



Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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April 14, 2023

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on “*FAA Reauthorization: Examining the Current and Future Challenges Facing the Aerospace Workforce*”

I. PURPOSE

The Subcommittee on Aviation will meet on Wednesday, April 19, 2023, at 10:00 a.m. ET in 2167 Rayburn House Office Building for a hearing titled, “*FAA Reauthorization: Examining the Current and Future Challenges Facing the Aerospace Workforce*.” The hearing will examine the current state of the United States’ aerospace workforce, challenges facing future industry needs, implementation of the workforce-related provisions in the 2018 Federal Aviation Administration (FAA) reauthorization law, and proposed solutions designed to address ongoing challenges in advance of Congress reauthorizing the FAA’s statutory authorities which expire on October 1, 2023. The Subcommittee will receive testimony from the Regional Airline Association (RAA); Vaughn College of Aeronautics and Technology; FlightSafety International (FSI); the Government and Accountability Office (GAO); and the Air Line Pilots Association, International.

II. BACKGROUND

Civil air transportation significantly contributes to domestic and international economies. A recent FAA report notes that in 2019, civil aviation contributed 4.9 percent of the United States gross domestic product (GDP), generated \$1.9 trillion in total economic activity, and supported nearly 10.4 million United States jobs.¹ Although the COVID-19 pandemic effectively reduced these values by an estimated 50 percent in 2020, air transportation traffic in North

¹ FAA, THE ECONOMIC IMPACT OF U.S. CIVIL AVIATION: 2020 (Aug. 2022) available at https://www.faa.gov/sites/faa.gov/files/2022-08/2022-APL-038%202022_economic%20impact_report.pdf.

America continues to grow and is expected to exceed pre-pandemic levels this year, ahead of some other markets.²

According to the FAA, United States air carrier domestic passenger growth is forecasted to average 4.7 percent per year over the next 20 years.³ This average projected growth includes double digit growth in 2022 and 2023, prompting some aviation stakeholders to raise concerns about whether there will be sufficient workers to meet both present-day and future demand. A recent industry report concluded that “tight labor market conditions go beyond having enough crews for flights; it also reflects staffing problems in the ranks of ground staff, baggage handlers, air traffic controllers, Transportation Security Administration agents, and vendors that help supply airlines and airports.”⁴ Additionally, the same report noted there were not enough people to repair aircraft and highlighted that executives in the aircraft maintenance and repair industry identified finding new hires as their biggest challenge.⁵

The rate of attrition and retirements across the aerospace workforce also present challenges, the latter of which particularly exacerbated by the pandemic. For instance, the Youth Access to American Jobs in Aviation Task Force (YIATF) highlighted in its September 2022 report that the aviation industry, “an industry with 50,000 unfilled positions[,] is losing staff at a rate six percent higher than other sectors and at the same time is losing out in recruiting new talent due to factors including a failure to compete with tech companies’ pay rates.”⁶ Although the air transportation sector faced an unparalleled need for talent, especially for pilots, before the COVID-19 pandemic, the workforce challenges facing the industry today are more acute across the board than ever before.⁷ Congress must examine challenges facing the aerospace workforce and explore opportunities to address those challenges to ensure the aerospace workforce is capable of meeting demand for decades to come.

² See *id.*; Press Release, INTERNAT’L AIR TRANSP. ASSOC’N, *Air Travel Growth Continues in February*, (Apr. 4, 2023) available at <https://www.iata.org/en/pressroom/2023-releases/2023-04-04-02/>; News Release, ICAO forecasts complete and sustainable recovery and growth of air passenger demand in 2023, (Feb. 8, 2023), available at <https://www.icao.int/Newsroom/Pages/ICAO-forecasts-complete-and-sustainable-recovery-and-growth-of-air-passenger-demand-in-2023.aspx>.

³ FAA, FAA AEROSPACE FORECAST FISCAL YEARS 2022-2042 at 2 (June 28, 2022), available at https://www.faa.gov/sites/faa.gov/files/2022-06/FY2022_42_FAA_Aerospace_Forecast.pdf.

