traffic Management (UTM), ground-based surveillance, and other critically important infrastructure and service providers.

As the BVLOS ARC Final Report describes in depth, BVLOS operations will enhance safety, provide sustainable transportation options, reduce carbon emissions, enhance access to life-saving medicines and critical supplies, save taxpayer resources, contribute to economic and workforce growth, and so much more. Let’s get the process moving. Let’s keep America as the gold standard for aviation safety and technology.

Powered-Lift Special Federal Aviation Regulation (SFAR)

Similarly, we urge the FAA to issue the Powered-Lift SFAR as soon as possible, which takes into consideration industry feedback on the initial approach the FAA took in the NPRM. It is imperative that Congress maintain oversight of the SFAR’s timeliness and content. Section 955 of the FAA Reauthorization Act of 2024 requires the FAA to publish a special final rule for the operations of, and pilot requirements for, powered lift aircraft within seven (7) months and applies specific requirements and considerations to such rulemaking. This section supports type-specific training and qualification for pilots—something that is essential for safety in the early years—and requires alignment with International Civil Aviation Organization (IACO) type-rating frameworks.

As with drones, the United States has the ability, capacity, and know-how to be the world leader in Advanced Air Mobility operations utilizing eVTOL aircraft. Ensuring a risk-based, safety-based, SFAR is essential for the U.S. to maintain global leadership. Unfortunately, the draft language proposed in the NPRM fails to do so. Despite having set expectations that this SFAR would align with ICAO, by moving away from that type rating approach, FAA is both reversing a perceived commitment to the industry and international community and adding unnecessary barriers for U.S. operators, which do not advance aviation safety. AUVSI applauds section 955 and urges Congress to ensure the provision is implemented properly to meet Congressional intent, which aligns with industry’s needs, and which will be in the best interest of advancing aviation safety.

Additionally, we urge FAA to expeditiously implement and Congress to fully fund the Electric Aircraft Infrastructure Pilot Program. Section 745 in the legislation establishes a five-year pilot program allowing up to ten (10) eligible airports to acquire, install, and operate charging equipment for electric aircraft and to construct or modify related infrastructure to support such equipment. These early projects will serve as a framework for safe integration and scaling of AAM operations in an airport environment, and will open tremendous job opportunities, creating direct and indirect job opportunities in operations, maintenance, and support services.

Aviation Workforce Provisions

The Subcommittee’s work on aviation workforce issues is best represented in Title IV, which is entirely focused on improving the aerospace and aviation workforce. We are encouraged to see the FAA Reauthorization Act of 2024 prioritize bringing more qualified individuals into the aviation industry, an industry that fosters high paying, high tech, and high demand jobs. AUVSI wants to continue to build from the momentum in the legislation and work hand in hand with Congress and the Executive Branch to bring more people from various communities into aviation professions, including women, minorities, people with disabilities, those in rural areas typically disconnected from the aviation industry, and people from underserved, disadvantaged communities. The UAS and AAM industries are at the forefront of technology that can better the lives of all Americans and we are proud of the work of our member companies whose efforts consistently yield sustained interest in our segment of the industry.

AUVSI applauds Section 440 of the FAA Reauthorization Act of 2024, the Aviation Workforce Development Program, which authorizes grants to support education and recruitment in the areas of aircraft pilots, maintenance workers, and technical workers and engineers. Specifically, the section seeks to strengthen aviation workforce pipelines by broadening the reach of training programs to include populations that are underrepresented in the aviation industry, including in economically disadvantaged geographic areas and rural communities. AUVSI applauds the direction to construct programs at various stages of the educational curriculum, including high schools, secondary schools, and higher education programs with a mix of ap-

prenticeship, internship, and scholarship programs. Section 440 also authorizes money for various existing workforce development programs housed within the FAA, in addition to giving program oversight to the Secretary of Transportation. Section 440 also sensibly notes the opportunity to support the transition to UAS operators for members and veterans of the U.S. armed forces.

Congress should fully fund the Drone Education and Workforce Training Grant Program in the FAA Reauthorization Act of 2024, Section 913, which directs the Department of Transportation (DOT) to establish a program to make grants available to educational institutions for small UAS workforce training. In addition, this section authorizes \$5 million for each of fiscal years 2025 through 2028 to be appropriated from the Operations account of the FAA. Unfortunately, the program is not funded in the House Transportation, Housing and Urban Development, and Related Agencies appropriations bill, which is something we urge action on to correct.

Congress should fully fund the DIIG Act grant program, Section 912 of the FAA Reauthorization Act of 2024, which would afford grants to local, state, and tribal governments to purchase and use U.S.-made drones for critical infrastructure inspection and construction projects. The current House Transportation, Housing and Urban Development, and Related Agencies appropriations bill funds the DIIG Act for fiscal year 2025 at the \$10 million level with an additional \$1 million appropriated for administrative expenses. While this is positive, we urge you to consider fully funding it in fiscal year 2025 at the \$12 million level authorized in Section 912. The DIIG Act also provides grant funding for workforce development programs, working with community colleges and four-year institutions, to enable the future workforce required for the U.S. to remain a global aviation leader. Lastly, the DIIG Act will spark investment in the U.S. industrial base, with a particular emphasis on manufacturing job growth, to meet the demands for new drones to fulfill the Act's infrastructure inspection mission.

Collegiate Training Initiative (CTI) Program for UAS

Section 914 of the FAA Reauthorization Act of 2024 directs the Government Accountability Office (GAO) to study the effectiveness of the CTI Program for UAS that Congress established in the FAA Reauthorization Act of 2018. Launched on April 30, 2020, the UAS-CTI is a program designed for the FAA to recognize institutions that prepare students for UAS-focused careers. Today there are more than 140 participating colleges and universities, including four minority serving institutions to ensure diversity in the workplace. CTIs engage with the FAA, industry, local governments, law enforcement, and regional economic development entities to address labor force needs in the UAS industry. This collaboration ensures that UAS-CTI school graduates have the knowledge and skills needed to pursue a successful career in a UAS-related field. The efforts, certifications, and programs have been crucial for advancing industry standards and overall progress with workforce development for this industry. By aligning regulatory demands with industry needs, these initiatives establish initial benchmarks for pilot proficiency and operational safety. This foundational work not only meets present industry demands but also sets the stage for future innovations in drone and AAM technologies.

AUVSI is engaged with numerous CTI schools as part of our drone training program, Trusted Operator, which provides advanced training beyond the minimally prescriptive operating regulations, such as the FAA's Part 107. Working together, AUVSI and CTIs provide higher level of drone knowledge, flight proficiency, and safety and risk management practices that are valued by employers and customers of commercial UAS operators. The certification is administered by public and private universities, and for-profit training providers that are accredited by AUVSI to ensure a consistent level of training for students while allowing institutions to adapt the program to fit their educational needs. Many of the public universities engaged as Trusted Operator Training Providers that administer AUVSI's Trusted Operator Certification also hold the designation of approved CTI schools, including Clemson University, Embry Riddle, Fullerton College, NC State University, Northland Community and Technical College, Virginia Tech, and Warren Community College. To date, AUVSI's training providers have issued over 1,600 Trusted Operator certificates to drone pilots.²

AUVSI applauds the FAA's recent launch of the Youth Drone Initiative under the UAS-CTI, targeting leaders, coaches, and educators of students aged 11–18.³ This initiative aims to promote collaboration and disseminate safety information and best practices within the youth drone community, with a goal of reaching 200 schools by year-end. The Know Before You Fly (KBYF) initiative, established in 2020 through

² <https://www.auvsi.org/trusted-operator>

³ <https://www.faa.gov/uas/educationalusers/youth-drone-initiative>

a partnership between the FAA, AUVSI, the Academy of Model Aeronautics (AMA), and the Consumer Technology Association (CTA), is a Congressional Directive authorized by the FAA Reauthorization Act of 2018.⁴ KBYF supports educational initiatives by providing drone kits and lesson plans to teachers for classroom and extracurricular use, fostering a culture of safety and innovation from a young age to ensure future generations are proficient in safe drone operations. KBYF-funded activities also focus on Public Service Announcements (PSAs), education, and outreach concerning safety topics such as drone registration, the Recreational UAS Safety Test (TRUST), and drone participation in the Aviation Safety Reporting System (ASRS). We are encouraged that the FAA Reauthorization Act of 2024 extends the KBYF program through 2028.

It is imperative for stakeholders to continue supporting, enhancing, and aligning these efforts to ensure a skilled workforce ready to navigate and lead in this evolving field. CTI programs, and more broadly, university apprenticeship programs, are a promising avenue for recruitment for both industry and the FAA. Many universities are offering comprehensive aviation programs. These programs not only provide technical skills but also expose students to the real-world flying experience. One program unique to the drone space is the federally registered apprenticeship program at Fullerton College. This program provides not only education and certification for commercial drone operations, but also funnels students into paid on-the-job training and a journeymen certification. We need to encourage more universities to offer such programs and ensure they are accessible to all.

AUVSI thanks Congress for directing GAO to study the program for its effectiveness, and along with our members and training partners, look forward to providing GAO with feedback on this study, and recommendations for Congress and the FAA on improvements to the program.

Impacts on FAA Workforce

AUVSI welcomes Section 424 of the FAA Reauthorization Act of 2024, which expresses the sense of Congress that the FAA should leverage the UAS-CTI to address any staffing challenges and skills gaps within the FAA to support efforts to facilitate the safe integration of UAS and other new airspace entrants (which AUVSI interprets to include eVTOL and AAM aircraft) into the NAS.

Congress further recognized this skills gap within the FAA by specifically calling out unmanned systems and other new airspace entrants (which AUVSI interprets to include eVTOL and AAM aircraft) in Section 428 of the FAA Reauthorization Act of 2024, which authorizes the FAA Administrator to utilize direct-hire authority for positions related to aircraft certification and aviation safety. AUVSI applauds this recognition by Congress and urges the FAA Administrator to use the direct-hire authority swiftly to enhance the aircraft certification and safety teams within the FAA.

As Congress urges, the FAA should partner with UAS-CTI schools to ensure they are recruiting individuals with direct knowledge of how UAS and AAM are designed, manufactured, flown, and maintained. Additionally, there is a significant gap in knowledge, broadly speaking, within the FAA on advanced automation and autonomy, which will deliver enormous leaps in aviation safety, but are not yet widely understood within the FAA. This gap is reflected in recent FAA actions, such as the FAA's proposed Powered-Lift rule, which would require "technically advanced powered-lift aircraft" to be equipped with a specific set of legacy displays which may not be appropriate to the actual operation of the aircraft and may inadvertently negatively impact aviation safety by creating more display clutter. In the same draft rule, the FAA prohibits safety-enhancing autoflight systems from being able to be used during some phases of flight most susceptible to pilot error accidents, whereas autonomous takeoff and landing are being routinely and safely demonstrated by eVTOL and other aircraft today. These short-sighted and safety-limiting proposals are examples of the FAA lacking the workforce and knowledge to apply advanced aviation rationale, and instead defaulting to legacy aviation methods, which are often inappropriate for drones and AAM and potentially detrimental to the safety benefits our industry offers.

Beyond the sense of Congress and direct-hire authority, however, we must recognize a crucial need: the FAA requires real dollar increases to meet its staff challenges, not merely a reshuffling of existing staff. New funds are essential to hire the subject matter experts capable of tackling the unique challenges of AAM and UAS integration. As Congress notes, the UAS-CTI program is an excellent source of talent the FAA can and should tap to address the skills gap. The FAA's current workforce, though dedicated and skilled, and respected by AUVSI and its members, is deeply rooted in traditional methods. To navigate the future of aviation, the FAA

⁴ <https://knowbeforeyoufly.org/home>

needs to bring in fresh minds, innovative thinkers, and a willingness to embrace a new paradigm. Further, FAA should implement continuous education and training programs for FAA employees to ensure they remain current with the latest advancements in aviation technologies and safety protocols, including advanced avionics, autonomy, and electric propulsion. Only by making these investments can we ensure that the FAA is equipped to guide the industry safely and efficiently.

FAA Data Analytics to Advance Aviation Safety

The potential to advance the FAA's safety mission through the vast collection and analysis of UAS and AAM data is significant. There is an urgent need within the FAA workforce to assimilate and apply insights derived from this data to progress across various initiatives. The pressure on the workforce to formulate and disseminate industry guidance based on these insights is immense. This task exceeds the capacity of any single FAA Line of Business (LOB). Therefore, the FAA should prioritize developing an enterprise solution that alleviates the burden on staff offices, providing a scalable and integrated approach to managing and utilizing UAS and AAM data effectively.

ADVANCING UAS OPERATIONS: WORKFORCE NEEDS, ECONOMIC IMPACT, AND FUTURE INNOVATION

Today, across the nation, drone operations, including for infrastructure inspection, agriculture, delivery, and other missions, offer Americans a wide variety of good paying job opportunities as drone pilots, operations managers, engineers, ground support personnel, and much more. The expansion of UAS operations will necessitate an increased demand for pilots, operators, package loaders, maintenance technicians, and other job categories. Notably, the barriers to entry in these fields are significantly lower than those in traditional aviation. This reduction in barriers facilitates the inclusion of individuals from diverse backgrounds, thereby broadening the pool of qualified candidates. AUVSI member companies are universally committed to equal employment opportunities and engage in robust training and mentorship programs to attract and retain the best talent.

Drones are compact yet powerful devices that have emerged as a pivotal component of the future of aviation, ushering in a new era of aerial services. They have proven to be a cost-effective and efficient solution for a myriad of tasks, from public safety operations to surveying and inspections to package delivery, including for emergency response. Their unique ability to access areas that were previously unreachable and to capture high-resolution data has fundamentally altered our interaction with our environment. They are not merely an incremental addition to our industry; they represent a significant leap forward in aviation technology and an opportunity to grow and build the next generation of our aviation workforce, and to utilize existing workforces in more efficient and safer ways. For example, drones conducting inspections can inspect large areas and hard-to-reach locations quickly, reducing the time required for manual inspections. This allows workers to focus on analyzing data and making informed decisions rather than spending time on physical inspections. Drones can cover expansive fields, long line linear power lines, railroads and pipelines, and tall structures in a fraction of the time it would take for a human inspector to do so manually. By taking over hazardous inspection tasks, drones significantly reduce the risk of accidents and injuries among the workforce. Workers can operate drones from safe locations, avoiding potential exposure to dangerous environments like high-voltage areas, toxic chemical sites, or unstable structures.

Drone Operators

In the context of the aviation workforce, the competencies required for successful drone operation in highly automated systems differ markedly from those needed for traditional crewed aircraft piloting. Certification requirements for "Pilot in Command" ratings in these automated systems should be tailored to each specific operation. These requirements may vary between companies but must consistently demonstrate the operator's competence to meet FAA-defined safety standards and acceptable risk levels as mandated by agency regulations.

A drone operator engaged in advanced UAS operations must possess skills in monitoring weather conditions, other aircraft in the vicinity, and potential anomalies. However, certain restrictions and requirements that apply to conventional pilots may not be pertinent to highly automated drone operations. Autonomy is fundamental to drone services, enabling significant scalability. Consequently, the future aviation workforce must include engineers proficient in the intersection of autonomy and aviation, as these skills are driving innovation and will remain in high demand as the industry progresses. This emerging cadre of aerospace engineers and innova-

tive thinkers will develop solutions for safely scaling small drone operations and augmenting pilot capabilities in crewed aviation, thereby contributing to enhanced safety and the ongoing effort to reduce aviation fatalities to zero.

Drone Maintenance Personnel

Presently, most advanced UAS operations, including package delivery companies, often use company-trained repairmen as well as Airframe & Powerplant (A&P) mechanics, when necessary. It is important to recognize that most drone operations, including most package delivery companies, are utilizing simple, small, low-risk drones that do not involve complex systems. Accordingly, most maintenance tasks can be safely performed by trained personnel that are neither certificated repairpersons nor A&P certificated mechanics, which as noted, reduces barriers to entry into this growing workforce, and which facilitates the inclusion of individuals from diverse backgrounds, thereby broadening the pool of qualified candidates. AUVSI encourages the FAA to recognize the low-risk nature of UAS systems and to not simply default to traditional aviation methods of always requiring certified maintenance personnel. This is not an appropriate risk-based approach, nor does it recognize the unique opportunity to grow the aviation workforce with new individuals.

Wider Economic Impact of Drone Operations

Allowing UAS operations to scale, as the BVLOS rule would allow, has broad positive economic benefits for the United States. Drone operations open new economic activity, and sources for job creation, outside of core aviation jobs. One study of the Dallas-Fort Worth area, where the FAA is allowing for drone delivery operations to occur BVLOS through waivers and exemptions, indicates that drone package delivery can help participating businesses increase annual sales by \$26,000 per business or generate roughly \$197 million in new economic activity for the Dallas-Fort Worth Metroplex overall.⁵

ADVANCING THE AAM INDUSTRY: WORKFORCE DEVELOPMENT, INFRASTRUCTURE UTILIZATION, AND ECONOMIC IMPACT

Alongside drones, we have seen the AAM industry design, build, test, and scale novel propulsion systems, battery technology, composites, and flight controls. Electric propulsion is revolutionizing aviation, as jet propulsion did sixty years ago. Advanced avionics will enhance safety by improving situational awareness, enhancing communication, automating complex tasks, and providing better data analysis. Developing the workforce that can meet the growing demands of the AAM industry, prioritizing aviation safety above all else, is a core mission for AUVSI and its member companies.

Many of our AAM member companies' aircraft have flown enough miles to go around the world, and for some companies, more than once. They are demonstrating how AAM operations can stimulate local economies with increased cargo and delivery capacity and enable reliable medical transport services to address urgent patient care. The AAM industry, in particular, can take advantage of underutilized, existing infrastructure and create a point-to-point network for transportation that can unlock access for a diverse set of communities and geographies across the U.S. The AAM industry can leverage existing but underutilized infrastructure at regional airports to establish new routes and services. This revitalization can transform these airports into bustling hubs of activity, creating direct and indirect job opportunities in operations, maintenance, and support services.

To demonstrate this potential, a 2023 report from California State University studied the economic impact of an Urban Air Mobility (UAM) network covering the city of Long Beach and the greater Los Angeles-Orange County region. The construction of a twenty-vertiport network would generate 2,133 jobs and \$174 million in labor income.⁶ By introducing new transportation options, AAM operations can stimulate local economies. Enhanced connectivity can attract businesses that rely on efficient transportation of goods and people, thereby increasing regional economic activity. The ability to quickly transport medical supplies, cargo, and passengers can make these areas more attractive to a variety of industries.

To complement efforts to enhance the FAA's technical workforce, it is crucial to attract and retain a competent and capable workforce for the AAM industry. The industry currently faces challenges in filling technically skilled jobs needed to operate, maintain, and manufacture aircraft. This workforce challenge will become more

⁵ <https://storage.googleapis.com/wing-static-us/us/Dallas%20Impact%20Report.pdf>

⁶ <https://wisk.aero/wp-content/uploads/2023/10/The-Economic-Impact-of-Establishing-and-Expanding-Urban-Air-Mobility-Operations-in-Southern-California-online-version.pdf>

acute as aviation evolves through innovation, requiring a more diverse workforce with broader competencies and new skill sets. We appreciate the leadership shown by the Committee in this area.

Through the FAA's Part 145 program, AAM companies are working to develop a skilled workforce by training and certifying maintenance technicians in specialized procedures. These experts gain holistic experience by rotating through real world operations and eventually become licensed line mechanics working on the company's aircraft in the field. As there are no existing training programs for mechanics on eVTOL aircraft or electric propulsion, companies are creating these programs internally.

The 2018 FAA Reauthorization Act empowered DOT to provide up to \$10 million in grants to facilitate workforce development for pilots and maintenance providers. We thank the members of this Committee, and Congress as a whole, for the significant funding provided to date. Furthermore, AUVSI appreciates the modification to the program included in Section 440 of the 2024 Reauthorization which increases the allowable grant funding for a company in a single year from \$500,000 to \$1 million.

AUVSI believes that the scope and funding for AAM-related workforce programs should be significantly expanded, particularly given the high demand for this funding. Additionally, we believe programs should specifically include manufacturing workers to complement the previous focus on pilots and maintenance personnel.

We also encourage the Subcommittee to provide oversight over implementation of the FAA Reauthorization Act of 2024 provisions that measure results and gather feedback from participants, engage school counselors more directly in aviation workforce efforts, and train teachers on how to start and conduct successful aviation education programs. Furthermore, it is important to track how aviation workforce development program applicants will connect students with jobs or the next step in the education process (e.g., from high school to college or a technical school) to sustain a long-term talent pipeline for the industry. Emphasis should be placed on activities that engage, educate, and equip participants to directly feed into the aviation sector, ensuring the next generation of safety-focused aviation professionals.

The FAA has awarded \$13.5 million in grants to thirty-two (32) schools across the United States to attract and train future aviation professionals, including pilots and maintenance technicians.⁷ These grants are divided into two programs:

1. The Aircraft Pilots Aviation Workforce Development Grants program, providing \$4.5 million to 12 schools for developing curriculums to prepare high school students for careers in aviation and related fields.
2. The Aviation Maintenance Technical Workers Workforce Development program, distributing \$9 million to 20 schools to address the shortage of maintenance professionals.

One of our member companies received a \$1 million grant, authorized at \$500,000 per year for two years, under the maintenance program. This grant supports their developing Part 145 Maintenance, Repair, and Operations (MRO) work on eVTOL aircraft and emphasizes their commitment to workforce development. The project aims to establish a new, accessible career path for aviation maintenance technicians. Trainees will begin a paid mechanic apprenticeship immediately after completing the Light Sport Repairman-Maintenance (LSRM) certification program. Upon completing the 30-month paid apprenticeship, trainees will qualify for an Airframe and Powerplant (A&P) certification, paving the way for further employment as certificated aviation maintenance technicians. This program, and others like it being established by other AUVSI members, aims to broaden access to aviation maintenance technician careers, particularly for women, people of color, veterans, and underserved populations.

Other grant recipients include universities, high schools, and technical colleges, such as Purdue University, Kent State University, and notably Louisiana State University in the Subcommittee Chairman's state. The grants offer flexibility for establishing educational programs, scholarships, apprenticeships, outreach initiatives, and support in economically disadvantaged areas. This initiative addresses the aviation industry's current challenges and technological advancements, aiming to ensure its long-term sustainability by fostering innovation and developing a skilled workforce.

⁷ https://www.faa.gov/about/office_org/headquarters_offices/ang/grants/awd/awards

LEVERAGING AUTOMATION, AI, AND AUTONOMY FOR ENHANCED TRAINING AND OPERATIONAL EFFICIENCY IN AVIATION

AUVSI member companies are focused on making the most out of what technological evolutions can provide to the development of human skills. To this effect, an adequate and skilled use of automation, AI, and autonomy are undeniably tools to develop advance flight safety and operational efficiency and to support the training of the highly sought after workforce in the aviation industry. Autonomy is becoming a tool to provide support to crew members in situations where human factors reportedly impacted flight safety. This idea of complementing human skills can naturally be transferred to enhance the training of human crews and be transferred to other essential domains of the aviation industry such as manufacturing and maintenance.

Automation and autonomy can contribute as well to alleviating the pilot shortage by performing certain tasks where human factors increasingly contribute to the deterioration of flight safety. Drones can, for instance, serve in niche domains to perform very specific and repetitive tasks such as delivering parcels, medical supplies, and organs on regular, shorter routes. Drones and AAM aircraft can deliver medical supplies, parts, and eventually people, to offshore oil rigs and remote islands or rural areas. Further development and regulation of these technologies will not only spark increased interest in the aviation industry but will provide solutions to alleviate the pilot and skilled workers shortage by providing tools to the workforce that will valorize their expertise, enhance their safety, and thus encourage them to a continuous contribution and retention in the aviation workforce.

GROWING THE FUTURE WORKFORCE AND PROMOTING INCLUSION IN UAS AND AAM: DEMOCRATIZING AVIATION FOR UNDERREPRESENTED GROUPS

As this Subcommittee knows and appreciates, as demonstrated by Section 440 of the FAA Reauthorization of 2024, the aviation industry is currently facing significant workforce challenges, both in the immediate and long-term future. Accordingly, AUVSI member companies are taking extraordinary proactive measures to recruit, retain, and engage aviation talent. Our members are engaged in multiple partnerships with education institutes at all levels—starting as early as elementary school with drone academies, competitions, and clubs to build interest and excitement in advanced aviation careers. Drone and AAM companies are joining forces with high schools, community colleges, vocational schools, and four-year colleges across the U.S. to construct quality training, internship and apprenticeship programs, mentorship programs, scholarships, and more to get the future workforce real world training, experience, and mentorship.

Both because it is the right thing to do, and because the pool of available workforce must grow to meet current and future demands, AUVSI members are taking active steps to open aviation career opportunities to a broader workforce, including underserved communities, including workers with physical disabilities, those without advanced technical degrees, women, minorities, veterans, and rural workers who do not live near economic centers of legacy aviation. AUVSI appreciates that Congress agrees with this approach through its policy guidance in Section 440.

As a veteran-led organization⁸, AUVSI fully supports America's service veterans getting more involved in UAS and AAM professions. Multiple AUVSI member companies have scholarship programs to provide veterans job opportunities in advanced aviation, including as pilots, mechanics, and in manufacturing.

AUVSI has also been involved in discussions on the best path for transitioning veterans who flew UAS in the U.S. military into operating aircraft, including eVTOLs, in commercial service. As it stands, credit for hours flown while on active duty do not transfer equally or consistently, and a deeper discussion is needed to unlock this potentially knowledgeable and skilled group for these workforce opportunities. Section 425 of FAA Reauthorization Act of 2024 calls for the establishment of a Joint Aviation Employment Working Group to evaluate and compare eligibility, training, and experience requirements for transitioning military aviation professionals to the civilian workforce. AUVSI encourages this Working Group to consider military drone pilots, particularly of large UAS (Group 3–5), as part of this evaluation.

AUVSI applauds the inclusion of Section 403 in the FAA Reauthorization Act of 2024 which establishes the Bessie Coleman Women in Aviation Advisory Committee. The provision creates the Committee and directs it to advise DOT and the FAA on matters and policies related to the recruitment, retention, employment, edu-

⁸The Chair, Vice Chair, and 50% of the members of the AUVSI Board of Directors are U.S. military veterans, and the AUVSI President & CEO presently serves in the U.S. Navy Reserve.

cation, training, career advancement, and well-being, of women in the aviation industry and in aviation-focused Federal civil service positions. Currently, less than 10% of licensed pilots are women and less than 3% are airline captains. The Committee created in the legislation satisfies the Women in Aviation Advisory Board's chief recommendation to focus on bringing more women into aviation careers and the entire industry.

Numerous AUVSI member companies have partnerships with organizations like the Girl Scouts of the USA, the Academy of Model Aeronautics, girls' academies, and other organizations to showcase opportunities in advanced aviation for women. AUVSI member companies work to introduce students to drone technology, from design and manufacturing to practical applications in public safety, energy utilities, and various sectors. These programs not only inspire young minds to pursue careers in aviation and technology but also provide hands-on experience and mentorship.

UAS and AAM industry jobs are highly accessible for people with disabilities, who may otherwise be precluded from pursuing professional opportunities in the more traditional aviation sector (i.e., becoming a commercial airline pilot). People with physical disabilities can obtain a remote pilot's license under the FAA's Part 107 rules, which govern the commercial use of drones. The licensing process for remote pilots focuses on knowledge and skills that do not require physical mobility, making it inclusive for those with disabilities. AUVSI members in the drone industry have made it possible to adapt control systems for drones to suit various physical limitations. Customized interfaces and assistive devices can enable individuals with disabilities to effectively operate drones and related equipment. Further, the UAS and AAM industries offer a wide range of job roles beyond piloting, such as data analysis, mission planning, maintenance, and software development. Many of these roles can be performed from accessible work environments, using standard or adapted computer equipment.

Once hired, retention of employees is also a top priority for AUVSI members. Accordingly, AUVSI members are investing in their employees with additional training and upskilling, which is teaching current employees new skills or enhancing their existing skills to keep up with changing job requirements and technological advancements.

MANUFACTURING OPPORTUNITIES

The U.S. leads in commercial, business, and general aviation manufacturing and has a total aviation workforce of more than half a million people.⁹ But there is one segment of the aviation industry that the United States does not lead: domestic drone manufacturing. While the U.S. has been content to maintain leadership of traditional segments in the aviation industry, the People's Republic of China (PRC) understood the tremendous economic and national security implications of uncrewed aviation and took aggressive measures to dominate the global UAS manufacturing and technology market.

AUVSI believes that we must move away from being reliant on PRC companies and intellectual property for our drones, as the U.S. is doing with other critical technologies. A reasonable, common-sense transition is required to ensure that these critical lifesaving tools are available to public safety, while at the same time we move rapidly to diversify manufacturing and technology supply lines outside of China. AUVSI is advocating for a multi-pronged effort to support policies that would encourage investment, innovation, and ultimately scaled production of drone supply chains within the United States and its allied partners to lead us to a more balanced level of self-sustainment.

This is important because multiple U.S. government agencies—including the Departments of Defense¹⁰, Treasury¹¹, Commerce¹², Homeland Security¹³, and the FBI¹⁴—have made it quite clear that the continued reliance on PRC drones is a risk to national security. Nevertheless, despite a shift away from PRC-drones by some public safety departments, approximately 90% of public safety agencies nationwide with drone programs are still using at least some Chinese drones as part of their

⁹ <https://datausa.io/profile/naics/aircraft-parts-manufacturing>

¹⁰ <https://www.defense.gov/News/Releases/Release/Article/2706082/department-statement-on-dji-systems/>

¹¹ <https://home.treasury.gov/news/press-releases/jy0538>

¹² <https://www.federalregister.gov/documents/2020/12/22/2020-28031/addition-of-entities-to-the-entity-list-revision-of-entry-on-the-entity-list-and-removal-of-entities>

¹³ <https://www.cisa.gov/resources-tools/resources/cybersecurity-guidance-chinese-manufactured-uas>

¹⁴ Ibid.

fleets, despite the U.S. government's warnings about the security threats these drones pose.¹⁵

Our objective is simple: To support a strong and competitive industrial base and to build global leadership in this critical industry that is relied on by so many agencies and enterprise organizations, including public safety.

Grant programs for public safety, like the proposed Drones for First Responders (DFR) Act, H.R. 8416, would create, will ensure public safety has the tools they need to do their jobs, and demand is generated for platforms produced outside the PRC, which will kickstart the flywheel for innovators and manufacturers. This is vital to reduce risk, and to build the industrial base that is sorely lacking—for all users, including public safety.

