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**The White House**

For Immediate Release

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# FACT SHEET: New Commitments to Accelerate the Safe Integration of Unmanned Aircraft Systems

WASHINGTON, DC - Since President Obama took office in 2009, developments in aviation, sensing, and software technology have powered a revolution in unmanned flight. In the next decade, the burgeoning commercial drone industry is projected to generate more than \$82 billion for the U.S. economy and, by 2025, could support as many as 100,000 new jobs.

Today, the White House Office of Science and Technology Policy (OSTP) is announcing new steps, sustained by public and private support, to promote the safe integration and innovative adoption of unmanned aircraft systems across the United States. These announcements build on the Administration's efforts over the past seven and a half years to support the safe integration of unmanned aircraft into the highly-complex network that comprises the National Airspace System, including: air navigation and air traffic control facilities, airports, technology, and the appropriate rules and regulations. Most notably, these announcements expand on the Department of Transportation and the Federal Aviation Administration (FAA)'s ["Small UAS" rule](#) announced earlier this summer to provide national guidelines for the operation of non-recreational unmanned aircraft under 55 pounds.

Key actions announced today include:

- **\$35 million in research funding by the National Science Foundation (NSF)** over the next five years to accelerate the understanding of how to intelligently and effectively design, control, and apply UAS to beneficial applications. This will include areas such as monitoring and inspection of physical infrastructure, smart disaster response, agricultural monitoring, the study of severe storms, and more;
- **A broad range of actions by the U.S. Department of the Interior (DOI)** to use UAS to support search and rescue operations, to augment manned aircraft operations, and improve government processes around technological adoption;
- **A \$5 million down-payment by the state of New York** to support the growth of the emerging unmanned aircraft systems industry across New York; and
- **A collective commitment made by UAS industry associations to implement a broad educational effort around privacy best practices** for users of UAS technology, among other private-sector commitments to support UAS technologies.

These announcements are being highlighted as part of today's White House [\*\*OSTP Workshop on Drones and the Future of Aviation\*\*](#) to advance and celebrate the potential of unmanned aircraft systems.

## **BACKGROUND**

As a result of rapid innovation, unmanned aircraft systems (UAS), or drones, are now commercially available on a large scale. This new technology has already helped government, the research community, and industry carry out their work more efficiently and safely. UAS will also enable high-impact research, create new jobs and industries, save lives, and provide scientific, economic, and social benefits that public and private entities are only beginning to explore.

The announcements released today include actions that expand the Federal Government's capacity to use unmanned aircraft operations to advance agency and department missions and accelerate research discoveries related to airspace integration, and private actions to enhance mobility, expand participation, and promulgate privacy best practices. In addition, these efforts will enable advances in inspection of critical infrastructure, protection of endangered species and habitats, delivery operations that will increase accessibility to remote communities, suppression of wildfires, enhanced emergency response operations, and ever-more capable UAS platforms to gather critical data to help protect and further explore the world.

In addition to opening up the airspace for small UAS flight, in February of 2015, the President issued a Presidential Memorandum titled: [\*\*Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems\*\*](#). In May 2016, FAA Administrator Michael Huerta announced the [\*\*FAA's Drone Advisory Committee\*\*](#)—a broad-based, long-term advisory committee that will provide the FAA with advice on key unmanned aircraft integration issues by helping to identify challenges and prioritize improvements related to this emergent technology. And in June 2016, OSTP announced the [\*\*White House Future of Artificial Intelligence initiative\*\*](#)—assisted by the National Economic Council and the Council of Economic Advisors—to ensure smart policymaking on emergent technologies like unmanned aircraft systems and other intelligent platforms.

