



PREPARED STATEMENT

for the

**COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION OF THE
U.S. SENATE**

on

**UNMANNED AIRCRAFT SYSTEMS: INNOVATION, INTEGRATION, SUCCESSES,
AND CHALLENGES**

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Prepared Statement of Diana Marina Cooper

Chairman Thune, Ranking Member Nelson, and distinguished members of the Committee, thank you for calling this important hearing on the future of unmanned aircraft systems (UAS) and for the invitation to testify on behalf of Precision Hawk USA Inc. (“PrecisionHawk”) and the Small UAV Coalition. While the Federal Aviation Administration (FAA) has taken steps to facilitate the growth of the rapidly developing commercial UAS industry, we are at a critical juncture and I appreciate the opportunity to discuss today steps Congress can take to ensure that the United States realizes the immense economic potential of this still nascent industry, and remains the world leader in UAS technology. If we do not act quickly, we risk ceding ground to other countries that are rapidly embracing this technology, as well as the economic, consumer, humanitarian, and environmental benefits that it is already delivering.

I would also like to thank the Small UAV Coalition¹ – the first group of its kind focused solely on commercial UAS operations – for the opportunity to represent our members, which range from small startups to large public companies that are making significant contributions to the American economy and creating the jobs of the future. For more than two years, the Coalition and its members worked with policymakers and regulators to help shape the development of the first regulatory framework for commercial UAS operations. We look forward to continuing to engage with the federal government to accelerate development of additional regulations that will enable the growth of this industry while meeting the highest expectations of safety and security.

¹ Members of the Small UAV Coalition are Airmap, Amazon Prime Air, Google[X], Intel, Kespry, PrecisionHawk, Verizon Ventures, Aerwaze, AGI, Flirtey, Fresh Air Educators, T-Mobile, and Walmart.

PrecisionHawk is emblematic of the vast potential of the commercial UAS industry. Headquartered in North Carolina with another office in Indiana, we provide a sophisticated end-to-end commercial UAS platform and have flown UAS for customers across many states, including South Dakota, Florida, Colorado, Illinois, Indiana, Kansas, Minnesota, North Dakota, and Wisconsin. The potential of UAS is reflected in investments we have received from Intel Capital Corporation, Verizon Ventures LLC, USAA Property Holdings, Inc., Pioneer Hi-Bred International Inc., and Indiana University Foundation, Inc. In 2016, the World Economic Forum named PrecisionHawk among the Top Technology Pioneers, and this year we are proud to be ranked among the Top 100 Global Cleantech Companies by the Cleantech Group.

Leveraging Technology To Grow the American Economy

PrecisionHawk's commercial UAS platform enables American businesses to create efficiencies and maximize revenue. Our customers traverse a wide range of industries that are vital to the American economy, from construction to energy and insurance. The near-term potential benefits of UAS are perhaps most apparent, however, in the agriculture sector, the first sector in which we developed core expertise seven years ago when our company was founded. One recent report estimates the value of the global market for UAS solutions at more than \$127 billion, with \$32.4 billion attributable to agriculture alone.²

Across America, individual farmers and large agri-businesses are already leveraging UAS for precision agriculture and PrecisionHawk is proud to make its solutions accessible to customers across this key sector of the American economy. UAS provide a low-cost, efficient, and easy to

² [Clarity from above: PwC global report on the commercial applications of drone technology.](#)

implement solution that allows farmers to gain valuable insights that translate into increased revenue potential.

Today, farmers are using PrecisionHawk's UAS platform to obtain precise real-time data about their crops, fields, and harvests. Our platform allows farmers to create flight plans and generate 2D and 3D maps, which are in turn analyzed to detect plant count, plant height, vegetative health, waterpooling, and much more. The results inform planting decisions and indicate early warnings of threats encroaching on crops, such as water pressures, nitrogen deficiencies, disease, and insect infestations. This critical data allows farmers to provide localized interventions that decrease the cost of farming operations and reduce environmental impact.

Among our agriculture solutions is an application we developed with Leonardo that allows farmers to detect nitrogen levels in corn crops. While nitrogen deficiency reduces yield, an oversupply of this expensive input significantly increases the cost of an operation. Our solution helps farmers determine precisely when, where, and how much nitrogen is needed, and in doing so, promotes increased profitability. Another application, which we developed with Archer Daniels Midland, detects standing water in fields. This solution is a valuable tool that helps adjusters quickly estimate water damage and process claims faster for farmers who have experienced unexpected and potentially significant yield loss. These use cases are reducing costs, promoting productivity, and bringing valuable solutions to a critical area of the American economy that is continually facing new challenges.

Public-Private Partnerships Support Safe and Expedited UAS Integration

PrecisionHawk is proud to participate in a number of government-industry collaborative efforts to expedite the safe integration of UAS into the national airspace. One of these key initiatives centers on unmanned traffic management (UTM), an automated UAS traffic management system for low-altitude airspace. Without UTM, our commercial UAS industry cannot reach its full economic potential or provide its full range of potential goods and services to consumers. UTM promotes the safe and seamless integration of UAS into the national airspace and enables operations over people and beyond the visual line of sight (BVLOS). An important component of a UTM is the ability to – in real-time – remotely identify and authenticate a UAS operator. When we are able to identify, track, and authenticate users operating in the airspace, we will have the necessary architecture in place to identify and hold accountable rogue operators engaging in unlawful activity and to meet the highest expectations of security and privacy.