Looking to the AAM industry, Congress made it clear in Section 952 of the FAA Reauthorization Act of 2024 that it wants the U.S. to be the world leader in AAM and the industry is moving forward rapidly, and safely, to achieve this goal. As AAM moves from the testing phases into offering commercial services for both cargo carrying and passenger travel, multiple companies are working to open high-rate production facilities. In October 2023, an AUVSI member company opened a production facility at an international airport that local officials expect to spur more trade schools in the area to feed the need for trained workers to fill the hundreds of jobs the company expects to create.¹⁶ Additionally, another AUVSI member company recently acquired a facility to support their initial manufacturing with plans to invest up to \$500 million, create up to 2,000 high-quality clean manufacturing jobs, and in a facility capable of producing up to 500 eVTOL aircraft per year.¹⁷ A third AUVSI member company is on track to complete their initial phase manufacturing facility by the end of the summer with a planned capacity of up to 650 eVTOL aircraft per year and a potential phased increase to over 2,000 aircraft per year.¹⁸

The U.S. has long been the world leader in aviation manufacturing and leadership. It is vital that the policy and regulatory frameworks being developed today enable U.S. leadership to continue in the advanced aviation segments of the industry, including drones, eVTOL, and other AAM aircraft.

STANDARD OCCUPATIONAL CLASSIFICATION CODES

The 2018 Standard Occupational Classification (SOC) system is a federal statistical standard used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 867 detailed occupations according to their occupational definition. These codes are critical for understanding labor market trends, guiding education, and training programs, and informing workforce policies. As the advanced aviation industry evolves rapidly, the lack of specific SOC codes for various occupations within the drone and AAM sectors is another barrier that presents considerable challenges for workforce development, policy-making, and economic planning.

These codes also impact educational planning and funding at the state and local level. High School, Technical, and College programs focus on growing job categories, and it is important that these new functions are effectively captured to spur curriculum development, faculty focus, and degree programs.

Challenges Posed by the Lack of Specific SOC Codes:

1. *Underestimating Growth & Impact* The current segmentation of uncrewed technologies occupations within general industry statistics lacks specific reference to the uncrewed industry, resulting in an underestimation of its growth and impact. By updating the SOC codes to include the unique job roles within this field, the Bureau of Labor Statistics (BLS) will capture accurate data on the industry's economic contribution, employment trends, and overall significance. This gap hinders the ability of policymakers and industry leaders to make informed decisions based on reliable labor market data. As a result, efforts to address skills gaps, training needs, and workforce shortages are currently hampered.
2. *Educational and Training Program Advancements* Universities and technical colleges rely on statistical data to justify investments in educational programs by aligning their programs with workforce demands and illustrating employ-

¹⁵ Airborne International Response Team, 2024 Public Safety UAS Survey, Initial Analysis for Public Release, 11 May 2024

¹⁶ <https://www.beta.team/timeline/>

¹⁷ <https://www.jobyaviation.com/news/joby-acquires-facility-ohio/>

¹⁸ <https://news.archer.com/archer-closes-previously-announced-financing-and-development-agreements-to-complete-worlds-highest-volume-evtol-aircraft-manufacturing-facility>

ability. Updated SOC codes related to the uncrewed technologies industry will enable universities to market their programs to students by displaying salary levels and industry growth. This alignment ensures that educational offerings remain responsive to the industry's needs and ensures the success of educational programs in the field.

3. *Deterrence of Funding* SOC codes are essential tools for economic planning and the development of workforce policies. Without accurate occupational classifications, it is difficult to allocate resources effectively, design targeted workforce development initiatives, and measure the economic impact of the drone and AAM industries. This lack of precise data can result in inefficient resource allocation and at times lock this industry out of potential funding opportunities such as Career and Professional Education Funding Programs and Grants.

AUVSI, in partnership with industry, government and academic partners have identified SOC codes that we recommend being added for the next SOC update, which heavily relies on industry and public input. The next opportunity for submissions is upon us now, and AUVSI is working to submit input that will address the industry gaps. The next opportunity to begin the process to add SOC codes will be in 2033, as SOC codes are only updated once every ten years.

CONCLUSION

To ensure the continued growth and safety of the aviation industry, we must invest in a diverse, skilled, and adaptable workforce. This includes expanding funding, developing innovative training programs, and supporting accessibility across the board. Further, the forthcoming BVLOS rulemaking for drones, and the Powered-Lift SFAR eVTOL aircraft, are required for the U.S. to remain the world leader in aviation and aviation safety and to build the workforce of the future.

Our industry's potential hinges on the strategic actions we take today, from legislative support to executive branch staffing and community engagement. By fostering a robust and dynamic workforce, we will not only meet the current demands but also pave the way for future advancements in aviation safety and technology.

AUVSI appreciates the Committee's leadership in these efforts and stands ready to collaborate in building a strong and resilient future for aviation.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Robbins. I appreciate it.

Jack, do you have anything to add or correct in your father's testimony?

JACK. I love my dad.

Mr. GRAVES OF LOUISIANA. I've got to tell you, I was wondering about his discretion, bringing a young, innocent child to Congress. This is no place to marinate.

No, welcome to the committee. I appreciate you being here.

Ms. Damato, you are recognized for 5 minutes.

Ms. DAMATO. Chairman Graves, Ranking Member Cohen—

Mr. GRAVES OF LOUISIANA [interrupting]. Please turn your microphone on.

TESTIMONY OF JOANNE M. "JO" DAMATO, CAM, SENIOR VICE PRESIDENT OF EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT, NATIONAL BUSINESS AVIATION ASSOCIATION (NBAA)

Ms. DAMATO. Chairman Graves, Ranking Member Cohen, and members of the Transportation and Infrastructure Aviation Subcommittee, thank you for holding this hearing on the importance of recruiting, retaining, and engaging aviation talent.

I am Jo Damato. I am the senior vice president of education, workforce development, and training at the National Business Aviation Association. I have been there since 2001. On behalf of NBAA's 11,000 member companies, I am honored to testify today.

Many of our members are small businesses who rely on general aviation to connect to communities all over the country. They support 1.2 million American jobs and \$247 billion in economic output.

Thanks to the leadership of this committee, we have all welcomed the strong, bipartisan FAA reauthorization to ensure America can lead in fostering the future of the aviation workforce. Notably, the law includes the first ever general aviation title, recognizing the importance of GA to the larger aviation community.

I am also honored to testify today as a member of the Youth Access to American Jobs in Aviation Task Force which sunset in 2022. As someone who wanted to be a pilot since she was 8 years old, the opportunity to serve on the task force resonated with me.

I grew up in south New Jersey, and no one in my family was connected to aviation. My high school guidance counselor did not know how to advise me on an aviation career path. As a teen, I was the only young woman learning to fly at my local airport. Because of my gender, I was not permitted to fly all of the flight school's airplanes—because of my gender. I can't believe I still hear stories like this, and I am hopeful we can bring about some real change with this bill.

I am also the proud mom of two teenagers pursuing aviation as their career paths. My husband, an airline captain, and I, know their future success and that of their peers means that aviation needs a diverse, dynamic, and engaged workforce to help it continue to thrive in this country.

And despite the high demand, multiple challenges exist as barriers to those who want to embark on an aviation career path.

The FAA reauthorization bill will help remove barriers for those seeking aviation careers, while expanding the aviation workforce pipeline. It mandates that the FAA implement key strategic recommendations from the Women in Aviation Advisory Board and the Youth Task Force to address these challenges. And if implemented effectively, these provisions should move aviation workforce forward in ways that have not been possible in recent decades.

There are five areas that reflect the recommendations submitted.

First, early awareness and engagement. Engagement with young people needs to start early. The FAA's STEM Aviation and Space Education Program, AVSED, is best positioned to be that connective tissue across the nine FAA regions to bring together all stakeholders to create these early awareness opportunities.

Second, access to information. There is a need for easy-to-access resources for caregivers, teachers, guidance counselors, and youth to learn about information and resources to become a career aviation professional. We need a "one-stop shop" national website to be the destination and central source of information on pursuing a career in aviation. FAA AVSED has a web page. It could be the foundation for this destination.

Third is collaboration. The bill calls for a national strategic plan for aviation workforce development, key to meaningful progress, a connected career pathway that draws students into aviation aerospace all across the United States. There are so many examples of national aviation associations addressing workforce with their own initiatives—EAA, Women in Aviation, OBAP, GAMA, AOPA, and

NBAA. Together with the FAA, they have the potential to create an entire journey for an individual.

The financial hurdle. We know cost is one of the greatest barriers to entry. The workforce development grants that were established in 2018 for pilots and aviation maintenance technical workers have been expanded with the reauthorization in 2024 to include manufacturing technical workers, and 20 percent grants for the Willa Brown Aviation Education Program.

And finally, and one of the hardest to change, the barrier is culture. Culture is the biggest barrier to women in aviation. It is the hardest to change, and I know that firsthand. Thankfully, the bill establishes the Bessie Coleman Women in Aviation Advisory Committee, which will help continue the work to address the factors that negatively impact the recruitment and retention of women in aviation.

This hearing highlights the importance of recruiting, retaining, and engaging aviation talent and the work that must be energized as outlined in the FAA Reauthorization Act of 2024. The FAA, together with the support of its stakeholders, needs to be invested in its success through implementation of the provisions in this bill.

Now is the time to create awareness for aviation careers everywhere in the United States. Now is the time to ensure access to resources needed to achieve career success—information sharing, collaboration, and removal of financial and cultural barriers. The pipeline is critical to our strength as a Nation.

NBAA and our members appreciate this subcommittee's continued leadership, and we welcome the opportunity to be here today. Thank you.

[Ms. Damato's prepared statement follows:]

Prepared Statement of Joanne M. "Jo" Damato, CAM, Senior Vice President of Education, Training, and Workforce Development, National Business Aviation Association (NBAA)

Chairman Graves, Ranking Member Cohen, and Members of the Transportation and Infrastructure Aviation Subcommittee, thank you for holding this hearing to address the importance of recruiting, retaining and engaging aviation talent. On behalf of the National Business Aviation Association's (NBAA's) 11,000-member companies, I am honored to testify at this hearing.

My name is Jo Damato and I am the Senior Vice President, Education, Training and Workforce Development at NBAA where I have been employed since 2001.

NBAA's members, many of which are small businesses, rely on general aviation (GA) aircraft to meet some portion of their transportation needs. These aircraft provide connectivity to communities in nearly every congressional district, many of which do not receive airline service. While those airlines serve only around 500 airports, business aviation can reach 5,000 airports, located in places some people have never heard of. This unique American idea of connecting each other—no matter where we live and work—supports 1.2 million American jobs and \$247 billion in economic output.

GA is where aviation was born, and it's the point of entry for many in the larger aviation community, from the pilot's first hours of flight to the mechanic's first oil change. A healthy and vibrant general aviation community is central to a successful and productive national aviation industry, with workforce as a critical foundation. NBAA and the business aviation community greatly appreciate the opportunity to contribute to the discussion on eliminating bottlenecks and examining the opportunities to recruit, retain, and engage aviation talent.

As the Subcommittee knows, aviation needs a dynamic, diverse and engaged workforce to help it continue to thrive in our country. There is a demand for qualified and trained professionals in nearly every aspect of the aviation industry, espe-

cially a need for FAA-certified pilots and aircraft mechanics. Despite the high demand for these professionals, multiple challenges exist for these new entrants to embark on an aviation career path. These challenges include a lack of awareness that these careers exist, lack of information on how to proceed once awareness is established, lack of regional and national collaboration among all stakeholders and the financial barrier to afford the training needed to achieve the career goals. In addition to these challenges, the biggest barrier to recruit and retain women in aviation is a culture barrier keeping women from feeling like they belong in aviation.

Thanks to the leadership of Chairman Graves, Ranking Member Cohen, and full Committee Chairman Sam Graves and Ranking Member Rick Larsen, as well as the leadership of the Senate Committee on Commerce, Science, and Transportation, the United States Congress enacted the FAA Reauthorization Act of 2024 a strong, bipartisan five-year authorization that ensures that America will continue to lead the world in aviation safety, security, sustainability, innovation, workforce development and investment in airports and other critical infrastructure. Notably, the law includes the first-ever general aviation (GA) title, recognizing the importance of GA to the larger aviation community.

In the area of workforce, the FAA Reauthorization Act of 2024 will help remove barriers for those seeking aviation careers while expanding the aviation workforce pipeline and improving training standards. It strengthens critical aviation workforce development grants established in the 2018 Reauthorization law that have been successful in enabling the training of more pilots and aviation maintenance technical workers, and expands the grants to manufacturing technical workers.

The law also mandates that the FAA implement key strategic recommendations from the Women in Aviation Advisory Board (WIAAB) and the Youth Access to American Jobs in Aviation Task Force (Youth Task Force), two independent groups established under the FAA Reauthorization Act of 2018 to address the significant underrepresentation of women in aviation and facilitate and encourage students to pursue studies and careers in aviation and aerospace. The dedicated focus of these two groups yielded groundbreaking insights into the aviation workforce challenges and provided over 70 recommendations for consideration of lawmakers, many of which are reflected in the FAA Reauthorization Act of 2024. If implemented effectively, these provisions should move aviation forward in ways that have not been possible in recent decades.

These groups included 50 nominated representatives from all aspects of the aviation ecosystem including general aviation, airlines, aerospace companies, member associations, non-profit organizations, United States military, and school administrators and academia representing multiple levels of education including higher education and trade schools as well as subject matter experts from the FAA STEM Aviation & Space Education Program (AVSED).

The Women in Aviation Advisory Board, chaired by Dr. Heather Wilson, former Secretary of the Air Force, was tasked to develop strategies and recommendations to encourage women and girls to enter the field of aviation through an assessment of existing education, training, mentorship, outreach, and recruitment of women in the aviation industry. After two years of work they not only identified barriers to recruiting and retaining women but also released their final report of 55 recommendations for change to mitigate these barriers. This report was submitted in March 2022 to Industry, FAA, DOT and Congress.

The Youth Access to American Jobs in Aviation Task Force, chaired by Dr. Sharon DeVivo, President & Chief Executive Officer, Vaughn College, was tasked to develop and provide independent recommendations and strategies to facilitate and encourage high school students in the United States to enroll in and complete career and technical education courses, including science, technology, engineering, and mathematics (STEM), to prepare them to pursue a course of study related to an aviation career at an institution of higher education, a community college, or trade school; to facilitate and encourage these students to enroll in a course of study related to an aviation career, including aviation manufacturing, engineering and maintenance, at an institution of higher education, including a community college or trade school; and to identify and develop pathways for students to secure registered apprenticeships. The Youth Task Force submitted their final report of 21 recommendations to Industry, FAA, DOT, and Congress in September 2022.

Both groups independently met with this subcommittee in November 2022 following their submissions. They each provided a brief summary focused on their recommendations that required Congressional action as it related to FAA Reauthorization. Many of those recommendations have been reflected in the FAA Reauthorization Act of 2024.

While the two groups operated independently, many of the members were known to each other through other industry work. There was a warm and steady exchange

between the two groups over the two years of their individual charters. They identified similar challenges and made similar recommendations. Their final reports have many overlapping recommendations. Of the 55 recommendations of the WAIAB and the 21 recommendations from the Youth Task Force, 14 of them were aligned in the same four areas: lack of awareness that these careers exist, lack of information on how to proceed once awareness is established, lack of regional and national collaboration among all stakeholders and the financial barrier to afford the training needed to achieve the career goals. As previously stated, lack of an inclusive culture was also identified as the biggest barrier to recruiting and retaining women in the aviation workforce.

I personally served on the Youth Task Force and found it to be a worthwhile and rewarding experience. I grew up in South New Jersey and wanted to become a pilot since the age of 8 years old. No one in my family was connected to aviation. My three older brothers played multiple sports but I was more interested in airplanes.

I brought a unique perspective to my participation on the Youth Task Force and collaboration with my colleagues on the Women in Aviation Advisory Board, as someone who wanted to be a pilot and who's high school guidance counselor did not know how to advise her on a career path. Her only guidance to me was to tell me I had to apply to aeronautical engineering programs and that maybe I could keep flying at a local airport near a college campus. Her other suggestion was the military. My learning about the existence of 4-year collegiate aviation programs was only through a chance meeting with a recent graduate from one of those programs. That single conversation instantly changed the trajectory of my education and my career. Unfortunately, this exact example still happens all the time. If a young person is intrigued about pursuing an aviation career they often find that the authority figures in their lives—parents, guardians, teachers and counselors—are unable to tell them how to do so and are themselves unsure of where to find more information. We must change this. It is not acceptable that this is still an issue more than 30 years from when I encountered this personally as a teenager.

My service and connection to the Task Force and WAIAB further connected with me as a sixteen-year-old high schooler who was the only teenager and the only young woman learning to fly at my local airport where I was not permitted access to all of the flight school's airplanes because of my gender. One of the owners of one of the 3 airplanes available to students was adamant that a female not use his airplane. Competing for access with the other two aircraft in my limited daylight time after school or on weekends made it difficult for my flight training to progress as fast as it could have. I was still able to take my first solo flight at age 16 and I did earn my rating at age 17 before I left for college but it came down to less than a week between earning my rating and leaving for college where having my private pilot rating was a prerequisite to begin my first flight course on campus. Again, this is an example I continue to hear about where young women eager to begin their own flight training find they are unwelcome or marginalized or discriminated against in the flight training environment. This unwelcome culture can serve as a revolving door causing them to discontinue flight training at the student pilot level at an alarming rate compared to their male counterparts. It is unacceptable that this culture continues to exist and that capable and passionate future aviation professionals are not given the opportunity to thrive and make meaningful aviation workforce contributions.

I am proud that I was a young goal-getter from New Jersey who was old enough to fly an airplane on solo cross-country flights at age 16 but was not old enough in NJ to get my drivers license until age 17. It is a bucket list item for many NJ teens who pursue flight training. I'm also a proud mom who, 28 years later, watched my own sixteen year old son solo an airplane at that same general aviation airport in South New Jersey, the Flying W Airport (N14), where I did. I had to drive him to his lessons when he was old enough to take a Piper Warrior on a solo cross-country flight but not to drive himself to or from the airport. It is not lost on me that the only reason he has had this opportunity is because his mother and his father are both in the industry and were not only able to inspire his career path but were also able to help him begin his journey. He has had "see it, be it" examples in front of him his entire life as well as access to resources to begin his aviation journey. Most do not have a friend or family resource to help. In fact, I had the opportunity to speak to a group of economically-disadvantaged high school students about aviation in Camden, NJ which is about 4 miles away from my oldest son's high school. Some of the students were excited to learn about a potential career in aviation but, unlike my son and his classmates, they had no idea that more than one general aviation airport was within a 20-minute drive and that they could take flight lessons. There was no "see it, be it" for them. This too is something that our recommendations can address.

Today, in 2024, my work in aviation workforce development has entirely crossed over to my being a parent raising two aviation teens. My oldest son is currently working on his commercial certificate in a four-year aviation university pursuing an aviation bachelor's degree. My other son, enrolled in a Career and Technical Education high school for automotive technology, has been exploring the best training for him after high school to pursue becoming an aircraft technician. This summer he will be a camp counselor at the same local aviation summer camp he and his older brother have attended off and on for the last decade. AEROSPACE4KIDS.COM, LLC, started as a Rutgers Cooperative Extension, 4-H Youth Development program. Based in Somerset County, NJ, the original program called "Blue Sky Below my Feet," focused on aviation education, and was offered to area schools as a 45-minute hands-on program. The program was so successful that it went from being offered as a Saturday event into a week long, hands on, summer aviation camp. The camp ends with an Experimental Aircraft Association (EAA) Young Eagles program where the students each get an opportunity to fly in a general aviation airplane. This is a terrific example of attracting and engaging young people to aviation through STEM and fun. It is also a great example of using collaborative resources to create something local like this camp and connect it nationally to an association like EAA. There are so many examples like this and we just need to create the connective tissue for them to exist and complement each other to create a real aviation workforce pipeline instead of small experiences that don't connect to a potential career path.

While I always have my mom hat on for my own kids, throughout my career in aviation, I have also encouraged many students to begin their own aviation journey. It is a dream come true for me to lead workforce and professional efforts at NBAA where I get to collaborate with teams and work with them to design professional development activities that attract, develop and retain industry professionals every day.

BUILDING THE WORKFORCE OF THE FUTURE

Many recommendations from the WAIAB and the Youth Task Force were recognized for their importance and have been reflected in the FAA Reauthorization Act of 2024. As a member of the Task Force, my colleagues and I often discussed our excitement around the work we were doing and the impact the recommendations could have on recruiting, retaining and engaging aviation talent. We also discussed our fear that our hard work might get forgotten and that the Task Force might sunset without an understanding of recommendation adoption, implementation and oversight. We are thankful that the importance of our recommendations were recognized through this bipartisan legislation and that there is an opportunity through this testimony to emphasize their value. I submit that the original recommendation categories created in the Youth Task Force report are the areas to emphasize in addition to the culture barrier identified as the largest barrier to attracting and retaining women in aviation.

1. *Early Awareness and Engagement*

Engagement with young people needs to start early.

The FAA Reauthorization Act of 2024 SEC. 423 states that not later than 2 years after the date of enactment of this Act, the Secretary, acting through the Administrator, shall submit to the appropriate committees of Congress a report on the implementation of the following recommendations of the Youth Access to American Jobs in Aviation Task Force of the FAA established under section 602 of the FAA Reauthorization Act of 2018 (Public Law 115-254) including this recommendation:

"Collaboration across regions of the FAA on outreach and workforce development programs."

The FAA can be the connective tissue to bring together all stakeholders to create early awareness opportunities. The office already exists as the FAA STEM Aviation and Space Education program or STEM AVSED. It was created in the 1960's with the program mission is to "inspire youth from diverse backgrounds to pursue aerospace careers and create a consistent pipeline of professionals for a robust workforce of the future."

The FAA's STEM AVSED program has 9 offices focused on educational outreach around the United States to provide support for aerospace-based STEM programs and to connect stakeholders and educators. There is a Regional Program Analyst (RPA) in each region to manage this.

The Youth Task Force recognizing the existence of the office and talent and passion for aviation workforce development among the RPAs, made these recommendations to Congress to expand the reach and effectiveness of FAA AVSED.

Specifically, they encouraged “the FAA’s AVSED office to develop a standardized curriculum that could be used by aviation and aerospace professionals to incentivize young people to consider aviation and aerospace as a potential career.”

Examples cited by both groups for how to address early awareness through AVSED included:

- developing easy-to-implement aviation and aerospace activities for after school programming
- establishing professional development opportunities and aviation/aerospace teaching “academies” for educators in K–12 with the goal of enhancing a teacher’s knowledge of aviation/aerospace careers and pathways; a “train-the-teacher” concept.

The recommendation intent is for FAA AVSED to identify standards as well as the learning outcomes that programs can work toward.

The Youth Task Force report also called upon FAA AVSED to manage and coordinate regional advisory councils to be “conveners of like-minded individuals and organizations across the nine regions of the United States to share information about best practices, solicit data from students, caregivers and educators about what they need, as well as create responsive systems (e.g., adding information to the national website, creating greater opportunities to visit aircraft manufacturers or fly a drone etc.)”

2. Information Access

There is a need for easy-to-access resources where caregivers, teachers, guidance counselors and youth can find out more information and connect to local resources.

The FAA Reauthorization Act of 2024 SEC. 423 states that not later than 2 years after the date of enactment of this Act, the Secretary, acting through the Administrator, shall submit to the appropriate committees of Congress a report on the implementation of the following recommendations of the Youth Access to American Jobs in Aviation Task Force of the FAA established under section 602 of the FAA Reauthorization Act of 2018 (Public Law 115–254) including this recommendation:

“Improve information access about careers in aviation and aerospace.”

Awareness of an aviation career path can create a desire to learn more but it means nothing if the individual cannot gain the knowledge or ability to do so. Both the Youth Task Force and the Women in Aviation Advisory Board recommended a “one-stop shop” national website as the destination and central source of information on pursuing a career in aviation. We currently lack this universal destination to help a caregiver, teacher, guidance counselor, a young person or anyone else trying to help that individual to get started once they gain awareness that an aviation career is possible.

Lacking this universal destination, many organizations have been going about this themselves. Their enthusiasm and intent are well-placed. Everyone wants to be a partner in promoting aviation careers and sharing scholarships, mentorship opportunities, education initiatives and more. However, all of these sites may be just drops in the ocean versus creating one place for national awareness. If you are fortunate enough to know about them they can be very helpful but likely each of these independent sites offers only some pieces of information and not the comprehensive information that is needed. They can be expensive to build and maintain to retain their effectiveness and require a consistent campaign to continue to bring awareness to their existence.

Many of us have had a friend or neighbor who has asked us for help for their young person who might have an interest in an aviation career. We all have that in common. And we all give different answers. Our answers are not wrong but they typically lack structure and direction beyond our own experience or connections. What we need is to be able to all share our unique experiences but to be able to give only one answer for a place to go to for resources that can take that from early interest to their first job in the industry.

Aviation is competing with many other industries to spark interest in young people. We often have only one chance to spark their interest and turn that into desire and engagement for them to want to learn more. We need one simple URL that anyone in this industry can easily remember and share and that is also easy for someone not in this industry to remember after their interest is sparked.

A great example from another industry is the BuildSubmarines.com campaign. In March 2024, BlueForge Alliance, the non-profit integration partner of the U.S. Navy and its Submarine Industrial Base, announced a “new multi-year partnership with

Major and Minor League Baseball designed to recruit skilled workers across the country. As an Official Partner of MLB and MiLB, BFA will expand their reach and engagement to promote BuildSubmarines.com, a platform in partnership with the Navy for attracting, recruiting, and training the more than 10,000 manufacturing workers per year over the next decade needed to build and maintain the United States Navy's next generation submarines. The partnership begins with the launch of MLB Opening Day Pick 'Em game presented by BuildSubmarines.com. The BuildSubmarines.com platform will be featured across a number of MLB Jewel Events throughout the season, including MLB All-Star Week, the MLB Postseason, the World Series presented by Capital One, and presenting partnership of Opening Day. The partnership will also include BuildSubmarines.com promotion across 40 Minor League ballparks."

This is exactly the type of exposure that aviation needs to find the pilots, mechanics, air traffic controllers and other skilled workers to help this industry create a steady pipeline of newly qualified personnel to replace those who have left or will soon leave the industry.

Again, FAA AVSED has a webpage that has the foundation to potentially become this universal destination. What they need is a partner in the same way that BlueForge Alliance has partnered with the US Navy to create the campaign and the destination for the entire industry to support and contribute. The Youth Task Force report recommended utilizing "current FAA AVSED group and their expertise as subject matter experts for the site and its contents—calling up on other expertise as needed." The regional advisory councils mentioned earlier will be integral to providing content oversight, particularly as it pertains to their region and to keep the site up to date.

3. Collaboration

Create a connected career pathway that draws students into aviation and aerospace among all of the amazing programs across the United States

The FAA Reauthorization Act of 2024 SEC. 441 calls for a "*National Strategic Plan for Aviation Workforce Development*" and states not later than September 30, 2025, the Secretary of Transportation shall, in consultation with other Federal agencies and the Cooperative Aviation Recruitment, Enrichment, and Employment Readiness Council (in this section referred to as the 'CAREER Council') established in subsection (c), establish and *maintain a national strategic plan to improve recruitment, hiring, and retention and address projected challenges in the civil aviation workforce and that The CAREER Council shall be appointed by the Secretary from candidates nominated by national associations representing various sectors of the aviation industry.*

A national strategic plan to improve recruitment, hiring and retention created by members of the national aviation associations addressing workforce challenges can be the key to progress.

This goes in hand with promoting awareness of careers and sharing information about how to achieve them. They need a strategy and stakeholder guidance to ensure they are effective.

Both the Women in Aviation Advisory Board and the Youth Task Force were populated with many national association professionals passionate about recruiting, retaining and engaging aviation talent.

There are many examples of national aviation associations that have their own workforce initiatives. All of these programs are admirable. Their missions to engage youth and aspiring young professionals in aviation are similar but their programs are unique. Together with the FAA and other partners they have the potential to create an entire journey for an individual. The following examples highlight individual efforts to create, attract, retain and engage aviation talent from the age of Kindergarten through high school, trade school and/or college and university graduation to the workplace.

The *Experimental Aviation Association's* Young Eagles program, launched in 1992, has EAA member volunteers giving free introductory flights to youth ages 8–17. This program has reached over 2.3 million young people. Youth can also participate in the Young Eagles Flight Plan after they take their first flight. An EAA student membership is available FREE of charge to any young person aged 8–18 who has completed a Young Eagles flight. This then gives them access to free online private pilot ground school (\$299 value), qualification for a free first flight lesson at a flight school of their choice (\$160 value) and EAA will even reimburse the student for the exam fee after they pass the FAA Knowledge Exam (\$175 value).

In 2024, *Women in Aviation International* (WAI) will celebrate the 10th anniversary of their Annual Girls in Aviation Day. Girls in Aviation Day is part of a multifaceted international youth STEM education program designed by WAI to inspire

girls to pursue careers in aviation and aerospace. The program, called Aviation for Girls, includes GIAD events, as well as free Junior membership to youth 18 years old and younger. Two annual issues of Aviation for Girls are published and distributed worldwide as well as included on the Aviation for Girls app. The free AFG app also includes monthly webinars focused on aviation STEM education activities and more. In 2023, through unique local events hosted by WAI chapters and corporate members, the number of GIAD participants nearly doubled to over 30,000 compared with 16,000 attendees at GIAD 2022. The number of countries where events were held grew to 31 countries versus 19 countries in 2022. The number of events also increased to 168 events compared with over 120 in 2022.

The *Organization of Black Aerospace Professionals* (OBAP) Project Aerospace offers annual opportunities to inform and prepare aspiring aerospace professionals for their future careers. One of these programs, Aerospace Career Education (ACE) Academy, provides middle and high school youth with exposure to opportunities in aerospace through week-long summer academies. Endorsed by the Federal Aviation Administration (FAA), OBAP has played a leading role in establishing ACE Academies nationwide to introduce, educate and guide diverse students towards careers in aerospace. ACE Academies are in 38 locations including Honolulu, Puerto Rico, and the U.S. Virgin Islands, three academies in Houston, and two in Louisville. The program engages 1,100 students annually.

The *Aircraft Owners and Pilots Association* (AOPA) Foundation's You Can Fly program created a High School initiative. Working with professional instructional designers, The AOPA Foundation offers a four-year high school aviation STEM program that falls along two tracks—pilot and unmanned aircraft systems or drones. The program conforms to math and science standards and, in keeping with career and technical education best practices, leads to a certification or industry-accepted test, such as the FAA Private Pilot knowledge test or a Part 107 drone pilot certification.

The *General Aviation Manufacturers Association* (GAMA) Aviation Design Challenge is a competition offering U.S. high school students the ability to improve their knowledge of Science, Technology, Engineering and Mathematics (STEM) skills through aviation curriculum. GAMA launched the Aviation Design Challenge in 2013 to help increase the number of young people entering the general aviation field. Each year GAMA sends registered teams, which must have a minimum of four students including one female, complimentary teacher and student copies of Fly to Learn curriculum and software powered by X-Plane. Over the course of six weeks, the students learn about topics such as the four forces of flight, aspect ratio and even advanced subjects such as supersonic flight. They then compete in a fly-off that requires them to modify a virtual airplane and fly a specifically tasked mission. Since establishing the Aviation Design Challenge, GAMA has reached over 1,800 students in over 400 high schools spanning 43 states and Washington, D.C.

