

**STATEMENT OF CATHERINE LANG,  
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BEFORE THE  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
SUBCOMMITTEE ON AVIATION  
UNITED STATES HOUSE OF REPRESENTATIVES  
LOOKING FORWARD: THE FUTURE OF AMERICA'S AVIATION MAINTENANCE  
AND MANUFACTURING WORKFORCE  
FEBRUARY 11, 2020**

Chairman Larsen, Ranking Member Graves, Members of the Subcommittee:

Thank you for the opportunity to appear before you today to discuss the Federal Aviation Administration's (FAA) ongoing work to develop the future aviation workforce. As this is my first time appearing before this Committee in quite some time, let me introduce myself.

My name is Catherine (Kate) Lang, and I am the new Senior Advisor to the FAA Administrator on Aviation Workforce Outreach. As you know, one of the key issues the FAA is facing is ensuring that we have a dynamic and skilled aviation workforce that meets our needs today and in the future. To that end, one of Administrator Dickson's first personnel actions was to create this position to serve as the FAA focal point for engaging with industry, the academic community, and other government agencies to foster the workforce that both industry and the FAA need to meet the challenges ahead. Internally, I will focus on ensuring a coordinated, agency-wide approach as offices advance workforce development programs to address aviation workforce challenges.

Previously, I served as the FAA's Regional Director for Europe, Africa, and the Middle East in Brussels from 2013 to 2019. I have also served in a number of senior roles at FAA Headquarters. Before arriving at the FAA in 1992, I worked as the Assistant Commissioner of the Chicago Department of Aviation. I look forward to working with the Committee to address the important issue of workforce development.

As the Committee knows, this is a transformational time for aviation with emerging technologies and capabilities that are changing the industry at an unprecedented rate. New entrants into the National Airspace System (NAS), such as unmanned aircraft systems (UAS) and commercial space transportation, continue to amaze us with new innovations. Advances in aviation and aerospace are benefiting our economy, transforming the way we travel, helping the environment, and saving lives. Meanwhile, in the manned aviation space, the International Air Transport Association reports that the aviation industry is experiencing strong growth, with the number of air passengers expected to nearly double globally to 7.8 billion annually by 2036. Industry forecasts show that we will need over 212,000 new civilian pilots and 193,000 new maintenance technicians over the next 20 years in North America alone.\* In addition, with the field changing so rapidly, there likely will be future aviation careers that we cannot even contemplate today. For example, a commercial drone operator was not even a job category or career path just a few short years ago. Since August 2016, the FAA has issued more than 150,000 Remote Pilot Certificates to fly a drone for commercial or recreational use.

As the nation's aviation safety regulator, the FAA's primary focus is always on safety. While we have made significant strides in commercial aviation safety, our efforts to improve will never stop. Though technological advancements have helped us to minimize risks, ultimately, it is people who will take us to the next level of safety and operational excellence. An increasing share of the industry's technical workforce is moving toward retirement, and the pipeline of aviation professionals that support the industry has shown signs of slowing. For this reason, we are examining these trends and working with our industry partners to identify and take steps to avoid it.

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\* Boeing 2019 Pilot & Technician Outlook Report, July 2019. Available at <https://www.boeing.com/commercial/market/pilot-technician-outlook/>

The FAA has prioritized efforts to ensure a skilled and robust aviation workforce, but this cannot be done by the FAA alone. The U.S. aviation system is the safest, most dynamic, and innovative in the world, largely due to the collaborative approach to safety championed by the FAA, and shared by our partners in industry, academia, and government. The FAA needs the knowledge and expertise of stakeholders from the entire aviation community to identify potential barriers to entry into the aviation workforce, and more importantly, to develop coordinated efforts to address the issue. In the FAA Reauthorization Act of 2018 (2018 Act), Congress recognized the importance of these collaborative efforts by enacting numerous workforce-related provisions, which we are working to implement.

