

**MEMORANDUM OF UNDERSTANDING
BETWEEN
FEDERAL AVIATION ADMINISTRATION,
UNMANNED AIRCRAFT SYSTEMS INTEGRATION OFFICE
AND
THE U.S. DEPARTMENT OF JUSTICE,
OFFICE OF JUSTICE PROGRAMS,
NATIONAL INSTITUTE OF JUSTICE
CONCERNING
OPERATION OF UNMANNED AIRCRAFT SYSTEMS
BY LAW ENFORCEMENT AGENCIES**

I. PURPOSE: This Memorandum of Understanding (MOU) sets forth an agreement between the Department of Transportation, Federal Aviation Administration (FAA) Unmanned Aircraft Systems Integration Office, and the Department of Justice (DOJ), Office of Justice Programs (OJP), National Institute of Justice (NIJ), hereinafter, “the Parties,” to implement a streamlined training and authorization process to enable nonfederal law enforcement agencies (LEAs) to operate unmanned aircraft systems (UAS) within the United States safely, effectively, and lawfully.

II. AUTHORITY: This MOU is entered into on the part of NIJ pursuant to Titles II, III, and V of the Homeland Security Act of 2002 (6 U.S.C. §§ 121 *et seq.* and 182 *et seq.*); and Title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. §§ 3711 *et seq.*), and on the part of the FAA pursuant to the Federal Aviation Act of 1958 (49 U.S.C. §§ 40101, 40103, and §§ 44701-44735).

III. BACKGROUND:

The FAA is charged with regulating the use of U.S. airspace to ensure its safety and efficient use. With regard to public UAS, including those used by LEAS and other public safety agencies, Public Law 112-95, the FAA Modernization and Reform Act of 2012, directs the FAA to issue guidance regarding the operation of public UAS to—

- 1) Expedite the issuance of a certificate of authorization (COA) process.
- 2) Provide for a collaborative process with public agencies to allow for an incremental expansion of access to the national airspace system as technology matures and the necessary safety analysis and data become available and until standards are completed and technology issues are resolved.
- 3) Facilitate the capability of public agencies to develop and use test ranges, subject to operating restrictions required by the FAA, to test and operate unmanned aircraft systems.
- 4) Provide guidance on a public entity’s responsibility when operating an unmanned aircraft without a civil airworthiness certificate issued by the FAA.

It further requires that the FAA shall, not later than December 31, 2015, develop and implement operational and certification requirements for the operation of public UAS in the national airspace system.

NIJ is the research, development, and evaluation arm of the U.S. Department of Justice and is dedicated to researching crime control and justice issues. NIJ provides objective, independent, evidence-based knowledge and tools to meet the challenges of crime and justice particularly at the state and local level. Through its Office of Science and Technology, NIJ, in part, serves as the national focal point for research, development, testing, and evaluation of technology for law enforcement. NIJ identifies the needs of the law enforcement community for new technologies and tools and develops solutions. NIJ develops standards and conducts testing to evaluate technologies that may be used by law enforcement agencies. NIJ works with other federal agencies to establish a coordinated federal approach on issues relevant to law enforcement and with government agencies at all levels and professional associations to foster the adoption into practice of new tools and technologies. The activities NIJ sponsors in this regard include development of relevant training materials, best practice guides, and policies.

Through a research project aimed at identifying low-cost aviation solutions for small and rural agencies that cannot afford the costs associated with operating traditional fixed-rotary-wing aircraft, NIJ determined that UAS could provide an affordable solution for those agencies that need "eyes in the sky" but lack the budget or for those agencies that need to supplement their current aviation units with more cost effective aircraft for specific missions.

NIJ and the FAA have a shared mission to ensure the safe and effective use of UAS in public aircraft operations. It is in the interest of both agencies to meet or exceed the goal set by Congress to develop and implement operational and certification requirements for the operation of public UAS in the national airspace system (NAS). To that end, they have collaborated since 2005 to develop the attached streamlined training and authorization process, which reflects the input of the state, local and federal law enforcement community gathered and represented by NIJ. The result of this collaboration will allow for real-time access to the (NAS) for agencies responding to emergency circumstances.