⁴ *As leisure travel recovers to 2019 levels, airlines struggle to match the rebound’s intensity, according to Oliver Wyman*, OLIVER WYMAN, (June 7, 2022), available at <https://www.oliverwyman.com/media-center/2022/jun/as-leisure-travel-recovers-airlines-struggle-to-match-rebounds-intensity.html?bsrc=oliverwyman>.

⁵ *Id.*

⁶ 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.

⁷ U.S. GOV’T ACCOUNTABILITY OFF., GAO-14-232, AVIATION WORKFORCE: CURRENT AND FUTURE AVAILABILITY OF AIRLINE PILOTS, (2014), available at <https://www.gao.gov/products/gao-14-232>; *YIATF Report*, *supra* note 6.

III. KEY AEROSPACE OCCUPATION PROFILES AND ISSUES FOR CONSIDERATION

The civil aviation sector relies on a highly skilled and largely certified workforce that includes pilots, maintenance and repair technicians, aircraft and component manufacturers, engineers, aircraft schedulers and dispatchers, and air traffic controllers. Though the breadth of aviation professionals goes beyond those professions listed, this hearing will focus on airline pilots and aircraft mechanics, as these professions are heavily regulated, require significant training and experience to achieve FAA certification, and are essential to the safe operation of the National Airspace System (NAS).

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. Present-day demand is strong, as is evidenced by hiring rates.⁸ Both mainline and regional pilot pay has increased in recent years; in 2021, the median wage for airline and commercial pilots was \$134,630.⁹ Moreover, the Bureau of Labor Statistics (BLS) projects the overall employment of airline and commercial pilots to grow six percent from 2021 to 2031.¹⁰

Pilot Training and Costs

Individuals training to become a pilot can undertake their pilot education and training at a collegiate aviation school, a non-collegiate vocational pilot school, or a non-collegiate, instructor-based pilot school.¹¹ In addition, the military trains and certifies pilots, many of whom pursue careers as airline pilots upon exiting the military.¹² However, former military pilots make up fewer new hires at airlines today than they once did, especially as the military is currently facing its own challenges recruiting pilots.¹³ Though the costs of training vary greatly based on the training pathway chosen and the time it takes to complete training, one of the largest vocational flight schools estimates that it costs \$96,995 to become a pilot if an individual

⁸ David Koenig, *A nationwide pilot shortage is straining air travel*, LOS ANGELES TIMES (Feb. 10, 2023), available at <https://www.latimes.com/business/story/2023-02-10/a-nationwide-pilot-shortage-is-straining-air-travel>.

⁹ U.S. BUREAU OF LABOR STAT., DEPARTMENT OF LABOR, OCCUPATIONAL OUTLOOK HANDBOOK, *Airline and Commercial Pilots*, available at <https://www.bls.gov/ooh/Transportation-and-Material-Moving/Airline-and-commercial-pilots.htm>.

¹⁰ *Id.*

¹¹ U.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>.

¹² See *supra* note 8.

¹³ U.S. GOV'T ACCOUNTABILITY OFF., GAO-14-232, AVIATION WORKFORCE: CURRENT AND FUTURE AVAILABILITY OF AIRLINE PILOTS, (2014), available at <https://www.gao.gov/products/gao-14-232>; Rachel Cohen, *Perennial pilot paucity puts Air Force in precarious position*, AIR FORCE TIMES (Mar. 3, 2023), available at <https://www.airforcetimes.com/news/your-air-force/2023/03/03/perennial-pilot-shortage-puts-air-force-in-precarious-position/>.

has no previous flight experience.¹⁴ On the collegiate front, a 2018 GAO report cited that tuition costs for a professional pilot student can often exceed \$100,000.¹⁵