The FAA is committed to partnering with industry, the academic community, and government agencies to remove unnecessary barriers for entry to the aviation workforce, enhance education pathways, and build the pipeline of qualified aviation professionals. In 2019, the FAA established an Aviation Workforce Steering Committee within the agency's leadership. The goal of the steering committee is to assess the current aviation workforce challenges from the perspective of pipelines, pathways, and partnerships, and to identify concrete actions that can have an impact on the aviation workforce challenges. In my new role at the FAA, I will chair the steering committee going forward. The steering committee will explore options and establish FAA goals to address workforce issues, with a particular focus on cross-agency collaboration. This holistic approach will help the FAA better coordinate workforce efforts across the agency, and provide a more consistent and comprehensive workforce strategy. While the most immediate workforce challenge is the shortage of qualified pilots and industry maintenance technicians, the committee will consider all aviation professions, with a special focus on diversifying the

workforce by attracting women, minorities, and persons with disabilities. This will help ensure the FAA and industry can recruit from a broader and more inclusive talent pool in the future.

### *Partnering with industry*

Last fall, the FAA issued notices to solicit nominations for two advisory groups—one to encourage women and girls to join the aviation workforce, and the other to encourage high school students to pursue aviation careers. Directed by the 2018 Act, these advisory groups will recommend strategies and plans to facilitate and encourage women and high school students to pursue aviation careers, including manufacturing, engineering, and maintenance fields, and identify and develop career pathways including apprenticeships and workforce development programs. Tasks include identifying industry trends that encourage or discourage women and youth to pursue participation in the sector, as well as identifying potential sources of government and private sector funding, including grants and scholarships, that support women and youth pursuing aviation careers. We are currently reviewing applications, and plan to announce membership for both groups this spring. These tasks are in direct alignment with the Federal Strategy for Science, Technology, Engineering, and Math (STEM) Education, released by the White House in December 2018. In order to meet STEM workforce needs, this plan identifies increasing diversity, equity and inclusion as a top priority. Additionally, strategic partnerships provide an opportunity to bridge gaps between the aviation industry and educational institutions through the fostering of STEM ecosystems and providing work-based learning opportunities to further share aviation careers with students.

In September 2018, Secretary Chao, Air Force Secretary Wilson, and the FAA held an aviation workforce summit entitled, “Aviation Workforce Symposium: Ensuring America’s Pilot and Mechanic Supply.” The event brought together nearly 300 stakeholders from government,

industry, and academia and initiated a dialogue about the workforce pipelines, pathways, and partnerships that will be needed to attract more young people to the aviation industry, improve the quality and efficiency of training, and build better partnerships to support our next generation of pilots and aviation technicians. The summit underscored the complex, multi-faceted challenges that we face to ensure that talent is available to fill a growing need for skilled aviation professionals. Maintaining the highest levels of safety while adapting to technological advancements will be a key part of our success. The rapid rate of change is something that will require the focus and attention of the FAA, and *all* aviation stakeholders.

#### *Partnering with the academic community*

The FAA supports multiple initiatives that help educators build competencies and technical knowledge to propel interest in the aviation workforce. Many of these efforts focus on underrepresented populations to encourage minorities, women, and people with disabilities to pursue careers in aviation and increase their representation in the industry. For example, the Aviation Workforce Steering Committee that I previously mentioned provides leadership, guidance, and oversight to the FAA STEM Aviation and Space Education (AVSED) Program and its partners. Originally established in 1961, the AVSED program provides sponsorship and support for programs that develop skills for a future workforce. These efforts include the Aviation Career Education (ACE) Academies, Girls in Aviation Day, and other events with elementary, middle, high schools, and colleges designed to expose students to a wide range of aviation career exploration experiences.

AVSED also works with the FAA Centers of Excellence, which are established through cooperative agreements with select universities, and their members and affiliates, who conduct focused research and development and related activities. Additionally, AVSED partners with the

National Coalition of Certification Centers, a network of education providers and corporations that supports and advances technology skills in the aviation industry, among others, and promotes aviation-maintenance technical degrees and careers. Further, AVSED maintains national partnerships with various groups with shared interest in growing the manned and unmanned aviation workforce, including the Organization of Black Aerospace Professionals, Women in Aviation International, Youth Aviation Adventure, Association for Unmanned Vehicle Systems International, Aircraft Owners and Pilots Association, and the Experimental Aircraft Association.

