

STATEMENT OF MARGARET GILLIGAN, ASSOCIATE ADMINISTRATOR FOR AVIATION SAFETY, FEDERAL AVIATION ADMINISTRATION (FAA), BEFORE THE SENATE COMMITTEE ON COMMERCE, SCIENCE & TRANSPORTATION, SUBCOMMITTEE ON AVIATION OPERATIONS, SAFETY, AND SECURITY, ON THE SAFE INTEGRATION OF UNMANNED AIRCRAFT SYSTEMS, MARCH 24, 2015.

Senator Ayotte, Senator Cantwell, Members of the Subcommittee:

Thank you for the opportunity to appear before you today to discuss the status of the safe integration of Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS).

The FAA is safely and steadily integrating UAS into the largest, most complex aviation system in the world. At the same time, UAS technologies continue to advance at a rapid pace.

Consequently, novel applications emerge challenging us to develop a regulatory framework that will allow for continued innovation while ensuring the safety of other users of the airspace and people and property on the ground.

The FAA Modernization and Reform Act of 2012 (2012 Act) established the framework for the integration of UAS into the NAS and tasked the FAA with the safe integration of civil UAS into the system by October 2015. We have followed through with Congress' intent in the 2012 Act and have completed milestones forming the foundation for future integration. This includes long-term planning for the future of integration, collaborative research and development with interagency partners and with industry, and the establishment of test sites and airspace for UAS research and development and testing.

Consistent with the authority in section 333 of the 2012 Act, the FAA has issued 48 exemptions that allow for commercial activity in the NAS in low-risk, controlled environments. An

exemption may be granted after a two-step process. First, the Secretary of Transportation determines that, based on criteria set forth in the statute, the UAS does not pose a risk to those operating in the NAS, the general public, or national security and it can be safely operated without an airworthiness certificate. The FAA will then use its exemption authority to grant relief from FAA regulations that may apply. The exemption process allows the FAA to evaluate each request to determine what conditions are required to ensure that the operation will not create an adverse impact on safety. Once an exemption is granted, the applicant must then apply for a civil Certificate of Waiver or Authorization (COA), an FAA authorization issued by the Air Traffic Organization permitting the operator to use specific airspace to conduct the proposed operation.

Last month, we proposed a rule that would allow small unmanned aircraft systems to operate for commercial purposes without first obtaining an airworthiness certificate, section 333 exemption, or a COA. The proposal would cover many potential small UAS operations and would offer a flexible framework for the safe use of small unmanned aircraft, while accommodating future innovation in the industry. As proposed, the United States would have one of the most flexible UAS regulatory frameworks in the world.

In addition to near-term challenges, the FAA is looking ahead at what is next, and how to coordinate near and long-goals while leveraging available resources to address the most pressing risks to the system.

Laying a foundation and taking the next step for safe integration.

From the outset, we have worked closely and successfully with government partners and industry stakeholders to achieve milestones put forward by the Act. We developed two long-term planning documents, the Comprehensive Plan and a five-year Roadmap, in coordination with other governmental agencies and industry to safely accelerate the integration of civil unmanned aircraft systems in the NAS. We have worked with members of the UAS Executive Committee (ExCom) to leverage our collective assets and conduct research and development to overcome some of the largest barriers to UAS integration and ensure the continued safety of the NAS. The FAA has collaborated with the National Aeronautics and Space Administration (NASA) on studies advancing air traffic control interoperability with the future UAS use of detect-and-avoid (DAA) systems in controlled airspace. We continue to collaborate with members of industry on flight tests to validate RTCA¹ standards for DAA systems as well as command and control radios. RTCA began work on the standards at the request of the FAA in 2013 and they are scheduled for completion in 2016. These standards will help to resolve two of the difficult challenges facing the industry for integration of UAS into the NAS. NASA, the FAA, and industry partners have successfully demonstrated a proof-of-concept airborne DAA system and prototype radios for use as command and control systems for UAS.