The *National Business Aviation Association* (NBAA) engages with college-aged students already interested in aviation as a career path through our Collegiate Connect program hosted annually at NBAA-BACE, our business aviation convention and exhibition. We connect high-school and college-aged students with industry leaders and emerging leaders from our Young Professionals (YoPro) community to engage with them on careers in nine different categories including pilot and maintenance professionals. A recent partnership with America's oldest professional co-ed aviation fraternity, Alpha Eta Rho, has increased this engagement to their 65 collegiate chapters nationwide. In separate 2024 events, NBAA helped to bring 30 Alpha Eta Rho students and nearly 70 YoPros to meet with their members of Congress. This leadership development is a great example of retention and engagement for our pipeline of industry leaders.

In addition to the above examples, all of these organizations and many more not named offer multiple scholarship opportunities, in-person events to engage the aviation community and to inspire future aviation enthusiasts and professionals, access to mentors, and real-time glimpses into "day in the life" and "see, be it" aviation snapshots through their social media and other media content.

The establishment of a CAREER Council collaboration of FAA and industry workforce experts can be the connective tissue needed to unite multiple offerings into carefully-crafted pipeline journeys for America's youth.

These regional efforts would come together under the national CAREER Council.

4. Financial Hurdle

Provide both individual financial support to pursue training and education and create a sustainable funding model for organizations.

The FAA Reauthorization Act of 2024 strengthens critical aviation workforce development grants established in the 2018 Reauthorization law that have been suc-

cessful in enabling the training of more pilots and aviation maintenance technical workers, and expands the grants to manufacturing technical workers.

SEC. 625. AVIATION WORKFORCE DEVELOPMENT PROGRAMS states that the Secretary of Transportation shall establish program(s) to “provide grants for eligible projects to support the education and recruitment of: future aircraft pilots and the development of the aircraft pilot workforce; aviation maintenance technical workers and the development of the aviation maintenance workforce; and aviation manufacturing technical workers and aerospace engineers and the development of the aviation manufacturing workforce.”

The 2022 “Breaking Barriers for Women in Aviation” report submitted by the Women in Aviation Board did an excellent job highlighting the economic factors that are barriers to aviation as a career path:

“Although cost is not a gender specific barrier, it is an identified roadblock for women and should be addressed. To date, there is a disconnect between organizations that wish to supply financial support and people seeking support opportunities. Varieties of aid for aviation-related education include grants, foundation scholarship, concurrent enrollment, federal work studies, internships, tuition reimbursement, private loans, institutional aid, state aid, and federal aid . . . Identifying funding channels that are supported by agencies, government, and industry are crucial to removing barriers to entry and welcoming more talent, including women, to aviation. Although more scholarships and internships for women and better communication of these opportunities is imperative, there is also a shortage and maldistribution of flight schools at state-supported universities where students can take advantage of scholarships, grants, and aid to reduce the out-of-pocket education costs.”

The new legislation does an excellent job highlighting the recommendations from the Women in Aviation Advisory Board in this area emphasizing the need to develop not only pilots and the aviation maintenance workforce but also aviation manufacturing technical workers and aerospace engineers. It further calls for not less than 20% of the funds allocated to be used for grants as the “Willa Brown Aviation Education Program.” Willa Brown was the first African-American woman to earn her pilot’s rating in the United States. This grant money is to be used for recruitment of populations in economically-disadvantaged geographic areas and rural communities and to strengthen aviation programs at minority-serving institutions.

Also, in line with Youth Task Force recommendations, grant money has also been allocated to bring aviation education to high school and secondary school students in a meaningful way to prepare them for careers as aircraft pilots or uncrewed aircraft systems operators, aviation mechanics and aviation maintenance technicians, or as aviation manufacturing technical workers or aerospace engineers and to also establish or improve registered apprenticeship, internship or scholarship programs.

The Youth Task Force reported that “programs should begin in high school whenever possible to close the gap between exposure to a career and full training leading to certification.”

5. Culture Barrier

At the conclusion of her appointment as Chair of the Women in Aviation Advisory Board, Dr. Heather Wilson wrote, *“The biggest barrier that discourages women from entering and staying in aviation careers is culture—and it is the hardest to change. Women don’t feel like they belong. Changing culture requires consistent leadership commitment over time in thousands of large and small actions across government and industry.”*

As a woman in aviation since I took my first flight over 30 years ago at age 15, I am appreciative of the passage of this Act which includes SEC. 403., the establishment of the Bessie Coleman Women in Aviation Advisory Committee no later than 6 months after the date of the Act enactment. This honors the service of the 30 women who participated in the WAIAB from 2020–2022 on behalf of all of the women in aviation. They gave us a voice and now it will continue to be heard.

This creation of this important Committee, named after Bessie Coleman who was the first woman of African American and Native American descent to earn her pilot’s license, shall advise the Secretary and the Administrator on matters and policies related to promoting the recruitment, retention, employment, education, training, career advancement, and well-being of women in the aviation industry and aviation-focused Federal civil service positions.

Data included in the WAIAB report cited that in most aviation occupations, women make up less than 20% of the workforce with only 5% of women as air transport pilots and only 3.6% as captains. This compares to women representing 47% of the total US. workforce and 26% of people working in STEM fields globally. It also cited that in the last fifteen years, the percentage of women private pilots and women aviation technicians has shown virtually no change over time.

One of the conclusions reached from the pages of data in the report is that “aviation is failing to access the full range of skills and talent that the industry needs. The continued strength and success of the U.S. aviation industry must not be taken for granted. Aviation faces significant workforce challenges that threaten the industry’s sustainability, profitability, and ability to innovate. Identifying and recruiting talent from underrepresented groups is an obvious and necessary strategy to address workforce needs throughout the industry.”

Dr. Rebecca Lutte, a member of the Women in Aviation Advisory Board, testified to this Subcommittee in July 2021 at a hearing focused on “Bridging the Gap: Improving Diversity and Inclusion in the U.S. Aviation Workforce.” Her testimony included references to her research which cited that women choose aviation careers because they have a passion for aviation, they have a perception that aviation is a fun and adventurous profession, that they have an opportunity to prove personal abilities and a desire for a challenging career.

Her testimony also referenced the factors that negatively impact the recruitment and retention of women in aviation which include:

- Economic factors, including cost of entry—particularly for flight training
- Family and work balance challenges
- The need for additional outreach about career options and pathways
- Lack of women in leadership positions
- Need for leadership commitment to diversity and inclusion
- Navigating the workplace culture including gender bias and sexual harassment

The Women in Aviation Advisory Board report unequivocally stated that Aviation’s culture must become more inclusive; this fundamental point runs through their recommendations. “For women to have an indisputable sense of belonging, the FAA and industry must increase the visibility of women in aviation careers.” The creation of the Bessie Coleman Women in Aviation Advisory Committee is an excellent continuation of the 2 years of work completed by the Women in Aviation Advisory Board (WIAAB) when it was sunset in 2022 after submitting their recommendations.

By some estimates, we’re looking at an astonishing 280,000 new jobs coming online, in twenty-first century positions, meaning those in Science, Technology, Engineering and Mathematics.

According to the Boeing company, more than 600,000 new pilots and technicians are needed to address projected growth in the next 20 years¹. Meeting this projected demand is dependent upon the investment in a steady pipeline of newly qualified personnel to replace those who have left or will soon leave the industry.

While we work to strengthen industry workforce, we also must enhance the FAA workforce. New and emerging technologies will offer more high-skill, high paying jobs people want—and the FAA will need the support of Congress to hire people with the right technical skills to ensure the safe integration of these technologies. Thanks to a provision in the FAA Reauthorization Act of 2024 the DOT Inspector General must conduct an audit of the FAA workforce plan. Following the audit, the DOT IG must assess staffing levels and workforce retention trends, review gaps in safety-critical and senior positions, and review opportunities for FAA employees to expand knowledge and training opportunities to enhance FAA’s technical capabilities.

Additionally, the FAA needs the resources to hire and train a strong workforce and modernize the Air Traffic Control System so that our workers are utilizing the best technology in the most state-of-the-art facilities through targeted guaranteed spending from the Airport and Airway Trust Fund (AATF). The FAA Reauthorization Act of 2024 improves air traffic control workforce hiring, training and staffing, requiring the FAA to provide additional information about unfunded ATC system capital investment needs and development of an air traffic control realignment report. To build on these initiatives, the NBAA supports the Biden Administration’s request for \$8 billion in mandatory spending to restore its facilities to good condition and make a down payment on a Facility Replacement and Radar Modernization Program required to ensure resilience and safety in the National Airspace System.

We support the implementation of the Promoting Service in Transportation Act, passed into law through the Infrastructure Investment and Jobs Act (IIJA), and encourage continued funding of the program.

¹Pilot and Technician Outlook 2023–2042: <https://www.boeing.com/commercial/market/pilot-technician-outlook/>

CONCLUSION

This hearing highlights the importance of recruiting, retaining and engaging aviation talent and the work that must be energized as outlined in the FAA Reauthorization Act of 2024. All stakeholders need to be invested in its success and ready to contribute to solutions that create awareness for aviation careers everywhere in the United States and access to the resources needed to achieve career success through information sharing, collaboration, and removal of financial and cultural barriers. This pipeline is critical to our strength as a nation. NBAA and our members appreciate this Subcommittee's continued leadership, and we welcome the opportunity to testify at this critical hearing.

Mr. GRAVES OF LOUISIANA. Thank you, Ms. Damato. As the brother of three trailblazer sisters and the father of two trailblazer daughters, I appreciate your efforts. And just want to make note, I had a female pilot who flew us in to DC on Monday, and she did a fantastic job.

Mr. GARCÍA OF ILLINOIS. Thank you. And with the chair's blessing, I would like to call on Mr. Spero for 5 minutes to present his testimony.

TESTIMONY OF DAVID J. SPERO, NATIONAL PRESIDENT, PROFESSIONAL AVIATION SAFETY SPECIALISTS, AFL-CIO (PASS)

Mr. SPERO. Good morning. Thank you.

Chairman Graves, I guess Ranking Member García now at the moment, and members of the subcommittee, thank you for inviting me to testify on behalf of the Professional Aviation Safety Specialists.

My name is Dave Spero. I am the president of PASS. PASS appreciates the opportunity to share information and recommendations regarding the FAA workforce.

PASS represents approximately 11,000 FAA and DoD employees. The largest PASS bargaining unit is technical operations. PASS represents approximately 4,800 technicians responsible for installing, operating, maintaining, and repairing more than 74,000 systems and equipment used for air traffic control and navigation.

The number of employees performing these critical tasks has been on a consistent decline for years, helped in part by an increasing number of retirements. While the media focuses on the shortage of air traffic controllers when reporting on nonweather-related flight delays, the shortage of technicians is just as serious. The consequence of insufficient technician staffing manifests itself in increased restoration times during an outage and more air traffic delays. It also causes inadequate shift coverage for technicians, which means we do not have the right person available to resolve a crisis when it occurs.

The situation became concerning enough that the FAA performed an analysis and found a correlation between the shortage of technicians and the frequency and duration of corrective maintenance actions. The report concluded that an increase in unscheduled equipment outages was directly related to less maintenance being performed.

Hiring and training new technicians is cumbersome. Technicians must be skilled and proficient on multiple systems. It takes years to fully train a technician to perform all necessary duties related to the position.

The FAA has been developing a technical operations staffing model for over a decade, but progress is slow. PASS is asking the FAA be directed to establish a workforce plan for technical operations and collaborate with PASS in its creation and implementation. While PASS has made it clear to the FAA that we are ready and willing to assist in the development of a plan, our offers have been declined or ignored.

PASS also represents aviation safety inspectors and other employees within the Office of Aviation Safety. PASS is extremely concerned about the agency's inability to effectively and consistently staff the inspector workforce. Considering recent events, it is more important than ever that the agency knows how many inspectors are needed to safely monitor the system.

FAA Administrator Mike Whitaker testified before your Senate colleagues last month and said more inspectors are being sent to Boeing to oversee Boeing and its suppliers. However, we do not know where the agency is transferring these inspectors from and if the oversight of other manufacturers or airlines will be impacted.

The staffing model currently being used by the agency is insufficient to determine the number of aviation safety inspectors needed.

While each of PASS's bargaining units has specific challenges in ensuring proper recruitment, retention, and engagement, there are overarching hurdles that face the agency.

We have concluded that the FAA is not hiring enough technicians and inspectors, and this is the primary bottleneck that limits the opportunities for aviation workers in the FAA.

Retention of current employees and new hires goes hand-in-hand with recruitment. The FAA must provide a clear career progression path for its employees, with opportunities for professional growth which, in turn, would open up opportunities for new employees. Offering flexible working conditions and ensuring a healthy work-life balance can help retain employees.

PASS thanks this committee for their work to pass legislation re-authorizing the FAA for the next 5 years. Important language in the legislation that PASS supported will go a long way toward protecting our workforce now and in the future.

It is worth noting that PASS is currently in negotiations on new contracts with the FAA for the employees we represent in the ATO and Aviation Safety. These negotiations present a significant opportunity for PASS to work with the agency on ways to enhance recruitment and retention.

PASS respectfully requests that the committee consider our areas of concern and recognize the critical contributions made by the employees we represent. PASS is ready to work with you to ensure that the U.S. air traffic control system remains the safest aviation system in the world.

Thank you.

[Mr. Spero's prepared statement follows:]

Prepared Statement of David J. Spero, National President, Professional Aviation Safety Specialists, AFL-CIO (PASS)

Chair Graves, Ranking Member Cohen, and members of the subcommittee, thank you for inviting me to testify on behalf of the Professional Aviation Safety Specialists, AFL-CIO (PASS).

PASS represents approximately 11,000 Federal Aviation Administration (FAA) and Department of Defense employees throughout the United States and abroad. PASS-represented employees in the FAA install, maintain, support and certify air traffic control and national defense equipment, inspect and oversee the commercial and general aviation industries, develop flight procedures, and perform quality analyses of complex aviation systems used in air traffic control and national defense in the United States and overseas. PASS members work to ensure the safety and efficiency of the aviation system that transports over 2.9 million airline passengers across more than 29 million square miles of airspace (domestic and U.S. airspace over oceans) every day. The diversity of the PASS-represented workforce provides insight into the safety of the system they maintain and the industry they oversee. PASS members are tasked with ensuring that the U.S. aviation system remains the gold standard of safety.

PASS thanks the members of the subcommittee for turning their attention toward examining opportunities to recruit, retain and engage aviation talent. As PASS has long emphasized, the FAA cannot accomplish its safety mission without the right number of employees in the necessary positions. Unfortunately, our workforce faces many challenges that hinder the ability to ensure adequate staffing.

It is worth noting that PASS is currently in negotiations on new collective bargaining agreements with the FAA for the employees we represent in the Air Traffic Organization and Aviation Safety. These negotiations present a significant opportunity for PASS to work with the agency on ways to enhance recruitment and retention.

PASS appreciates the opportunity to share information and recommendations regarding the FAA workforce. This includes the Air Traffic Organization and Aviation Safety workforces, staffing challenges at the FAA, and PASS's recommendations for eliminating bottlenecks, which includes oversight of important FAA legislation recently enacted.

AIR TRAFFIC ORGANIZATION

The largest PASS bargaining unit is the Air Traffic Organization (ATO) Technical Operations unit, consisting of technical employees who install, maintain, repair and certify the radar, navigation, communication and power equipment that comprises the U.S. National Airspace System (NAS).

Within Technical Operations, PASS represents FAA airway transportation systems specialists, more commonly referred to as technicians. Technicians ensure the functionality of communications, computers, navigational aids and power systems vital to safe air travel and the mission of pilots and air traffic controllers. PASS-represented employees in Flight Program Operations (AJF), Mission Support Services (AJV) and Air Traffic (AJT) also provide important support to the system by conducting flight inspections, developing instrument flight procedures and other important work.

Technical Operations Staffing

There are approximately 4,800 FAA technicians responsible for installing, operating, maintaining and repairing more than 74,000 radar, communications, navigational aids, airport lighting, backup power, heating, ventilation and air conditioning (HVAC) at FAA facilities.¹ This number of employees has been on a consistent decline for years, helped in part by the increasing number of retirements.

Insufficient technician staffing can result in increased restoration times during an outage and more air traffic delays. It can also make it difficult to ensure adequate shift coverage by technicians, a situation that increases the risk of major air traffic issues. In fact, an analysis performed by the FAA NAS Policy & Quality Control Group found disturbing connections between the number of FAA technicians and the frequency and duration of corrective maintenance (LCM) actions. The analysis states that the agency has lost approximately 8% of the technician workforce since 2017 and that this "loss of experienced technicians correlates with the rise in longer times to complete preventative maintenance and the increase in LCM number and

¹Federal Aviation Administration, Airway Transportation Systems Specialists, updated October 6, 2022. Accessed July 3, 2024: https://www.faa.gov/jobs/career_fields/aviation_careers/atss_join. This number does not reflect the number of technicians that are fully certified.

LCM duration.”² Performing preventative maintenance is essential to avoiding system disruptions, with the data from the report indicating that the average number of unscheduled outages per facility has been trending upward since 2017.

While the media focuses on the shortage of air traffic controllers when reporting on non-weather-related flight delays, the shortage of FAA systems specialists is just as acute. This lack of technician staffing is not going unnoticed. For example, in April, a group of Texas lawmakers sent a letter to the FAA administrator regarding the inadequate staffing in the San Antonio System Support Center (SSC). The specific concern related to the number of qualified and credentialed radar technicians at the facility. There is only one full-time technician to service three radar sites between 120 and 200 miles away from the San Antonio airport. The representatives urged the FAA to work to “mitigate staffing shortages by hiring, training, and certifying technical staff to be ready to assume those critical radar maintenance duties as technicians retire.”³ Although the situation rose to a level of congressional inquiry, it is certainly not an anomaly.

In addition, inadequate staffing has resulted in PASS-represented employees being unable to serve on important agency groups and initiatives. PASS has long called attention to not only the need for sufficient technical staffing but also to the lack of a reliable staffing model on which to base staffing decisions and placement.

PASS is currently in contract negotiations with ATO over a new collective bargaining agreement. PASS views this as an opportunity to develop processes and incentives better aimed at recruiting and retaining employees throughout the ATO.

Technical Operations Training

Hiring and training new technicians is not a quick or easy process. FAA technicians must be skilled and proficient on a number of systems. It can take years to fully train an FAA technician to perform all necessary duties related to the position. According to the Department of Transportation Inspector General (IG), “Most FAA systems require specific training and certification, and FAA does not typically train maintenance technicians on every equipment type. Therefore, individual maintenance technicians cannot work on all equipment, increasing the complexity of the technician workforce planning effort.”⁴

Since there are so many different pieces of equipment and systems in the NAS, there must be several technicians on site who can do the different work necessary to keep the aviation system safe and functioning. In other words, the staffing of this workforce is not just about people; it is about people with the right skills and training.

PASS consistently hears from our members that adequate training is a recurring issue and that without proper training, there is an increased risk to aviation safety. Many factors impact the ability to fully train FAA technicians, including availability of travel funding, instructor availability and course development. In addition, the FAA is still playing catch up after its training academy in Oklahoma City was shuttered during the COVID-19 pandemic. While the agency did turn to some virtual coursework, it is a poor substitute for hands-on training with actual equipment. It can take years to fully train an FAA technician to perform all necessary duties related to the position.

Another detriment to adequate training is the number of employees who are nearing retirement. These skilled systems specialists have valuable knowledge and experience that can benefit new employees. However, the FAA is not hiring in a manner that would take advantage of this institutional knowledge. The agency hires only when a position becomes vacant. This is obviously impacting staffing levels at facilities nationwide. There needs to be a continuous investment in employee training and development programs to enhance skills and knowledge.

Technical Operations Workforce Plan

The FAA has been developing the Technical Operations staffing model (TSM) for over a decade. In 2018, the IG noted the lack of progress: “The Agency also lacks a comprehensive workforce plan to address hiring and training needs for its entire technical workforce. In addition, FAA does not currently account for planned retire-

²Federal Aviation Administration, NAS Policy & Quality Control Group, NAS Technical Performance & Analysis Team: AJW-184, “Impacts on Maintenance,” p. 5.

³Letter to FAA Administrator Mike Whitaker from Reps. Greg Casar, Joaquin Castro and Henry Cuellar on radar technician staffing, April 10, 2024.

⁴Department of Transportation Inspector General, *Opportunities Exist for FAA To Strengthen Its Workforce Planning and Training Processes for Maintenance Technicians*, Report No. AV2023027, May 2, 2023, p. 6.

ments or track how long it takes on average to train new technicians, data that would be useful for determining future training and hiring needs.”⁵

The FAA’s TSM only addresses the technical employees in the field who perform preventative maintenance and cannot be relied upon to address staffing for other duties they perform. These other duties include work related to unscheduled outages; corrective maintenance in the case of outages or disruptions; tasks related to specific technical disciplines, such as Communication or Radar; labor reporting and other administrative tasks, which are necessary to accurately track the work being done; travel time (technicians may be responsible for facilities located in remote locations or multiple locations); among others. Due to staffing insufficiencies, PASS often hears of incidents in which a facility has fallen below the coverage requirements for a watch schedule. The model also does not reflect the work performed by support personnel who are not directly interfacing with live NAS equipment and systems. Furthermore, the model does not consider many human factors. PASS does not believe that the TSM is a reliable tool for determining staffing for this workforce. In addition, the administrative program for tracking these duties is burdensome and difficult to manage.

PASS is asking that the FAA be directed to establish a Technical Operations Workforce Plan and collaborate with PASS in its creation and implementation. PASS believes that the abilities and skills that Tech Ops employees provide, if utilized and staffed properly, can provide a distinct improvement in the implementation of new NAS systems. The development of the Technical Operations Workforce Plan should serve as a model for other plans to follow for Mission Support Services and Flight Program Operations.

Of utmost importance, the agency must be directed to collaboratively work with PASS on the creation of any workforce plan. While PASS has made it clear to the FAA that we are ready and willing to assist in the development of a plan, our offers have been declined or ignored.

AVIATION SAFETY

PASS represents aviation safety inspectors and other employees within the Office of Aviation Safety (AVS). Flight Standards Service (AFS) and Aircraft Certification Service (AIR). Aviation safety inspectors are responsible for certification, education, oversight, surveillance and enforcement of the entire aviation system.

Funding Challenges

PASS thanks the Committee for passing the Aircraft Certification Safety and Accountability Act in late 2021, in which Congress authorized \$81 million to recruit and retain safety specialists related to certification. Unfortunately, Congress did not follow through on its directive and failed to appropriate the money. While PASS was encouraged by the language in the law, it did not actually accomplish any recruitment or retention goals because there were no appropriated funds.

Aviation Safety Inspector Staffing

PASS is extremely concerned about the agency’s inability to effectively and consistently staff the FAA inspector workforce. In fact, according to a 2021 report by the Department of Transportation Inspector General (IG), an alarming 59% and 79% of Certificate Management Office and Flight Standards District Office managers, respectively, said their offices are short-staffed.⁶ Among the reasons cited in the IG report for understaffing are the same reasons cited by PASS over the years. These include increasing workload, hiring challenges, extended hiring and training periods, and increasing oversight responsibility (including for the evolving unmanned aerial system segment).

The agency itself has recognized the need to maintain a robust inspector workforce. According to the FAA, “To meet the safety needs of the NAS, AVS will need to recruit, hire, maintain, and retain a workforce with outstanding technical expertise, capabilities, and adaptability. Our efforts must ensure we can hire and retain the right people with the right skills and mindset, engaged at the right time, with systematic coordination between certification and operational suitability.”⁷ PASS agrees with the FAA and we are eager to assist in the endeavor.

PASS also agrees with the FAA administrator’s June 13, 2024, testimony before the Senate Committee on Commerce, Science and Transportation where he encour-

⁵Id., p. 8.

⁶U.S. Department of Transportation Office of Inspector General, *FAA Can Increase Its Inspector Staffing Model’s Effectiveness by Implementing System Improvements and Maximizing Its Capabilities*, August 11, 2021, p. 5.

⁷Federal Aviation Administration, *Aviation Safety Workforce Plan 2021–2030*, p. i.

aged stakeholders to provide mentoring to newer employees. “There has been a significant loss of experienced workers and a lack of that natural transfer of knowledge,” Administrator Mike Whitaker testified. “What we are encouraging operators in the system to do is recognize that as a risk and build programs around that to mitigate that risk, which means more training, more mentoring and more time to complete tasks.”⁸ However, with inspector staffing at inadequate levels within the agency, this is a challenge with the current workforce.

As stated earlier, PASS is currently in contract negotiations with AVS for a new collective bargaining agreement. This should serve as a perfect vehicle to develop processes and incentives aimed at promoting recruiting and retention. One of the issues focused on is telework, which has become a major recruiting and retention tool. Aviation employees in the private sector, including those representing airlines, general aviation and pilot certification, value the flexibilities of telework offered by the industry. While the private sector is oftentimes the recruiting grounds for new FAA employees, these incentives must remain available to remain competitive with the private sector.

Aviation Safety Inspector Staffing Model

The “staffing model” currently being used by the agency is insufficient to determine the number of aviation safety inspectors needed. As noted by the IG in 2021, due to the model not including relevant inspector staffing data, it “will be limited in its ability to determine whether the model provides reliable information on projected inspector staffing levels.” The same report noted that managers are reluctant to use the model.

PASS is asking that the FAA be directed to revise its inspector staffing model in collaboration with the union. In light of recent events, it is more important than ever that the agency knows how many inspectors are needed to safely monitor the system. At the recent hearing before the Senate Commerce Committee regarding the agency’s oversight of aviation manufacturing, FAA Administrator Whitaker recognized that the FAA was misguided in overseeing Boeing by being too “hands off.” He acknowledged that the FAA should have had much better visibility into what was happening at Boeing.

The administrator did claim that the agency now had more inspectors on the ground at Boeing factories and the factory of its primary supplier. He explained that the FAA previously had 24 inspectors at Boeing and Spirit AeroSystems and, while the number is now in the low 30s, the target is 55 inspectors. He emphasized that the FAA can no longer afford to simply be “reactive.”

PASS appreciates that the agency recognizes the need for greater oversight at Boeing. This is something the union has been emphasizing for years, even before the two fatal crashes of the 737 Max in 2018 and 2019. However, we question how the FAA determined the number of inspectors necessary at Boeing and Spirit; its plans to maintain that number; and where they are finding the inspectors who have the required experience in manufacturing. Simply moving inspectors from other manufacturing environments is not a solution. Taking inspectors from other certifies will leave those manufacturers without oversight. The FAA should consult with stakeholders to ensure the safety of the system. As always, PASS stands ready to provide input and assistance as our AVS workforce knows best what resources are needed to ensure the safety of the American flying public.

STAFFING CHALLENGES AT THE FAA

While each of PASS’s bargaining units has its specific challenges in ensuring proper recruitment, retention and engagement, there are overarching hurdles that face the agency when considering the staffing of technicians and aviation safety inspectors.

Recruitment

The FAA must do a better job of recruiting new talent to join the workforce. For example, the FAA often struggles to offer salaries that are competitive with the private sector, which can deter highly skilled professionals. While federal employees received a 5.2% pay increase in 2024, the size of this increase was a rare occurrence and did not assist in closing the pay gap between the federal and private sectors. According to the Federal Salary Council, over the last year, federal employees earned on average 27.54% less in wages than their private sector counterparts.

⁸“FAA Oversight of Aviation Manufacturing,” Hearing before the Senate Committee on Commerce, Science and Transportation, June 13, 2024.

This is the second consecutive year that the federal pay gap has widened. It is anticipated that federal employees will receive a 2% increase for 2025.

To maintain the current workforce and attract new employees to public service, the agency should consider starting salaries that are more competitive with the private sector and other incentives to recruit a new generation of highly skilled and dedicated workers. Recruiting and retaining properly skilled FAA employees can only offer the flying public further reassurances that the aviation system is safe and that ensuring that safety is the agency's top priority.

In addition, the hiring and training process for FAA employees can be long and tedious. While PASS emphasizes that there is a certain amount of time that goes into fully training employees represented by the union to serve in such safety-critical positions, the process for doing so can be streamlined to avoid bottlenecks in training. This could also be resolved by managing workloads for employees that permit them to specialize in particular fields rather than be considered "jacks of all trades."

There is also a lack of effective outreach and marketing to attract diverse talent pools, including women, minorities and young professionals. In fact, according to new data from the Partnership for Public Service, most young people think a career in government is a way to have a positive impact but relatively few have considered such a career.⁹

PASS urges the agency to consider additional ways to recruit new talent, including modernizing the human resources system at the FAA. Within Technical Operations, an internship program has shown signs of success, but it is in its early stages of development. Security clearances for sensitive positions delay the process, as does onboarding additions to the workforce. Also, there is no current assessment test for technicians in the hiring process to determine what skill they are best suited for in Technical Operations before being hired. Finally, frequent changes in FAA leadership positions strain the ability to create a stable environment.

Retention

Retention of current employees and new hires goes hand in hand with recruitment. The FAA must provide a clear career progression path for its employees with opportunities for professional growth. Because staffing is critically low in many locations, employees are often not allowed to volunteer for "solicitations of interest" (SOIs) that permit them to temporarily gain experience in another job role that can only benefit the agency.

While recruitment figures for the federal government may be low, the retention trends are even more concerning. Federal employees are looking for new careers in droves following return-to-office plans put forth starting in 2021, post-pandemic. Offering flexible working conditions and ensuring a healthy work-life balance can help retain employees.

Congress should consider the unintended consequences when regulating workplace flexibilities. In our view, agencies should continue to develop telework and other workplace flexibilities, subject to the collective bargaining process, that make sense for their workforces and allow them to be competitive with the private sector. Several years before the COVID-19 pandemic, Flight Standards had already moved away from geography in order to be more nimble in regulating the aviation industry. This was an intentional business strategy by FAA to make the workforce more flexible in aviation oversight. This strategy also allows the agency to rely upon a broader pool of employees to work together across the country in situations where they normally would be isolated. This type of organizational design may assist in reducing bottlenecks on recruitment and retention. It also allows the agency to reorganize more efficiently to better regulate the ever-changing aviation industry. To this end, telework and remote work flexibilities are important options to help retain employees.

In addition, current legislation targeting federal employees, including limiting or monitoring official time and implementing legislation that would strip federal employees of certain rights, does not paint the federal government in a positive light. If the federal government does not recognize the rights and professionalism of its workforce, it will not be able to retain capable employees.

Ensuring engagement of employees is also essential to retaining the workforce. Implementing programs that recognize and reward outstanding performance can boost morale and engagement.

⁹Partnership for Public Service, *Making the Federal Government an Employer of Choice for Early Career Professionals*. Accessed July 5, 2024: <https://ourpublicservice.org/publications/making-the-federal-government-an-employer-of-choice-for-early-career-professionals/>.

ELIMINATING BOTTLENECKS: FAA REAUTHORIZATION PRIORITIES

PASS thanks this subcommittee for their work to pass legislation reauthorizing the FAA for the next five years. Important language in the legislation, that PASS supported, will go a long way toward protecting our workforce now and in the future.