## EXECUTIVE ACTIONS ENABLING EXPANDED UAS OPERATIONS

- **Enabling additional UAS operations through rulemaking:** The FAA is working on the next regulatory steps for safely integrating UAS in the airspace. The proposed rule for Operations of Small Unmanned Aircraft Over People is scheduled to be published for public comment by this winter. This proposed regulation will become the framework for beneficial uses of drones near crowds, such as aerial photography or videography for newsgathering; for certain types of infrastructure inspection; and other applications. This proposed rule will be based on the recommendations developed by an industry stakeholder committee earlier this year.
- **Chartering a UAS Safety Team:** To address safety issues related to the increasing number of unmanned aircraft systems operations, the FAA will work with UAS industry stakeholders to charter an Unmanned Aircraft Safety Team (UAST). Similar to the existing Commercial Aviation Safety Team, the UAST will consist of government and industry stakeholders who will use a data-driven, consensus-based approach to analyze safety data and develop non-regulatory interventions to mitigate potential causes of accidents involving unmanned aircraft.
- **Supporting Fundamental Research: The National Science Foundation (NSF)** is committing \$35 million in research funding over the next five years to accelerate understanding of how to intelligently and effectively design, control, and apply UAS to beneficial applications in areas such as monitoring and inspection of physical infrastructure, prevention of airport bird strikes, smart disaster response, agricultural monitoring, and study of severe storms. These advances are being made possible through NSF's fundamental investments in theoretical principles of UAS, intelligent sensing, control, and perception; communications; collaboration and teaming; adaption and learning; operator-vehicle interaction; and safety, security, and privacy.
- **Enabling the safe integration of unmanned aircraft systems through standards-generation and interagency collaboration: The National Aeronautics and Space Administration (NASA)** is supporting the research needed to safely integrate unmanned aircraft in the National Airspace System. NASA is working closely with the FAA, the FAA UAS Test Sites, and the UAS community to ensure that safety functions for unmanned aircraft are defined and validated to inform development of UAS-related standards and regulations. In addition to this ongoing work, today NASA is announcing:
  - **Initiating new research to inform development of standards for Detect and**

## **Avoid and Command and Control for UAS: NASA's Aeronautics Research**

**Mission Directorate** will initiate new research in FY 2017 to inform development of new standards for detect and avoid and command and control technologies. This research, planned for completion by FY 2020, will include simulations and human-in-the-loop tests. The tests will occur in coordination with the RTCA and industry and government partners.

- **Launching a joint NASA and FAA data exchange working group:** NASA and the FAA are launching a data exchange working group under the UAS Traffic Management (UTM) Research Transition Team (RTT) to address the challenge of coordinating information between operators, entities that use UTM to perform services, and the FAA. This group will develop a consistent format for data to be shared across the affected parties with recommendations slated for release in FY 2017. The specifications will increase operational safety by providing information to the operators and FAA air traffic management systems consistently and quickly.
- **Expanding existing capabilities through enhanced technology and training: The Department of the Interior (DOI)**, which manages one-fifth of all land in the United States, has used unmanned aircraft systems since 2009 to conduct wildlife and vegetation surveys, to protect endangered populations, perform archeological studies, assist in emergency response, conduct wildfire management on a 24-hour-a-day basis, and more. Today, DOI is committing to:
  - **Using unmanned aircraft systems for search-and-rescue operations:** DOI will develop and maintain a training program for the use of UAS in Search and Rescue (SAR) by October 2018. This program will allow DOI first responders to rapidly deploy unmanned aircraft technology in critical search-and-rescue situations.
  - **Developing UAS for augmenting manned aircraft missions:** By December 2017, DOI will develop payloads that have traditionally been carried aboard manned aircraft for UAS. This will augment the manned aircraft fleet and result in cost-savings and reduced risk to departmental personnel.
  - **Rapidly prototyping and approval of new UAS payloads:** DOI will develop a process for the rapid prototyping and approval of new UAS payloads for its fleet by January 2018. This will allow for quick access to new sensor technology for users in the field as technology advances.
  - **Implementing rapid data processing capabilities:** UAS-collected data often requires post-mission processing before it can be used directly by the end user. DOI will find innovative solutions for rapid processing of data into usable products for scientists, first responders, and land managers. By FY 2019, DOI

will have in place procedures for rapid data processing of UAS-acquired data using the cloud. This will dramatically reduce the time needed to process imagery at a local office.