IV. SCOPE: To further this shared mission, the parties will now collaborate to implement the attached streamlined training and authorization process for LEAs' use of UAS, particularly those agencies without prior aviation experience.

V. IMPLEMENTATION:

A. NIJ will:

1. Prepare and coordinate with the FAA UAS Integration Office (FAA UASIO) and the Department of Homeland Security Science and Technology (DHS S&T) the distribution of a technical bulletin that addresses the utilization of UAS in the NAS for LEAs and other public safety agencies, which NIJ will maintain and update as

necessary.

2. In coordination with FAA UASIO, develop and promulgate a process for collecting, analyzing and publishing UAS training and operational mission data that specifically captures and assesses mission capability of the technology (to include “Lessons Learned”).

B. The FAA UASIO will:

Through the COA validation process, FAA will assess each LEA applying to operate under this agreement to ensure that it demonstrates a level of capability to operate its specific UAS safely and competently within the NAS. The FAA assessment of the proposed UAS operations’ impact on the level of safety in the NAS will evaluate whether adequate mitigations are available to compensate for any inability to comply with 14 CFR §§ 91.111 and 91.113(b).

- C. Each Party to this MOU will fund its expenses associated with participation covered by this MOU. This MOU in no way restricts any Party from participating in similar activities or arrangements with other public or private agencies, organizations or individuals.
- D. Each Party will provide personnel and resources as appropriate to implement its responsibilities under this MOU.
- E. Each Party will take appropriate steps to ensure that its employees, agents, contractors, and consultants involved in projects conducted under this MOU comply with any pertinent provisions of this MOU.
- F. Each Party will handle and expend its own funds. The responsibilities each Party assumes under this MOU are subject to the availability of funds for such purposes. Nothing in this MOU, in and of itself, obligates any Party to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligations. Any endeavor involving reimbursement or contribution of funds between the Parties will be handled in accordance with applicable laws, regulations and procedures, and will be subject to separate interagency agreements that will be effected in writing by representatives of the Parties.
- G. Management Points of Contact. The Parties designate the following individuals to serve as their management points of contact for matters related to this MOU. Each Party may change the individual designated as its management point of contact upon notice to the other Parties of such change.

National Institute of Justice
Office of Science and Technology
Program Manager
202-305-7954

Federal Aviation Administration
UAS Integration Office
Air Traffic Manager
202-385-4661

VIII. MODIFICATION AND TERMINATION:


- A. Amendments or modifications to this MOU must be approved by each of the Parties in writing in accordance with applicable policies, procedures and legal requirements.
- B. Any Party may terminate its participation in this MOU at any time, but should provide thirty (30) days written notice to the other Party. Disposition of any efforts in progress at the time of notification will be determined by agreement of the Parties.
- C. In the event of disagreement between the Parties with respect to this MOU, the Parties will each undertake to attempt a good faith effort to resolve the disagreement. Nothing in this MOU, however, will take precedence over, or negate or affect in any way, the policies, procedures and directives of the respective Parties or any applicable laws or regulations. If a disagreement cannot be resolved, the parties may modify or terminate this MOU.

IX. NATIONAL SECURITY INFORMATION: Security classification guidance for activities undertaken pursuant to a subsequent interagency agreement will be determined in accordance with the laws, regulations and policies governing the lead agency for those activities.


X. PUBLIC INFORMATION COORDINATION: Public disclosures of information regarding projects and activities conducted under this MOU are subject to the Freedom of Information Act (5 U.S.C. § 552). The Parties will consult with each other prior to any public disclosure of information.

XI. EFFECTIVE DATE: The provisions of this MOU become effective as of the date of the last signature hereunder, and will remain in effect for five (5) years, unless terminated earlier in accordance with the provisions of this MOU.