In November 2012, the FAA released its Arctic Implementation Plan to establish permanent operational areas and corridor routes in the Arctic for the operation of small UAS as required by the 2012 Act. In July 2013, a restricted category type certificate was issued to Insitu's ScanEagle X200 and to AeroVironment's PUMA so that each UAS could conduct Arctic flights

¹ RTCA, Inc. is not-for-profit organization that serves as a federal advisory committee to the FAA. See <http://www.RTCA.org>.

for commercial purposes. In September 2013, ConocoPhillips began using Insitu's ScanEagle for its marine mammal and ice surveys. In June 2014, BP began using AeroVironment's Puma AE to survey its pipelines, roads, and equipment at Prudhoe Bay, Alaska. Safety and operational data from the operators will be used to develop UAS operations and performance standards. The FAA has also issued 176 special airworthiness certificates in the experimental category for civil UAS, 34 of which are currently active. Special airworthiness certificates are issued for research and development, crew training, and market surveys.

In December 2013, the FAA selected six test sites for non-federal entities to test UAS technology and operations. By September 2014, all of the UAS test sites, which were selected based on geographic and climatic diversity, were operational and will help us gather operational data to foster further integration. Flights of unmanned aircraft have already been conducted at test sites, including flights for research on agricultural and wildlife monitoring and on law enforcement and emergency services support.

Once the test sites were ready, the FAA gave them priority for their first COA. The test sites all qualified as public entities so their initial operations were under the public aircraft operations statute. In 2014, the FAA implemented a Designated Airworthiness Representatives program which will permit test site designees to issue experimental certificates for unmanned aircraft for research and development, crew training, and market surveys. Test site designees need only complete FAA training, available online or in person, to be authorized to work within this new program. This new delegation authority will improve access to the test sites by UAS manufacturers, as well as help to decrease the workload on the FAA to process UAS experimental certificates.

On February 15, 2015, the FAA announced the Small UAS Notice of Proposed Rulemaking that would allow routine use of certain small UAS in the NAS. The proposed rule would allow unmanned aircraft weighing up to 55 pounds to operate without the need for an airworthiness certificate if the operations take place under a set of parameters to maintain safety including operating at speeds below 100 mph and below 500 feet in altitude. The proposal would allow operations during daylight hours and would require the operator to be able to see the unmanned aircraft at all times. Rather than requiring a private pilot certificate, the proposal is for operators to obtain a FAA unmanned aircraft operator's certificate by passing a written proficiency test. Before each flight, operators would conduct a preflight inspection, just as pilots do with manned aircraft today. The proposal does not permit flight over any persons not directly involved in the operation unless those persons are located under a covered structure. Also, unmanned flights would not be allowed in Class A (18,000 feet & above) airspace and, unless air traffic control gives permission, would be restricted from operating in certain busy airspace or in airspace otherwise restricted to most or all aviation users.

In April 2008, the FAA chartered the small UAS Aviation Rulemaking Committee (ARC) that included members from a wide spectrum across the aviation community, to provide recommendations on how small UAS could be safely integrated into the NAS. In April 2009, the small UAS ARC provided recommendations and the FAA began working on a rulemaking that encompassed the widest possible range of small UAS operations. The approach utilized a regulatory structure similar to the one used for manned aircraft; small UAS operations that pose a low risk to people, property, and other aircraft would be subject to less stringent regulation, while small UAS operations posing a greater risk would be subject to more stringent regulation to mitigate the greater risk. Developing this broadly-scoped approach to the rulemaking effort

took significantly longer than anticipated, as the FAA had a desire to put forth a proposal that struck the right balance between mitigating safety risks, yet allowing for changing technology and innovation.

The framework for UAS integration established by the FAA Modernization and Reform Act of 2012 enabled the FAA to take a more stream-lined, risk-based approach to this rule, and to lay a strong foundation that will facilitate safe integration and harness innovation in this rapidly evolving landscape. The flexibility with regard to airworthiness certification for small, low-risk operations that Congress provided in section 333 of the 2012 Act, enabled us to proceed with multiple incremental UAS rules rather than a single omnibus rulemaking.

The public comment period on the proposed small UAS rule is scheduled to close on April 24, 2015. Issuing a small UAS final rule is one of the FAA's and the Department of Transportation's highest priorities, however the timing to promulgate the final rule will depend heavily on the quantity and substance of comments we receive.

Building on the foundation for safe integration of UAS.

The FAA has issued nearly 50 exemptions under section 333 of the 2012 Act and will apply this experience to increase efficiencies and decrease processing time.