- **Increasing data sharing of wildland fire locations:** DOI will share near-real-time fire location information with the public by July 2017 as part of a multi-faceted effort to prevent unauthorized drone incursions over active wildfires. Building upon DOI's 2016 prototype wildland fire location data sharing initiative with three volunteer industry partners, this expanded data sharing initiative will further reduce the risk of drone incursions that jeopardize the safety of wildland firefighters.
- **Helping U.S. citizens and businesses stay informed and able to make critical decisions: The National Oceanic and Atmospheric Administration (NOAA)** provides environmental intelligence for the Nation through science, service, and stewardship. One of NOAA's observational infrastructure investments has been the research, development, demonstration, and evaluation of new observing strategies using unmanned aircraft systems to fill critical data gaps or improve observing services. Today, NOAA is committing to:
  - **Using unmanned aircraft for precise gravity measurements:** By 2017, NOAA will begin collecting precise gravity measurements from an aircraft that can be flown remotely from a ground control station or as a traditional aircraft. These new gravity measurements will be added to other gravity data collected by traditional manned aircraft to improve how surface elevations are calculated over the entire United States. NOAA will create a new vertical elevation reference system that will improve flood plain mapping and help mitigate risks for coastal communities from tsunamis, hurricanes, and storm surges.
  - **Augmenting observing capabilities from ships:** By 2017, NOAA will begin investigating how to add UAS observing capabilities to the NOAA fleet of ships. Effective shipboard UAS operations will significantly expand observational capabilities for critical weather, air quality and ocean monitoring, and management of marine resources, including endangered species.
- **Exploring the public's views on using unmanned aircraft for the delivery of mail or packages:** Technological innovation is rapidly transforming what is possible in the world of delivery. One of the innovations that is gaining extensive attention is delivery by unmanned aircraft, but to date little research has been done on public support for the concept. Today, the **United States Postal Service Office of Inspector General** is announcing its intention to publish new findings and analysis on the public's rapidly-evolving opinion of drone delivery as a potential future logistics technology. Several topics are covered in the study, including the opinion

of survey respondents to unmanned aircraft delivery's overall appeal, its most and least compelling applications, the believability of claims about its potential benefits, the public's expected timeframe for implementation of operations, potential downsides of the proposed technology, and how the public would view drone delivery if it were offered by the U.S. Postal Service and a small collection of other interested organizations.

## **STATE INVESTMENTS TO SUPPORT THE GROWTH OF THE UNMANNED AIRCRAFT SYSTEMS INDUSTRY**

- **Launching an initiative to grow the UAS industry:** Today, **Empire State Development**, New York State's chief economic development agency, announced a significant commitment to support the growth of the emerging unmanned aircraft systems (UAS) industry in New York State, specifically in the Upstate region. Through an initial investment of \$5 million, New York will strengthen the ongoing efforts to create a hub for UAS innovation and manufacturing. This early investment will support the planning and design of next generation Unmanned Aerial Traffic Management (UTM) infrastructure, national UAS standardized testing and rating facilities, and an innovation district dedicated to unmanned systems in a corridor between the cities of Syracuse and Rome, New York.

This \$5 million investment is part of New York State's commitment to growing the UAS industry through the strategies outlined in the Central New York Rising plan, which was awarded \$500 million through Governor Andrew Cuomo's \$1.5 billion Upstate Revitalization Initiative. Educational institutions, such as Syracuse University and Mohawk Valley Community College, are aligning training curriculum and research efforts around issues related to UAS and the growing needs of this sector. New York State has also launched the largest business accelerator program in the country, called GENIUS NY, with awards of up to \$1 million targeted on unmanned systems startup companies.

- **Expanding UAS testing:** The **Northern Plains UAS Test Site** in North Dakota will conduct beyond visual line of sight UAS flights from the Grand Sky business and aviation park, an innovative Enhanced Use Lease between Grand Forks Air Force Base and Grand Forks County that has enabled private developers to open the Nation's first drone business park of its kind. Pending FAA airspace authorization, these flights will go from the surface to 29,000 feet without a chase aircraft and support the integration of heavier, faster UAS that can operate at higher altitudes.