Agreed:


James H. (Jim) Williams
Unmanned Aircraft Systems Integration Office
FAA Aviation Safety Organization
Federal Aviation Administration

Date: 3/4/13


Gregory R. Ridgeway, Ph.D.
Acting Director
National Institute of Justice
Office of Justice Programs
U.S. Department of Justice

Date: 2/27/13

**ATTACHMENT TO THE MEMORANDUM OF UNDERSTANDING
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AND
THE U.S. DEPARTMENT OF JUSTICE,
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PART 1 — LEA UAS Operational Requirements, Elements, and Procedures

I. UAS Safety Risk Analysis Plan (SRAP) and Defined Incident Perimeter

- a. For the purpose of identifying and mitigating risks arising from UAS operations, any LEA wanting to use the streamlined LEA UAS authorization process would be required to submit a formal SRAP as an attachment to its Certificate of Waiver or Authorization (COA) application that specifically identifies the boundaries of the agency's jurisdiction and all unique operational areas within that jurisdiction and attendant hazards (*e.g., airports, motor speedways, large sports complexes, major highways, strategic/sensitive infrastructures, university campuses with airspace, obstruction clearance, public access, evacuation mitigation, rush hour heavily trafficked roads, or other incumbent hazards*). The SRAP must include a description of specific risk controls to be employed to mitigate any attendant hazard for UAS operations within the jurisdiction in the vicinity of those identified unique operational areas.
- b. All UAS operations will be conducted within the boundaries specified in the LEA's COA. These boundaries will fall within the area of the LEA's jurisdictional control. Further, the operation will be conducted within a nonmoving "Defined Incident Perimeter" that is controlled by the LEA and identified by geographic coordinates (pursuit missions are not authorized).
- c. The use of the streamlined LEA UAS authorization process may be used only by LEA's deploying UAS with a gross take-off weight that does not exceed 25 lbs.

II. UAS Airworthiness, Employment, and Safety of Operations

- a. The accountable executive (*e.g., agency head*) of each LEA will acknowledge in writing that the UAS the LEA intends to deploy is airworthy and in a condition for safe operation based on the manufacturer's specifications, maintenance recommendations and operating procedures of the aircraft, control station, communications links and lost link procedures. This process does not constitute an Airworthiness Certification by the FAA.

- b. Upon the first application by each LEA, the applicant must submit a legal determination that it is eligible to operate a public aircraft under the applicable paragraph of 49 U.S.C. § 40102(a)(41) (citing the applicable paragraph and support in its determination), that the UAS will be operated in accordance with 49 U.S.C. § 40125 (will not receive compensation or reimbursement for operation except as specified in the statute) and will not operate the aircraft in any manner that endangers life or property in accordance with 14 CFR § 91.13.
- c. These airworthiness, operational safety and public aircraft statements will be on LEA letterhead stationery, signed and dated by the agency head making the acknowledgements, and must be included as an attachment to the COA application. In the event of a LEA leadership change, a new or revised statement must be submitted to ensure that the new leadership is fully aware and informed of the COA.

III. **Pilot & Observer Qualifications for UAS operations at and below 400 feet AGL**

- a. Each UAS pilot must be an FAA-certificated airman or successfully pass either the FAA's pilot knowledge exam or complete an FAA-approved UAS pilot training curriculum. If operating in an area that requires Air Traffic Controller (ATC) communication, additional pilot training may be required if the UAS pilot is not a certificated manned-aircraft airman.
- b. Pilots will receive training specific to the UAS to be operated. This training must be conducted and documented by a qualified instructor designated by the proponent as being the individual(s) trained and certified by the manufacturer to provide training on the specified UAS.
- c. Pilots are prohibited from flying any public safety mission without having completed three UAS flight events within the preceding 90 days.
- d. Observers must successfully complete a UAS observer training curriculum that includes, at a minimum, instruction on rules and responsibilities described in 14 CFR § 91.111, Operating Near Other Aircraft, 14 CFR § 91.113, Right of Way Rules, Cloud Clearances, and that emphasizes "See and Avoid" concepts and fundamental radio communications, including standard ATC phraseology. Observer training must include thorough instruction regarding manned aircraft traffic conflicts and pilot communications for any maneuvers/actions required to avoid traffic conflicts.
- e. Pilots and observers must not perform duties for more than one UAS at a time and are not allowed to perform concurrent duties both as pilot and observer.
- f. LEA standard operating procedures (SOP) must include Crew Resource Management (CRM) techniques to ensure the highest possible situational awareness and effective communication by pilots and observers during each flight operation. Pilots and observers must be trained in these procedures and techniques.