Upon completion of training and passage of the requisite FAA tests, an individual can obtain a pilot certificate.¹⁶ To obtain a commercial pilot certificate — which is required for an individual to fly aircraft for compensation for non-airline pilot jobs — they typically must have flown a minimum of 250 total flight hours.¹⁷ To be eligible for hire as either a pilot-in-command (captain) or second-in-command (first officer) for a United States scheduled airline, an individual must also obtain an airline transport pilot (ATP) certificate, the highest level of pilot certification, in addition to their other certificates and ratings.¹⁸ An ATP certificate requires an individual to have obtained at least 1,500 flight hours. Current regulations allow for but restrict the number of these flight hours that can be accrued in a full flight simulator or through the usage of a flight training device to not more than 100 hours if the aeronautical experience was accomplished as part of an approved training course.¹⁹ Some pilots with fewer than 1,500 flight hours can obtain a “restricted-privileges” ATP certificate (R-ATP), under which specific academic training courses and military experience can count toward the flight hour requirement.²⁰ If a pilot holds an R-ATP certificate, they may be hired as a first officer by a Part 121 airline; however, they cannot be a captain until they obtain an ATP certificate after accumulating 1,500 hours total flight hours.²¹

The standards for obtaining pilot certificates in the United States have changed little since implementation of the bipartisan *Airline Safety and Federal Aviation Administration Extension Act of 2010* (P.L. 111-216), which mandated a minimum of 1,500-flight hours to obtain an ATP certificate and directed the FAA to amend regulations to require all first officers to have an ATP certificate.²² The FAA subsequently adopted the 1,500-flight hour requirement in 2013.²³ These changes and many others followed the Colgan Air flight 3407 crash near Buffalo Niagara International Airport, NY, in 2009, which killed 50 people.

The standards for obtaining a certificate to conduct commercial, passenger carrying operations in the United States differ vastly from the professional pilot certification pathways adopted internationally. For instance, the International Civil Aviation Organization’s (ICAO) multi-crew pilot (MPL) certificate, adopted in 2006, enables pilots to become a first officer in approximately 18 months, with a minimum of 240 hours of total actual and simulated flight hours. ICAO does not specify the breakdown between actual and simulated flight hours and thus allows part of the training curriculum to be accounted for on flight simulators; however, MPL-

¹⁴ ATP, *How Much Does it Cost to Become a Pilot?*, (accessed Apr. 3, 2023), available at <https://atpflightschool.com/become-a-pilot/flight-training/pilot-training-cost.html>.

¹⁵ U.S. GOV’T ACCOUNTABILITY OFF., GAO-18-403, *supra* note 11.

¹⁶ *Id.*

¹⁷ 14 C.F.R. § 61.129 (2023).

¹⁸ 14 C.F.R. § 121.436 (2023).

¹⁹ 14 C.F.R. § 61.159 (2023).

²⁰ U.S. GOV’T ACCOUNTABILITY OFF., GAO-18-403, *supra* note 11.

²¹ See *supra* note 13.

²² Pub. Law No. 111-216, 124 Stat. 2348.

²³ 78 Fed. Reg. 42324 (July 15, 2013).

holders must also meet all the actual flying time for a private pilot license, plus additional actual flying time in instrument, night flying, and upset recovery.²⁴

Regarding pilot training and competency requirements, some aviation stakeholders argue that certain requirements result in pilots accruing flight hours that are not directly relevant to a complex, multi-crew airline environment or may create barriers to entry into this career.²⁵ Other stakeholders, notably pilot unions, contend that the present-day first officer qualifications are appropriate and that United States air carriers should alternatively do more to recruit and retain pilots.²⁶ A recent position paper summarized that the “commercial aviation industry is at a crossroads, and the practices it adopts now relative to how the pilots of the future are selected, trained and mentored will have critical safety ramifications during a period of projected rapid global growth.”²⁷

Pilot Supply and Outlook

The number of individuals qualified to become airline pilots has increased from 2017 through 2022 by about 3,000, from 144,557 to 147,934 certificates.²⁸ The number of new ATP certificates issued each year over the 2017 to 2022 time period increased by more than 100 percent, from 4,449 to 9,588.²⁹ Despite the uptick in supply of qualified individuals, there is growing concern about whether the growth will be substantial enough to cover both an anticipated increase in industry demand and the wave of pending retirements the industry will face over the next decade.³⁰ In 2021, one industry analyst noted in a 2021 article that FAA data reflected a third of all active ATP-rated pilots will be forced to retire over the next 10 years.³¹ A more recent industry forecast anticipates a shortfall of 17,000 pilots in 2032.³²

Industry Initiatives

To improve the long-term supply outlook for airline pilots, several major airline carriers have recently launched flight training programs and career pathways to boost pilot supply and supplement hiring initiatives. For example, United Airlines launched its own flight training

²⁴ ICAO, *Personnel Licensing FAQ*, available at <https://www.icao.int/safety/airnavigation/pages/peltrgfaq.aspx#anchor24>.