NASA has for years partnered with industry – including PrecisionHawk and many other Small UAV Coalition members – to conduct valuable research and has developed meaningful insights into UTM architecture and functionality. In addition to these research and development (R&D) efforts, companies like PrecisionHawk have already commercialized components of UTM. Our LATAS system provides real-time notification to UAS operators of manned aircraft operating in their vicinity to allow for collision avoidance.

The Small UAV Coalition was pleased to see Congress embrace the need for UTM in the 2016 short-term FAA extension. Section 2208 directs the FAA to develop and provide Congress with a research plan for UTM by January 2017 and to initiate a two-year pilot program by April.

The FAA has established a Research Transition Team (RTT) to promote transfer of knowledge related to NASA's UTM research. This effort represents a positive step in the right direction. However, it should be augmented by a commitment to initiate and complete the pilot program within the congressionally-mandated timeline and to implement a nationwide UTM system within a specific timeframe.

Based on the extensive data provided by NASA's R&D efforts, the forthcoming FAA pilot program, and industry products already in the field, we believe that a UTM system can be introduced in a phased approach around the country, based on the varying operating environments. We respectfully request that Congress expedite the safe integration of UAS by mandating that a UTM system be established in stages within a concrete timeline. A phased UTM implementation will not only begin to safely and efficiently introduce routine BVLOS operations and open up the airspace to new applications such as package delivery, but also address security and privacy concerns.

In addition to participating in NASA's UTM research, PrecisionHawk is also proud to be an original partner in the FAA's Pathfinder program. Through this program, we are collecting data, developing operational standards, and testing technologies to support the safe introduction of extended and beyond line of sight UAS operations into the national airspace. Much of our Pathfinder research has been conducted in conjunction with Kansas State University, a member of the FAA Center of Excellence for UAS. We are currently conducting our third phase of research under the Pathfinder program, which is focused on creating a safety case for conducting localized BVLOS operations using technology to mitigate safety risks. This data will be a valuable asset to

the FAA as it prepares a forthcoming notice of proposed rulemaking (NPRM) for expanded operations, including those beyond the visual line of sight. We hope that it will also inform the FAA's ability to grant BVLOS waiver applications under the current regulatory framework. To date, only three such waivers have been approved since the process opened over six months ago, including one granted to PrecisionHawk.

Beyond our partnerships with NASA and Pathfinder, PrecisionHawk is a proud member of the FAA Drone Advisory Committee and the FAA Unmanned Aircraft Safety Team. We also participated in the National Telecommunications and Information Administration multistakeholder process to develop industry-led, voluntary best practices for UAS privacy, transparency, and accountability. The Small UAV Coalition, PrecisionHawk, and many others in the commercial UAS industry were pleased to support the consensus best practices that balance privacy rights with the need to protect US innovation and economic competitiveness.

Preserve American Competitiveness by Expediting a Risk-Based Regulatory Framework

The commercial UAS industry was pleased to see the FAA implement its long-awaited Small UAS Rule, commonly known as Part 107, on August 29, 2016. Part 107 ended the categorical prohibition on commercial UAS operations unless approved through a lengthy and burdensome exemption process and is allowing businesses to leverage UAS technology to generate revenue and provide more services to customers. However, commercial UAS technology – as is the case with many rapidly developing sectors of the 21st century economy – is evolving at a pace that has exceeded regulations. Part 107 is just the first step towards the comprehensive, forward-leaning, and risk-based regulatory framework that the United States needs to continue to attract

investment in this technology and create jobs for American workers in an increasingly competitive global market.

The United States' ability to fully realize the vast economic and consumer potential of commercial UAS technology is dependent upon future regulatory actions that will permit advanced operations currently prohibited or allowed only through burdensome waiver or exemption processes. The status quo imposes significant opportunity costs on American businesses and individuals who are prohibited from receiving the benefits of commercial UAS operations over people and beyond the visual line of sight.

The FAA was scheduled to publish an NPRM for commercial operations over people by the end of 2016, but the proposed rule has unfortunately been put on hold indefinitely due to national security concerns that have not been identified to industry. The UAS industry has not been able to open dialogue with the appropriate agencies to discuss potential solutions to address these concerns and move the rulemaking forward. While national security concerns are of utmost importance, it would be unfortunate if the progress of our commercial UAS industry is jeopardized due to concerns that do not implicate the commercial sector.

Further, the longer this rulemaking is delayed, the longer industry and consumers will have to wait for additional rulemakings, including one to permit expanded operations beyond the visual line of sight. BVLOS operations are particularly important in the agriculture sector, though also vitally important in other applications that will benefit the public interest. Operations over people

and beyond the visual line of sight will significantly enable and improve response times of search and rescue, firefighting, and natural disaster response and recovery missions.

Without these rulemakings, the UAS industry in the United States will stall and other countries will assume the mantle of leadership in this rapidly developing industry. Congress can ensure that this does not happen by working with the FAA to expedite regulations that will realize the immense safety, economic, and social benefits of commercial UAS.

Innovation Hangs in the Balance

Thank you again for holding this hearing and for the opportunity to testify on behalf of PrecisionHawk and the Small UAV Coalition. Congress has a pivotal role in ensuring that the United States embraces the massive economic potential and consumer benefits of commercial UAS technology and preserving American leadership in this rapidly developing industry that touches so many vital sectors of the economy. We look forward to continuing to work with Committee members, the FAA, and all stakeholders to expedite the development of a comprehensive regulatory framework that will allow for the safe and efficient integration of UAS into the national airspace.