- g. All pilot and observer training must be conducted and documented by a qualified instructor designated by the proponent as being an individual trained and certified by the manufacturer to provide training on the specified UAS.
- h. Pilots and observers must be medically qualified and have in their possession a second class (or higher) airman medical certificate that has been issued under 14 CFR Part 67, Medical Standards and Certification.¹
- i. 14 CFR § 91.17, Alcohol and Drugs, applies to UAS pilots and observers.

¹The FAA, at the request of DOJ/NIJ, is working to change the requirement for a second-class airman medical certification to "self-certification" as to being healthy to fly and a letter from a competent medical authority confirming the operator's eyesight to the second-class medical certification requirements of correctable to 20/20.

IV. **UAS Flight Operations**

- a. The pilot-in-command (PIC) will conduct a thorough premission briefing prior to commencing any UAS flight operation. At a minimum, the briefing must include a review of the SRAP for the specific hazards within the area of operations, the LEA's standard operating policies and procedures, specific objective(s) of the mission, expected duration of the mission, operating limitations/restrictions, specific duties of each crew member, specific communications plan including a lost communications procedure, and emergency procedures.
- b. UAS operations, within the area of jurisdiction, must remain within a nonmoving "Defined Incident Perimeter" at or below 400 feet above ground level (AGL). The LEA will identify and manage all potential air and ground hazards inside the "Defined Incident Perimeter," especially concerning overflight of people and private property. "See and Avoid" is paramount to safe UAS operations, and all flights will remain within the visual line of sight of the pilot and employ at least one observer, not including the PIC. All of the risks and associated liabilities that exist within the "Defined Incident Perimeter" must be legitimately mitigated, and the safety of people and property assured.
- c. UAS flight operations will only be conducted during daylight hours and must adhere to Day Visual Flight Rules (VFR) with Visual Meteorological Conditions (VMC) with visibility and cloud clearances specified for Class E airspace.
- d. Use of visual observers in a linear fashion away from the control station (daisy chaining) is prohibited.
- e. Moving "Defined Incident Perimeters" to accommodate pursuit missions are prohibited. UAS pursuit missions are NOT authorized outside of the "Defined Incident Perimeter."
- f. Only one LEA UAS will be flown at a time within the "Defined Incident Perimeter."
- g. The UAS will not fly over outdoor assemblies of people or heavily trafficked roadways. LEA UAS flight operations must be offset as needed to ensure the orbit or flight path of the UAS does not incur a risk of injury to persons or property along its flight path. A mitigation strategy may include, but is not limited to,

evacuation of persons from within the defined incident perimeter by legal police authority.