PASS provided support and background on many important elements of the bill including language directing the FAA to review and revise the aviation safety inspector staffing model; instructing the IG to review FAA workforce plans from the past five fiscal years, raising the safety standard of foreign repair stations to better align with U.S. standards, and, for the first time, the legislation included pivotal language on telework.

Strong policy language on telework in the legislation reinforces concepts proposed by PASS during current contract negotiations for its collective bargaining agreements. The new law states that any telework arrangement should not “adversely impact the mission of the FAA” and “not reduce the safety or efficiency of the national airspace.” It also indicates that any arrangement will optimize the work status of employees teleworking and ensure timely completion of duties to meet the needs of stakeholders.

While the law does not supersede the FAA’s requirement to bargain with its unions over working conditions, it does require the agency to consult with its unions when devising any policy. This has not been the case historically. PASS believes Congress must ensure that the FAA follow through with its directives in the reauthorization legislation to develop workforce plans and staffing models. Securing the strongest FAA workforce—and retaining that workforce—is essential to a safe and efficient aviation system.

CONCLUSION

The work of the highly trained and skilled employees represented by PASS is essential to protecting aviation safety and fulfilling the agency’s mission. PASS recognizes that having the appropriate and skilled workforce in place is essential to maintaining the safety of the system. We want to work with the agency to recruit and retain the very best employees.

PASS respectfully calls on this committee to consider our areas of concern and recognize the critical contributions made by the employees we represent. PASS is ready to work with you to ensure that the United States air traffic control system remains the safest aviation system in the world.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Spero.

I appreciate all of your testimony today.

I am going to yield 5 minutes to the gentleman from Arkansas, the chair of the Highways and Transit Subcommittee, Mr. Crawford.

Mr. CRAWFORD. Thank you, Mr. Chairman. And I thank the witnesses for being here today.

Mr. Robbins, I am particularly interested in what the FAA needs to be doing for new entrants in national airspace, AAM, and unmanned systems, especially when it comes to cybersecurity.

So, we talk about the aviation industry, and the first thing you think of is probably going to be a pilot or something like that, but I am concerned about some of the other areas that we should be focused on as we see the expansion of nontraditional aircraft. For example, how do we strengthen the FAA’s cybersecurity policies and ensure that the FAA has the appropriate workforce in place to deal with that?

It is very extensive in this industry. So, talk about that a little bit, the policies that we need to be engaged in, what you think the future holds with regard to that particular aspect of the aviation industry.

Mr. ROBBINS. Yes. Thank you very much for that question, Congressman.

About 2 years ago, AUVSI launched our Trusted Cyber Programs to tackle this challenge head on. We recognize that this is a shared responsibility between industry and Government and that it is important for us to also be educating our members and sort of be the tip of the spear on getting cybersecurity right as drones and advanced air mobility are integrated into the NAS.

The FAA reauthorization, as you know, sir, contains a provision directing the FAA to establish a new executive director for cybersecurity. We think that is a terrific step in starting to build the subject matter expertise within the agency.

FAA is a safety organization, so, sometimes security doesn't always fit perfectly into their mission set, but I would give the FAA a lot of credit for making significant headway just in the last couple of years and moving the ball forward.

AUVSI stands ready to work with the FAA on this issue and bring subject matter expertise to the table, whether that is through aviation rulemaking committees which draw upon industry for advice and counsel, or even perhaps the use of special Government employees to bring in workforce from industry temporarily—SGEs—to help provide subject matter expertise.

AUVSI also offers a certification program for platforms and components to go through and be certified on both their cybersecurity as well as their supply chain risk. They go through a very vigorous pen test, and they also go through a significant supply chain review.

And we have a standing MOU with the Defense Innovation Unit of the Department of Defense, where all of the information we gathered is immediately transferred over to the DoD so they can then understand the integrity of the systems that AUVSI has validated, to be able to pull them over for the warfighter as well.

Mr. CRAWFORD. Appreciate that.

Mr. ROBBINS. Thank you, sir.

Mr. CRAWFORD. Mr. Montgomery, if I heard you correctly in your testimony, you mentioned that you had been basically career military as a maintainer. Is that right?

Mr. MONTGOMERY. Yes, sir.

Mr. CRAWFORD. Talk about what the—we talk about recruiting and retention and, again, when we talk about aviation, we tend to think about pilots—but the opportunities in what your career field was, that you spent in the military, and how that translates over into civilian aviation industry.

Mr. MONTGOMERY. With mechanics, we—or maintainers, we definitely have work to do within Louisiana Tech. We want to open up our doors and start producing mechanics.

Mr. GRAVES OF LOUISIANA. Mr. Montgomery, would you mind, just make sure you are on microphone.

Mr. MONTGOMERY. Yes, sir. Thank you, sir.

So, we would like to work further with—we have a couple of partners within Louisiana. We are going to start producing mechanics. We see it as a need. I see it, from my experiences in the military, as something we need to work on, because our maintenance bills are extremely high and just getting higher with the least amount of mechanics we have out there.

Is that about what you were looking for, sir?

Mr. CRAWFORD. Well, I am kind of—kind of wanted to drill down on the career path, what a young person graduating from high school, what the future might hold for them in the industry outside of flying or operating, but as a maintainer, and could they expect a fulfilling and rewarding career on the maintainer side of things?

Mr. MONTGOMERY. Oh, yes, sir. Absolutely. I love maintenance. I love to get out there, getting my hands dirty, turning wrenches. Anything working with the engines, the airplanes, airframes, anything else like that is so fun.

If we could get it out there that there is more to aviation than just being the pilots and the great jobs, that would be huge.

Mr. CRAWFORD. Appreciate that. Thank you, sir.

Thank you all for being here today.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Crawford.

I recognize the ranking member of the subcommittee, Mr. Cohen from Tennessee, for 5 minutes.

Mr. COHEN. Thank you, sir.

It is good to follow Mr. Crawford. He is across the river from me. I hope you asked some good questions that help Memphis too.

Mr. CRAWFORD. Always.

Mr. COHEN. Monty, I want to start with you. LA Tech and Memphis State—now Louisiana Tech University and University of Memphis—we still have some of the same problems. We are not maybe getting as much as LSU or UT in some of the funding programs.

University of Memphis has told me, as well as our community college, Southwest, that they have challenges in getting provisionally certified as a part 141 flight school. They want to set up a knowledge testing center there.

Did Louisiana Tech University face similar difficulties in getting certifications or other approvals, and does this affect your ability to recruit and retain students?

Mr. MONTGOMERY. Yes, sir. We are definitely—we were seeking in-house DPE examining authority, but our recent rates of passing the test have dipped below the 90-percent requirement, so, we are facing problems there. However, we do have airmen knowledge testing within Louisiana Tech that we provide students on an as-needed basis.

Mr. COHEN. Is there any reason that you know why—they require 90 percent passage to continue the program?

Mr. MONTGOMERY. I believe, sir. I would have to verify that data to ensure.

Mr. COHEN. I guess the idea is that they want to be where they are most likely to have graduates, but at the same time, some of the students maybe didn't have—possibly they didn't have adequate preparation, and so, they keep them in the hole and don't give them a chance to go up.

Is that something you have seen, some of the people at LA Tech that maybe didn't get the grade but have potential?

Mr. MONTGOMERY. Yes, sir. As we crack open the enrollments—we have had over 370 applicants this year and 270 last year. So, as we crack that open to get more students in, we are going to get more of a variance on people that can pass the test or not.

We do have students that are great pilots; they just can't pass the test. And so, you could see a dip in that, and as well as we make our aviation maintainers—management take the FAA test as well.

Mr. COHEN. Do you think there should be some change to that standard, the test score, the 90-percent requirement, or is that something we just have to deal with?

Mr. MONTGOMERY. I believe some research would be good in that area to verify that is a good standard and that, if a flight school is extremely difficult on their own airmen, that maybe that should be taken into account.

Mr. COHEN. We have something else in common: getting our hands dirty. You like to do it with machines. I like to do it with ribs.

But often the most visible members of the aviation system are our flightcrews and pilots, but aircraft maintenance technicians also play a vital part in ensuring safe and efficient operation.

What is the role of schools and universities in training that part of the air workforce?

Mr. MONTGOMERY. In training mechanics, sir?

Mr. COHEN. Yes, training technicians and mechanics that work to support the airplanes.

Mr. MONTGOMERY. With being a mechanic, you could be a good mechanic without a college education, but you can be a great mechanic with a college education. Once I obtained my degrees, I could understand statistics and outliers, and I could better change—track down difficult positions.

So, the university providing the rest of the information you need to help run a maintenance program is direly needed. It turns you just from a wrench turner into a manager, a leader.

Mr. COHEN. Thank you, sir.

Ms. Damato, you testified that when you were learning to fly, you were not allowed to use one of the aircraft available to students because the owner would not let a woman fly his plane. Even in 2024, I fear some of my constituents in the majority and minority cities, Memphis, Tennessee, may face similar hurdles due to race or gender.

Can you talk about the importance of a diverse talent pool for the future success of our aviation industry?

Ms. DAMATO. Thank you for that question.

It does astound me that the challenges that I encountered in the mid-1990s are still challenges that women and minorities are encountering today. Shouldn't be happening.

I do want to deliver some good news. The collegiate aviation programs, I attended one of them. My son attends one of them. And I spent a lot of time with collegiate aviators. It doesn't seem to be something that they are encountering once they get into that formal flight training environment. But when you are at the general aviation airports, where it still might be rare to find someone who is interested in aviation as a career path, that doesn't look like everybody else at the airport, you are still the odd person out.

Chairman Graves, you noted that you had a female pilot on your flight yesterday. The fact that you noticed that means there are still not enough of us, and we need to make improvements to at-

tract women and minorities to aviation, to show them more examples of “see it, be it”; to give them mentoring opportunities; to understand the resources they can take advantage of, especially funding being one of them; how they can work on being both a caregiver and also pursuing an aviation career and the support they need to do that; and really that sense of belonging, that culture is not going to hold them back.

When we are a diverse industry, we can get to more efficiency, we can get to more safety. That diversity of thought allows us not to all just agree with each other but to bring different perspectives from where we come from, from all over this country, and from different environments, and use that for better decisionmaking, which will have a great impact on the future of our industry.

Also, that is the only way we are going to fill all these jobs that are available. Women make up 47 percent of the American workforce, but we are still stuck at about 20 percent in aviation representation. Women in leadership positions in aviation, still single digits. Women airline captains, also still single digits. There is a lot of work to be done.

Mr. COHEN. Thank you so much. Are you—I missed it. Are you from Louisiana?

Ms. DAMATO. I am from New Jersey.

Mr. COHEN. New Jersey. All right. Your name looks like a linebacker at LSU.

Ms. DAMATO. No relation.

Mr. GRAVES OF LOUISIANA. Thank you.

I recognize the—you—recognize the gentleman from Arkansas, the chair of the Natural Resources Committee, Mr. Westerman, for 5 minutes.

Mr. WESTERMAN. Thank you, Chairman Graves. Thank you to the witnesses for being here today.

Ms. Damato, your testimony is inspiring, not only the 5 minutes that you had, but I think the 17 pages of single-spaced, written testimony shows that you are obviously passionate about what you do. You have got a great story to tell. And I think you had five different areas that you said you are working on, in the written testimony, are places that things need to be improved. Information sharing, collaboration, all of those are very important. And you alluded a little bit to removing financial barriers.

So, in the FAA reauthorization of 2024, we did put in targeted reforms to strengthen the Aviation Workforce Development Grant that was established in the 2018 FAA bill.

And given that the greatest barrier to entry facing most individuals in the workforce is the high cost of education, how important of a role do grant programs such as these play in attracting a wide array of individuals into the aviation workforce?

Ms. DAMATO. Thank you for the question, and thank you for recognizing my passion for aviation.

I mean, it really was something that started when I was 8 years old, and that story is really common. It is just a matter of, do you stick with it as that just one opportunity and no one is there to encourage you and you turn around? Or if it is not a culture issue, is it a financial barrier or something else that puts the thought in your head and then removes it just as quickly?

The financial hurdle to becoming an aviation professional is real. It is the most expensive for a pilot. It is still expensive for someone who wants to be a technician. And having access to—having the desire for that career path and the passion is wonderful, but if you can't match it with the ability to pay for it, then it becomes concerning, because it becomes a revolving door, and we lose wonderful people who want to work in our industry to some other industries that have less barriers to entry.

The grants are fantastic. Mr. Montgomery talked in his testimony about the type of funding that they need at their public university to be able to support continuing their fleet modernization, attracting the instructors that they need to build an air traffic program, what would that look like for them, and what expertise do they have to have.

And so, the schools need the funding to be able to develop and grow with this new technology that we are all trying to understand how do we educate to. And the students need access to these grants as well, because they may have—they are caregivers themselves, they may have low credit scores, they may not have the ability to get access to the loans that they need.

And, again, if they can't get enough merit from where they want to attend, they may find themselves just with a wonderful passion but an unattainable goal. So, it is incredibly important.

Mr. WESTERMAN. Right. And then you also talk about information sharing, and related the experience of your guidance counselor who really didn't know how to advise you on an aviation career, I think, told you to go study aeronautical engineering, which obviously would have given you a path into an aviation job. But it was almost by accident you found out that there are actually college programs for pilots.

How do we get that message out so that guidance counselors understand the wide array of jobs that are available?

In my district—and I would guess if you talked to most high school kids and said, would you like a career in aviation, the first thing, "I want to be a 'Top Gun' pilot," or "I want to fly for an airline." But the jobs in aviation in my district are fabricating parts for airplanes, doing maintenance on parts.

We have a large aerospace manufacturing business, and even on the defense side, we have one of the biggest aerospace industrial defense parks in the country. They build the HIMARS and all of that good stuff.

So, how do we get that message out so that other kids that want to go into aviation aren't told their route is either to go in the military or to be an aeronautical engineer?

Ms. DAMATO. It needs to be intentional and not accidental. And for all of us and all the people I know sitting behind me and watching here who are passionate about aviation, we all have an answer. We all have part of the answer when somebody's interested.

We all need to have the same answer, that one-stop shop, what is the one national resource we are going to send you to. I watch a lot of major league baseball, and I see buildsubmarines.com commercials during every single game, and you can't miss it.

We need something like that, that rolls off all of our tongues that gets that individual, caregiver, educator, guidance counselor, youth,

to say, let me go to that URL, let me scan that code, and let me find the information that I need so my desire turns to awareness, turns to knowledge and ability.

Mr. WESTERMAN. Thank you. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Westerman.

The gentleman from Arizona, Mr. Stanton, is recognized for 5 minutes.

Mr. STANTON. Thank you very much, Mr. Chairman, for hosting this important hearing of witnesses for being here today.

The FAA acknowledges it is experiencing an air traffic controller shortage, and this shortage has major impacts: fewer flights, longer delays, and the risk of near-misses. And we have seen too many of those this year.

In the bipartisan FAA reauthorization, we focus on the recruitment, hiring, and retention of air traffic controllers.

One of the FAA's most successful Government-industry partnerships is the FAA Federal Contract Tower Program. There are seven contract towers in Arizona, including Phoenix-Mesa Gateway, and these are the busiest contract towers in our country.

These contract towers account for approximately one-third of all the contract tower operations in the Nation, and many of these contract controllers are veterans. We need to use all the tools in our toolbox to make sure we have enough air traffic controllers to staff our country's needs.

Mr. Montgomery, your written testimony mentions plans to apply for the FAA's Air Traffic Collegiate Training Initiative, AT-CTI. Please expand upon this and how will it help Louisiana Tech attract and train more air traffic controllers, and how can the bill that we recently passed, the FAA reauthorization, support these important efforts?

Mr. MONTGOMERY. Thank you, sir, for the question.

With the Air Traffic Controller Collegiate Training Initiative, we have just submitted the final document on that. That is at the standard level. The standard level will give my aviation management airmen a pipeline to get to the FAA, and they will get 5 weeks off of their training for that.

Eventually, we would like to grow that program into the enhanced version, and at that time, I would need some simulators, and then I would have to find an air traffic controller that would like to come to Ruston to teach.

With that, it is making my aviation management program more valuable, and those airmen going into that, those students going in that, coming out of there, will be able to go into that process. Going into air traffic controller, it is a great program.

Mr. STANTON. All right. I am really glad to hear that, and we are going to try to mimic that around the country, including in Arizona.

Sky Harbor Airport in my community is one of the busiest airports in the country. It provides thousands and thousands of jobs for our region. FAA technicians in my district who work at Sky Harbor have shared with me that two of the three system support centers which install and maintain equipment for the airport's facilities, radar, and communications are significantly understaffed. These technicians are responsible for key elements like naviga-

tional aids, airport lighting, backup power, heating, ventilation, and air-conditioning that keep our airports running. The work was done by approximately 30 people working shifts of 16 hours a day, 7 days a week, but now due to staffing shortages, this workforce has been cut by one-third.

Mr. Spero, your capacity as the president of the Professional Aviation Safety Specialists, give us advice, what can we do to recruit and retain more technicians critical to our system?

Mr. SPERO. Congressman, thank you for the question.

Well, first of all, the FAA needs to develop a workforce plan for technical operations. We are hiring technicians in the same manner we have in the 1990s and early 2000s, and it is a game of Whac-A-Mole. Wherever the problem seems to be the biggest, we will hire technicians there.

There is not an overall plan to make a determination of what staffing should look like going forward. To have a workforce plan would put in place a strategy to say, this is what we want to do with this very talented, skilled, educated workforce that knows how the air traffic control system in the United States works and would effectively be money in the bank for the FAA moving forward to come up with new solutions for implementing new systems across the country.

They have not gone forward with that. And by doing that, we would be able to establish how many people we need in Phoenix Sky Harbor, how many we need in Chicago, how many we need in Miami. And that is not in place right now.

Mr. STANTON. And a followup question for you. Last month, Phoenix's extreme heat temperatures made it harder and more dangerous for planes to fly. Heat also places great strain on the ramp workers responsible for much of the behind-the-scenes work, like fueling the planes and baggage handling.

So, Mr. Spero, tell us about the impact of heat on your members, PASS members, and if so, what do you think we should do to address the issue as we work to recruit and retain aviation specialists?

Mr. SPERO. So, folks that work—thank you again for that question.

Folks that work out in the field are always under heat stress. The ability for them to manage that stress is sometimes not always facilitated by the FAA. Recently, we even had to go to an arbitration to determine that the FAA had to give water to our technicians out in the field, because they were unwilling to provide them with potable water, which we did win that case.

Mr. STANTON. Thank you very much. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Stanton.

I recognize the gentleman from South Dakota, Mr. Johnson, for 5 minutes.

Mr. JOHNSON OF SOUTH DAKOTA. Thank you, Mr. Chairman.

Mr. Spero, I want to talk with you a little bit this morning. Of course, part of solving the challenges with our aviation workforce is making sure that we are making effective and efficient use of the resources we do have.

So, I want to talk a little bit about the new TSA aviation worker screening proposal. And clearly, security needs to be really impor-

tant. But as you know, the new proposal would, in essence, put airports in charge of screening aviation workers.

Airports would have to develop, implement, and operate this screening protocol for randomized physical screening of aviation workers. This would put, I think, a pretty substantial new operational obligation, with substantial costs, on airports. Maybe some of the big airports would be able to handle it. I am not sure smaller airports like Rapid City, Sioux Falls, Aberdeen, Pierre, Watertown, would be able to do so. I was glad to see TSA pushing back for a year their proposal to implement this. But any observations about this?

It seems to me that TSA is the expert on airport screening and security. TSA should be in charge of this process rather than making, in essence, the landlords, the airports, come up with these new screening protocols.

Mr. SPERO. Well, thank you for the question.

I would tend to agree with you. I don't represent the TSA employees, and I am not an expert on screening. And I would tend to agree with you that TSA should work and help make those recommendations.

Mr. JOHNSON OF SOUTH DAKOTA. Yes, I certainly agree as well.

For any of the panelists, we have talked about some of the challenges. Talk about some bright spots. I mean, what is really working well? What would we want to raise up as something that is replicatable in a broader sense?

Ms. DAMATO. Oh, I would love to talk about some of the bright spots because they are what brighten my day, too. I mean, there is so much good news out there.

I mentioned that there is a lot of connective tissue among the associations and passionate people all around the country who want to share their love for aviation and spark that interest.

Women in Aviation is going to have their 10th annual Girls in Aviation Day this year. EAA has given over 2 million flights through their Young Eagles programs to young people who want to get into aviation.

And the joy that you see, if you haven't been to a Young Eagles Day—and my kids have taken advantage of this a few times—when they are all lining up and they are getting into the airplane, and it is their turn, and they are doing rock, paper, scissors to see who gets to sit in the front and who is riding in the back, that is a formative moment. And the more we can put those together and string those together, we can capture that excitement and keep that feeling alive all the way through to where they will become leaders in our industry.

So, I see these bright spots all the time. They make me really happy when I get a chance to celebrate them.

Mr. JOHNSON OF SOUTH DAKOTA. Anybody else want to share a bright spot?

Mr. ROBBINS. Well, I will build on Ms. Damato's sentiments that with the uncrewed system and autonomy industry, we are opening up the opportunity to engage in aviation, either as a workforce or as a hobby, in new ways that previously were unavailable given the high cost of aviation.

Mr. JOHNSON OF SOUTH DAKOTA. So, what about—and I am not talking about pilot retirement age because I just don't want to lob that grenade into this—

Mr. ROBBINS [interposing]. Appreciate that.

Mr. JOHNSON OF SOUTH DAKOTA [continuing]. Hearing room today. But what about other positions in the aviation workforce? Are we doing a good job of holding on to people on the back end of their career, making sure that they feel value so they stick around for another year or two? I mean, we could really use them, right? They know what they are doing.

Mr. ROBBINS. I think in our industry, sir, we don't have too many people on the back end of their career since we are a very new and nascent industry, but I will defer to my colleagues to maybe answer that question.

Mr. SPERO. Congressman, yes, I would like to weigh in on that. When it comes to staying on, especially in the FAA, a lot of employees now are looking at this and saying, it is time to punch out, and retiring, whereas they may be able to stay on a little longer and pass on some of the knowledge that they have obtained over the years to the younger employees that come forward.

And in the technical operations part of the FAA, in the ATO, they don't hire anyone until that predecessor has left. So, you lose 30, 35, 40 years of experience for a new employee that might have the opportunity to be mentored by that employee that has all that experience. You lose all of that. And they need to develop a process now for, when they hire folks, to be able to do it in advance of someone retiring.

Mr. JOHNSON OF SOUTH DAKOTA. Thanks much.

Mr. Chair, I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Johnson.

I recognize the gentleman from Illinois, Mr. García, for 5 minutes.

Mr. GARCÍA OF ILLINOIS. Thank you, Mr. Chairman, and Ranking Member and, of course, to all of the witnesses who are just seeing present and future challenges in the aviation sector.

I proudly represent Illinois' Fourth District, which includes Midway Airport, and I border on O'Hare, as well. Together, these two airports generate more than \$45 billion in annual economic activity and create 540,000 jobs in the region.

O'Hare is the fifth busiest airport in the country, and processed nearly 36 million passengers in 2023. Recognizing O'Hare's size and significance, it is alarming that a month ago, there was a ground stop ordered due to the technical issue with air traffic control radar system.

Mr. Spero, we hear a lot about air traffic controller shortages causing disruptions to the National Airspace System, or NAS, and while this is an extremely pressing issue, technicians are also understaffed—you touched on it—which poses a different set of challenges. Mr. Spero, can you describe what happened during the June ground stop at O'Hare and how technician staffing levels may have contributed to this incident?

Mr. SPERO. Congressman, thank you for the question. I can explain what happened. So, a radar feed from a long-range radar was malfunctioning. Our technicians went out to work on it, but since

that feed goes into the Chicago large TRACON and the Chicago Air Route Traffic Control Center, it goes into systems that feed out to Midway and other airports, including O'Hare tower. They did not have on staff at the large TRACON an employee that was skilled and trained and certified on how to exclude that radar system from the feed. Because of that, air traffic controllers were seeing multiple targets on their displays.

The only solution at that particular point was to put a ground stop in place because they did not know where the aircraft were. Fortunately, we had a technician that was off duty that was called in on overtime and made it in a short period of time and came in and resolved the problem, but that problem would have been resolved if they had the right number of people with the right amount of training, and that was a conscious decision made by the agency there in Chicago to say, "We don't need anyone on staff that has that training right now."

Mr. GARCÍA OF ILLINOIS. I think your testimony sheds light that we do. Thank you. It is clear that we need to invest in our aviation workforce not only from a recruiting standpoint but also from a quality-of-life standpoint. If we want to attract more workers, we need to improve working conditions.

This brings me to my next point. Ms. Damato, I, like other Members up here, was struck by your testimony that, as a young woman pursuing a career in aviation, you were barred from training on some airplanes because of your gender. This bias culture is one of the most prominent obstacles to recruiting women and minorities into aviation. Countless examples of racial bias have created similar barriers for people of color. In your opinion, what is needed to shift this culture, and do you think that the provisions in the FAA reauthorization bill do enough to address this problem? And I am thinking about the factor of childcare, maternity leave, the feasibility of a career in aviation while balancing raising a family and, of course, what type of support women specifically who are seeking a career in aviation will need moving forward.

Ms. DAMATO. Thank you for the question, and it is an honor to be a professional in aviation, but certainly a number of us who are women in aviation, we talk about these issues all of the time, and we offer each other support and mentoring to help those that have been through some of those challenges, coached some of those who are facing them now. There is some really great stuff in the FAA Reauthorization Act that addresses things like helping a new mother find time to pump her breast milk while she may be performing the roles of a pilot.

There is information on the safety of uniforms and accommodations made for a woman who is pregnant and still needs to comply with uniform regulations. There is information from the Women in Aviation Advisory Board that talks about the hurdles that have to do with caregiving and being able to manage the work-life balance. There are great opportunities within aviation to find your support network and to find scheduling and employers that work with your specific needs and your values, but a lot of the work that needs to be done is to understand that there are typically—men are parents, too, and so, if we are talking about caregivers specifically, it is wonderful to know that schedules can be balanced so that the women

who want to have a flying career don't feel like they have to stop flying because they also want to be caregivers. They just need to understand or they need help in the accommodations for 1-day trips or how they can schedule their trips in a way that still accommodates the priorities that are important to them.

There is so much work to be done here. It is a difficult subject that the Women in Aviation Advisory Board put a lot of effort into with their 55 recommendations, and the reauthorization act is just a few of those, but there is work to be done, and I think that is what that permanent Women in Aviation Advisory Committee is going to help address so that employers understand what they need to do to help accommodate the women.

Mr. GRAVES OF LOUISIANA. Can you wrap up?

Mr. GARCÍA OF ILLINOIS. Thank you, and I appreciate the indulgence, Mr. Chair.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. García.

I recognize the gentleman from Utah, Mr. Owens, for 5 minutes.

Mr. OWENS. Thank you, Mr. Chairman and Ranking Member, and the witnesses for today. This hearing bridges two of my assignments both on this committee and the Education and the Workforce Committee. My work on both the FAA Reauthorization and the College Cost Reduction Act have been in part focused on flight education provisions that assist students trying to become commercial airline pilots. These are certified undergraduate programs of flight training. With collegiate flight training adding on an average of an additional \$80,000 on top of costs of 4-year college bachelor degrees, it is understandable that the dropout rates for private pilots are near 80 percent.

Mr. Montgomery, I was impressed with your testimony in the ways that Louisiana Tech has innovated to adapt to the bleak reality facing aviation industry's recruitment of talent. This is seen in Louisiana Tech's partnering with private aviation companies to increase flight training opportunities and pairing aviation management degrees with industry certification. This innovative approach allows students to begin working immediately upon graduation. Can you share additional strategies that the school has implemented to reduce the costs of aviation education?

Mr. MONTGOMERY. Yes, sir. Thank you for the question. We are resource-restricted in all of our aircraft. We have 13 aircraft are paid by students through flight fees. I have seen that and dealt with that. That to me is unacceptable. There are grants out there. We are going to chase them down. We are going to get those grants one way or the other.

There are other ways we can expand our program, and one of those is in aviation management. With adding more students and more options for aviation management, it means more resources. Doesn't mean more resources from added flight fees. That is more resources from just basic students paying for—

Mr. OWENS [interrupting]. Can you speak a little bit closer to the mic?

Mr. MONTGOMERY. Yes, sir. I apologize. So, adding more aviation management and adding more options for aviation management will in the end get me more resources. More resources I can turn and put back into the places we need it, specifically aircraft,

drones. If we can get our mechanics going, if we can get a shop going, that would be good. We are looking at a couple partners with some community colleges and then also with some Louisiana Tech businesses. If we can marry their A&P certifications with our management program, that will make it more valuable. That goes further with the air traffic controller standard initiative through the AT-CTI and a couple other things as well as our MBA with aviation concentration.

Mr. OWENS. Thank you.

Ms. Damato, my team has been working to create opportunities for students to identify interest and career paths earlier. If a college football coach can identify potential talent of students as young as seventh grade, I see no reason why aviation education programs cannot do the same. Once interest and dreams are married, students can get the head start on numerous aviation industry certifications before they even graduate from high school. Can you share any work that you and others are doing to incentivize careers in aviation and get kids excited about flying or working at a much younger age?

Ms. DAMATO. Thank you for the question. The research that was done through the task force and the Women in Aviation Advisory Board shows that you have got two ages that have a high impact on getting attention, age 10 and age 18. Then that window between those ages is really critical, too. The time that they are able to earn an FAA certification really starts once they have that 15- and 16-year-old mark, so, you have got to keep them interested until they are old enough to earn their first certification.

What is beautiful about aviation is that that age does line up with high school. There are opportunities that they have to take advantage of outside of their high school like I did to know that you need to go to your local airport and do your flight training, but for high schools, especially career and technical education high schools who offer aviation programs and AOPA with their high school curriculum that is in a number of high schools around the country, there are opportunities to provide that education formally through the 4 years that you are in high school, to perhaps get the written test out of the way, to earn some stackable credentials for the technicians, maybe a specialty or a module in sheet metal fabrication or safety wiring so that you are gaining these skills that allow you to find employment and apprenticeship in high school or immediately after high school and then allow you to do those jobs while you are earning the rest of the certifications that you receive formal education for. It is incredibly important, and we have got to take advantage of that time window.

Mr. OWENS. We are looking on education being a little bit more innovative, and we look forward to having some conversations with you about this because, the earlier our kids get exposed, the sooner they get out and get their careers going and build a dream. We look forward to spending more time talking about these issue. Thank you so much.

I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Owens.

I recognize the gentleman from Pennsylvania, Mr. Deluzio, for 5 minutes.

Mr. DELUZIO. Thank you, Mr. Chairman.