The FAA continues to use information and data provided by test sites and other operators, as well as that obtained from its own research and development, or partnerships with other agencies or industry, to continue to identify challenges, validate advanced mitigation strategies, and explore opportunities to progress to the next steps in integrating UAS into the NAS.

Test sites are providing data about the types and sizes of aircraft, number of operations, number of flight hours, notable operating parameters (for example, whether the flight was within or beyond visual line of sight), and any incidents and accidents. Each site has also established its own research agenda. A significant portion of test site data analysis is being performed at the FAA William J. Hughes Technical Center. A Data Lead from the Technical Center, regional representatives, and research engineers, are visiting each UAS test site to evaluate how data is captured and maintained, ensure the integrity of data transferred to the FAA, and determine whether additional data collection would facilitate meeting the FAA's research objectives. The FAA invited public comment in the proposed small UAS rule on how the agency can improve or further leverage its test site program to encourage innovation and safe UAS integration into the NAS.

Consistent with the direction in the agency's FY 2014 appropriation, the FAA is in the process of selecting a new UAS Center of Excellence (COE) which will serve as another resource for identifying solutions for existing and anticipated UAS-related issues. We intend to forge a union of public sector, private sector, and academic institutions to create a world-class consortium that will identify solutions for existing and anticipated UAS-related issues. We are evaluating multiple proposals and plan to establish the COE later this year.

UAS have become increasingly available and affordable to the average consumer, many of whom are not trained aviators. Manned aircraft operators have reported close calls with UAS flying in the airspace. The FAA is taking a proactive approach to educate the public on the safe and responsible use of UAS. The FAA provided model aircraft enthusiasts guidance on the

“do’s and don’ts” of safe model aircraft operations. Last year, we partnered with members of industry and the modeling community to initiate the “Know Before You Fly” educational outreach campaign that provides UAS operators with the information they need to fly safely and responsibly. The FAA’s No Drone Zone initiative, to raise public awareness of the FAA Notice to Airmen, prohibiting unauthorized aircraft- including UAS- from flying over or near NFL regular- and post-season football, games is a success. The No Drone Zone video posted on YouTube prior to the 2015 Super Bowl has received over 57,000 hits, and most importantly, we did not receive any reports of unauthorized activity in the restricted airspace over University of Phoenix Stadium during the game.

Recognizing that local law enforcement is often in the best position to respond quickly, the FAA issued guidance for these first responders to deter, detect, investigate, and report unauthorized or unsafe UAS operations. While our first action is to educate UAS operators about statutory and regulatory compliance, when appropriate, we will use administrative and legal enforcement action to gain compliance.

Future vision and challenges.

We are already looking beyond the small UAS rulemaking at what comes next in terms of the types of operations expected, and what technologies we may need to certify. The FAA has consulted with the UAS ARC to determine the next areas on which to focus so as to enable those UAS operations with the highest net societal benefits. These recommendations are being assessed and will result in additional focus areas that will become the centerpiece for FAA’s strategic plans for UAS integration.

As the aerospace industry and aviation system grow more complex, we must ensure that our resources are directed to the areas with the highest safety risk. We will need to expand collaborative, data-driven processes with the UAS industry to improve safety and streamline process in areas such as certification. We must meet challenges and take advantage of opportunities.

To reach these objectives, a new advisory circular is being developed to inform the UAS industry how to use a risk based decision-making process to establish certification criteria. This advisory circular is essential for enabling the certification of larger UAS for operation in the NAS.

Another key initiative is one that the FAA is undertaking through a Cooperative Research and Development Agreement with CNN to look at the operations of UAS engaged in newsgathering and at flexible ways to facilitate safe operation over people and in urban areas. These activities will support the development of standards for small UAS intended for use in populated areas. These standards are under development by ASTM International.

The safe integration of UAS into the NAS will be facilitated by new technologies being deployed as part of the Next Generation Air Transportation System (NextGen). NAS Voice System (NVS), Data Communications (Data Comm), and System Wide Information Management (SWIM) will provide more information, flexibility, situational awareness and a greater ability to communicate with NAS users.

The United States has the safest aviation system in the world, and our goal is to integrate this new and important technology while maintaining safety as our highest priority. We are committed to ensuring that the United States continues to lead the world in the development and

implementation of aviation technology for safety. We look forward to continuing to work with Congress as we continue to integrate UAS into the NAS.

This concludes my statement. I will be happy to answer your questions at this time.