- h. The PIC shall comply with all ATC instructions and/or clearances.
- i. Operations within Class A and B airspace are prohibited. *(Note: A description of classes of airspace is included as an attachment at the end of this document)*
- j. UAS operations within Class C and D airspace are prohibited, unless the LEA has a Letter of Agreement (LOA)/procedure with the controlling ATC facility, the ATC facility has given the proponent specific approval to operate without a transponder at the time of the notification of the operation, two-way communications are maintained with the ATC for the duration of the UAS operation, and the UAS is configured with an independent flight termination system.
- k. The PIC or his designee will monitor Universal Communications (UNICOM) or appropriate ATC frequencies during all flights. The LEA will not fly in airspace other than Class G inside the area of jurisdiction without the approval of the managing ATC facility.
- l. The PIC will maintain two-way radio communications when flying within five nautical miles of an operational control tower. During the period of time a control tower is closed, the PIC will monitor the appropriate UNICOM or Common Traffic Advisory Frequency (CTAF). Operations will not be conducted within a one-half-mile radius of noncontrolled airports, heliports or water landing areas without ATC or airport management approval.
- m. For operations within 5 NM from any airport or heliport, the PIC shall hold, at a minimum, an FAA private pilot certificate.
- n. In accordance with 14 CFR § 91.3 and § 91.111, the PIC is responsible at all times for collision avoidance with other aircraft and the safety of all operations, persons and property. In the event of a potential conflict with other aircraft, the PIC will immediately terminate the flight and land the UAS to ensure safety. LEA will not conduct UAS flight operations if a manned LEA aircraft is operating within the "Defined Incident Perimeter."
- o. The PIC must coordinate with the ATC facility having jurisdiction over the airspace above the "Defined Incident Perimeter" no less than 2 hours prior to commencement of flight operations for routine (noncritical and training) missions and normally 60 minutes, but no less than 30 minutes, for missions requiring critical/immediate response.

V. Requirements

It is understood that because of the immediacy of some tactical operations, the timeliness of Notice to Airmen (NOTAM) notification may need to be reduced to accommodate the criticality of the mission. For those missions where response to the event is critical, a distance (D) NOTAM must be filed with ATC no later than 1 hour prior to commencing UAS flight operations. This NOTAM must provide:

- a. Name and contact data of entity conducting UAS operations.
- b. Location and altitude of the specific operating area (“defined incident perimeter”).
- c. Name of PIC.
- d. Time and nature of the UAS activity.

Additionally, to use the 1-hour notification timeframe for these critical operations, the proponent must place a notice in the Airport Facility Directory (AFD) advising of the possibility of Unmanned Aircraft Operations in the operational area during the period of time this COA is valid. Until the AFD entry is published, the 48-hour minimum NOTAM requirement remains in effect, unless otherwise authorized. For all UAS missions NOT classified as a critical or immediate response (e.g., currency/proficiency or training missions), a distance (D) NOTAM shall be issued 48 to 72 hours prior to normal unmanned aircraft operations being conducted.

An LEA does not need to file a NOTAM for a specific mission if it is determined that issuing the NOTAM could reasonably place the safety of officers or the success of the mission at jeopardy. Such determination shall be documented in the UAS flight log. Immediate, critical operations below 100 feet AGL, not exceeding 15 minutes in duration, are authorized provided a notice of UAS operations within the jurisdiction has been published in the AFD, UAS operations will not commence within 5 NMs of an airport or heliport without ATC coordination, and UAS operations are not being conducted within Class B airspace. The proponent must contact the appropriate ATC facility prior to the operation to obtain approval.

VI. **Formal Training Program**

- a. Each LEA shall establish a training program that addresses the initial and refresher training of all pilots and observers assigned to the UAS program, crew members, or individuals who may be used for missions of the LEA UAS program. The training program will include the identification/location of a UAS training site that is confined to Class G airspace remaining well clear (as specified in the minimum requirements of 14 CFR § 91.119) of housing areas, roads, and any persons or watercraft within the specific operating location. This training site will be used for the development and exercising of scenarios that address the utilization of the UAS technology integrated with other internal and external agencies and organizations that may use the UAS technology for operational missions.
- b. Each LEA’s formal training program for UAS crew members and ground crew will concentrate on scenario based training exercises that focus on, but are not limited to; Standard Operating Procedures (SOP), Crew Resource Management (CRM), emergency and abnormal procedures, and coordination and communication between operational elements. All pilot, observer and crew member training must be formally documented, including initial manufacturer training and LEA training and currency. Instructors and evaluators must be designated by LEA in writing, including manufacturer personnel.