Good morning, everyone. Thank you for being here. I will start by commending the work done by many on this subcommittee and full committee on the FAA Reauthorization Act; I think a really important bill, bipartisan bill that tackles many of the issues we are talking about today. One of the greatest challenges, again, we have heard about today facing aviation is issues around workforce. Pilots, flight attendants, mechanics, air traffic controllers, you name it. The FAA reauthorization has some good provisions to tackle some of those issues, and we have heard about some today. I will start with one issue that I have heard about from my district, an airline that flies in and out of Pittsburgh International in my district has been using noncompete clauses to keep their pilots from going to bigger commercial carriers.

Ms. Damato, I will ask you, do you think it is more important for us to try to grow workforce, in this case pilots through programs like joint aviation employment training working group or the pilot program to provide veterans with pilot training services, just citing some examples, that are included in the reauthorization rather than companies relying on noncompetes to keep folks from seeking other opportunities?

Ms. DAMATO. Thank you for the question. We need to recruit pilots and technicians and all the other positions that exist in aviation from everywhere we can get them, so, the FAA Reauthorization Act of 2024 introduces a lot of opportunities to attract veterans separating military to aviation. It talks about high schoolers and how to attract them as well if they don't want to pursue a formal collegiate or trade school education. There are opportunities everywhere. I think we want to leave no stone unturned.

What we need to understand is: what does that demand look like and how do we find someone, their best aptitude and what it is they want to do. I only ever wanted to be a 121 airline pilot, but as you can see, I decided to do something different with my aviation management and flight degree, and I have five college students that are graduates of collegiate aviation programs who work at NBAA sitting behind me who may—some of them are pilots, and some of them aren't. But they decided that aviation management was something that they are really interested in, and they have all developed unique career paths that you can't read about in a textbook or follow a flight plan for, so, it is really cool that we should get anybody anywhere for anything they want to do in this profession.

Mr. DELUZIO. Thank you.

Mr. Spero, I will come to you. Your members perform a bunch of tasks, critical maintenance, repair FAA systems, equipment, operation of those systems, and the rest. What would the increase for facilities equipment and equipment in the FAA's budget request mean for your folks and the folks you work with?

Mr. SPERO. Congressman, thank you for that question. Just to get started and to hire at least 800 technicians within the next year and get them trained would probably cost the agency—in conversations that I have had with folks over there at 800 Independence Avenue—about \$90 million.

Mr. DELUZIO. Substantial.

Mr. SPERO. Yes, sir.

Mr. DELUZIO. OK. Look, on the topic of workforce issues, one of, again, airport in my district, Pittsburgh International, one of its advantages is that nearby we have the Pittsburgh Institute of Aeronautics, a very widely respected aviation mechanic school. Students there complete a 20-month course, become certified to work on commercial aircraft. Many go into good-paying solid jobs, particularly at Pittsburgh International, which is about an hour away. The airport itself, like many, though, is not a training center, and so, there are some limitations.

Mr. Montgomery, come to you. What changes do you think, if any, are needed to expand these aeronautical job training programs on airport, off airport, some mix of presence on both?

Mr. MONTGOMERY. Thank you, sir. Opportunities—I mean, aviation is such a great experience. It is such a great industry. The more internships I have out there, the better airmen I can produce. We get them to go all over the place, like Ms. Damato is saying. When they go out there and they get the experience and they come back with that experience, it just is so different. You can see them just lighting up, because they are taking all that education and turning it into a career with love and passion for it. It is great. So, anything we can do and anything out there that I can allow me the opportunity to just get those guys into airports or share experience with them would be a plus.

Mr. DELUZIO. In the little bit of time we have left, do you think the proximity and getting access to seeing real operations at airports is an important part of this training and the avenues you want to see expand?

Mr. MONTGOMERY. Yes, sir, absolutely.

Mr. DELUZIO. Very good.

With that, Mr. Chairman, I will yield back. Thank you.

Mr. GRAVES OF LOUISIANA. Gentleman from Georgia, Mr. Collins, recognized for 5 minutes.

Mr. COLLINS. Thank you, Mr. Chairman. As I sit here, I have more and more questions, so, I am going to try to speed up. For somebody from the South, that is a little tough. I am going to open this up to everybody my first question, because I was recently at a private school where you can get your general aviation, your private pilot license. And the young man there that owns the place has been trying to get his DPE. For 3 years now he has had his application in. In the State of Georgia, we only have 31 DPEs, and I know that the ranking member mentioned that the FAA has addressed a little bit of that, but that is for oversight and coordinating of our current DPEs, so, I guess my question is, what are you all seeing that needs to be done to increase the DPEs, and are you seeing people or hearing of people like I heard that have their application in to become a DPE and are still waiting to become a DPE or a designated pilot examiner?

Ms. DAMATO. I can speak about that. Thank you for the question. I can speak about that from the parent standpoint and the struggles that I see especially happening in the summertime before students need to be starting their collegiate aviation programs. There is an amazing Facebook group called Raising Aviation Teens start-

ed by parents, and it is just a bunch of parents who are not aviation professionals trying to share tips.

As recently as last week, someone in my region was desperate to find a DPE for their child who is starting a 4-year program in the fall who has to go in with their private pilot's certificate, and they can't find anybody within the tristate area and they went to this group to see if anybody could recommend somebody. They have to start in May to find somebody by August, and those are some target-rich areas of DPE, so, the concern is that geographically there is a lot of places in the country that don't even have that coverage, and you have got to travel to go and find an examiner. So, it is a real concern, especially when it is something that could cause somebody to give up and try something else if they just really can't accomplish what they need to accomplish.

Mr. COLLINS. And I think it contributes to the bottleneck of what we are talking about this morning. I mean, if you, God forbid, you get COVID and you have to reschedule your checkride, you may be looking at 6 months or who knows when. And so, when I am visiting in my district and I hear people, "Well, I have had my application in. I have got thousands of hours. I own a private company that teaches people to fly, and for 3 years, I still haven't gotten my certification." I don't know if you all had been hearing this.

Ms. Damato, I also wanted to make a comment. I know you and Congressman Westerman were talking about college and how you were routed to college for your pilot's license. As someone who is big on technical schools and what I see as a culture, and it has been a culture of: everybody that graduates from high school has got to go to college; you've got to go to college. I would encourage you, as you are looking at this one-stop shop, there are so many different options—from the gentleman on the end who has got technical school to private schools that are able to give you that same training to become a pilot—and you don't have to go to college to get that degree and to go to work in general aviation or commercial aviation. So, I don't know if that is something that you have thought about or are pushing?

Ms. DAMATO. Yes, sir. We know not every student wants to go from high school into a collegiate program. That is the importance of some of the things they can earn in high school that can make them immediately employable if they are able to earn some of those credentials that they can then stack and turn into something like an A&P, which would be amazing for them.

Mr. COLLINS. Right.

Ms. DAMATO. The trade schools are amazing. A collegiate program for some is what they seek. My son goes to a career and technical education high school in New Jersey. They don't offer aviation, but they offer automotive, and he has already earned every certification from the ASE for the certification for auto mechanics. So, seeing something like that for aviation would be incredible.

Mr. COLLINS. Good. The last thing I wanted to talk about was a bill that I introduced in Congress this year, or last year, rather, and it is the Aviation Workforce Development Act, and it deals with 529s, where you can use your own savings plan, educational savings plan, to send your student to become a commercial airline pilot or an aviation mechanic. I am proud to say that the House

Ways and Means marked that up with their other 529s this week and passed that out. And I just wanted to—well, I don't have any time left, but I want to encourage you—that is H.R. 8915 now. It is the Education and Workforce Freedom Act. It is going to come up for the full House for a vote. I encourage you to get out there and make sure people know about it and encourage their Representative to vote for it. When we get it over to the Senate, make them pass it. They have got about 160 of our bills sitting over that they are not taking up. This would have an immediate effect on people's availability to get their child or their young person into this career quickly and help eliminate this problem immediately.

Thank you, Mr. Chair. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Collins.

I recognize the gentlelady from Michigan, Ms. Scholten, for 5 minutes.

Ms. SCHOLTEN. Fantastic. Thank you so much, Mr. Chair.

Thank you so much to all of our witnesses for being here today. We have a robust aviation talent pipeline in west Michigan and a strong aviation manufacturing base as well. West Michigan Aviation Academy is, in my district, a great training ground for future pilots and aviation mechanics. I am a proud cosponsor of Mr. Collins' bill, as well, the expanded Aviation Workforce Development Act to reauthorize increased funding for critical pilot and aviation maintenance technician workforce development programs.

I am thrilled that the fiscal year 2024 FAA reauthorization builds on the Aviation Workforce Development Grants program success. There is so much more that needs to be done.

Ms. Damato, how can such early investments in educating and recruiting aviation talent ease barriers to entering the industry and alleviate bottlenecks? Additionally, how can Congress better support flexibilities, spoiler alert, to credential career and technical education instructors, including high school aviation teachers?

Ms. DAMATO. Thank you for that question. We have a very robust workforce effort through our Michigan Business Aviation Association. I know they do a lot in that region, and we have gotten to participate in a lot of those efforts they do to get students interested. That is really the key. We have got this opportunity where we know where our kids are from kindergarten to 12th grade. They have a curriculum on all the STEM subjects, and there are opportunities to weave aviation into all of the existing curriculum, and that is a recommendation from the Youth Task Force that is reflected in the reauthorization act. It is critical. I think that is something that FAA's Aviation and Space Education Program can help to develop that curricula to a national standard and get that into our schools. That is how you spark the interest and keep the conversation with those practical scenario-driven examples that make them want to turn that into a career as they complete their education.

Ms. SCHOLTEN. I couldn't agree more. Listening to you talk about your son in vocational training programs, I have got two young sons. They are not quite there yet. But making sure that we have the type of environment culturally, socially that could encourage students to pursue these trades, it strikes me, no matter the amount of funding that we have there, while we have barriers in

society that prevent our students from considering this as a viable career path, we are never going to make progress.

That is why I introduced a bill called the Honoring Vocational Education Act, which changes the way the United States census tracks higher education. Currently, you only get to check that box for higher education if you have completed a college degree. I think it should also include highly skilled, highly educational vocational training programs like this. So, again, I will repeat Mr. Collins' request. Make sure people are paying attention to this. We have got over 65 bipartisan cosponsors on it. It is a fantastic bill.

Mr. Spero, on that note, how can we boost awareness of these nontraditional forms of education to further build the aviation workforce pipeline and enable folks to earn good-paying, highly skilled jobs?

Mr. SPERO. Thank you for the question. I will kind of break this up a little bit. In the Aircraft Certification, Safety, and Accountability Act, this committee authorized \$81 million to bring on aviation safety inspectors and engineers and other folks that are human factor specialists. That was never funded on the other side, so, jobs that are available, should be available by the agency were never funded. They don't have the money, and they never brought it forth.

In the technical operations side of the world, they have brought forth a program that brings on interns now, and it was a good concept. It is a good concept. I met one last week, 2 weeks ago in Chicago, as a matter of fact, that went through the program. Once he graduated school, they brought him on, hired him as an airway transportation system specialist there in Chicago Center. So, there are opportunities that should be expanded within the FAA to provide that to more students, to bring them on through the pipeline, be able to expose them to that environment and make a determination that that is for them or maybe they decide it isn't for them.

But there is certain—right now they are only doing a small number of them, 150 or so across the country. They hire them on as students. They work around their schedules. But they could expand it to allow them to go to more places around the country.

I had one a few weeks ago I spoke to in Oklahoma City, highly skilled, ready to go. He is in an aviation program. He wanted to get picked up in this program but they would only bring him on in Fort Worth, not in Oklahoma City. So, that didn't really work for the young man, and that is an opportunity missed in my opinion.

Ms. SCHOLTEN. Thank you. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Ms. Scholten.

Gentleman I skipped over, Mr. Stauber from Minnesota, recognized for 5 minutes.

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

So, in my previous life, I served 23 years as a law enforcement officer in the city of Duluth, and I saw the technology within the drones become increasingly needed, and I just saw how they could save lives, help officers de-escalate, find lost people, now we are seeing drones being able to be flown out at a high rate of speed to people that may be having difficulty in the water. I think that that is that next public safety step, and I saw it in law enforcement. I

mean, we see it in the fire service. Sometimes those drones can get up and look from the top of the building, see the smoke earlier or look inside a collapsed building.

Mr. Robbins, as president and CEO of the Association for Uncrewed Vehicle Systems International, I am wondering if you could speak to some of the innovative ways drones are enhancing public safety operations from your standpoint.

Mr. ROBBINS. Absolutely, sir, and thank you very much for that question. I actually had the opportunity to testify before your colleagues in the Homeland Security Committee on this exact topic just a few weeks ago. It is definitely a good news story. There is no doubt that drones are saving lives in public safety both for the officers in public safety by keeping them out of harm's way or giving them situational awareness as they arrive to a scene, whether that is an incident or a fire. They have better intelligence to make informed decisions.

It also, as you noted, is allowing emergency response to be much more effective, whether that is search and rescue or delivering an AED or an anti-venom for a snakebite or, as you mentioned, life-saving devices for those that may be caught in a riptide or something. Time and time again we have seen public safety agencies being incredibly innovative with their use of advanced technology, including drones, and getting that out there into the community, and this is definitely a very positive use case. It is only going to get better as the FAA regulations to allow for operations to occur beyond visual line-of-sight are expanded.

And, once that framework is in place, Drone as a First Responder is really going to take off, which is a program where drones are pre-positioned around a community; and when a 911 call comes in, that drone is the first dispatched, and it is on site typically under 90 seconds in the communities that have it now and, again, providing that situational awareness back to the officers who are typically arriving after the drone has already been on site. Once we get that regulatory framework in place from the FAA, this is going to be an even better story to tell.

Mr. STAUBER. I think that we, as a Nation and public servants, have to really push that. I mean, there is a situation in my hometown where a young girl was—there was an attempted kidnapping. It was in an area of town where we could have had the drone up and description of the suspect, you could follow that suspect, whatever building. That is so incredibly important that we use this technology, as you said, rightfully so. It is going to save not only the—it is not only part going to save the safety of the officer and his or her life, but also the suspect and other bystanders. We have such an—the capability, and I am just so excited about the future of what that capability can provide for our communities.

So, my next question is, what is the status of drone manufacturing in the United States, and do we have the workforce to complement the clearly increasing demand for this technology?

Mr. ROBBINS. That is a great question, sir. The drone workforce in the U.S. right now for manufacturing is growing. Candidly, it is a small industry at the moment in large part because, for the last decade, the People's Republic of China has dominated this industry, and most of the drones in service right now in the U.S. have

been imported below market rates from China. They flooded the market with cheap unsecured drones. This is a huge problem and one that the United States Congress is seeking to address.

There is a bill before Congress right now called the Drones for First Responders Act, which would provide higher tariffs on Chinese drones and then funnel the money from the existing and the new tariffs into a grant program so that first responders, critical infrastructure owner and operators, and agriculture can purchase new secure drones, and that would certainly help enhance the U.S. workforce in terms of drone manufacturing by creating that demand that isn't always there right now because many operators are defaulting to cheap Chinese drones.

Mr. STAUBER. I absolutely agree with you. One of the companies that I won't name in the United States makes drones in the United States for law enforcement that can actually smash through windows.

Mr. ROBBINS. Yes, sir.

Mr. STAUBER. You know which company I am talking about?

Mr. ROBBINS. Yes.

Mr. STAUBER. Can you imagine being able to get a suspect in a murder, smash through and get a visual of the inside of the residence for the tactical team?

Mr. ROBBINS. SWAT teams love it.

Mr. STAUBER. It is unbelievable, I am really happy. I think you are on the cusp of things, and I think that by the end of your career you are going to say look how far we have grown and for us and Members of Congress to do the same.

Mr. Chair, I yield back. Thank you.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Stauber.

The gentlelady right here, representing the District of Columbia; Ms. Norton is recognized for 5 minutes.

Ms. NORTON. Thank you, Mr. Chairman.

Ms. Damato, in your testimony, you emphasized the need for a diverse aviation workforce, including the implementation of recommendations from the Women in Aviation Advisory Board to address the significant underrepresentation of women in aviation who make up just 8.3 percent of the aircraft pilots and flight engineers and only 4.3 percent of aircraft mechanics and service technicians.

One of the barriers to entry for women you mentioned is discrimination in flight school. How can Congress and the FAA ensure a more inclusive environment in flight school and the aviation workforce?

Ms. DAMATO. Thank you for that question. What is really important for any training environment—whether it is the local airport, it is part of a flight school, a collegiate program, a trade school—is being able to find the allyship. Of course, culture starts at the top with leadership, so, it needs to be a top-down approach, but what really works for anybody who feels that they are underrepresented or having a hard time finding their allies are the important affinity groups that exist in a number of these places.

At a flight school, you will typically find a Women in Aviation chapter, an OBAP chapter, an NGPA chapter. It is wonderful for the students to join these groups either as a member of them or

as an ally to them and find that they can make changes from within.

I went to a 4-year university and had a wonderful aviation experience at my flight school. I didn't experience anything there that made me feel like an other. Those are stories I have been hearing less and less about now as enrollment in aviation flight school has been increasing, but what does happen is that women don't convert as much as men from student pilot to private pilot and on to commercial. We find that is because they may experience bias or harassment or feeling like they are not welcome. So, being able to find these affinity groups for support to have leadership address the issues is really important.

The Women in Aviation council, the committee that is cited in the FAA Reauthorization Act, is going to be critical to that. That is an opportunity where we can have this group that sunset in 2022 and leaders in our industry roll their sleeves back up and address all of the hurdles that were identified and work with industry and FAA and Congress to address them.

Ms. NORTON. Thank you. Another significant barrier you mentioned is cost. I am pleased that the FAA Reauthorization Act of 2024 establishes a pilot program to provide grants to flight schools for the flight training and education of veterans. Do you think similar financial assistance programs targeted towards women, youth, and minorities could have a positive effect on the diversity of our aviation workforce?

Ms. DAMATO. Yes, ma'am. Thank you for that question. Absolutely. The financial hurdle is real. It keeps people from turning a passion for aviation into reality, and the struggle to find access to the funding that they need to invest in themselves, regardless of what path in aviation they have chosen, is something that gets them to either be successful in their quest through scholarship, access to grant money, loans at varying interest rates, or it has them find that it is just not going to be possible for them, and they go and look at another industry. Those are going to be hugely impactful if we are able to increase funding for anybody who feels like aviation is the place for them that we need to make sure we can make this the place for them.

Ms. NORTON. Mr. Spero, in your testimony, you also cite a lack of sufficient outreach to women as well as minorities and youth within the aviation sector. Another provision I was glad to see included in the FAA bill is a \$60 million investment into programs that will strengthen recruitment and retention of aviation workers, including \$12 million for the Willa Brown Aviation Education Program, which focuses on advancing aviation opportunities in underserved areas. Besides increases, outreach, and education, how else can Congress and the FAA address the underrepresentation of women, minorities, and youth in the aviation workforce?

Mr. SPERO. Congresswoman, thank you for the question. Recently I attended an annual conference for an FAA employees association group called the Technical Women's Organization. And, although it was well attended by some of the senior leadership on the Air Traffic Organization side, I didn't see much of a presence from the Aviation Safety line of business which could lean in very much and help begin to lean into these programs that help recruit

women into these types of jobs. There is only about 4 percent of the aviation safety inspectors right now that are women, and most of them look more like me, and that is really not an acceptable way to continue on and ignore it. They are not really, from my perspective, trying to make a difference when it comes to that. So, the agency could certainly do more of that and get involved in many more of the programs that some of the employee associations are currently working.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Spero.

I recognize the gentleman from Kansas, Mr. Mann, for 5 minutes.

Mr. MANN. Thank you, Mr. Chairman, and thank you for having this important hearing this morning, and thank you all for being here.

As part of the FAA reauthorization we passed this year, vital policy solutions were included to bolster our Nation's aviation workforce. I was proud to work with many people on this committee to ensure that several of these provisions were included in the final bill, such as section 625, workforce expansion, air traffic controller training initiatives, and strengthening the pilot and certification workforces.

Our Nation's economy relies on aviation, whether that be commercial, cargo, defense operations, agriculture. That certainly is true in my State of Kansas. Any hindrance to this system can negatively affect our supply chains, livelihood, and our national security, which is why having strong workforce of these key professions within our aviation industry is of the utmost importance. I applaud Chairmen Graves and Graves—sounds like a law firm, by the way, Graves and Graves—for working to create a reauthorization bill aimed at strengthening these professions.

First question for you, Ms. Damato. In Kansas, there are several schools and programs that offer certifications and degrees in aviation workforce professions. To keep up with the demand of commercial and cargo air operations in Kansas and around the country, it is imperative that these programs continue to grow and succeed in producing the next generation of aviation workforce. Do the schools and programs that you see have the proper tools, resources, and infrastructure needed to successfully train our workforce, and how can this Congress ensure the FAA continues to provide your members with the resources needed to improve these programs?

Ms. DAMATO. Thank you for that question. Absolutely. Our aviation youth, those that are attracted to the collegiate programs, have so many different offerings in front of them. It is not like there is just one choice. They are consumers. They are shopping around, and they're comparing them for a number of different attributes.

The schools themselves need to stay competitive, and the way that they are going to be able to do that is having access to fleets that are equipped with the most modern technology that the students will be using when they complete the program. If they have a maintenance program or an air traffic control program, the experience of instructors that are needed is something that is a concern, but when you lose that experience and that mentoring opportunity, you lose some of the depth there, too. So, it is both—I know Mr.

Montgomery will talk about this, and he did in his testimony, a lot of it I know has to do with financial but also that educational knowledge that we can't lose from those experts in our field that we need to come back and spend time with the students.

Mr. MANN. And a critical time in my view is the aviation workforce has changed a lot in the last 5 years. When you look at what COVID did, you look at the impacts, retirements; times are changing. It is important to recognize these changes to make sure the industry is growing and changing.

Ms. Damato, what new trends are you seeing in workers' needs across the industry, and what initiatives have your members implemented to address these changes? What are you seeing out there that you see that's really working?

Ms. DAMATO. At NBAA, we have this incredible tapestry of young professionals. They are called the YoPros. They were here actually 2 weeks ago for a DC fly-in. A few of them are sitting behind me. They come from all over the country and from all of our members, and they work in 9 or 10 or more different categories where they would find themselves professionals in aviation. They let us know what is important to them is community, having that ability to connect with each other, even if they are not in the same geographical place. They want to be advocates for themselves and where they are locally and regionally but also taking into account how they can change the national landscape. And, of course, just like anybody, they enjoy a really great work-life balance, and they want to be able to have that lifestyle that they get to carve out for themselves as individuals versus feeling they are part of the prescriptive plan. I think our members have been learning from them and have been adapting as much as they can to make that the reality to retain them.

Mr. MANN. That is great. Last question for you, Mr. Montgomery. Commercial air travel has been increasing greatly, and that is a great thing. The need for skilled workforce is imperative, but keeping air travel efficient and successful as the demand hopefully continues to grow, what are your plans to add additional programs at your school or plans to grow current programs at your school?

Mr. MONTGOMERY. Thank you, sir, for that question. We plan to expand into unmanned aeronautical vehicles both large and small, and then we want to start up an A&P program, air traffic controls through the AT-CTI program, and then, from there, we want to acquire more aircraft, because we are turning away too many students that want to be airmen.

Mr. MANN. Great. Thank you all for being there.

With that, I yield back the balance of my time.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Mann.

I recognize the gentleman from Georgia, Mr. Johnson, for 5 minutes.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman, and I thank the witnesses for your testimony today. And the U.S. aviation industry will experience significant growth contributing an estimated \$1.37 trillion to our GDP. The \$60 million annual investment under the Federal Aviation Administration Reauthorization Act of 2024 is our bipartisan commitment to meeting this growing demand. As we prepare for the surge in aviation in Georgia, Delta

Airlines is leading the way by providing equitable opportunities for everyone to contribute and benefit from the industry's prosperity. They lead the charge as the Nation's most significant aviation industry employer. We must support airlines like Delta through initiatives like the Willa Brown Aviation Education Program to close representation gaps. This legislation allocates \$48 million through fiscal year 2028 with 20 percent of it set aside from the FAA's Workforce Development programs for recruitment initiatives in lower income and underserved communities.

Mr. Spero, in your testimony, you highlight the ongoing challenges of recruiting and retaining sufficient aviation talent within the FAA. These challenges include competitive salary disparities with the private sector, lengthy hiring processes, and inadequate staffing models that fail to accurately predict workforce needs. How do these workforce challenges, particularly recruitment and retention, impact day-to-day aviation operations and safety within the U.S. airspace system?

Mr. SPERO. Thank you for the question, Congressman. So, in the aviation safety inspector world over in AVS, this manifests itself in inspectors having to manage multiple certificates for various in what we will call the charter airline world, the 135 operators. We will have inspectors that have to manage many of them. In some locations, some of those certificates have not yet been assigned to anyone because of the shortage of inspectors.

I was on a call last night with some folks that talked about how 90 of those certificates in their office have not been assigned to anyone because of the attrition in their office, where they don't have enough people to do the work. You take this into the technical operations world and you have got mission support as well. We have procedures specialists, folks that draw maps for air traffic control, develop procedures. There is not enough of them either. We lose people, and we are not able to replace them, and we don't have that pipeline coming in. We are not prepared to replace someone when they leave, as I pointed out earlier.

In technical operations, that attrition has gone on for almost 10 years, and it manifests itself in situations like we talked about in Chicago. And that is just the tip of the iceberg. Every day that we are not working on systems across the National Airspace System for air traffic control is another day we may not have uncovered a problem.

Mr. JOHNSON OF GEORGIA. Thank you. Can you elaborate on specific provisions of this FAA Act that are particularly crucial for addressing the staffing challenges?

Mr. SPERO. Indeed. Thank you. So, as I mentioned earlier, I squeezed this one in a little earlier, but the Aircraft Certification, Safety, and Accountability Act, this committee authorized \$27 million consecutively over 3 years. That money was never appropriated. That was to recruit and retain aviation safety inspectors. So, all the good intentions of creating all of these authorizations, if they are not funded, the agency is not going to hire the people.

Mr. JOHNSON OF GEORGIA. Thank you.

Ms. Damato, in your testimony, you highlighted the expansion of Aviation Workforce Development Grants and the initiatives like the Willa Brown Aviation Education Program to support underrep-

resented populations. Can you elaborate on how these programs will address the specific barriers faced by women and economically disadvantaged individuals seeking careers in aviation?

Ms. DAMATO. Yes. Thank you for the question. That 20 percent is going to be critical. We need to get to the HBCUs, minority-serving institutions, and those that are interested in aviation but aren't currently getting access to the grants or aren't able to get as much allocated towards them as they would like. It is going to be impactful for them.

As we all know, we need so many people to enter aviation to be able to keep up with the demands for all of the jobs that exist now and that will exist. And we have to engage. The other 50 percent of the population through women and all of the minorities that see aviation as something that—aviation is for everyone. And so, making opportunities for everyone to be able to be in aviation is critical, and that is reflected in the great work of the Reauthorization Act of 2024 and specifically calling out the Willa Brown Education Program as one of those.

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

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Johnson.

I recognize the gentleman from New York, Mr. Molinaro.

Mr. MOLINARO. Thank you, Mr. Chairman.

I appreciate all of you testifying today. Mr. Spero, I am glad you're at the table. It was about a week ago in this very room we had a hearing where we were talking about workforce shortages and a gentleman from a think tank suggested that the only way we could expand access and broaden access to workforce was to undermine labor protections and to ignore collective bargaining agreements. I assure you that I had opposed that theory last week and would continue to do so this week.

I don't have a question for you just yet, but your testimony is helpful. I come to this conversation having spent the last 12 years as a county executive in New York State where I managed the busiest general aviation airport in the State of New York, 48,000 takeoffs and landings each year. But beyond that, we developed in partnership with a community college, our community college, a pilot A&P degree program, but also a mechatronics certification program, so, I know at least the demand that we have to educate this next workforce. And, despite this country's capacity to expand our aviation sector, we know that the bottlenecks and the lack of access to workforce is one of our if not the greatest challenge in doing so. So, each of you obviously comes to this with a degree of experience.

When I came here to Congress, we wanted to work to effectively ensure adequate funding for aviation workforce development programs. I introduced the AIR Act, the Aviation Investment and Recruitment Act. I was thrilled and thankful to Chairmen Graves for ensuring that this bill is embedded in the FAA reauthorization and further doubles the FAA's workforce development grant programs by, again, another \$20 million.

I am going to start with Ms. Damato and Mr. Montgomery. Can you just speak broadly, if you would like, to the importance of the increased funding to these grant programs and how we might better make use of those grant programs from your perspective?

Ms. DAMATO. I know Mr. Montgomery talks about this as well. I see it as a collegiate aviator and as a parent of a collegiate aviator. You want to make sure that your students have access to modern fleets, that they are able to be maintained in a way that doesn't take them offline, and you have more students than you have access to airplanes.

Same thing with the scheduling. We can't control the weather, but knowing that the airplanes are ready and able to fly, that they are well maintained, the equipment is working, and that you have enough instructors who are able to teach your students is really important. If any of those things go away, again, we can't control the weather, but everything else, that leads you into a position where you have got students who have paid money to consume a product that they are not able to access. And so, this funding could allow for an increase in the number of those concerns to change that landscape.

Mr. MOLINARO. Thank you for that.

Mr. Montgomery, I guess maybe more specifically, how might these dollars broaden and widen your programming?

Mr. MONTGOMERY. Thank you, sir. If we can get the funding, we are going to use that in aircraft. We are going to use that in equipment. What that does is it takes my hourly rate and drops it. The further down where I can push it, the more Americans I can serve. Right now there are so many that can't afford flight, because every maintenance lease and insurance is in that air flight-hour. With those grants, we will be able to take that down and open up the doors, buy more aircraft. We will be able to service better.

Mr. MOLINARO. Yes. When we launched our program, it was oversubscribed the semester we started.

Mr. Robbins, as you likely know, I worked hard to secure the Future of Aviation Act into law, thankfully, a bill I drafted to allow Federal dollars to be used for airports to build out advanced air mobility infrastructures, such as eVTOL stations in regional airports like the ones I represent in upstate New York. Advanced aviation is a critical opportunity to grow capacity. And I am grateful that we are able to include this in the FAA reauthorization. Can you just speak to the importance of ensuring greater—more employees, enough employees, and in greater training programming to allow for this technology to build out in a more timely fashion?

Mr. ROBBINS. Absolutely. Thank you for that question and thank you for your leadership, sir, in getting that provision in the FAA reauthorization bill. There is no doubt that the electric vertical takeoff and lift and broader advanced air mobility industry is emerging in the U.S. right now, and Congress has expressed a desire for the U.S. to be the world leader and is going to open up significant economic opportunities to areas like yours and everyone along the committee's by opening up infrastructure that maybe is underutilized or not being utilized at all right now to be a place where aircraft can take off and land that is disconnected from traditional legacy aviation centers. There is tremendous workforce opportunities associated with expanding mobility. There is also tremendous opportunities with all of the jobs that come along with that, both the core jobs in aviation, whether it is pilots or flight op-

erators or mechanics or manufacturers, but also the second- and third-order effects of jobs that open up when advanced air mobility enters into an underserved region.