Success of the AVSED program relies heavily upon FAA Outreach Representatives who engage directly with local communities. These representatives are dedicated FAA employees who volunteer their time to help educate and inspire today's youth by working with communities to foster interest in aviation and aerospace. Expanding its efforts, the FAA has increased the number of its Outreach Representatives from 375 in FY2018 to 778 in FY2019, with a goal of over 1,100 in FY2020. This year, under the AVSED umbrella, we launched an "Adopt-a-School" pilot program initiative in Dallas, Texas and Washington, D.C., where Outreach Representatives will connect with students to generate excitement in aviation. The FAA aims to increase the number of outreach events by 100 percent from FY2019. Youth participation in national, regional, and local STEM AVSED events reached approximately 59,000 youth in FY2019, as compared to 24,000 youth in FY2018.

Last September, the FAA hosted the second annual Office of Aviation Safety (AVS) STEM Career Symposium, where nearly 150 potential aviation engineers, doctors, pilots and air traffic controllers converged on FAA Headquarters. Students from area middle and high schools heard from FAA executives, aviation enthusiast groups, industry leaders, and academic teams,

and enjoyed demonstrations, presentations, and exhibits on aviation careers, skills, and the FAA's oversight of the NAS.

Specifically for new entrants, as directed by the 2018 Act, the FAA is taking steps to implement the UAS workforce provisions to establish a UAS collegiate training initiative, and to designate consortia of 2-year colleges to train students for UAS careers in industry and government. Additionally, last November, the FAA launched the first-ever National Drone Safety Awareness Week with a day devoted to STEM and education activities. There were 22 STEM events in 20 different states reported to the FAA that day alone, with a total of 594 events in FY2019. These targeted efforts will help ensure that we are addressing the workforce needs of the current system, as well as needs that will emerge with the advent of new technologies.

#### *Partnering with other government agencies*

The FAA and the U.S. Air Force announced a partnership last spring to explore options and establish agency goals to address aviation workforce issues. This effort aims to ensure the continued and long-range health and safety of the aviation industry and to inspire a passion for aviation in the next generation.

Finally, the FY2020 Further Consolidated Appropriations Act provided \$5 million for a new Veterans' Pilot Training Grants Program and \$10 million for the Aviation Workforce Development Program for the education and recruitment of pilots and aviation maintenance technicians. The FAA has begun taking steps to implement the Aviation Workforce Development Program, which was authorized by the 2018 Act. We recently published a Federal Register notice to initiate information collections under the Paperwork Reduction Act process. Once this process is complete, the FAA will issue a call for proposals later this year.

#### *FAA workforce considerations*

The FAA's first and most important responsibility is to maintain the safety of the NAS. This means that our efforts are focused in part on ensuring that our own workforce is up to the challenge of setting and enforcing the standards for the broader aviation workforce. As directed by the 2018 Act, the FAA recently reviewed and revised our safety workforce training strategy to align with an effective risk-based approach to safety oversight. This effort will help to foster an inspector and engineer FAA workforce that has the skills and training necessary to provide effective safety oversight.

Additionally, the FAA is working to improve the regulatory framework for the aviation maintenance technical workforce. Specifically, the FAA is conducting a rulemaking to modernize the regulations governing the curriculum and operations of FAA-certificated Aviation Maintenance Technician Schools. The FAA objective in this effort is to move toward a performance-based standard that will usher in the next generation of aviation maintenance professionals, while still maintaining our high safety bar. The FAA is currently reviewing public comments on the pending rulemaking. Along those same lines, the FAA has been developing the Airman Certification Standards for mechanics by integrating aeronautical knowledge and risk management with specific skill tasks. The Airman Certification Standards provide a single-source set of standards for both the knowledge exam and the practical test. Once in effect, these standards will enable the FAA, in collaboration with the aviation training community, to quickly, efficiently, and systematically amend certification testing requirements to address safety concerns as they arise.

Similarly, the FAA is in the process of modernizing and standardizing oversight of our pilot, mechanic, and medical examiners. This will help ease administrative burdens, and ultimately, minimize barriers for aspiring pilots and mechanics to enter the workforce.



### *Conclusion*

We recognize the importance that workforce development has for the overall safety of the NAS. To that end, we are committed to partnering with industry, the academic community, and government agencies to remove unnecessary barriers for entry into aviation careers, as well as to enhance education pathways and build the pipeline of qualified aviation professionals. We are grateful for the support of the Committee in highlighting these workforce issues and the need for collaborative solutions from all stakeholders.

This concludes my statement and I will be happy to answer your questions.