# PRIVATE SECTOR COMMITMENTS TO EXPAND TECHNOLOGICAL CAPABILITIES AND APPLICATIONS

## *Delivering Critical Mobility to Communities in Need*

- **Using unmanned aircraft to deliver critical medical supplies to improve health access in hard-to-reach areas: Zipline International**, with the support of **Ellumen**, **ASD Healthcare**, and the nonprofit **Bloodworks Northwest**, will demonstrate the viability of unmanned aircraft technology in disseminating critical care supplies to remote communities in the United States. The demonstrations will deliver lifesaving blood, medicine, and medical products to remote communities in the states of Maryland, Nevada, and Washington, including in Indian reservations and their surrounding communities, within six months of regulatory approval. The preliminary missions identified include: Crisfield Clinic, Crisfield; Maryland to Smith Island, Maryland; Reno ASD Healthcare Distribution Center to Pyramid Lake Tribal Health Clinic and/or VA Sierra Nevada Health Care System, Nevada; and Bloodworks Northwest Bellingham Facility or Lummi Reservation to San Juan Islands, Washington.
- **Empowering health workers with delivery tools to reach remote communities: Flirtey**, a retail drone delivery startup, is partnering with nonprofit **International Medical Corps** to focus efforts on humanitarian applications for drone delivery technology. The partnership will collaborate to develop lightweight, temperature-managed payload containers for medicines and vaccines for aerial delivery in remote and low-resource settings around the world. This effort will help humanitarian aid workers tackle complex logistical challenges that can make deliveries of crucial supplies for health clinics and hospitals nearly impossible. This partnership will move the humanitarian community one step closer to safe and effective real-time deliveries of lifesaving medical supplies.
- **Informing the public about UAS integration:** Today, the **Commercial Drone Alliance** pledges to lead a broad effort to educate the American public on the integration of UAS into the National Airspace System. The Alliance will host town hall meetings and educational workshops in communities across the country, and will partner with humanitarian organizations to encourage expanded drone use for disaster response and more. The Alliance and its members plan to work with the end-user community, NASA, and UAS Traffic Management (UTM) collaborators to further enable the acceptance of autonomy and UAS technology.

## *Expanding and Promoting Safe Operations*

- **Educating the public about safe unmanned aircraft operations: Sinclair Broadcast Group**, in collaboration with the **Association for Unmanned Vehicle Systems International (AUVSI)** and the **Academy of Model Aeronautics (AMA)**, will develop and broadcast drone safety Public Service Announcements (PSAs) across its stations. These PSAs will help educate the general public about the resources they should familiarize themselves with before operating a UAS. This effort is part of the “Know Before You Fly” safety campaign, developed by industry associations together with the FAA.
- **Operational deployment of Project Wing in an experimental context for evidence-driven policymaking and safe operation: Project Wing** will conduct an operational research study at one of the six FAA UAS Test Sites to gain full operational experience of its delivery service in a safe testing environment. Data gathered will be shared with government partners to help regulators answer critical safety and human factors questions for UAV cargo delivery operations. Project Wing is planning for the testing to include operations with external cargo loads and to build towards beyond line of sight (BLOS) capabilities. The company will also begin to develop and deploy an open-interface, airspace management solution for safe low-altitude small UAS (sUAS) operations using existing low cost, scalable communication and information technologies. The work, which will focus on encouraging good citizenship in operation and collaboration between and across industry and government, will help ensure safe integration of sUAS in the layer of airspace under 400 feet.
- **Developing safety solutions for drone racing operations: The Drone Racing League (DRL)** is releasing best practices for the drone racing industry, including event guidelines, organization, and safety measures. As drone use has grown exponentially over the last year, the sport of drone racing has exploded in popularity. DRL has developed best-practice guidelines for event organization and safety based on extensive research, which today it is making open-source for use by the general public and racing operators. DRL has also made its drone event safety checklists and Emergency Action Plans publicly available to enhance safety at all racing events. DRL is also launching a new website to provide pilots, event organizers, and hobbyists with a practical, easily accessible guide to drone racing safety.
- **Releasing test results to improve safety: PrecisionHawk** is announcing announces its Phase I Pathfinder results demonstrating the safety of extended visual line of sight (EVLOS) operations for drones in rural areas. EVLOS provides societal benefits through expanded commercial applications and greater flexibility in operations. Under the Pathfinder program, an FAA-led initiative to facilitate the