Mr. MOLINARO. And advanced air mobility is a great opportunity to broaden apprenticeship programming as well, so, thank you all.

Thank you, Mr. Chairman. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Molinaro.

The gentleman from California, Mr. DeSaulnier, is recognized for 5 minutes.

Mr. DESAULNIER. Thank you, Mr. Chairman. Let me just say you look healthier and happier recently. I don't know what has changed in your life, but I wish—no, I am not going to do the same thing.

I have two comments, or questions, I should say, and I will put them in one package, and I would like Mr. Spero to start and maybe Ms. Damato to make any comments. The first comment is based on your reference to human factors. I have spent a lot of time on this for flight controllers at SFO. I am from the bay area. After the near-miss years ago, we almost had a huge aviation disaster. Learning best practices, and the national labs, we have done a lot of this on nuclear risk assessments and making sure that all this new technology also has a support of human factors. How we train people, while they are being trained technically for all this great innovation, which we have to be careful about, as a Member from the bay area, not to be oversold, that this technology sometimes is a little bit oversold—but how do we make sure that the human factors are incorporated as we get young people to go in the fields, whether it is a pilot, air traffic controller, particularly where it is a challenge in metropolitan areas like San Francisco where the costs don't always match the benefits because of the costs in the area? That is the first question generally.

Secondarily, we worked on programs again in the bay area when we in California had put so much money and success in the UC/CSU system and the community college system in college degrees, master's degrees, but we had to go back in and rebuild our career tech. One of our real successes was a bipartisan effort with then-Governor Schwarzenegger. I was a chair of the senate labor committee, to do academies, so, in my old district in Richmond, California, high unemployment rate, lots of poverty, we started with a small academy that was affiliated. So, you get apprenticeship credits, young kids in high school with the building trades in California, and then they went right to school in this instance in refineries and chemical plants in northern California. It has been such a success at Kennedy High School in Richmond, it now has 850 kids in the program.

So, the two questions are, how do human factors in new technology, how do we prepare for that to make sure people are being trained properly with human factors? And then, secondarily, how do we get more academies like this to particularly get low-income communities, where the unemployment rate is higher, to partner with the trades, unions, or with businesses and workforce development boards? I have taken up half my time with the two questions.

Mr. SPERO. So, you would like me to speak to human factors. So, any new systems that go out there, any new programs, airplanes, whatever it might be, you have to collect data. You have to have

enough information to be able to make informed decisions. You have to have people that understand the work, people that do that sort of thing to be able to depend upon them to tell you what works and what doesn't work. I am not a human factors expert, but there is a lot of science that goes into it. That investment needs to be made on the front end.

When it comes to the FAA and when it comes to some of the things that we work on in the technical operations world, some of those human factors don't come into play, and on the back end, we wind up going through voluntary safety reporting programs to say this isn't right, that isn't right, and now we have to mitigate those on the back end.

The idea behind a good human factors program is it mitigates those problems on the front end and doesn't cause it later on where employees have to report it, and then go through a process that sometimes they get a lot of pushback because a lot of money has been invested in something that now people are complaining about and say it doesn't work. So, that causes a lot of difficulty.

But to be able to be involved in those things for us as a labor union on the front end would be very, very important.

Ms. DAMATO. Thanks for that. I am not a human factors expert. I don't know that I have a comment for you now, but I'd be happy to get back to you on that, but regarding the collaboration of what can happen, the Youth Task Force recommendation was adopted in the FAA Reauthorization Act for that national council made up of the nine regional councils that the FAA has already divided into nine regions. That is Aviation and Space Education Office, AVSED. Those regional program analysts know their regions the best. They know where the underserved areas are and what deserts exist around them where there could be some great opportunity; are there employers in the area that would want to partner with the students for apprenticeships or pre-apprenticeships? It is critically important, and I think the work of the national strategic plan for aviation workforce development that is specified in the bill is what needs to happen to take this to the next level.

Mr. DESAULNIER. Nice job. It is like we rehearsed this. You did very well.

Ms. DAMATO. Not at all.

Mr. DESAULNIER. Thank you, Mr. Chair. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you. I appreciate it.

The gentleman from Indiana, Mr. Yakym.

Mr. YAKYM. Thank you, Mr. Chairman, and thank you to our witnesses for being here today. This is the first Aviation Subcommittee hearing since the FAA reauthorization became law, so, I first want to thank the chairman, the ranking member, the staff, and everyone who has put such hard work to get a strong, collaborative, bipartisan bill to the President's desk. Though that journey may have seemed long between all the hearings and markups, the delays in the other body, the President's signature, it is really just the beginning. Now we need to make sure that the bill is implemented correctly and in a timely manner while in the meantime continuing to explore and grapple with some of the foundational questions impacting our aviation industry.

This hearing speaks to both of these goals. The FAA reauthorization included important investments in the aviation workforce that we want to see implemented. But there are also still a number of issues impacting the aviation workforce that warrant continued examination.

Mr. Robbins, the FAA reauthorization requires the FAA to issue a notice of proposed rulemaking on beyond visual line-of-sight regulations by September. Can you please speak to the importance of the FAA delivering this on time both for the industry and for the workforce?

Mr. ROBBINS. Yes. Thank you for that question, Congressman Yakym, and we appreciate your leadership on this issue. The bill, as you mentioned, the reauthorization bill gave the FAA 4 months to publish the notice of proposed rulemaking for beyond visual line-of-sight. So, it is a draft rule. So, we are looking at September 16th in order to meet that deadline, and we certainly encourage this committee to continue its oversight and hold the FAA accountable to that deadline.

The FAA then has 16 months after issuing that rule to then issue the final rule. Our industry is ready to go. The technology is there. It has been proven in areas where the FAA had allowed operations to emerge using a waivers and exemptions from the rule, but without the rule there, it continues to be incremental progress. Much of the country as a result is not seeing the benefit of drones, whether it is, as we discussed with your colleague, for public safety or for infrastructure inspection or other operations like drone delivery.

There are lots of workforce opportunities, and this is a great opportunity for the U.S. to set the record again as the leader in aviation safety by getting this rule right, so, we are ready to work with FAA to get this done and we ask that the draft rule come out by that September 16th deadline, and it is a draft, so, let's not let the perfect be the enemy of the good, because then we are going to have 16 months for everyone to comment on it and then issue that final rule.

Mr. YAKYM. Very good. Thank you. Also, Mr. Robbins, the FAA reauthorization additionally directed the FAA to establish a drone education and training grant program to make grants available to educational institutions for workforce training on small unmanned aerial aircraft systems. How important will grant programs like this be in getting people interested in a career in aviation?

Mr. ROBBINS. Thank you for that question, Congressman. Section 913 is a great opportunity for Congress to provide grants to universities to build programs that are desperately needed to build the workforce both for the UAS industry and the drone industry but also for the FAA to recruit from, to bring in the needed talent to help ensure that they have the expertise on UAS integration. It is a win/win for industry and it is a win/win for the FAA.

Unfortunately, based on the draft appropriations bill so far, we have seen that, while you have authorized that program, it has not yet been funded, and we are hopeful that that is something that is corrected as the appropriations process continues. Thank you, sir.

Mr. YAKYM. Great. Thank you.

And, Ms. Damato, do you agree with the premise that, as some groups claim, there is no pilot shortage?

Ms. DAMATO. I know that we have a number of jobs we need to fill in this industry and a number of jobs that we don't even have a harness around how many we are going to need as we move forward with new technology. We need anyone who is interested in aviation to pursue that career path now, and we will help you find your why.

I went to pilot training. I only wanted to be a 121 pilot. Turns out, after graduation and after flight instructing, I found there was an incredible opportunity for me in business aviation, and I followed that path.

But we need to bring these pilots, technicians, everybody else in, and then figure out what their careers are going to look like. My collegiate aviator right now, I have no idea what the landscape will look like for him when he graduates, but it is going to be a ton of opportunities for him if he works hard and makes the right connections.

Mr. YAKYM. Great. Thank you for that.

And with that, Mr. Chairman, I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Vice Chairman. I appreciate that.

I recognize the gentleman from New Jersey, Mr. Menendez, for 5 minutes.

Mr. MENENDEZ. Thank you, Mr. Chairman.

Thank you to our witnesses for their testimony this morning.

I am proud to have worked with my fellow members of this committee to pass the bipartisan FAA Reauthorization Act of 2024, which contains many provisions that are aimed at addressing our aviation workforce needs.

We are hearing about workforce shortages across all sectors, but in the aviation industry, workforce shortages have serious implications, not just for the flying experience, but for our safety.

In New Jersey's Eighth Congressional District, flyers traveling to and from the New York-New Jersey area are experiencing the impacts of the national air traffic controller shortage. Just last week, the FAA slowed flights in and out of Newark Liberty Airport in our district. At one point, there were 40 aircraft stuck, waiting to depart on an otherwise clear evening.

These delays are just the beginning of reduced service and delays that are expected to impact our airspace for the rest of the summer.

Mr. Montgomery, your testimony notes that Louisiana Tech University is focusing on addressing the pressing issues in the aviation industry, including providing training to air traffic controllers. Do you see any recurring barriers to participation in air traffic controller training, and how have you addressed these barriers?

Mr. MONTGOMERY. Barriers to the training, from our perspective, would be more about the simulators and actually having one of those professionals come and teach at our location.

At this time, I don't have the expertise of the air traffic controller on hand, but I do have enough to get through the standard processes. So—

Mr. MENENDEZ [interrupting]. Let me ask you a question with respect to something that the FAA is currently standing up. It is an enhanced Collegiate Training Initiative program that will allow qualified graduates from colleges that participate to bypass initial training at the FAA Training Academy in Oklahoma City.

The training academy can currently handle about 1,800 trainees per year, which has been a chokepoint in the process to place new air traffic controller trainees into their facilities for certification.

I am wondering if Louisiana Tech is exploring this option, and do you think this approach could hold promise to enhance a pipeline of qualified air traffic controllers?

Mr. MONTGOMERY. Yes, sir. I think anything will reduce the workload on them. I mean, they have 5 weeks off, but us providing them and other universities is a significant resource reduction.

Mr. MENENDEZ. Appreciate that.

I also want to focus on recruitment and the importance of ensuring airport-adjacent communities, such as Newark and Elizabeth in our district, which often experience the impacts of airport operations most acutely, also see the economic benefits.

Airlines and labor unions continually raise the issue of an aviation maintenance technician, or AMT, shortage. AMTs are tasked with ensuring that aircraft are safe and meet the highest standards of airworthiness. These are well-paying, often union jobs, that don't require a 4-year degree, and we should focus our recruitment efforts on local communities that have so much to offer.

For any of the witnesses on the panel, how can we better connect airport-adjacent communities with careers in aviation?

Ms. DAMATO. I would start with the high schools.

Mr. MENENDEZ. Yes.

Ms. DAMATO. There are career and technical education high schools, especially in New Jersey, in every county. I am not sure how many of them offer aviation programs, but if there are employers in the area who would take them on as apprentices so they can do the school-to-work program as they gain the stackable credentials, then you have got people from their local area who are getting trained locally, they are part of their community that wants to employ them afterwards, and they are making an investment right where they grew up, which I think would be pretty incredible.

Mr. MENENDEZ. Appreciate that.

Any other panelists?

Mr. Robbins, how would you, in terms of introducing exposure to the aviation industry at an earlier point and some of the cost barriers especially for local high schools, elementary schools, do you believe that drones and the use of drones in high schools is a more affordable, cost-efficient option to give people some exposure, not just to this burgeoning industry, but also to the larger aviation industry?

Mr. ROBBINS. Yes. Thank you for that question, Congressman.

Absolutely. We actually partner with the FAA on the Know Before You Fly program, which was extended in the FAA Reauthorization Act, which we appreciate your leadership on. That program, one of its initiatives is actually sending drone kits to schools so that students can become familiar with the technology, familiar with flying, and sort of learn the fundamentals associated with

drones, which hopefully sparks an interest in an aviation career. Maybe it is in drones, maybe it is in advanced air mobility, maybe it is in another segment of more legacy aviation.

The goal behind that program is to sort of spark that excitement and to build a little bit of foundational knowledge that they can build upon in later programs.

Mr. MENENDEZ. That is great. I appreciate your work on this—

Mr. ROBBINS [interposing]. Thank you, sir.

Mr. MENENDEZ [continuing]. And we will continue to partner with you.

And with that, I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Menendez.

The other gentleman from New Jersey, Mr. Van Drew, is recognized for 5 minutes.

Dr. VAN DREW. Thank you. Yes, we have got more than one from New Jersey, right. It is good to be with you.

Staffing shortages are plaguing the vast majority of industries in our country right now, especially aviation. You know this. It is what we have been talking about all morning.

It is why it is essential that the measures in the FAA Reauthorization Act of 2024 are carried out to the fullest extent of the law to provide the necessary and appropriate staffing levels to keep American travelers safe. It is great we have it in the law, but we also have to enforce the law.

I am excited that my proposed amendment to make the FAA Technical Center permanent and, more specifically, dedicated to advanced aerospace, has been enshrined into law as well.

I want to thank Chairman Graves, Ranking Member Larsen, in the full committee; Chairman Graves and Ranking Member Cohen on the Aviation Subcommittee, for their hard work to put this reauthorization together in general. It was a pleasure working with all of them and all of you.

The newly named FAA Technical Center for Advanced Aerospace will be a permanent fixture in the southern New Jersey community, providing a steady stream of jobs and opportunity for technical advancement aimed at bettering the safety and the capabilities of air travel. By streamlining and optimizing the FAA's organizational structure to facilitate as much technological advancement as we possibly can, the American aviation industry won't only be able to compete with China, they will be able to supersede China, and they will remain the gold standard for advanced aerospace development and practice.

Now that the FAA reauthorization has been signed into law, as I said, and I will probably say over and over again, it has to be enforced.

As a side note here—not really a side note—something I think of interest. During a recent visit to the Atlantic City Airport, I discovered that the flight control tower—I was amazed at this—that they still use floppy disks. Floppy disks. They have been done for for a quarter of a century. They use them for their IDS4 systems. It is a piece of technology that is actually from 1994. We researched it. It is responsible for tracking all reference information for flight patterns, weather conditions, and other items integral to air traffic control.

Floppy disks. They haven't been used for a long time, and they are obsolete. And thank God the tech center is planning to roll out an updated system to replace this technology in fiscal year 2025.

But this is not just happening at the Atlantic City Airport. It is happening across the country. This technology is still used across the country. It is obsolete. It is obsolete technology.

It also greatly exacerbates workforce issues. It takes hundreds of thousands of hours to update the information in the IDS4 system, which requires pulling personnel from other departments that are already facing these significant staff shortages.

How can places like the FAA control towers be behind the times so much technologically? Who wants to answer that question?

Mr. SPERO. I am all ready to jump in here, so, thank you.

Dr. VAN DREW. You were ready. I could tell.

Mr. SPERO. I am ready.

Dr. VAN DREW. Body language.

Mr. SPERO. Let's go with this one. Thank you for that.

Look, it takes the FAA many years to implement new systems. They have waterfalls. They have the process that they have to determine they need a new system and give to the program management organization to build a contract and send it out to a contractor, and it takes 6 or 7 years to put out 1 system across 400 airports in the country, is antiquated.

We have a workforce out there that—in technical operations—if properly staffed, properly trained, can implement multiple systems at multiple times, and you are not sitting around waiting for this to get done and continue to be funded while there are dozens and dozens of programs that are running, implementing a variety of different systems.

If we begin to implement systems using the operational workforce that we have, that are the best at doing this at every airport, we wind up getting way out in front of this, and 10 years from now, we are not talking about—

Dr. VAN DREW [interrupting]. Are these internal actions that take place? Does this require—this doesn't require legislation, right? I mean, this is something—

Mr. SPERO [interrupting]. It would require staffing and funding, and you do have a bit of a fine line here—a bright line between implementation money and operations money that the FAA has to figure out how to manage.

But at the same time, that is the solution to the problem: use the thousands of employees we have across the country to not only staff them well enough so that they can do this work and that work. We can walk and chew gum. Just give us the opportunity.

Dr. VAN DREW. So, I would look forward to—and I will close with this—I have other questions, but I will submit them for the record. I would look forward to working with you all on that, and I know there are other Members here who would as well if we really do want to be on the cutting edge.

I mean, it is not like we were a little behind there. And I am not being critical of anybody. I love the FAA. I know the people that work there well. I am supportive. It is just that it is not fair to them, it is not fair to the United States of America, it is not fair to the air industry. It just isn't a good thing.

So, I would love to work on that. Please get in contact with my office and my people, and I know there are other folks as well.

With that, Chairman, I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Van Drew.

I recognize the gentlelady from Nevada, Ms. Titus, for 5 minutes.

Ms. TITUS. Thank you, Mr. Chairman.

And thank you, Mr. Robbins, for acknowledging earlier our work together. It has been a pleasure. You are a real resource for our caucus, and I thank you for your help there. And the chairman's leadership. We have worked well together, and this industry is going to miss you, I have to say, Mr. Graves. So, just putting that on the record.

I would like to go back to some of the grants in the FAA reauthorization program. There is one that Mr. Stanton introduced. It is called Drone Infrastructure Inspection Grant. I was pleased to cosponsor it. I want it to get off the ground, no pun intended, but we have some programs like that in my district, and I think other areas could benefit from it.

So, as the FAA rolls out programs like that, do you have any recommendations for how they might improve that process, get the word out, assist with application processes?

Mr. ROBBINS. Yes, absolutely. Thank you so much, ma'am. And, again, thank you for your leadership as cochair of the Unmanned Systems Caucus. The two of you, you and Chairman Graves, have done terrific work together, and we appreciate it.

The Drone Infrastructure Inspection Grant Act is a terrific bill that was wrapped into the FAA reauthorization, and the UAS industry is extremely grateful for that.

As we all know, across the country, our Nation's infrastructure is struggling. It is crumbling. There is lots of inspection required. We don't have the workforce and the number of people to be able to do it and to do it safely.

And the Drone Infrastructure Inspection Grant Act is a program to allow States to use drones and hire the workforce to use those drones to engage in critical infrastructure inspection.

Now, the program has only been authorized about 2 months, so, some baby steps have taken place but not a whole lot yet. But we stand ready to work with the Department of Transportation, the FAA, and State DOTs to build awareness about this program and to ensure it is implemented.

And we are pleased to see that, while not fully funded, it did receive near fully funding in the appropriations bill, and we are hopeful that we can get that full funding before the appropriations are done.

Ms. TITUS. Great. Will you just keep us kind of posted on that as it moves forward?

Mr. ROBBINS. Absolutely, yes, ma'am.

Ms. TITUS. Well, thank you.

And speaking of out-of-date things, there are real challenges in modernizing facilities and equipment. The budget request this year was nearly \$500 million increase for this equipment and facilities. And there is a new proposal—I believe it is called the Facility Replacement and Radar Modernization program—that is \$8 billion over the next 5 years, replacing old, aging radar systems.

The average age for many of these facilities is 60 years old. You heard about the floppy disks.

I just wonder, Mr. Spero, your members are doing the critical maintenance and repair of these systems of technology. What implications do you think this increase will have for your workforce, and what are the areas that need the greatest amount of investment?

Mr. SPERO. Well, everything needs a great amount of investment, and I think it depends on the systems you are talking about. We do have a blend of very modern technologies that we take care of, state-of-the-art things. At the same time, there are legacy systems out there, and part of that has to do with the process that the agency uses to replace this. It is going to take a very long time to replace all of the radar systems that they are talking about.

But at the same time, the life cycle for those systems is out of date. It is difficult sometimes to get parts for these systems. You all have been talking about as these—for a little while now, Airport Surface Detection Equipment. Nobody wants to make them. And the fact of the matter is, it is too expensive to put them out there. You have to find other technologies.

So, the impacts on our folks clearly are, we are maintaining legacy systems right now, and at the same time, they are implementing and we are maintaining new technologies.

And across the board, we are having to get involved in various electronics disciplines in the tech ops world, and that is not the best way to develop proficiency. And now we have got to go to training as well, and Oklahoma City is where all the classes go.

So, now we have a backlog of training that it takes to get to go to school out there and get all the folks certified. So, the process right now is enormously time-consuming, and it is very costly.

Ms. TITUS. So, it is a good investment, but it comes with challenges and new demands on your workforce.

Mr. SPERO. It does, and it takes opportunity—you have to think outside of the box a little bit in some way, shape, or form to find ways to implement these things more quickly.

Ms. TITUS. Ms. Damato, in your world, do you find this investment in equipment at all? How is that affecting your folks?

Ms. DAMATO. Yes, ma'am. Absolutely. We need modernized equipment everywhere, and also for the training environment. We need to be able to train the youth who are in the programs right now and who are going to be working with us. They want to work on the latest and greatest technologies and be proficient in it. That is what they do in their personal lives outside of the industry, so, they should expect to work with the same type of equipment when they have the opportunity in their profession.

Ms. TITUS. I think going into the high schools and talking about the excitement of this new technology and the careers that you can have is just really important. I am glad you all are doing that.

Thank you, Mr. Chairman. I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Ms. Titus.

I recognize the gentleman from New York, Mr. D'Esposito, for 5 minutes.

Mr. D'ESPOSITO. Thank you, Mr. Chairman. And good morning—or good afternoon, everybody.

Air traffic controllers are the backbone of our national aviation infrastructure, safeguarding the journey of nearly 100,000 flights per day. Their skill is essential to upholding the standards of safety and efficiency in American aviation and deserve to be treated as such. Unfortunately, this is the opposite of what is happening because of the FAA's failure to address the staffing shortfall at the N90 TRACON facility and other facilities across the Nation.

The FAA began issuing forced relocation letters to 17 controllers at N90 to Philadelphia in the next 12 weeks. July 28 is the first day for them to operate in Philadelphia.

Last year, I secured language in the House version of the FAA reauthorization plan that safeguarded jobs at N90, which falls right in the center of my district. My language would have prevented the FAA Administrator from requiring forced transfers from N90 to Philadelphia and prevented the FAA from reducing staffing levels of N90.

While this was unfortunately removed from the final FAA reauthorization bill in the Senate, I was glad to see other provisions that would address the shortfall included, but want to ensure that these provisions help the N90 facility.

So, to Ms. Damato and Mr. Montgomery, as you know, section 437 directs the FAA to set the minimum hiring target for new air traffic controllers for each of the fiscal years 2024 through 2028. It also directs the Transportation Research Board to identify the most appropriate staffing models for future air traffic controller workforce needs, and requires the FAA to revise its staffing standards no later than May 16 of 2025.

From your industry perspectives, how do you believe the increased hiring targets for air traffic controllers will impact operations at critical and complex facilities like the N90 TRACON in the long term?

Ms. DAMATO. Well, thank you for that question.

And obviously, our members operate in N90 in the Northeast, and all around the country and the world, at great volume. So, we appreciate that we need the staffing at all of the airports and in all of the centers, and we don't want to be experiencing delays, just like any other of the traveling public, because the staffing can't meet the demands of the industry.

Mr. MONTGOMERY. Thank you, sir. I think we need to forecast better. We keep on hitting low and high trends with aviation with all our professions. If we could forecast better, if we could train to those standards, we can produce to those standards. So, in the end, I think it is a forecasting issue.

Mr. D'ESPOSITO. Ms. Damato, while these provisions will help in the long term, given the imminent forced relocations at the N90 facility, in your opinion, what else can be done to address the staffing at N90 TRACON in the short term other than forced relocations?

Ms. DAMATO. This is just not my area at NBAA. I would be happy to get to my colleagues near traffic services and get back to you after the hearing.

Mr. D'ESPOSITO. That would be great.

Mr. Montgomery?

Mr. MONTGOMERY. I am probably not the right person to ask. For the last 30 years, the Government told me to go somewhere, I went somewhere.

Mr. D'ESPOSITO. So, obviously, this is an issue that I know is specific to my district and the N90 facility, but I believe that it is a problem that is happening across the country. And I just—I think that there are so many other opportunities for the FAA to find ways, people in training, and send them to places that we need it, instead of taking hard-working air traffic controllers that have been in these facilities for so long. People that have roots in the communities that they live in, people who have, unfortunately, children that need certain care that they can only get here in the— or back home in the tristate area, are now being forced to relocate.

So, I thank you all for being here today.

Mr. Chairman, I yield back.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. D'Esposito.

I recognize the gentlelady from Oregon, Mrs. Chavez-DeRemer, for 5 minutes.

Mrs. CHAVEZ-DEREMER. Thank you, Chairman. Good afternoon. I wasn't sure if it was still morning.

Earlier this year, through my work on the Education and Workforce Committee, the Flight Education Access Act was included in the major student loan reform package. This commonsense proposal closes the pilot workforce gap by letting prospective pilots access the same loan opportunities available to students at traditional 4-year schools. It increases the total maximum amount of Federal direct unsubsidized Stafford loans an eligible dependent may borrow to \$111,000, and it increases the maximum amount for independent students to \$137,500, and increases the maximum amount of Federal direct Stafford loans to a total of \$65,000.

This is a huge step in resolving the shortage of pilots and signals to those concerned about the high cost of commercial pilot school that their Representatives want to help. Last February, FAA Administrator Whitaker called this bill a very useful initiative.

Mr. Montgomery, I would be interested to hear your thoughts on this bill as well. So, here is the question: If prospective pilots could access these types of student loans and use them when completing the FAA's regulated training, would that help improve the pilot shortage?

Mr. MONTGOMERY. Yes, ma'am. My perspective is—and thank you for the question—is our dropout rate is 68.2. The primary reason is money. There are so many Americans that cannot afford flight, that any help you can give them, it is going to increase production.

Mrs. CHAVEZ-DEREMER. Mr. Spero, I will ask you your thoughts as well on the student loan assistance for pilots in our bill. Do you believe this will help with recruiting, one, and two, do you see any other barriers to recruitment as well that pertain to flight school?

Mr. SPERO. So, not necessarily my area of expertise when it comes to the private sector and where they go, but from the perspective of opportunities within the FAA, as folks get more seasoned in aviation jobs, the opportunities to become aviation safety inspectors from that world could be opened up tremendously if we could get the funding to assure that we can hire the inspectors that

we need, and get the numbers correct so that we know how many aviation safety inspectors we need across the country.

Those opportunities are part of the pipeline for people to advance into jobs.

Mrs. CHAVEZ-DEREMER. Thank you.

Flight school can definitely be expensive, especially with the amount of hours required for prospective pilots to meet. The United States must make sure that the best pilot training and experience counts.

Every pilot in America who flies in a Cessna 172 on a solo recreational flight gets to count those hours, and every cropduster does as well. However, neither of them has probably ever flown into Portland International or Atlanta Hartsfield-Jackson.

As our regulations are presently written, an airline first officer at a commuter airline is often unable to log his hours, even though he is part of the professional flightcrew flying paying passengers into a major hub and participating in every aspect of the aircraft's operation.

So, Mr. Montgomery, final question: Do you believe this to be a regulation that needs to be changed? And would such a change help alleviate the pilot workforce issues our industry currently faces?

Mr. MONTGOMERY. Yes, ma'am. Thank you.

I do believe we need to look at more ways to document and get those pilot charge hours, and that includes also large UAVs, whereas we are flying drones that are bigger than 55 pounds, they should be counted.

Mrs. CHAVEZ-DEREMER. OK. Thank you.

With that, Mr. Chair, I will yield back my time.

Mr. GRAVES OF LOUISIANA. Thank you, Mrs. Chavez-DeRemer.

I now recognize myself for 5 minutes.

Mr. Montgomery, following up on Mrs. Chavez-DeRemer's question, if I just heard you correctly, you said you had a dropout rate of 68 percent. Is that what I heard?

Mr. MONTGOMERY. Yes, sir.

Mr. GRAVES OF LOUISIANA. Can you talk a little bit about prevailing issues or reasons as to why that is such a high percentage?

Mr. MONTGOMERY. Yes, sir. Thank you.

Most of the students that I have coming through there, they struggle to go to school full time, work full time, and then they spend their entire week's paycheck on a couple hours of flight.

So, what happens is it is a negative downward spiral, where they can't get enough training each month because they are trying to live, they are trying to go to school. So, they take private pilot into a year or two later, and they are still in private pilot because they can't afford it.

Mr. GRAVES OF LOUISIANA. So, basically, cost and time constraints are two issues that are big obstacles to being able to finish the program?

Mr. MONTGOMERY. Yes, sir. Those are the ones we can fix. The other obstacle is, it takes a lot to be a pilot. You have to multitask, you have to be able to communicate, navigate, stay in the air. So, there are other things that are out there, but the money factor is something we can fix.

Mr. GRAVES OF LOUISIANA. In regard to that 32 percent that does stay in the program, can you talk about the percentage of those that may stay in Louisiana versus those that leave and why you believe we are unable to maintain a larger aviation workforce in the State?

Mr. MONTGOMERY. Yes, sir. The majority of our students go outside of Louisiana because of the major airlines. The ones that do want to stay within Louisiana, they look for corporate or teaching gigs or something like that, but it is hard to find.

With us building the rotary-wing program hopefully out of Lafayette sooner this year, we are going to look to better support Louisiana, because Louisiana deserves to have pilots here.

Mr. GRAVES OF LOUISIANA. Thank you. Appreciate it.

Mr. Robbins, section 937 of the FAA Reauthorization Act of 2024 directs the Administrator to prioritize the authorization of additional eligible UAS test ranges in the Gulf of Mexico to look at the impacts of operations in saltwater environments and the transportation of cargo and passengers to offshore energy infrastructure.

Can you speak about the important role that UAS test ranges play in terms of bringing new technologies and innovation to the marketplace?

Mr. ROBBINS. Yes, absolutely. Thank you, Mr. Chairman, for that question and for your leadership.

In many instances right now, the only opportunity for drones or other advanced air mobility to operate is over private land or in UAS test ranges designated by the FAA. And there are—while the test ranges that are in service right now are doing tremendous work, they are somewhat limited in terms of size and scale, and there are also significant portions of the country that lack test ranges, including, as you mentioned, in your area of Louisiana and the gulf.

So, weather is very important. Factors on local environment are very important. So, understanding how drones operate in different environments. So, there does need to be a wider range of diversity in the test sites to be able to test different types of operations and different types of reliability.

Mr. GRAVES OF LOUISIANA. Thanks. And the FAA has a unique role to play as a partner and regulator when it comes to certification integration, operational frameworks necessary for UAS. And title IX of the FAA reauthorization bill made clear both the roles and responsibilities of the FAA through the process and stressed the need for standardization across the board.

How can we as Congress ensure the FAA continues to evolve its standards to accommodate new aviation technologies, recognizing the dynamic nature of innovation and workforce training, while maintaining that gold standard of safety that we all talk about?

Mr. ROBBINS. Yes. Thank you for that, Congressman.

Well, first, there are a number of provisions in the FAA reauthorization bill that are laid out in our written testimony that direct the FAA to take steps to bring in new types of workforce, and that includes a sense of Congress that the FAA should look to the UAS Collegiate Training Initiative as a source for additional workforce to the FAA as they are hiring.