²⁵ U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-403, *supra* note 11.

²⁶ *Strengthening the Aviation Workforce: Hearing Before the S. Comm. on Commerce, Science and Transportation*, 118th Congress (March 2023) (statement of Capt. Jason Ambrosi, President, Air Line Pilots Association, Int'l).

²⁷ FLIGHT SAFETY FOUNDATION, POSITION PAPER: PILOT TRAINING AND COMPETENCY, (Mar.2018), available at <https://flightsafety.org/wp-content/uploads/2018/03/FSF-position-paper-pilot-training-and-competency-FINAL-03-01-18.pdf>.

²⁸ FAA, *U.S. Civil Airmen Statistics* (last updated Jan. 19, 2023) available at https://www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics.

²⁹ *Id.*

³⁰ Geoff Murray & Rory Heilakka, *The airline pilot shortage will get worse*, OLIVER WYMAN, available at <https://www.oliverwyman.com/our-expertise/insights/2022/jul/airline-pilot-shortage-will-get-worse.html>.

³¹ Courtney Miller, *A very real pilot shortage threatens to upend the U.S. airline recovery*, THE AIR CURRENT, (Oct. 28, 2021), available at <https://theaircurrent.com/analysis/real-pilot-shortage-threatens-us-airline-recovery/>.

³² Geoff Murray, Rory Heilakka, Daniel Rye, and Lindsay Grant, *Industry efforts are easing pilot shortage severity*, OLIVER WYMAN, available at <https://www.oliverwyman.com/our-expertise/insights/2023/jan/industry-efforts-easing-pilot-shortage-severity.html>.

school in January 2022, the Aviate Academy, becoming the first major United States carrier to own a flight school.³³ Through the Aviate Academy, United Airlines aims to train 5,000 new pilots by 2030.³⁴ Other airline industry initiatives include American Airlines' Cadet Academy and Delta's Propel Program—which strive to bolster the pool of qualified airline pilots.

AVIATION MAINTENANCE WORKFORCE

The aviation maintenance technician (AMT) workforce generally falls into two categories: (1) certificated mechanics and service technicians (repairmen) and (2) avionics technicians.³⁵ Aviation maintenance workers are generally employed by commercial airlines, repair stations, and aircraft manufacturers. According to BLS data, the median annual wage in May 2021 was \$65,380 for aircraft mechanics and service technicians and \$69,280 for avionics technicians.³⁶ The overall employment of aircraft and avionics equipment mechanics and technicians, according to BLS, is projected to grow six percent from 2021 to 2031.³⁷

Training and Costs

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.³⁸ There are generally three ways to become eligible to take the AMT knowledge test to become a FAA-certificated mechanic: (1) military training and experience; (2) AMT schools; and (3) practical work experience under the supervision of a certificated mechanic.³⁹ Practical, on the job training is the most inexpensive method for gaining the required experience to become a certificated mechanic, according to the FAA.⁴⁰ Tuition at an AMT school, an educational facility certificated by the FAA in accordance with Part 147 of the Federal Aviation Regulations, can vary based on a program, but the average cost for an A&P program in 2022 was \$17,754.⁴¹

FAA-certificated repairmen service aircraft components and must be recommended for certification by their existing employer to perform specific tasks, like welding or painting.⁴² It

³³ Jessica Poitevien, *United Airlines Becomes the First Major U.S. Carrier to Open Its Own Flight School*, TRAVEL + LEISURE, (Oct. 16, 2022), available at <https://www.travelandleisure.com/airlines-airports/united-airlines/united-airlines-opens-flight-school-aviate-academy>.