early introduction of low-altitude operations for small, unmanned aircraft systems into the National Airspace System, PrecisionHawk quantified the EVLOS distance at 2-3 nautical miles for non-technology assisted drone operations.

### *Expanding Participation*

- **Supporting greater participation of women and girls in aerial robotics and the drone industry:** Today, the **Women of Commercial Drones** organization and the **Commercial Drone Alliance** announce their collaboration to advance women's participation in the UAS industry. Encouraging and mentoring women and young girls at an early age to become part of the UAS industry is one of the main goals of Women of Commercial Drones. Together, both groups will kick off a mentorship program aimed at supporting career development for women in the UAS industry and achieving success in leadership roles.
- **Encouraging STEM youth engagement through unmanned aircraft systems:** Drone manufacturer **DJI** is supporting 4-H's National Youth Science Day in October of 2016. This year's theme is "Drone Discovery," to inspire kids and young adults to explore science, technology and engineering in more depth. Over 100,000 students will participate in a hands-on challenge during the National Youth Science Day to explore the science behind drones and how this technology is being used to solve real-world problems. Participants will learn about flight dynamics, safety and regulations, remote sensing, and flight control.
- **Enabling job placement for Veterans with free drone pilot training: DroneBase and Drones & Good** are announcing a partnership to provide transitioning military Veterans with training programs and apprenticeships to start a career in the commercial drone industry. DroneBase is a Veteran-founded provider of commercial drone services to real estate, construction, insurance, and other sectors. Drones & Good pairs military veterans with trained drone pilots who accompany them in the field. Through this partnership, DroneBase will provide Drones & Good-qualified Veterans with 10 hours of free in-person and remote training in basic and advanced commercial drone tasks on the most commonly used unmanned aircraft systems, and will commit to providing each Drones & Good team with one real-world commercial job in their area with waived fees.

### *Establishing and Prioritizing Privacy Best Practices*

In conjunction with the announcement of the Small UAS rule in June, the

Administration announced several important steps to advance efforts around privacy protections as use of unmanned aircraft expands. In May 2016, the National Telecommunications and Information Administration (NTIA) and a diverse group of stakeholders – including privacy advocates, UAS industry organizations, companies, and academia—gathered to discuss [best practices](#) to help organizations protect individuals’ privacy when operating UAS. The Administration put out a call for private sector and nonprofit organizations to share commitments for new technologies or business practices that will protect privacy during UAS operations. The following actions build on these best practices to ensure that privacy is a fundamental component of every unmanned aircraft operation:

- **Raising public awareness about privacy best practices:** Building off the NTIA-led multistakeholder process, **The Commercial Drone Alliance, Association of Unmanned Vehicle Systems International, Small UAV Coalition, U.S. Chamber of Commerce, CTIA, National Association of Realtors, National Society of Professional Surveyors, and MAPPS** are announcing a broad educational effort to raise awareness for users of UAS technology around privacy best practices and some of the ways they can be incorporated into various operations.
- **Disseminating information on industry privacy safeguards:** Today, in response to the Administration’s call-to-action on privacy protections related to UAS operations, the **Future of Privacy Forum, Intel, and PrecisionHawk** released a report entitled "Drones and Privacy by Design: Embedding Privacy Enhancing Technology in Unmanned Aircraft," detailing how leading drone companies are building privacy safeguards into their technologies and services. The report highlights technologies and practices that help drone operators minimize the collection and retention of personal data, obfuscate images of individuals collected from the air, and secure personally identifiable information. The widespread adoption of geo-fencing and other technologies is enabling drones to reduce privacy risks while tackling important, often life-saving missions.

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