As I mentioned in my opening, the needs of the UAS and AAM industries for integration are different than they are for legacy aviation. But the certification for an 11-pound Styrofoam drone looks a lot like the certification of a Boeing 777.

So, there is a need for some different skill sets and different ways of thinking about things there within the FAA, and I think the FAA bill, as you mentioned, has a lot of good provisions to change the way the FAA operates.

So, from your perspective now, it comes down to oversight and holding them accountable with timelines, holding them accountable—and every time you hold a hearing and you bring the FAA forward, it forces them to study, forces them to sort of dig in on these issues, and it brings them to the forefront.

So, we would encourage more hearings in the Aviation Subcommittee going forward that focus on advanced technologies, because that forces the agency to look at advanced technologies through a finer lens.

Mr. GRAVES OF LOUISIANA. Mr. Robbins, thank you. And I am so excited about the future of your industry and just look forward to see what the future holds.

Mr. ROBBINS. We appreciate your leadership.

Mr. GRAVES OF LOUISIANA. Thank you.

Mr. Montgomery, I have got someone here from Louisiana Tech, one of our interns, Emma Sarradet from Addis, is joining us today and, again, a Louisiana Tech student. We also have Alex Foret, who is interning with our office and joining us. But I believe you have someone with you, and want to give you an opportunity to introduce her.

Mr. MONTGOMERY. Thank you, sir. I have my wife with me, Sheila. She has been a military wife for many, many years, so, she has been OK.

[Laughter.]

Mr. GRAVES OF LOUISIANA. Mr. Montgomery will get a chance to revise and extend your remarks. Otherwise, you are going to pay for that.

[Laughter.]

Mr. GRAVES OF LOUISIANA. No, thank you very much for joining us.

I have a unanimous consent request. I ask unanimous consent to enter into the record a statement by the Regional Airline Association, received July 10, 2024.

Without objection, so ordered.

[The information is on pages 89–100.]

Mr. GRAVES OF LOUISIANA. OK. With that, any further questions from any members of the subcommittee who have not been recognized?

Seeing none, that concludes our hearing for today. I would like to thank each of the witnesses for your testimony.

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

Without objection, so ordered.

I also ask unanimous consent the record remain open 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.

The subcommittee stands adjourned.

[Whereupon, at 12:45 p.m., the subcommittee was adjourned.]

SUBMISSIONS FOR THE RECORD

Statement of Faye Malarkey Black, President and Chief Executive Officer, Regional Airline Association, Submitted for the Record by Hon. Garret Graves

Chairman Graves, Ranking Member Cohen, and members of the Subcommittee on Aviation:

The Regional Airline Association (RAA) thanks the U.S. House Committee on Transportation & Infrastructure, Subcommittee on Aviation for holding the hearing titled, *“Eliminating Bottlenecks: Examining Opportunities to Recruit, Retain, and Engage Aviation Talent.”* RAA submits this statement for the record to inform the Committee on the state of the regional airline industry’s workforce. Foremost, we want to thank Chairmen Sam Graves (R–MO) and Garret Graves (R–LA) along with Ranking Members Larsen (D–WA), Cohen (D–TN), and members of this Committee for their leadership in passing a five-year reauthorization of the Federal Aviation Administration (FAA) that will provide stability and certainty to the aviation community.

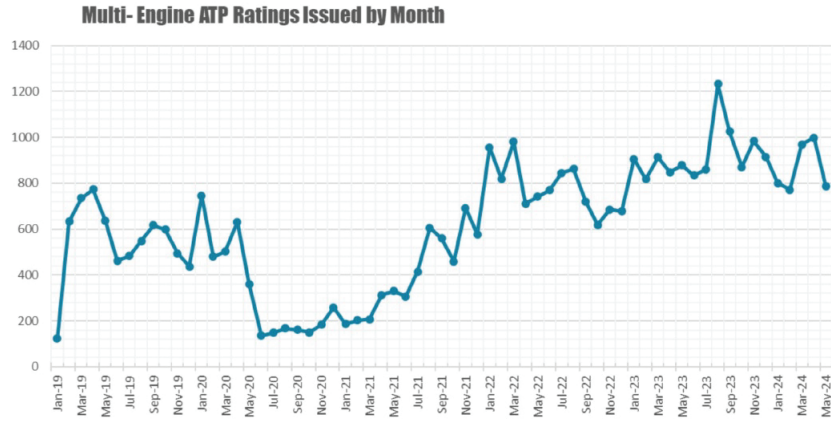
CURRENT STATUS OF THE REGIONAL AIRLINE WORKFORCE

The RAA has fifteen airline members and collectively, our industry employs more than 60,000 individuals who transport passengers and cargo to their destinations and uphold the highest principles and practices of aviation safety¹. As has been well documented, the United States continues to face substantial workforce shortages for pilots and aviation maintenance technicians in the immediate and long term.

Industry efforts, alongside workforce outreach policies this Committee has crafted, have helped to renew interest in pilot careers. As a result, aviation schools and pilot training institutions report increased interest in their programs. However, many interested candidates face significant barriers in accessing training. Not only does this constrain supply, it hinders diversity. Fewer than 10% of today’s pilots are women or people of color.² Policies to improve career access and training are an important part of correcting this imbalance, while strengthening pilot supply. Although we have seen improvement in the pipeline of first officers, certification numbers fluctuate significantly from month to month and have moderated after earlier, post-pandemic spikes.

¹ <https://www.raa.org/content-hub/annual-reports/>

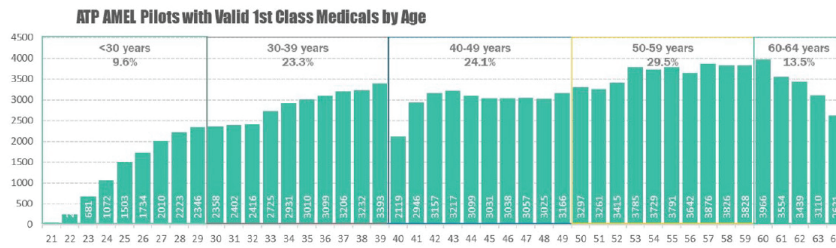
² <https://www.bls.gov/cps/cpsaat11.htm>



Pilot data courtesy of FAA Registry Services and Information Branch, AFB-730

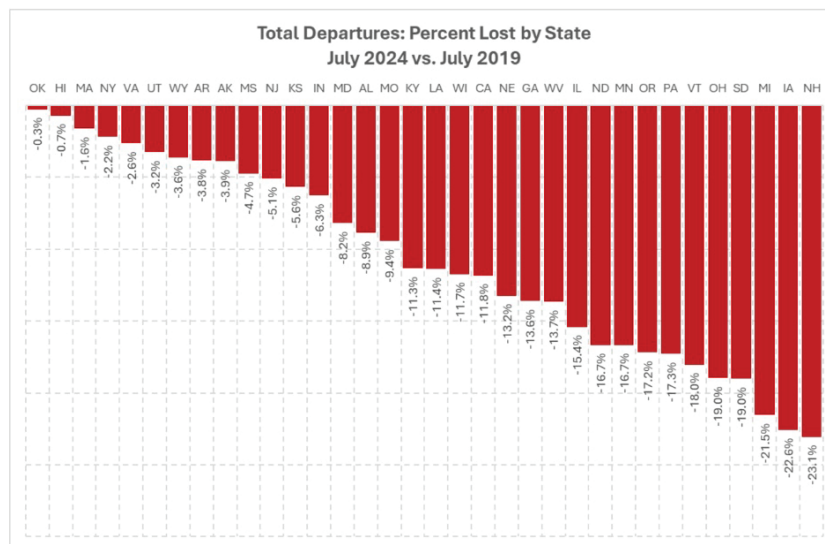
Recently, aircraft delivery disruptions have caused both major and low-cost airlines to slow or suspend the hiring of pilots previously slated to crew aircraft now behind on delivery. This short-term disruption has led to a *temporary* reduction in major airline hiring and regional airline pilot attrition. However, RAA cautions stakeholders against mistaking these pilot hiring trends as anything other than temporary—and wholly driven by aircraft delivery delays. Just as hiring paused during the COVID-19 pandemic onset only to roar back with the return of demand, any amelioration in the pilot shortage we see today will rapidly reverse when larger aircraft deliveries resume.

Meanwhile, pilot retirements are increasing dramatically and will peak in 2029, when 51 percent more qualified Air Transport Pilots will reach mandatory retirement age compared with 2024. Retirements will stay near that peak for the next decade and will exceed 2024 levels for nearly three decades. Unfortunately, the pipeline we have today will not produce the number of pilots we need to replace retirements and enable growth tomorrow. The United States must address its pilot shortage to be prepared when mainline aircraft deliveries resume and before the coming tsunami of pilot retirements.



Failing to prepare will undermine the efforts of hundreds of communities across the country that are already fighting to restore air service lost under the pilot shortage. Network airlines have made valiant efforts to restore air service, but smaller American communities have still not recovered: Comparing July 2019 with July 2024³, airlines are making 4% fewer departures across commercially served U.S. airports, despite soaring demand. In the same period, 274 (64%) airports suffered air service reduction or loss, with 124 (30%) airports losing more than a quarter of their flights, 43 airports (10%) losing more than half of their flights and 11 airports losing all their flights. Thirty-four states have seen an overall decline in air service.

³Source: Independent analysis of OAG Schedules Analyser: U.S. Carrier (scheduled passenger operations), data retrieved 7/7/24



Source: Independent analysis of OAG Schedules Analyser: U.S. Carrier (scheduled passenger operations), data retrieved 7/7/24

Smaller communities continue to experience the brunt of a contracting network with reductions in both departures and total available seats, and all exits have occurred in Nonhub and Nonprimary airports. Notably, the airports experiencing the largest air service reductions are often those with the least frequency and seats to begin with. As airlines respond to pilot shortages by using larger aircraft to transport more passengers at once, (known as upgauging), the result has been more available seats but dramatically reduced connectivity: fewer flights, fewer destination options, less convenient connections, and higher travel costs. Upgauging is particularly pronounced at Small Hub airports, which have 11% fewer departures despite 16% more available seats.

DEPARTURES			
NPIAS Category	2019-07	2024-07	% Change
Large	496,131	478,818	-3.5%
Medium	140,517	133,222	-5.2%
Small	90,242	88,844	-1.5%
Nonhub	55,200	49,193	-10.9%
Nonprimary	26,024	25,020	-3.9%
Grand Total	808,114	775,097	-4.1%

TOTAL SEATS			
NPIAS Category	2019-07	2024-07	% Change
Large	65,257,319	70,011,652	7.3%
Medium	17,826,086	18,995,890	6.6%
Small	8,778,936	10,219,614	16.4%
Nonhub	3,081,537	3,091,396	0.3%
Nonprimary	343,399	360,374	4.9%
Grand Total	95,287,277	102,678,926	7.8%

Source: Independent analysis of OAG Schedules Analyser: U.S. Carrier (scheduled passenger operations), data retrieved 7/7/24

On July 7, 2024, the Transportation Security Administration observed a new, single-day screening record, with more than three million passengers passing through security checkpoints in a single day—the Agency’s highest ever.⁴ Simultaneously, news outlets have been covering a “surge in passenger complaints” after the U.S. Department of Transportation (DOT) released final 2023 complaint data.⁵ A correlation between passenger complaints and the reduced number of flights merits consideration. More passengers are flying than ever, with more seats available than ever, yet there are fewer flight options available when booking, fewer direct flights, fewer connection options, and fewer opportunities to recover during irregular operations (IROPS). When a major weather event occurs, it takes longer for airlines to recover a hub (or an entire network), leaving more passengers frustrated and stranded.

Aircraft maintenance technicians are another workforce in short supply, despite their enormous importance at every airline. These professionals are key players in aviation safety, ensuring that every aircraft taking off has been inspected and found airworthy. According to Oliver Wyman’s Global Fleet and MRO Forecast 2022–2032, 2027 is “... projected to be the worst year for the shortage—the bleakest scenario has the supply deficit at more than 48,000 aircraft maintenance workers or a shortfall of about 27%.”⁶ As with pilots, a persistent lack of diversity also hinders the technician workforce. According to 2023 Bureau of Labor and Statistics (BLS) data, just 4% of aircraft maintainers are women, 10% are Black, 5% Asian, and 21% Hispanic.⁷ Regional airlines have been working to change this, and solutions include outreach to a younger, more diverse and under-represented population—as early as middle school—to support a wide net of future candidates.

Regional airlines often provide a career entry point for technicians. Many RAA members lead maintenance “earn as you learn” programs as well as agreements with major airline partners where technicians can advance through planned career flow programs. Pay for maintenance technicians starts at around \$70,000 and increases quickly with experience.⁸ As with many professions, technicians are looking for careers where they want to live. Increasingly, recruiting efforts are capitalizing on the beauty and quality of life available in smaller communities. For example, RAA Associate Member MHI RJ Aviation Group (MHIRJ) has launched a talent attraction initiative called “Live Your Best Life in Tucson,” focusing a national campaign on the benefits of living and working in Southern Arizona, partnering with local civic leaders to showcase the investment of high-wage jobs in vibrant, local

⁴ <https://abcnews.go.com/GMA/Travel/tsa-sets-new-single-day-record-3-million/story?id=111750113>

⁵ <https://www.transportation.gov/briefing-room/air-travel-consumer-report-june-december-2023-full-year-2023-airline-consumer>

⁶ <https://www.oliverwyman.com/our-expertise/insights/2022/feb/global-fleet-and-mro-market-forecast-2022-2032.html>

⁷ <https://www.bls.gov/cps/cpsaat11.htm>

⁸ <https://www.ziprecruiter.com/Salaries/Entry-Level-Aircraft-Mechanic-Salary>

communities. The company is making similar investments in Bridgeport, West Virginia, where the beautiful countryside provides an organic recruiting strategy.

Airlines of all sizes have now launched or partnered with flight training institutions, providing deep tuition subsidies and airline-backed lending, and offering scholarships, tuition reimbursements, and numerous other supports to help pilots access and afford training. Republic Airways opened the first airline-owned flight training institution, LIFT (Leadership in Flight Training) Academy, which utilizes state-of-the-art equipment and training practices to train the next generation of pilots. Students who complete the LIFT career pathway program have a guaranteed pathway to a career as a pilot at the air carrier. LIFT Academy costs \$112,000 and Republic offers a \$20,000 subsidy, reducing costs to \$92,000. After graduation, Republic offers an additional \$6,300 in tuition reimbursement, further lowering costs to \$85,700. Supporting the LIFT academy is an aviation maintenance apprenticeship program in partnership with the U.S. Department of Labor. Apprentices earn as they learn over 36 months, and upon completion will be ready to begin a career as an aviation maintenance technician.

Other regional carriers partner with local schools to invest and grow their future workforce. Cape Air, which is headquartered in Hyannis, Massachusetts supports a 24-month airplane maintenance training program at Cape Cod Community College to help meet their need for highly skilled technicians, training them in airframe and power plant repair and culminating in certification—including full FAA Certification. Upon completion, students are offered incentives to join Cape Air after graduation. CommuteAir's assisted funding program for airframe and powerplant licenses for mechanics is another example of the many programs aimed to improve and diversify the pool of aircraft maintainers.

These programs are effective, and we need them on an even broader scale. This is one reason for RAA's strong support for the expansion of the Federal Workforce Development Grant Programs. The dramatic increase in funding, combined with the renewed focus on reaching underrepresented populations in the manufacturing, maintenance, and pilot professions is warranted, given the substantial demand for these occupations throughout the aviation sector. Recruiting and attracting underrepresented populations is not only a deeply held value but will be key to resolving shortages as today's workforce rapidly approaches retirement. For these reasons, RAA thanks the Committee for expanding both the eligibility criteria for participation and the eligible activities under the pilot workforce grant program. Regional airlines and other aviation stakeholders are working to break down barriers to aviation careers, and the grant program supports and incentivizes this approach.

RAA will continue to advance meaningful solutions to the pilot and technician shortages, and we applaud Congress for its work toward this objective. The long-term health of our industry—and the small communities we serve—rests on our collective ability to navigate and resolve these shortages while ensuring the next generation of professionals has the skills and training to uphold the highest standards of aviation safety.

KEY FAA REAUTHORIZATION ACT OF 2024 PROVISIONS FOR THE REGIONAL AIRLINE WORKFORCE

RAA greatly appreciates that the FAA Reauthorization Act of 2024 includes several workforce and training provisions that were strongly supported by regional airlines. Foremost, we applaud the inclusion of Section 372, Enhanced Qualification Program (EQP) for Restricted Airline Transport Pilot Certificate. This bipartisan provision directs the FAA to create an additional Restricted Airline Transport Pilot Certificate (R-ATP) training pathway, helping to ensure that aspiring airline pilots receive structured training paired with the latest flight training technologies for a higher level of safety. It is fitting that the EQP program is found in the safety title, not the workforce title. While additional EQP pathways will help to open the career path for future pilots, the most important aspect is ensuring that the FAA's approach to pilot training does not remain static while our aviation and airspace environment changes. Among their many safety-enhancing attributes, EQP pathways will incorporate scenario-based training so that pilots master challenging and potentially dangerous situations in the aircraft they will be flying. Numerous peer-reviewed academic studies have demonstrated that these structured training pathways produce highly qualified pilots with excellent performance in airline initial training.⁹

In partnership with subject matter experts on the Air Carrier Training Aviation Rulemaking Committee (ACT ARC), the FAA has regularly reviewed, assessed, and

⁹ <https://www.pilotsourcestudy.org>

validated the safety-enhancing attributes of structured training pathways. In fact, the EQP provision codifies many of the prior recommendations to the FAA by the ACT ARC.¹⁰ Given the Agency's substantial body of work on safety-enhancing R-ATP pathways—along with its clear direction to enhance aviation safety by improving pilot training—we believe it is both imperative and achievable for the FAA to meet the six-month deadline to stand up the new Enhanced Qualifications Program R-ATP pathway.

As mentioned earlier in this statement, RAA is strongly supportive of the expansion of the Federal Workforce Development Grant Programs. The dramatic increase in funding combined with the renewed focus on reaching populations that are underrepresented in the manufacturing, maintenance, and pilot professions will be extremely helpful to addressing the substantial demand for these occupations throughout the aerospace and aviation sectors.

Lastly, RAA appreciates Congress authorizing a pilot program to provide veterans with pilot training services under Section 418 of the law. RAA fully supports efforts to incentivize veterans to pursue this highly lucrative and in-demand profession. Service members who are transitioning out of the military, including our nation's veterans, often bring transferable skills and training to the airline industry, alongside unique life experiences and backgrounds they bring to their work. Unfortunately, limitations and inconsistencies in today's programs deter veterans from using their benefits to pay for flight education and training. For example, GI bill benefits cannot be used to pay for a private pilot certificate. The private pilot certificate is the first step in the commercial airline training path and costs between \$15,000 and \$20,000.¹¹ The GI bill covers all other flight training and education costs associated with a professional pilot degree program, but the failure to cover this expensive first step presents veterans with an enormous access barrier. We appreciate this Committee recognizing these challenges and doing what it could within its jurisdiction to address them in the FAA Reauthorization law.

PUBLIC POLICY SOLUTIONS TO ADDRESS THE CONTINUING PILOT SHORTAGE

While regional airlines are grateful for those provisions that will help the industry continue to make progress in addressing our workforce challenges, additional steps can be taken to create a more robust supply of well-trained pilots, and we encourage members of this Committee to support them.

First, as this Committee knows, the House passed FAA Reauthorization bill raised the pilot retirement age to 67 years of age. We are grateful to Congressman Nehls (R-TX), along with Chairmen Sam Graves (R-MO) and Garret Graves (R-LA), for their leadership on this issue. Had this provision been enacted, it would have empowered an additional 5,000 pilots with the option to work two years longer. For perspective, this number equates to about the number of ATPs produced in all of 2021.¹²

Raising the retirement age would also alleviate the captain shortage, a bottleneck that is worsening and elongating the pilot shortage. Most pilots approaching retirement age work at larger carriers, but when they retire it sets off a cascade of upgrades that eventually necessitates recruitment from smaller carriers. This has fueled rapid attrition of regional airline captains and even high-time first officers nearing captain eligibility. Regional airlines cannot simply replace a captain with a first officer from the pipeline, because first officers must be paired with another captain. Instead, the carriers' workforce contracts until existing first officers gain enough experience to upgrade and a new first officer can be hired. Increasing the retirement age would slow attrition, allowing newer pilots to gain more flying time with experienced captains while stabilizing the regional airline workforce. This in turn would help to stabilize and eventually rebuild air service to many smaller communities.

The retirement age was last raised in 2007 without any negative impacts on safety. Today, other countries, such as Australia, New Zealand, and Japan, have safe service with higher mandatory retirement ages. Even in the United States, pilots over the age of 65 are flying complex aircraft in the same airspace under parts 91 and 135. For these reasons—and because we believe it is wrong to discriminate based on age and in the absence of negative safety data—we believe that raising

¹⁰ https://www.faa.gov/sites/faa.gov/files/about/office__org/headquarters_offices/avs/ACT_ARC_Reco_16-8.pdf

¹¹ [https://www.indeed.com/career-advice/career-development/how-much-does-it-cost-to-get-a-pilot-s-license#:~:text=Private%20pilot%20license%20\(PPL\)&text=It%20requires%20students%20to%20complete,ranges%20from%20%2415%2C000%20to%20%2420%2C000.](https://www.indeed.com/career-advice/career-development/how-much-does-it-cost-to-get-a-pilot-s-license#:~:text=Private%20pilot%20license%20(PPL)&text=It%20requires%20students%20to%20complete,ranges%20from%20%2415%2C000%20to%20%2420%2C000.)

¹² Pilot data courtesy of FAA Registry Services and Information Branch, AFB-730

the pilot retirement age continues to be a safe, proven solution worthy of Congressional support. We hope the Committee will urge the FAA to take on a leadership role within the International Civil Aviation Organization and in other forums, to help drive change on this matter.

The second public policy solution would address the high cost of flight education and training programs, which presents an enormous barrier to pilot careers. According to the Bureau of Labor Statistics, the median annual wages for airline pilots in scheduled air transportation was \$257,840 in 2023.¹³ Published reports show that wages for senior pilots are dramatically higher—reaching \$700,000.¹⁴ Pilot careers are life-changing, with a stellar return on the training investment. Unfortunately, the high cost of education and training, coupled with inadequate student loan support, reserves these otherwise transformative careers for those with wealth or the means to privately finance flight education. Federal financial aid does not even approach flight education costs. As a result, aspiring pilots must use personal funds or borrow from private lenders with high interest rates—assuming their parents qualify and can shoulder the burden. Families who lack credit histories and scores needed to qualify are locked out. Unlike other career paths that require expensive professional credentialing, such as doctors and lawyers, students in accredited pilot training programs cannot access additional lending through graduate aid programs.

Aligning the student loan cap for accredited flight education and training programs with the real costs associated with these programs will provide equitable career access to everyone. In turn, this will both grow the pipeline and support more people from underrepresented populations entering the profession. RAA commends Representatives Allred (D-TX) and Chavez DeRemer (R-OR) for authoring the Flight Education Access Act and working to advance this critical piece of legislation. We urge other members of this Committee to join them in this effort.

CONCLUSION

Thank you for the opportunity to submit this statement for the record. We also thank the Committee and its staff for their relentless efforts toward a safe and strong airline workforce—as evidenced by the numerous, important provisions included in the FAA Reauthorization Act of 2024. The Regional Airline Association looks forward to working collaboratively with members of this Committee and the FAA to successfully implement the Act to strengthen our workforce, and to rebuild safe, reliable air service to communities of all sizes.

APPENDIX I: COMMUNITIES WITH AIR SERVICE LOSS

Independent analysis of OAG Schedules Analyser: U.S. Carrier (scheduled passenger operations), data retrieved 7/7/24

Location	State	Airport Code	Percentage
Birmingham-Shuttlesworth International	AL	(BHM)	8.30%
Mobile Regional	AL	(MOB)	11.39%
Montgomery Regional (Dannelly Field)	AL	(MGM)	24.94%
Dothan Regional	AL	(DHN)	46.55%
Mobile Downtown	AL	(BFM)	60.87%
Northwest Alabama Regional	AL	(MSL)	70.75%
Bill and Hillary Clinton Ntl/Adams Field	AR	(LIT)	1.03%
Boone County	AR	(HRO)	1.25%
Memorial Field	AR	(HOT)	1.25%
South Arkansas Regional at Goodwin Field	AR	(ELD)	1.25%
Jonesboro Municipal	AR	(JBR)	15.79%
Fort Smith Regional	AR	(FSM)	35.26%
Texarkana Regional-Webb Field	AR	(TXK)	46.09%
Show Low Regional	AZ	(SOW)	2.47%
Tucson International	AZ	(TUS)	5.61%
Yuma MCAS/Yuma International	AZ	(YUM)	21.85%
Page Municipal	AZ	(PGA)	25.00%
Flagstaff Pulliam	AZ	(FLG)	39.27%

¹³ <https://www.bls.gov/oes/current/oes532011.htm>

¹⁴ <https://www.barrons.com/articles/pilot-pay-soaring-airlines-stock-travel-delta-american-united-db94a84e>

Location	State	Airport Code	Percentage
Grand Canyon Ntl Park	AZ	(GCN)	57.41%
San Diego International	CA	(SAN)	2.66%
Sacramento International	CA	(SMF)	3.17%
Palm Springs International	CA	(PSP)	6.56%
Jack McNamara Field	CA	(CEC)	10.42%
California Redwood Coast-Humboldt County	CA	(ACV)	12.37%
Merced Regional/Macready Field	CA	(MCE)	13.71%
Metro Oakland International	CA	(OAK)	17.13%
Los Angeles International	CA	(LAX)	19.59%
San Francisco International	CA	(SFO)	21.73%
Norman Y Mineta San Jose International	CA	(SJC)	26.72%
Stockton Metro	CA	(SCK)	30.00%
Mammoth Yosemite	CA	(MMH)	41.94%
Santa Maria Public/Capt G Allan Hancock Field	CA	(SMX)	55.56%
Grand Junction Regional	CO	(GJT)	8.74%
Pueblo Memorial	CO	(PUB)	12.35%
Durango-La Plata County	CO	(DRO)	12.81%
Montrose Regional	CO	(MTJ)	17.43%
Cortez Municipal	CO	(CEZ)	34.38%
Telluride Regional	CO	(TEX)	55.71%
San Luis Valley Regional/Bergman Field	CO	(ALS)	60.15%
Bradley International	CT	(BDL)	3.08%
Tallahassee International	FL	(TLH)	2.46%
Orlando Sanford International	FL	(SFB)	7.27%
Daytona Beach International	FL	(DAB)	7.50%
Jacksonville International	FL	(JAX)	11.70%
Fort Lauderdale/Hollywood International	FL	(FLL)	12.28%
Gainesville Regional	FL	(GNV)	14.29%
Dekalb-Peachtree	GA	(PDK)	100.00%
Augusta Regional at Bush Field	GA	(AGS)	9.89%
Hartsfield-Jackson Atlanta International	GA	(ATL)	14.31%
Columbus	GA	(CSG)	26.09%
Southwest Georgia Regional	GA	(ABY)	26.19%
Valdosta Regional	GA	(VLD)	28.74%
Brunswick Golden Isles	GA	(BQK)	31.87%
Kahului	HI	(OGG)	9.14%
Ellison Onizuka Kona International at Keahole	HI	(KOA)	19.34%
Kapalua	HI	(JHM)	84.46%
Dubuque Regional	IA	(DBQ)	100.00%
Waterloo Regional	IA	(ALO)	4.92%
Des Moines International	IA	(DSM)	10.12%
The Eastern Iowa	IA	(CID)	22.36%
Southeast Iowa Regional	IA	(BRL)	25.87%
Sioux Gateway/Brig General Bud Day Field	IA	(SUX)	46.55%
Fort Dodge Regional	IA	(FOD)	59.54%
Mason City Municipal	IA	(MCW)	65.58%
Joslin Field/Magic Valley Regional	ID	(TWF)	30.34%
Pocatello Regional	ID	(PIH)	33.33%
Chicago O'Hare International	IL	(ORD)	18.76%
Central II Regional/Bloomington-Normal	IL	(BMI)	20.07%
Quad Cities International	IL	(MLI)	21.40%
General Downing-Peoria International	IL	(PIA)	23.09%
Abraham Lincoln Capital	IL	(SPI)	36.09%
University of Illinois/Willard	IL	(CMI)	54.61%
Veterans Airport of Southern Illinois	IL	(MWA)	67.28%
Decatur	IL	(DEC)	68.07%
Indianapolis International	IN	(IND)	3.53%
Fort Wayne International	IN	(FWA)	5.38%

Location	State	Airport Code	Percentage
South Bend International	IN	(SBN)	16.26%
Evansville Regional	IN	(EVV)	39.73%
Liberal Mid-America Regional	KS	(LBL)	1.85%
Manhattan Regional	KS	(MHK)	13.89%
Dodge City Regional	KS	(DDC)	33.75%
Salina Regional	KS	(SLN)	34.57%
Hays Regional	KS	(HYS)	50.93%
Louisville Muhammad Ali International	KY	(SDF)	1.65%
Cincinnati/Northern Kentucky International	KY	(CVG)	13.16%
Blue Grass	KY	(LEX)	17.55%
Owensboro/Daviess County Regional	KY	(OWB)	50.00%
Barkley Regional	KY	(PAH)	54.31%
Baton Rouge Metro, Ryan Field	LA	(BTR)	6.35%
Louis Armstrong New Orleans International	LA	(MSY)	10.35%
Lafayette Regional/Paul Fournet Field	LA	(LFT)	15.96%
Shreveport Regional	LA	(SHV)	17.26%
Monroe Regional	LA	(MLU)	20.00%
Alexandria International	LA	(AEX)	32.18%
Norwood Memorial	MA	(OWD)	100.00%
Worcester Regional	MA	(ORH)	0.83%
Nantucket Memorial	MA	(ACK)	23.14%
Cape Cod Gateway	MA	(HYA)	24.88%
Provincetown Municipal	MA	(PVC)	25.87%
New Bedford Regional	MA	(EWB)	66.04%
Salisbury-Ocean City Wicomico Regional	MD	(SBY)	2.79%
Baltimore/Washington International Thurgood Marshall	MD	(BWI)	7.47%
Hagerstown Regional/Richard A Henson Field	MD	(HGR)	67.88%
Bangor International	ME	(BGR)	10.35%
Alpena County Regional	MI	(APN)	1.89%
Delta County	MI	(ESC)	3.70%
Cherry Capital	MI	(TVC)	4.73%
Gerald R Ford International	MI	(GRR)	5.77%
MBS International	MI	(MBS)	12.89%
Pellston Regional/Emmet County	MI	(PLN)	18.57%
Detroit Metro Wayne County	MI	(DTW)	23.92%
Sawyer International	MI	(MQT)	37.41%
Bishop International	MI	(FNT)	37.47%
Gogebic/Iron County	MI	(IWD)	39.33%
Capital Region International	MI	(LAN)	39.94%
Kalamazoo/Battle Creek International	MI	(AZO)	47.62%
Range Regional	MN	(HIB)	3.70%
Bemidji Regional	MN	(BJI)	11.43%
Minneapolis-St Paul International/Wold-Chamberlain	MN	(MSP)	15.86%
Thief River Falls Regional	MN	(TVF)	34.57%
Duluth International	MN	(DLH)	36.59%
Rochester International	MN	(RST)	42.94%
Kansas City International	MO	(MCI)	1.62%
Waynesville-St Robert Regional Forney Field	MO	(TBN)	1.85%
Springfield-Branson Ntl	MO	(SGF)	5.29%
St Louis Lambert International	MO	(STL)	11.79%
Columbia Regional	MO	(COU)	33.54%
Cape Girardeau Regional	MO	(CGI)	37.65%
Kirksville Regional	MO	(IRK)	43.01%
Joplin Regional	MO	(JLN)	69.23%
Branson	MO	(BKG)	77.78%
Hattiesburg/Laurel Regional	MS	(PIB)	14.52%
Tupelo Regional	MS	(TUP)	21.52%
Key Field	MS	(MEI)	43.01%