³⁴ *Id.*

³⁵ U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-206, AVIATION MAINTENANCE: ADDITIONAL 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>.

³⁶ BLS, DEPARTMENT OF LABOR, OCCUPATIONAL OUTLOOK HANDBOOK, *Aircraft and Avionics Equipment Mechanics and Technicians*, available at <https://www.bls.gov/ooh/installation-maintenance-and-repair/aircraft-and-avionics-equipment-mechanics-and-technicians.htm>.

³⁷ *Id.*

³⁸ U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-206, *supra* note 35.

³⁹ *Id.*

⁴⁰ FAA, *Experience Requirements to Become an Aircraft Mechanic*, (December 2022), available at <https://www.faa.gov/mechanics/become/experience>.

⁴¹ AVIATION TECHNICIAN EDUCATION COUNCIL, 2022 PIPELINE REPORT & AVIATION MAINTENANCE TECHNICIAN SCHOOL DIRECTORY, (Nov. 2022), <https://www.atec-amt.org/uploads/1/0/7/5/10756256/atec-pipeline-report-2022.pdf> [hereinafter *2022 Pipeline Report*].

⁴² U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-206, *supra* note 35.

can take a repairman more than a year to obtain the required experience or training to become certificated. Unlike certificated mechanics, a repairman's certificate is only valid at the employer for which it was issued.⁴³ Additionally, only FAA-certificated mechanics can approve an aircraft for return to service. Mechanics and repairman who are not certificated may still perform repair work, but they must be supervised by an FAA-certificated mechanic or repairman.⁴⁴

Avionics technicians generally install, inspect, test, or repair avionics equipment, such as radar, radio, navigation, and missile control systems in aircraft and space vehicles.⁴⁵ There is no required test to become an avionics technician, but the technician may hold an A&P, repairman, or related FAA certificate.⁴⁶ Furthermore, employers may have additional qualification requirements for individuals that work on avionics.⁴⁷

Technician Supply and Outlook

According to FAA data, the number of newly-issued mechanic certificates increased 11 percent from 2017–2022, from 6,398 to 7,119 certificates respectively.⁴⁸ Despite the increase in newly issued certificates, the total number of certificated mechanics has remained relatively flat over the past two decades.⁴⁹ It is projected that by 2031, two out of every five current mechanics—more than 90,000 certificated mechanics in total—will reach retirement age.⁵⁰ Using historical output data, the Aviation Technician Education Council (ATEC) estimates that 79,000 mechanics will enter the industry in the next 10 years, approximately 11,000 workers short of replacing the expected retirements over the period.⁵¹ Furthermore, a recent ATEC report found that civil aviation maintenance sector only captures an estimated 10 percent of military members with aviation experience as they transition to civilian life.⁵² Should forecasted demand over the same period materialize, as driven by industry growth, the mechanic population is expected to fall short nearly 30,000 mechanics to meet commercial aviation needs.⁵³

Industry Initiatives

Industry stakeholders and airline operators have established pathway programs to better recruit and retain mechanics in the aviation industry. For instance, the JetBlue Gateways program offers opportunities to current crewmembers interested in pursuing a career as a mechanic.⁵⁴ In August 2021, AAR, a Chicago-based aviation maintenance and repair company, partnered with the Corporation for Skilled Workforce to create a program at schools located near

⁴³ *Id.*

⁴⁴ FAA, *Become a Mechanic Frequently Asked Questions*, (July 2022), available at <https://www.faa.gov/mechanics/become/faq>.

⁴⁵ GAO-20-206, *supra* note 35.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ FAA, *U.S. Civil Airmen Statistics*, *supra* note 28.

⁴⁹ *2022 Pipeline Report*, *supra* note 41.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² Aircraft Mechanics Fraternal Association, *2023 FAA Reauthorization Priorities* (Aug. 2022), (letter on file, House Comm. on Transp. and Infrastructure, Subcomm. on Aviation).

⁵³ *2022 Pipeline Report*, *supra* note 41.