- c. Initially, the COA will restrict LEA UAS operations to the training and evaluation of LEA pilots, observers and crew members using the UAS technology. When the LEA believes its personnel are sufficiently proficient to safely conduct LEA operational missions, the LEA will request the FAA to conduct a thorough program review, including a review of all training records, flight manuals, standard operating procedures and other supporting program documentation. The FAA will work to conduct an onsite evaluation of a LEA UAS exercise to demonstrate the competency and safety of the LEA UAS program and the coordination and control among LEA supporting elements within 30 days of notification by the agency. After a successful program review and evaluation by the FAA of an actual exercise for safety and competency, the FAA will issue an operational COA approving UAS operation within the jurisdictional boundaries. It is understood that training of ATC personnel may need to precede the implementation of the COA.

VII. **Standard Operating Procedures**

SOPs are essential to the successful growth and maturity of a safe program. LEAs must create, distribute, implement and provide training on UAS SOPs for each phase of flight operation from notification for deployment through preflight, launch, recovery, postflight and mission recordkeeping. Effective SOPs must include, at a minimum, emergency procedures and standards for expected scenarios (e.g., lost link, lost communications between observers and the (PIC) or between the PIC and the ATC, medical emergencies), CRM, sterile cockpit protocols, standard communications between the PIC and the observer, and any special mitigation procedures.

VIII. **Safety/Mission Analysis**

- a. In an effort to assist NIJ in gathering technology application data regarding the integration of UAS in the NAS, the LEA will provide NIJ with an Unmanned Aircraft Aviation Operations Report (AOR) that includes the description of the operations; the areas of operations, the nature, dates and flight durations of the missions; and any system malfunctions, discrepancies or incidents (e.g., lost communications, lost link, flyaway or unintentional termination of flight where no damage was sustained by the UAS, CRM breakdowns, UAS issues) noted during a mission. Additionally, to assist the FAA in gathering safety data regarding the integration of UAS in the NAS, the AOR will include a “Lessons Learned” section that contains specific issues experienced or discovered during each UAS flight operation (training or operational). This reporting requirement is in addition to the requirements related to incident/accident and normal operational reporting provisions currently required on all COAs.
- b. In the event of a UAS accident or incident (i.e., damage to property, the UAS or other aircraft; injury to persons; or fatality), the LEA shall immediately notify the appropriate regional FAA office and the UAS Integration Office via the Washington Operations Control Center at 202-493-4170 or 202-267-3333, and provide the LEA activity name, address and contact information, date, time,

location, and UAS nomenclature, along with a brief preliminary description of the circumstances. A summary response will be provided to FAA via the COA online procedures.

PART 2 — FAA Administrative Strategy Supporting Streamlined UAS Authorization Process

I. LEA-Centric Streamlined COA Application Process

- a. In order for LEAs to achieve more rapid authorization for the employment of UAS technology within their respective jurisdictions, the current COA authorization process may be restructured or “streamlined” to address unique LEA operational constraints which would permit LEAs to provide only specific operational and administrative information in the online filing of the COA application. This streamlined process would recognize an acceptable, predefined, UAS description, performance characteristics and operational avionics/equipment technologies verified by an approved third party testing organization. These approved technologies would be contained and maintained within a data library contained and updated within a DOJ and/or DHS online library.
- b. The particular UAS to be employed would be selectable via the library. The “streamlined” LEA-unique COA authorization process would also include standardized operational elements. LEAs would be required to formally acknowledge their agreement to accept and abide by preapproved operational guidelines that would include predetermined flight operations processes, procedural and operating limitations or restrictions, pilot and observer qualifications, a LEA certification airworthiness statement, and qualification/remedial/recurring training and recordkeeping. These processes, procedures and operating limitations/restrictions would be standardized, would apply to all LEAs, and would be similar to mitigation provisions already imposed in various other UAS COA approvals.