



November 19, 2020

Kevin Williams, Ph.D.  
Federal Aviation Administration  
Bldg. 13, Rm. 250D  
6500 S MacArthur Blvd.  
Oklahoma City, OK 73125.

Re: Proposed FAA Unmanned Aircraft Systems Market Survey; Document Number 2020-25260

To Whom It May Concern:

The National Agricultural Aviation Association (NAAA) appreciates the opportunity to comment favorably on the proposed Unmanned Aircraft Systems (UAS) Market Survey with additional suggestions to the FAA's proposal.

Importance of the Aerial Application Industry: NAAA consists of over 1,600 members and represents the interests of small business owners and pilots licensed as commercial applicators that use aircraft to enhance the production of food, fiber, and bio-fuel; protect forestry; protect waterways, pastureland, and rangeland from invasive species; and control health-threatening pests, including mosquitos that spread health threatening and sometimes lethal ailments such as West Nile virus and Zika virus. Almost 28 percent of crop protection product applications to commercial farmland are made aerially. As a result, NAAA estimates that 127 million acres of cropland are treated via aerial application in the U.S. each year. Aerial applications are often the only, or most economical, method for timely pesticide application. Additionally, aerial application is conducive to higher crop yields, as it is non-disruptive to the crop and causes no soil compaction, thus improving soil health and crop yields. This results in more food and fiber being produced using less land, allowing the land to be repurposed for other uses, including habitat preservation for endangered and/or threatened plant, animal, and aquatic species beneficial to the environment, and for preserving vegetative ecosystems important to the environment such as carbon-sequestering forests and water purifying wetlands.

Because of the importance of the aerial application industry, it is vital that a safe, low-altitude airspace exists to ensure these pilots can continue to do their jobs safely. Ensuring safe low-altitude airspace includes minimizing obstructions which are difficult to be seen and identified by the pilots. In addition to aerial application operations, aircraft users of low-level airspace include: Emergency Medical Services (EMS), air tanker firefighting aircraft and their lead aircraft; power line and pipeline patrol aircraft; power line maintenance helicopters; fish and wildlife service aircraft; animal control aircraft (USDA-APHIS-ADC); military and law enforcement helicopter and fixed-wing operations; seismic operations (usually helicopters); livestock roundup (ranching or animal relocation); aircraft GIS mapping of cropland for noxious weed populations and the like; and others.

NAAA is in favor of the proposed FAA Unmanned Aircraft Systems Market Survey. NAAA believes that the goal of ascertaining the minimum knowledge, skills, abilities, testing, and

staffing procedures required for operating UAS is important for the safe integration of UAS into the National Airspace System (NAS). NAAA has long advocated for Unmanned Aerial Vehicle (UAV) operators to have the equivalent of a manned aircraft pilots license. Obtaining a pilot's license is the best way to ensure that UAV operators understand the big picture of how they fit into the NAS. NAAA is pleased that the FAA plans on surveying experts in industry and academia on UAS. NAAA believes that expanding the survey to include those who are experts in manned aircraft operations around UAV would be a way for the FAA to enhance the quality, utility and clarity of the information collected. This expanded survey should include pilots and operators of aerial application aircraft along with the other airspace users mentioned in the preceding paragraph who fly at low altitudes below the 400-foot ceiling where UAS operate.

NAAA is concerned that the widespread use of UAS, without proper safety measures, will result in conditions ripe for low-altitude aviation accidents. UAS present a hazard to low-flying pilots similar to that presented by birds and other low-altitude obstacles such as other manned aircraft and towers. Birds such as mallard ducks and red tail hawks weighing between 1 pound to 2.4 pounds have dented the leading edges of ag aircraft wings and crashed through cockpit windows. Aircraft-wildlife strikes are the second leading causes of aviation-related fatalities. There have been about 142,000 wildlife strikes with civil aircraft in the U.S. between 1990 and 2013 (about 11,000 strikes at 650 airports in 2013), with 25 fatalities. Between 1990 and 2013 62 aircraft have been destroyed by wildlife strikes. When adjusted for inflation and the estimated number of unreported strikes, wildlife strikes have resulted in nearly \$1 billion in losses between 1990 and 2012.

A recent study<sup>1</sup> conducted by the FAA through the Alliance for System Safety of UAS through Research Excellence (ASSURE), shows UAS collisions with aircraft would cause more damage than would a bird strike of similar size, due partially to UAVs' dense motors and batteries. Using simulations, researchers replicated collisions of UAVs weighing 2.7 to 8 pounds with common mid-sized commercial and business jets. The "stiffer" parts of a UAV, such as motors, batteries, and cameras, caused the worst damage to engine fans. In some cases, UAVs in the simulations also punctured the skin of the aircraft. Birds, already a risk to manned aviation, cause less damage in comparison because they are softer and made mostly of water. The UAS equipment described in this request for exemption has a maximum takeoff weight of 125 pounds. A collision between one of these unmanned aircraft and a manned aircraft could be catastrophic.

Research conducted by the University of Dayton Research Institute and widely covered in the media showed what can happen should a UAV collide with a manned aircraft. The research team mimicked in a laboratory setting a collision between a DJI Phantom 2 quadcopter and a Mooney M20 aircraft. While the UAV only weighed 2.1 pounds, it did extensive damage to the wing of the Mooney. Should such a collision occur with an agricultural aircraft while it is making a pass in a field at the standard application height of 10 to 15 feet, there would be little opportunity for the pilot to avoid crashing into the agricultural aircraft.

Conclusion: The issue of protecting all pilots from mid-air collisions, when they are operating near unmanned aircraft is vitally important. In the case of agricultural aviators, timely treatment of the crop is an issue of great importance to the safe, affordable, and abundant production of food, fiber and biofuel to our global population.

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<sup>1</sup> <http://www.assureuas.org/projects/deliverables/sUASAirborneCollisionReport.php>

NAAA is aware of the important functions which can be accomplished by UAS, but at the same time protecting the safety of current and future users of the NAS is of paramount importance. This survey will help the FAA obtain that safety goal.

NAAA appreciates the FAA addressing this life-saving issue vital to the agricultural aviation industry and urges the Agency to consider the above stated comments to strengthen aviation safety overall.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew D. Moore". The signature is written in a cursive style with a large initial "A".

Andrew D. Moore  
Chief Executive Officer