⁵⁴ JetBlue, *JetBlue Gateways*, available at <https://www.jetbluegateways.com/>.

its repair stations to demonstrate how students can learn skills leading to multiple career paths at the company.⁵⁵ To hire 2,000 mechanics over the next decade, Delta is providing \$350,000 in grants to nine aviation high schools around the country to help expand its workforce.⁵⁶ Other career development initiatives include apprenticeship programs. A recent industry survey found that apprenticeship programs are the most effective way to attract and retain talent, with 60 percent of respondents rating apprenticeship programs as very effective or extremely effective.⁵⁷

IV. CONGRESSIONAL MANDATES AND INITIATIVES

Aviation Workforce Development Grants

Section 625 of the *FAA Reauthorization Act of 2018 (FAARA18; P.L. 115-254)* authorized \$5 million for a pilot workforce development program and \$5 million for an aviation maintenance technician workforce development program.⁵⁸ This workforce development program has enjoyed 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. Several stakeholders have touted the success of the program but are concerned that it is oversubscribed. The FAA received more than 300 grant applications in the initial funding round for the two programs but was only able to award 31 total grants.⁵⁹ Many aviation stakeholders have expressed interest in continuing and potentially expanding this program in the upcoming FAA reauthorization bill.

Youth Access to American Jobs in Aviation Task Force and the Women in Aviation Advisory Board

There were several other provisions in the *FAARA18* targeted toward recruiting and retaining more young people and women to pursue careers in the aviation industry. Section 602 of the law directed the FAA to establish the Youth Access to American Jobs in Aviation Task Force. The task force was required to provide recommendations and strategies to the FAA to facilitate and encourage high school students to enroll in high school career and technical courses.⁶⁰ In September 2022, the Task Force released its final report, providing 21 recommendations to Congress, the FAA, and the aviation industry.⁶¹

⁵⁵ Lindsay Bjerregaard, *AAR Plans For Expected Ramp-Up In Workforce Demand*, AVIATION WEEK, (Aug. 2020), available at <https://aviationweek.com/mro/workforce-training/aar-plans-expected-ramp-workforce-demand>.

⁵⁶ Leslie Josephs, *College of \$70,000 a year? Aviation Industry scrambles for mechanics as retirements loom*, CNBC. (Sept. 2018), available at <https://www.cnbc.com/2018/09/03/airlines-search-for-young-mechanics-as-retirement-wave-looms.html>.

⁵⁷ Derek Costanza and Brian Prentice, *Recover and Rebuild Toward a Leaner, More Agile MRO Industry*, OLIVER WYMAN, available at <https://www.oliverwyman.com/our-expertise/insights/2021/apr/mro-maintenance-repair-overhaul-survey-2021.html>.

⁵⁸ Pub. L. No. 115–254 § 625, 132 Stat. 3405.

⁵⁹ FAA Briefing by Sean Torpey, Executive Director for National Engagement and Regional Administration, to H. Minority Comm. on Transp. and Infrastructure Staff, (Oct. 25, 2022, 2:00 PM EST) (slides on file with Comm.).

⁶⁰ Pub. L. No. 115–254 § 602, 132 Stat. 3400.

⁶¹ *YIATF Report*, *supra* note 7.

Section 612 of the law directed the FAA to create the Women in Aviation Advisory Board, which was tasked with “promoting organizations and programs that are providing education, training, mentorship, outreach and recruitment of women in the aviation industry.”⁶² In May 2020, the Department of Transportation (DOT) announced the appointment of 30 members to the advisory board.⁶³ The report issued by the Advisory Board in March 2022 provides, among other things, 55 recommendations to DOT, FAA, Congress, and the aviation industry on how to address barriers to recruiting, retaining, and advancing women in aviation.⁶⁴ Several stakeholders have requested that the Board be made permanent.

