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**U.S. Senate
Committee on Commerce, Science & Transportation
Subcommittee on Aviation Operations, Safety and Security
“Keeping Pace with Innovation – Update on the Safe Integration of Unmanned Aircraft Systems into
the Airspace”
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Chairman Blunt, Ranking Member Cantwell and members of the subcommittee, thank you very much for the opportunity to participate in today’s hearing. I am speaking on behalf of the Association for Unmanned Vehicle Systems International, the world’s largest non-profit organization devoted exclusively to advancing the unmanned systems and robotics community. AUVSI has been the voice of unmanned systems for more than 40 years. We represent corporations and professionals from more than 60 countries involved in business, government and education. AUVSI members work in the defense, civil and commercial markets.

Our members are exploring new and expanded ways that unmanned aircraft systems (UAS) of all shapes and sizes can help American businesses realize the benefits of this technology. My comments today will focus on the current UAS landscape in the United States and what needs to be done to fully integrate UAS into the National Airspace System.

As the president and CEO of AUVSI since 2015, I have witnessed firsthand the massive growth and the impressive technological advancements of the UAS industry. From examining pipelines and newsgathering to inspecting critical infrastructure and surveying damage after natural disasters such as last year’s devastating hurricanes and wildfires, UAS help save time, money, and most importantly, lives.

For years, AUVSI urged the FAA to use all available means to establish a regulatory framework for UAS. And now, we have initial regulations governing civil and commercial UAS operations. The FAA’s small UAS rule, also known as Part 107, was implemented in August 2016, following years of collaboration between

government and industry. The rule established a flexible, risk-based approach to regulating UAS and reduced many barriers to low-risk civil and commercial UAS operations. This allowed businesses and innovators to begin to unlock the many economic and societal benefits of UAS.

Since then, demand for commercial UAS has exploded. Thousands of businesses, large and small, across the country, are embracing this technology and integrating UAS into their operations. As of March 2018, more than 150,000 platforms have been registered for commercial use. The FAA expects more than 450,000 UAS to be flying for commercial purposes over the next five years, three times as many as today. The FAA reauthorization bill recently passed by the House of Representatives lays the groundwork for even more widespread and expanded uses of this technology.

Currently, anyone who follows the rules can fly under Part 107. Generally speaking, operators need to fly under 400 feet, within visual line of sight and only during daylight hours. However, recognizing the need for the rule to be flexible in order to foster innovation, the FAA created a waiver process under Part 107 that allows for expanded types of operations, such as nighttime or beyond line of sight operations, with the approval of the agency.

To date, more than 1,700 operators across the U.S. have received waivers for expanded operations under Part 107. An AUVSI analysis of the first 1,000 found that companies in 47 states are already taking advantage of the process to operate at night, as well as to operate in certain airspace, beyond line of sight and over people. More than 90 percent of these are small businesses with fewer than 10 employees. The FAA has granted about 74 percent of the waivers to operators who had not previously flown UAS under the Section 333 exemption process, demonstrating how having regulations and rules in place has helped increase the adoption of this emerging technology. For example, CNN has a waiver to operate its UAS over crowds of people to capture new perspectives on breaking news, and Intel dazzles Disney World visitors with a light show that features 300 unmanned aircraft at one time.

Part 107 and its waiver process were just the first steps in creating a regulatory framework for UAS integration into the airspace. There is still a high and, as yet, unmet demand for expanded UAS operations that will pave the way for these future innovations. An economic analysis by AUVSI projects that the expansion of UAS technology will create more than 100,000 jobs and generate more than \$82 billion to the economy in the first decade following integration into the national airspace. After witnessing the

growth of the industry over the last few years and now with Part 107 in place, these figures could be even higher under the right conditions.

industry is not alone in adopting this technology. States and municipalities are increasingly utilizing UAS technology to enhance public safety and respond to natural disasters. For example:

- In Missouri, the Conway Volunteer Fire Department recently used UAS to survey the scene of a traffic accident and help guide their response.
- Firefighters in the Pacific Northwest have used UAS to provide situational awareness during wildfires. The infrared cameras on the UAS allow them to not just find the perimeter of the wildfire but identify hotspots and help determine where to direct water drops from manned aircraft.
- Douglas County Search and Rescue successfully [used a drone last summer](#) to find two missing hikers and their dog in Colorado's Pike National Forest.
- And the Stearns County Sheriff's Office in Minnesota used UAS equipped with thermal cameras to apprehend a fleeing domestic assault suspect who was hiding from authorities.