Location	State	Airport Code	Percentage
Golden Triangle Regional	MS	(GTR)	43.12%
Greenville Mid-Delta	MS	(GLH)	61.73%
Billings Logan International	MT	(BIL)	3.73%
Helena Regional	MT	(HLN)	11.85%
Great Falls International	MT	(GTF)	21.12%
Raleigh-Durham International	NC	(RDU)	4.24%
Coastal Carolina Regional	NC	(EWN)	5.69%
Albert J Ellis	NC	(OAJ)	20.98%
Piedmont Triad International	NC	(GSO)	22.20%
Fayetteville Regional/Grannis Field	NC	(FAY)	25.75%
Pitt-Greenville	NC	(PGV)	32.52%
Concord-Padgett Regional	NC	(USA)	49.02%
Hector International	ND	(FAR)	5.98%
Minot International	ND	(MOT)	16.49%
Williston Basin International	ND	(xwa)	17.91%
Bismarck Municipal	ND	(BIS)	23.39%
Jamestown Regional	ND	(JMS)	32.14%
Grand Forks International	ND	(GFK)	43.89%
McCook Ben Nelson Regional	NE	(MCK)	3.70%
North Platte Regional/Lee Bird Field	NE	(LBF)	3.70%
Alliance Municipal	NE	(AIA)	3.70%
Western Nebraska Regional/William B Heilig Field	NE	(BFF)	3.70%
Kearney Regional	NE	(EAR)	8.62%
Eppley Airfield	NE	(OMA)	11.35%
Central Nebraska Regional	NE	(GRI)	22.77%
Lincoln	NE	(LNK)	33.64%
Portsmouth International at Pease	NH	(PSM)	26.19%
Manchester Boston Regional	NH	(MHT)	27.29%
Morristown Municipal	NJ	(MMU)	100.00%
Newark Liberty International	NJ	(EWR)	4.86%
Trenton Mercer	NJ	(TTN)	49.10%
Albuquerque International Sunport	NM	(ABQ)	2.76%
Roswell Air Center	NM	(ROW)	13.21%
Clovis Regional	NM	(CVN)	45.83%
Boulder City Municipal	NV	(BLD)	25.81%
Elko Regional	NV	(EKO)	46.55%
New York Skyports SPB	NY	(NYS)	100.00%
East Hampton	NY	(HTO)	100.00%
Laguardia	NY	(LGA)	1.04%
Plattsburgh International	NY	(PBG)	2.56%
Watertown International	NY	(ART)	6.56%
Albany International	NY	(ALB)	6.79%
Ogdensburg International	NY	(OGS)	7.02%
Frederick Douglass/Greater Rochester International	NY	(ROC)	11.77%
Long Island MacArthur	NY	(ISP)	14.37%
Buffalo Niagara International	NY	(BUF)	15.71%
Greater Binghamton/Edwin A Link Field	NY	(BGM)	41.79%
Niagara Falls International	NY	(IAG)	55.26%
Ithaca Tompkins International	NY	(ITH)	56.04%
Elmira/Corning Regional	NY	(ELM)	63.18%
New York Stewart International	NY	(SWF)	76.87%
Cincinnati Municipal/Lunken Field	OH	(LUK)	100.00%
Burke Lakefront	OH	(BKL)	100.00%
John Glenn Columbus International	OH	(CMH)	8.61%
Cleveland-Hopkins International	OH	(CLE)	15.12%
Rickenbacker International	OH	(LCK)	19.63%
Akron-Canton Regional	OH	(CAK)	27.96%
James M Cox Dayton International	OH	(DAY)	41.23%

Location	State	Airport Code	Percentage
Eugene F Kranz Toledo Express	OH	(TOL)	85.87%
Will Rogers World	OK	(OKC)	3.77%
Lawton-Fort Sill Regional	OK	(LAW)	20.00%
Stillwater Regional	OK	(SWO)	27.91%
Mahlon Sweet Field	OR	(EUG)	5.96%
Roberts Field	OR	(RDM)	11.67%
Portland International	OR	(PDX)	18.11%
Rogue Valley International-Medford	OR	(MFR)	30.64%
Venango Regional	PA	(FKL)	100.00%
Dubois Regional	PA	(DUJ)	0.59%
Pittsburgh International	PA	(PIT)	9.06%
Philadelphia International	PA	(PHL)	16.07%
Harrisburg International	PA	(MDT)	17.91%
Lehigh Valley International	PA	(ABE)	33.74%
Arnold Palmer Regional	PA	(LBE)	36.08%
University Park	PA	(SCE)	41.88%
Wilkes-Barre/Scranton International	PA	(AVP)	46.08%
Altoona/Blair County	PA	(A00)	46.55%
Williamsport Regional	PA	(IPT)	47.06%
John Murtha Johnstown/Cambria County	PA	(JST)	54.07%
Erie International/Tom Ridge Field	PA	(ERI)	61.18%
Rhode Island Tf Green International	RI	(PVD)	2.49%
Columbia Metro	SC	(CAE)	8.00%
Hilton Head	SC	(HHH)	17.65%
Florence Regional	SC	(FLO)	47.86%
Watertown Regional	SD	(ATY)	8.62%
Joe Foss Field	SD	(FSD)	10.20%
Rapid City Regional	SD	(RAP)	27.46%
Pierre Regional	SD	(PIR)	41.57%
Memphis International	TN	(MEM)	11.21%
Lovell Field	TN	(CHA)	18.69%
McKellar-Sipes Regional	TN	(MKL)	30.09%
Del Rio International	TX	(DRT)	100.00%
George Bush Intcntl/Houston	TX	(IAH)	1.71%
Lubbock Preston Smith International	TX	(LBB)	4.53%
East Texas Regional	TX	(GGG)	27.91%
Abilene Regional	TX	(ABI)	28.37%
Jack Brooks Regional	TX	(BPT)	29.55%
Tyler Pounds Regional	TX	(TYR)	30.83%
Victoria Regional	TX	(VCT)	43.01%
San Angelo Regional/Mathis Field	TX	(SJT)	45.56%
Sheppard AFB/Wichita Falls Municipal	TX	(SPS)	46.09%
Robert Gray AAF	TX	(GRK)	46.15%
Waco Regional	TX	(ACT)	48.60%
Easterwood Field	TX	(CLL)	49.45%
Vernal Regional	UT	(VEL)	1.85%
Salt Lake City International	UT	(SLC)	7.09%
Cedar City Regional	UT	(CDC)	41.57%
Roanoke/Blacksburg Regional (Woodrum Field)	VA	(ROA)	0.16%
Washington Dulles International	VA	(IAD)	2.66%
Norfolk International	VA	(ORF)	4.57%
Shenandoah Valley Regional	VA	(SHD)	8.62%
Richmond International	VA	(RIC)	9.42%
Charlottesville-Albemarle	VA	(CHO)	23.19%
Newport News/Williamsburg International	VA	(PHF)	58.33%
Burlington International	VT	(BTV)	19.52%
Seattle Lake Union Seaplane Base	WA	(LKE)	100.00%
Spokane International	WA	(GEG)	2.67%

Location	State	Airport Code	Percentage
Tri-Cities	WA	(PSC)	14.00%
Walla Walla Regional	WA	(ALW)	23.08%
Boeing Field/King County International	WA	(BFI)	33.33%
Yakima Air Trml/McAllister Field	WA	(YKM)	44.04%
Pangborn Memorial	WA	(EAT)	47.90%
Pullman/Moscow Regional	WA	(PUW)	51.22%
Snohomish County (Paine Field)	WA	(PAE)	70.72%
Rhineland/Oneida County	WI	(RHI)	2.15%
General Mitchell International	WI	(MKE)	5.87%
Dane County Regional/Truax Field	WI	(MSN)	14.33%
Green Bay/Austin Straubel International	WI	(GRB)	18.51%
Central Wisconsin	WI	(CWA)	47.59%
La Crosse Regional	WI	(LSE)	57.28%
Chippewa Valley Regional	WI	(EAU)	64.52%
Morgantown Municipal (Walter L Bill Hart Field)	WV	(MGW)	0.59%
North Central West Virginia	WV	(CKB)	2.25%
Tri-State/Milton J Ferguson Field	WV	(HTS)	19.35%
West Virginia International Yeager	WV	(CRW)	29.55%
Laramie Regional	WY	(LAR)	1.85%
Southwest Wyoming Regional	WY	(RKS)	3.13%
Cheyenne Regional/Jerry Olson Field	WY	(CYS)	3.33%
Sheridan County	WY	(SHR)	15.07%
Yellowstone Regional	WY	(COD)	25.77%
Central Wyoming Regional	WY	(RIW)	37.37%

**Statement of the FAA Managers Association, Submitted for the Record by
Hon. Rick Larsen**

The FAA Managers Association (FAAMA) appreciates the opportunity to submit the following statement for the record in conjunction with today’s House Aviation Subcommittee hearing entitled “Eliminating Bottlenecks: Examining Opportunities to Recruit, Retain, and Engage Aviation Talent.”

FAAMA is comprised of over 1,500 managers and supervisors from across the Federal Aviation Administration (FAA). While many of our members come from the air traffic control ranks, we also have members who serve in technical operations, flight services, and other sectors of the FAA. For over 40 years, FAAMA has promoted aviation safety and efficiency, advocated for our members’ interests, and prepared the managers of today to be the aviation leaders of tomorrow. During the last few decades, we have worked very closely with both FAA leadership and Congress to identify and address the many issues that have arisen within the aviation sector. No issue has been more front and center in FAAMA’s priority list than the subject of today’s hearing—addressing the staffing pipeline challenges that have been impacting the FAA’s workforce ranks for a number of years.

The goal of today’s hearing is to identify areas within the greater aviation spectrum that could be improved to address the growing workforce needs. While we can only comment from the perspective of FAAMA, we are pleased to see the broader examination of the entire sector as the scale of workforce needs are extensive and shortcomings in one area can quickly have a ripple effect across the operations of the entire aviation community. From the perspective of the managers and supervisors within the FAA, we appreciate this examination of the various bottlenecks within the system and offer a few suggestions to help positively contribute to a larger solution.

1. Building Awareness of the Problem

For well over a decade, the number of Air Traffic Operations (ATO) Supervisors has declined significantly, mirroring much of what has been seen amongst the ATO Controller ranks. This decline in supervisors has led to the diminished efficiency of air traffic operations in recent years and has exacted a significant toll on the remaining workforce. With the growing number of ATO supervisors and controllers approaching retirement, we only expect this situation to grow more problematic in

the future unless more aggressive actions are taken. While the FAA Managers Association (FAAMA) is certainly supportive of efforts by other groups to directly address the shortage of ATO controllers through various legislative mechanisms, we strongly believe that a specific effort is also needed to address the ATO supervisor shortage issues.

During the 1990s, there were approximately 2500 supervisors and managers across the ATO. Currently, we estimate the number of supervisors and managers in the ATO has dipped well below 2000. While the FAA has no formal established method for determining the appropriate number of supervisors required in safety-related occupations such as Air Traffic Control or Technical Operations, FAA ATO Leadership has indicated that we are currently operating at an Operations Supervisors (OS) Level of 74% capacity. Similarly concerning, a 2023 USDOT Inspector General Report found that “As of August 2022, the number of operational supervisors in 25 of 26 critical facilities . . . were below authorized levels.”¹

We are concerned that such an imbalance in sufficient managerial oversight in safety-related occupations can only enhance risk to the ATC system and our members. And while we are very supportive of both Congress’ and the FAA’s commitment to maximum hiring of new controllers over the next few years (approximately 1800 per year), we are concerned as to whether we will have enough supervisors to align with this surge. Although a number of these controllers may eventually become managers and supervisors, that process can be lengthy, simply because of the additional years of necessary training and experience required to providing managerial safety oversight. Thus, we encourage Congress to continue working with the FAA to provide adequate funding to increase the supervisor ranks within the ATC system and put us more on par with the staffing level which were in place during the 1990s.

2. Pursuing Creative Solutions

The FAA has an ongoing need for highly qualified Operations Supervisors/Supervisory Traffic Management Specialists (MSS–2) throughout the National Airspace System (NAS) and the hiring pool of qualified candidates is limited. Traditionally the FAA has only hired air traffic controllers from within Air Traffic Organization (ATO), and in some cases from Air Traffic Safety Oversight (AOV), for the position of MSS–2. Supervisors work in the MSS–2 position for an average of 5 years before being promoted to higher level management positions. A consistent and alternative stream of qualified candidates is key to ensure continuity of mission success.

After conducting extensive research, and with the assistance of Air Traffic SUPCOM, FAAMA has reached the following determinations as it relates to a potential partnership with the U.S. Department of Defense (DOD):

- DOD–2152 current controllers are the equivalent to FAA controllers at air traffic facilities, Level 8 and below.
- DOD–2152 controllers are enrolled in FERS which is the same retirement plan as FAA controllers.
- DOD–2152 controllers with intent to achieve FAA employment may be willing to bid on duty locations not normally desirable to FAA controllers.
- DOD–2152 controllers are not subject to the bargaining unit release agreement with NATCA, and thus, could be available to the Agency of MSS–2 positions in less, if not minimal time, if selected.
- DOD–2152 candidates selected and hired into the FAA would be qualified to successfully complete all mandatory training and all position certifications of FAA candidates.

There are currently over 1800 civilian air traffic controllers within DOD. On several occasions, we have seen instances where some of the controllers in the DOD supervisor ranks have expressed a desire to move into a similar FAA position only to be told that no such process currently exists that would allow for such movement. FAAMA believes that the hiring of qualified DOD–2152 air traffic controllers would make immediately available an eligible source of potential MSS–2 candidates. Thus, we have been working with FAA leadership over the past two years to establish a pilot program that would help both the FAA and DOD examine exactly how such a process could work. While we understand that a path forward will require some careful discussions amongst the various stakeholders, we are most appreciative of FAA and ATO leadership for their willingness to “think outside-the-box” and explore further.

¹ FAA Faces Controller Staffing Challenges as Air Traffic Operations Return to Pre-Pandemic Levels at Critical Facilities <https://www.oig.dot.gov/sites/default/files/FAA%20Controller%20Staffing%20and%20Training%20at%20Critical%20Facilities%20Final%20Report-06-21-23.pdf>

We were also very pleased that the recently passed FAA Reauthorization bill included a provision creating a “Joint Aviation Employment Training Working Group between the FAA and DoD to improve career transitions between the military and civilian workforces.” Such creative thinking aligns well with the spirit of our efforts in identifying alternative pipelines for managers and supervisors and we encourage both the FAA and Congress to continue approaching today’s staffing challenges with innovative solutions.

3. Understanding Workforce Needs

A key component to understanding the challenges facing any workplace setting is gaining a better foothold on the state of mind of the collective workforce. At FAAMA, we have been working with the FAA to do just that over the past few years—particularly as it relates to our Frontline Managers.

The last formal study of the Frontline Manager (FLM) position was conducted by the ATO in the mid-2000s. Due to the many changes (operating in a pandemic, drones, commercial space, air taxi, etc.) to the FLM role over the past decade, a new study of FLM position and workload responsibility is needed. This new study should address ATO challenges in the human factors under the following R&D focus areas: Improved Safety, Reduced Hazards, and Error Mitigation in ATC. The study should update the Frontline Manager’s Quick Reference Guide (QRG) to reflect current operational context and standards and should be conducted in accordance with the Human Factors/Human Performance guidelines.

Given this position, we were very pleased that the recently passed FAA Reauthorization included language requiring “a Frontline Manager Workload Study to assess challenges posed by the staffing shortage and increased complexity of the National Airspace System (NAS).” FAAMA looks forward to working with Congress and the FAA on the implementation of the study and sharing those findings with all that are interested.

4. Ending Continued Budget Uncertainties

While both the FAA and Congress have taken important steps forward on the issues described above, one area where Washington continues to fall short is the carrying out of a more stable and certain budgetary process. For well over a decade now, FAAMA has listed “funding the government” as a top priority at the beginning of each legislative year.

In 2018–2019, we saw the historic 35-day federal government shutdown which severely impacted all FAAMA members and federal employees. As essential workers, most FAA managers and supervisors are required to continue working without pay during any federal government shutdowns. Lapses in pay cause immediate struggles for our members and their families, as they must still make mortgage payments, pay childcare costs, and deal with other recurring expenses. While there is typically backpay that occurs following the end of any shutdown, it does not replace the financial stresses that occur throughout the shutdown. And given the length of the last shutdown in 2018–2019, such financial stresses can last quite long.

Most notably, government shutdowns only compound the much-discussed issue of supervisor and controller staffing shortages that currently challenge our national air traffic system. In addition to the individual hardships, these shutdowns directly impact FAA controller and manager hiring and training. The negative consequences of pausing training and hiring extend well beyond the end of the shutdown. These instabilities make it difficult to attract and retain new employees in this unique, important career field.

Heading into this fall and a “lame duck” Congressional session, we will once again face the prospect of another potential shutdown as Congress tries to finish the FY25 Appropriations process. The uncertainty that comes with any such post-election session is no doubt concerning for FAAMA and our members. Whether it’s Congress passing appropriations bills in regular order or pushing through legislation aimed at preventing future shutdowns, FAAMA encourages the next Congress to seriously address this issue once and for all. Furthermore, resolution of this unnecessary annual impediment will do more than any other suggestion referenced above to address the workforce pipeline concerns that are impacting our community.

Conclusion

As always, the FAA Managers Association thanks this subcommittee for the opportunity to share the thoughts of our over 1,500 members. On behalf of the managers and supervisors from across the FAA, we once again applaud you for passing a very strong FAA Reauthorization bill earlier this year. We look forward to working with you and the FAA on implementation. Please continue to use FAAMA as a resource as you move forward in working to address vital issues affecting aviation

safety and efficiency. For additional information regarding this Statement for the Record, please contact FAAMA Executive Director Ron Eritano.

APPENDIX

QUESTIONS TO DAVID J. SPERO, NATIONAL PRESIDENT, PROFESSIONAL AVIATION SAFETY SPECIALISTS, AFL–CIO (PASS), FROM HON. RICK LARSEN

Question 1. Mr. Spero, your testimony highlights that the FAA is currently using an insufficient staffing model for aviation safety inspectors. With the agency's heightened focus on safety, particularly in response to recently reported lapses in aircraft manufacturing and quality control processes, how would the continued use of this antiquated model impact the agency's efforts to increase its oversight role?

ANSWER. The current staffing model used by the agency is inadequate for accurately determining the necessary number of aviation safety inspectors. It lacks reliability, was developed without collaboration with the union, and should not serve as the basis for informed staffing decisions. Understaffing has caused delays in certifying traditional entrants into the national airspace system, and additional resources are urgently needed to manage the growing demand from nontraditional entrants, such as advanced air mobility and unmanned aerial systems.

In response to recent lapses in aircraft manufacturing and quality control, the FAA has announced plans to increase the number of inspectors overseeing Boeing and Spirit AeroSystems. Currently, the number of inspectors is in the low 30s, with a target of 55, according to the FAA administrator. While PASS supports any effort to strengthen oversight, especially given recent issues, the union raises concerns about how the agency arrived at the figure of 55 inspectors. If an unreliable staffing model was used to make this determination, the calculated number may not be based on accurate or reliable information.

PASS has consistently highlighted the shortage of aviation safety inspectors. If additional inspectors are assigned to Boeing and Spirit, personnel will likely be diverted from other critical oversight roles. Simply reshuffling inspectors as a stopgap measure does not provide a sustainable solution to ensuring the safety of the aviation system.

Additionally, Boeing's Organization Designation Authorization (ODA) office has approximately 1,000 employees. Under the ODA program, the FAA delegates certain oversight responsibilities to non-agency personnel, which can lead to manufacturers effectively overseeing their own work, with only limited FAA oversight by an already understaffed inspector workforce. Given the scale of this workforce, the assignment of just 55 inspectors may be insufficient.

Although the Aircraft Certification Reform and Accountability Act was enacted, in part, to address these concerns, PASS remains deeply concerned that current oversight efforts are still inadequate.

PASS is asking that the FAA be directed to revise its inspector staffing model in collaboration with the union. As always, PASS stands ready to provide input and assistance as our safety workforce knows best what resources are needed to ensure the safety of the American flying public.

Question 2. Section 430 of the recently enacted 2024 FAA reauthorization law directs the agency to review and revise this aviation safety inspector staffing model. Mr. Spero, please elaborate on how the model can be improved and what factors the FAA should consider in complying with the requirements of the law?

ANSWER. Improving the aviation safety inspector staffing model requires a comprehensive approach that incorporates collaboration with key stakeholders, modern data analytics, and industry trends.

PASS has long raised concerns about the FAA's aviation safety inspector staffing and the outdated staffing model the agency relies on. For decades, the union has called for meaningful collaboration with the FAA to ensure all factors are thoroughly considered in developing a more effective staffing strategy. The current ap-

proach relies on a single national figure for the number of inspectors, which fails to address the unique needs of individual offices. Conducting a detailed analysis of each office's specific requirements, along with projecting future staffing needs, would provide a clearer picture of the workload and address a key recommendation made by the Department of Transportation Inspector General in 2021.

Collaboration with key stakeholders is critical for success. Engaging with unions like PASS will ensure that the staffing model reflects the real-world experience and expertise of the workforce. Union input can help ensure the model is practical and realistic. Likewise, working closely with manufacturers, airlines, and other industry stakeholders will provide insights into their operations, allowing the FAA to better forecast staffing needs and develop new safety protocols tailored to current industry realities.

Investing in workforce development is equally important. Continuous training and specialization will ensure that inspectors are well-equipped to handle modern aviation's complexities. Continuous training and keeping inspectors up to date on new technologies is vital to ensuring the workforce remains efficient and capable of handling emerging challenges. Succession planning is crucial as well, with a focus on recruiting and training the next generation of inspectors to prevent gaps in oversight as the workforce ages.

A data-driven approach is essential, where risk-based allocation is used to assess areas of high risk, such as complex manufacturing processes or emerging technologies like advanced air mobility (AAM) and unmanned aerial systems (UAS). The model should integrate real-time data from aircraft operations, manufacturing, and maintenance, enabling dynamic adjustments to staffing needs instead of relying on outdated static models.

The FAA must also consider industry trends and technological advancements when refining the staffing model. The rapid growth of traditional and nontraditional entrants in aviation introduces new complexities in oversight. The model should be designed to account for these emerging sectors.

The model must also account for geographic and operational differences. Different regions may require varying levels of oversight depending on factors like air traffic density, the presence of major manufacturers, or the growth of new aviation sectors. Likewise, more complex operations, such as international routes or cutting-edge technologies, demand more intensive oversight. The model should be flexible enough to address these differences while maintaining high safety standards.

Flexibility and scalability are essential components of the new staffing model. The FAA should ensure that the model can quickly adapt to industry changes, such as new regulations or unexpected challenges like economic downturns or pandemics. A scalable model will allow for adjustments in staffing levels without compromising safety. Efficient resource allocation, including sharing resources across regions during peak demand and telework, will also help optimize the use of existing resources and talent.

Since aviation safety oversight cannot rely on a one-size-fits-all approach, a comprehensive analysis of these and other factors is necessary to accurately assess the number of inspectors needed and where they should be allocated. By addressing these factors, the FAA can create a more robust, adaptable staffing model that meets the evolving demands of the aviation industry while upholding the highest safety standards.

Question 3. In recent years the FAA's aging legacy systems and vulnerabilities in critical safety and communications equipment have strained an increasingly complex U.S. airspace—at times even causing delays and safety incidents. However, without a robust and highly skilled technical workforce to maintain and enhance these systems, we will not be able to keep pace with airspace demands. How does the FAA reauthorization begin to address the agency's technical operations staffing? What else can Congress and the FAA do to support PASS members?

ANSWER. The FAA reauthorization does not mandate a Technical Operations workforce plan. The FAA needs a Technical Operations workforce plan to adequately staff the national airspace system (NAS). According to the FAA, Technical Operations "provide the services that support the technical backbone of our national airspace system, managing hardware and software that support safe and efficient flight operations." This workforce installs, operates, maintains and repairs more than 74,000 pieces of radar, communications, navigational aids, airport lighting, backup power, heating, ventilation and air conditioning equipment. The Technical Operations workforce falls into five categories: environmental, radar, navigational aids, communications, and automation.

Since 2014, the Technical Operations workforce has shrunk by nearly 10 percent, dropping from 5,810 to 5,303 employees. The overall number of 2101 series employ-

ees has experienced a similar decline, falling from 5,348 to 4,845. At the same time, the percentage of trainees has surged by 250 percent, increasing from 240 to 615, while the number of certified technicians has decreased by 25 percent, from 3,638 to 2,725. This shift has left the workforce understaffed and overburdened, as trainees—who are officially in developmental training for up to three years—cannot fully compensate for the loss of experienced certified technicians. The pandemic exacerbated this issue by significantly reducing necessary hands-on training, with virtual training proving an inadequate substitute for real-world experience. To address the increasing shortage of certified technicians, training processes must be accelerated while maintaining high standards of quality. The common saying within the FAA, “We don’t hire until they retire,” highlights the urgency of this situation, especially considering that 34 percent of the current workforce is 55 or older.

Insufficient technician staffing can lead to longer restoration times during outages, resulting in increased air traffic delays. Additionally, it becomes challenging to ensure adequate shift coverage, raising the risk of significant air traffic disruptions. During the July 10, 2024, hearing “Eliminating Bottlenecks: Examining Opportunities to Recruit, Retain, and Engage Aviation Talent,” PASS highlighted a ground stop on June 1st at Chicago O’Hare International Airport (ORD) as a prime example of the consequences of understaffing. At the time of the incident, no technician on site had the necessary radar skills to resolve the issue, causing unnecessary aircraft delays. Had the agency employed the right number of properly trained technicians, the problem could have been addressed immediately. This incident underscores the critical need for sufficient staffing and training to maintain the safety and efficiency of the air traffic system.

Unfortunately, this issue has resurfaced since the hearing. On July 14th, another ground stop occurred in Chicago due to an equipment failure, with no technician available on-site to resolve it. This ground stop was caused by a power supply failure in the Airport Surface Detection Equipment, Model X (ASDE-X). ASDE-X is a surveillance system using radar, multilateration and satellite technology that allows air traffic controllers to track the surface movement of aircraft and vehicles. While the failure cleared within seconds, it required technician intervention to return it to service and caused a ripple effect impacting Cleveland, Indianapolis, Kansas City and Minneapolis airspace. And there was no ASDE-X-certified technician on duty at the time to do so. This incident further emphasizes the urgent need for adequate staffing and proper training to ensure swift responses to technical issues that impact air traffic operations.

PASS acknowledges the congressional-driven directive for the Department of Transportation Inspector General (IG) to review FAA workforce plans from the past five fiscal years. We believe that an evaluation of the Technical Operations workforce plan is not only overdue but essential for addressing current staffing deficiencies.

However, additional steps are needed to ensure that technical employees are strategically positioned throughout the National Airspace System (NAS). PASS is calling for the FAA to be required to develop a comprehensive Technical Operations Workforce Plan in collaboration with PASS. This plan should serve as a model for other workforce strategies. We are confident that, with proper staffing and utilization, the expertise of Technical Operations employees will enhance the implementation of new NAS systems and improve on-the-job training. Despite PASS’s readiness and willingness to assist in creating this plan, the FAA has either declined or ignored our offers to contribute.

QUESTION TO DAVID J. SPERO, NATIONAL PRESIDENT, PROFESSIONAL AVIATION SAFETY SPECIALISTS, AFL-CIO (PASS), FROM HON. JEFFERSON VAN DREW

Question 1. Are there other areas of technological advancement that you and the Aviation community want to see at the FAA and what can Congress do to support those changes?

ANSWER. The FAA’s ability to modernize and advance the aviation system relies heavily on having a well-staffed and skilled workforce. Currently, the agency faces significant shortages in both certified technicians and safety inspectors. Moreover, there is no comprehensive staffing plan to accurately assess the number of certified technicians required or their optimal placement within the system. Without this crucial planning, it is challenging to ensure that the workforce is effectively aligned with the needs of the evolving aviation infrastructure.

The lack of a staffing plan for the Technical Operations workforce means that it is hard for PASS subject matter experts to support the agency’s introduction of new

technological advancements. This stakeholder involvement has allowed for a more streamlined process where any issues with a new system or technology are often discovered before full release thanks to the expertise and knowledge of the involved PASS members.

However, in some cases, members have been denied the opportunity to participate in such efforts due to understaffing. This impedes the agency's ability to advance and stay current with technological advancements. In one instance, a member who had been an integral participant in the Data Communications (DataComm) initiative was recalled to his facility because of understaffing. The DataComm program provides air-to-ground data link infrastructure and applications that allow controllers and flight crews to exchange air traffic control information more efficiently than traditional voice communications.

While PASS is pleased that members of Congress have recognized the important role stakeholders play in modernization of the system, without enough staffing in place, the agency stands to miss out on vital insight and information provided by frontline employees.

The successful implementation and management of new technologies in aviation necessitate sufficient staffing levels, which includes not only the recruitment of additional personnel but also ensuring that existing staff receive the necessary training and certification. Congress can support this by aligning the FAA's budget with the need for increased staffing to accommodate technological advancements. This involves allocating funds for additional positions and creating specialized roles required for the effective management and integration of new systems.

Training also means implementing specialized training programs to equip technicians, safety inspectors, and other aviation professionals with the skills required for new technologies. Congress can help by funding advanced training programs and simulations, supporting educational partnerships, and ensuring that certification programs are updated to match the latest technological developments.

Workforce modernization is also critical, as the skills required for various aviation positions must be continuously updated to align with technological progress. Ongoing professional development is essential to maintain and enhance workforce competency. Congress can facilitate this by providing funding for advanced education and training programs, fostering a culture of lifelong learning, and ensuring that the workforce is equipped to adapt to future technological innovations.

By focusing on staffing and training its federal workforce, the FAA ensures that its employees are well-equipped to support aviation modernization and leverage technological advancements effectively, maintaining high standards of safety and efficiency in the aviation sector.