Unmanned Aircraft Systems Collegiate Training Initiative (UAS-CTI)

Sections 631 and 632 of the *FAARA18* directed the FAA to establish a collegiate training initiative program relating to UAS by partnering with institutions of higher education to prepare students for careers in the UAS sector.⁶⁵ Additionally, the law directed the FAA to designate a consortia of public, two-year institutions of higher education as Community and Technical College Centers of Excellence in Small UAS Technology Training.⁶⁶ To comply with these requirements, the FAA launched the UAS Collegiate Training Initiative (UAS-CTI) program in April 2020. Under the program, “participating institutions will engage with the FAA, each other, general industry, local governments, law enforcement, and regional economic development entities to address labor force needs” to help provide students with the “skills needed to pursue a successful career in a UAS-related field.”⁶⁷ The FAA has approved curricula for 111 schools under the program to date.⁶⁸

Student Outreach Report

Section 601 of the *FAARA18* directed the FAA to submit a report to Congress describing the agency’s outreach efforts to elementary and secondary students interested in STEM careers in order to prepare them for aviation- and aeronautical-related careers and mitigate the anticipated shortage of pilots and other aviation professionals.⁶⁹ The FAA completed the report and submitted it to Congress in September 2019.⁷⁰ In the report, the FAA highlighted a 20

⁶² Pub. L. No. 115–254 § 612, 132 Stat. 3402.

⁶³ DOT, *U.S. Transportation Secretary Elaine L. Chao Appoints Industry Leaders to Women in Aviation Advisory Board*, (May 15, 2020), <https://www.transportation.gov/briefing-room/us-transportation-secretary-elaine-l-chao-appoints-industry-leaders-women-aviation>.

⁶⁴ FAA, *WOMEN IN AVIATION ADVISORY BOARD, FINAL REPORT*, (Mar. 28, 2022), *available at* https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/WIAAB_Recommendations_Report_March_2022.pdf.

⁶⁵ P.L.115-254 § 631, 632.

⁶⁶ *Id.*

⁶⁷ FAA, *More Schools Join the Collegiate Training Initiative*, (Sept. 2020), *available at* <https://www.faa.gov/news/updates/?newsId=95838>.

⁶⁸ FAA, *UAS Collegiate Training Initiative* (April 23, 2023), *available at* https://www.faa.gov/uas/educational_users/collegiate_training_initiative.

⁶⁹ Pub. Law No. 115-254 § 601, 132 Stat. 3400.

⁷⁰ FAA, *SECTION 601 YOUTH IN AVIATION STUDENT OUTREACH REPORT*, *available at* https://www.faa.gov/about/plans_reports/congress/media/Section_601_Youth_in_Aviation_Student_Outreach_Report.pdf.

percent increase in the number of outreach representatives and a 50 percent increase in the number of its outreach events.⁷¹

FAA Cybersecurity Workforce Report

Section 549 of the *FAARA18* required the National Academy of Sciences to study the FAA’s cybersecurity workforce and develop recommendations to “increase the size, quality, and diversity of such workforce, including cybersecurity researchers and specialists.”⁷² The report was released in June 2021.⁷³

FAA Technical Workforce Report

Section 569 of the *FAARA18* directed the FAA to submit a report to Congress describing the progress made toward implementing the agency’s action plan to attract, develop, and retain a talented workforce in the areas of systems engineering, architecture, systems integration, digital communications, and cybersecurity.⁷⁴ The FAA completed the report and submitted it to Congress in October 2020.⁷⁵ Among its recommendations, the report called on the FAA to focus on recruiting youth to build the agency’s pipeline of technical talent, including high school and middle school students.⁷⁶

V. WITNESSES

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⁷¹ *Id.*

⁷² Pub. Law No. 115-254 § 549, 132 Stat. 3378.

⁷³ National Academies of Science, Engineering, and Medicine, *Looking Ahead at the Cybersecurity Workforce at the Federal Aviation Administration*, (June 2021), available at <https://www.nap.edu/resource/26105/FAA%20Cybersecurity.pdf>.

⁷⁴ Pub. Law No. 115-254 § 569, 132 Stat. 3386.

⁷⁵ FAA, *Section 569 Report on Attracting, Developing, Training, and Retaining FAA’s Technical Workforce*, available at https://www.faa.gov/about/plans_reports/congress/media/Report_Congress_FAA_Technical_Workforce_Sec569.pdf.

⁷⁶ *Id.*

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