States and municipalities are not just utilizing UAS, they are also seeking to regulate their use. However, federal control of the airspace is a bedrock principle of aviation law that dates back well over 50 years, and is one of the reasons that the United States maintains an aviation safety record that is the envy of the rest of the world. While the FAA must maintain ultimate authority over our skies, last year, the White House announced a UAS Integration Pilot Program that will provide an opportunity for state and local governments to collaborate with the UAS industry and the FAA to further develop a federal policy framework for integrating UAS into the skies above communities across the nation.

The pilot program will offer a data-driven approach to allow for expanded UAS operations, including beyond line of sight, and UAS traffic management concepts. Importantly, it will also provide a mechanism for state, local and tribal officials to contribute their views to a national UAS policy framework, without infringing on the U.S. government's jurisdiction over the national airspace.

The continued adoption of this technology will require an expanded regulatory framework that includes beyond visual line of sight operations, nighttime operations and flights over people. We were expecting a Notice of Proposed Rulemaking for flights over people more than a year ago, but this next regulatory step has been indefinitely delayed over security concerns. In trying to get this rulemaking back on track,

industry stepped up and offered solutions for remote identification of UAS platforms. AUVSI participated in the Aviation Rulemaking Committee to provide recommendations for remotely identifying and tracking operators and owners of UAS, working towards implementing a remote ID system that identifies any UAS flying in the airspace – in real-time. We hope this technology goes a long way toward alleviating the concerns of the security community. To the extent more needs to be done, we need broader engagement from our government partners, notably those responsible for national security, to understand their specific concerns and work collaboratively to address them.

In the interim, industry stepped up and offered solutions for remote identification of UAS platforms. AUVSI collected papers on remote identification solutions from industry stakeholders to help the FAA meet its congressional directive under the 2016 FAA reauthorization extension to develop consensus for such standards. The FAA's Drone Advisory Committee (DAC), of which I am a member, provides another key forum for the FAA and industry to work together to provide consensus-based recommendations to the FAA regarding safe and efficient integration of UAS into the airspace.

Much has been accomplished so far because government and industry have banded together to advance UAS. The collaborative process in which we have engaged, and the goals we share of supporting innovation and ensuring the safety of the national airspace, have made for a working relationship that is defined by both productivity and mutual respect. This has led to a more flexible and nimble approach to regulating UAS, as well as to more businesses adopting the technology. The United States was once falling behind the rest of the world in embracing UAS; now our country is leading the way.

The FAA reauthorization bill recently passed by the House of Representatives is another positive step in furthering the regulatory framework. The bill calls for UAS initiatives that build upon existing industry-government collaboration and expand commercial operations. In particular, the bill calls for rulemaking around a UAS Traffic Management (UTM) system, which will help ensure the safe and efficient use of the national airspace. It also calls for rulemaking concerning carriage of property, a necessary step for allowing UAS package deliveries. The bill's extension of the FAA UAS test site program will also further research on sense-and-avoid technologies and beyond-line-of-sight operations, spurring greater innovation to find solutions to make UAS fly higher and farther, more safely and efficiently. We encourage the Senate to support these provisions when it considers FAA reauthorization in a few weeks.

The UAS industry is primed for incredible growth, thanks to industry representatives and government regulators nurturing innovation that helps businesses be competitive in the marketplace. We hope that these efforts can be sustained, that a long-term FAA bill can be passed by the Senate and signed into law by the President this year, and that together we continue to reach new historic milestones in integrating this technology into the national airspace and pave the way for regular and widespread UAS use.

Thank you, again, for the opportunity to speak today. I look forward to answering any questions that the committee may have.