Unmanned Aircraft Systems

507.1 PURPOSE AND SCOPE

The purpose of this policy is to establish guidelines for the use of an unmanned aircraft system (UAS) and /or small unmanned aircraft system (SUAS) and for the storage, retrieval, and dissemination of images and data captured by the UAS.

507.1.1 DEFINITIONS

Definitions related to this policy include:

Small Unmanned Aircraft System (SUAS)-An unmanned aircraft weighing less than 55 pounds, including everything that is onboard or otherwise attached to the aircraft that can be flown without the possibility of direct human intervention from within or on the aircraft.

Unmanned Aircraft System (UAS)-An unmanned aircraft weighing more than 55 pounds, including everything that is onboard or otherwise attached to the aircraft that can be flown without the possibility of direct human intervention from within or on the aircraft.

507.2 POLICY

A UAS may be utilized to enhance the department's mission of protecting lives and property when other means and resources are not available or are less effective. Any use of a UAS will be in strict accordance with constitutional and privacy rights and Federal Aviation Administration (FAA) regulations.

507.3 PRIVACY

The use of the UAS potentially involves privacy considerations. Absent a warrant or exigent circumstances, operators and observers shall not intentionally record or transmit images of any location where a person would have a reasonable expectation of privacy (e.g., residence, yard, enclosure). Operators and observers shall take reasonable precautions to avoid inadvertently recording or transmitting images of areas where there is a reasonable expectation of privacy. Reasonable precautions can include, for example, deactivating or turning imaging devices away from such areas or persons during UAS operations.

507.4 PROGRAM COORDINATOR

The Chief of Police will appoint a program coordinator who will be responsible for the management of the UAS program. The program coordinator will ensure that policies and procedures conform to current laws, regulations, and best practices and will have the following additional responsibilities:

- Coordinating the FAA Certificate of Waiver or Authorization (COA) application process and ensuring that the COA is current, and/or coordinating compliance with FAA Part 107 Remote Pilot Certificate, as appropriate for department operations.

- Ensuring that all authorized operators and required observers have completed all required FAA and department-approved training in the operation, applicable laws, policies, and procedures regarding use of the UAS.
- Developing uniform protocols for submission and evaluation of requests to deploy a UAS, including urgent requests made during ongoing or emerging incidents. Deployment of a UAS shall require written authorization of the Chief of Police or the authorized designee, depending on the type of mission.
- Coordinating the completion of the FAA Emergency Operation Request Form in emergency situations, as applicable (e.g., natural disasters, search and rescue, emergency situations to safeguard human life).
- Developing protocols for conducting criminal investigations involving a UAS, including documentation of time spent monitoring a subject.
- Implementing a system for public notification of UAS deployment.
- Developing operational protocols governing the deployment and operation of a UAS including but not limited to safety oversight, use of visual observers, establishment of lost link procedures, and secure communication with air traffic control facilities.
- Developing a protocol for fully documenting all missions.
- Developing a UAS inspection, maintenance, and record-keeping protocol to ensure continuing airworthiness of a UAS, up to and including its overhaul or life limits.
- Developing protocols to ensure that all data intended to be used as evidence are accessed, maintained, stored, and retrieved in a manner that ensures its integrity as evidence, including strict adherence to chain of custody requirements. Electronic trails, including encryption, authenticity certificates, and date and time stamping, shall be used as appropriate to preserve individual rights and to ensure the authenticity and maintenance of a secure evidentiary chain of custody.
- Developing protocols that ensure retention and purge periods are maintained in accordance with established records retention schedules.
- Facilitating law enforcement access to images and data captured by the UAS.
- Recommending program enhancements, especially regarding safety and information security.
- Ensuring that established protocols are followed by monitoring and providing periodic reports on the program to the Chief of Police.
- Maintaining familiarity with FAA regulatory standards, state laws and regulations, and local ordinances regarding the operations of a UAS.
- Developing procedures for the use of facial recognition software to evaluate information gathered by a UAS, as permitted by 725 ILCS 167/17.
- Ensuring that the department's current UAS policy is posted on the department's website (725 ILCS 167/35).

507.5 USE OF UAS

Only authorized operators who have completed the required training shall be permitted to operate the UAS.

Use of vision enhancement technology (e.g., thermal and other imaging equipment not generally available to the public) is permissible in viewing areas only where there is no protectable privacy interest or when in compliance with a search warrant or court order. In all other instances, legal counsel should be consulted.

UAS operations should only be conducted consistent with FAA regulations.

The Department may not use the UAS to gather information except (725 ILCS 167/15):

a. To counter a high risk of a terrorist attack by a specific individual or organization if the United States Secretary of Homeland Security determines that credible intelligence indicates there is a risk.
b. Pursuant to a search warrant based on probable cause. The warrant must be limited to a period of 45 days, renewable by a judge upon showing good cause for subsequent periods of 45 days.
c. Upon reasonable suspicion that under particular circumstances, swift action is needed to prevent imminent harm to life, forestall the imminent escape of a suspect, or prevent the destruction of evidence. The use of a UAS under this paragraph is limited to a period of 48 hours. Within 24 hours of UAS initiation under this paragraph, the Chief of Police must report its use, in writing, to the State's Attorney.
d. To locate a missing person, engage in search and rescue operations, or aid a person who cannot otherwise be safely reached while not also undertaking a criminal investigation.
e. To obtain crime scene and traffic crash scene photography in a geographically confined and time-limited manner. The use of the UAS under this paragraph on private property requires either a search warrant or lawful consent to search.
f. To obtain information necessary for the determination of whether a disaster or public health emergency should be declared, to manage a disaster by monitoring weather or emergency conditions, to survey damage, or to coordinate response and recovery efforts.
g. To conduct an inspection of the infrastructure of a designated building or structure when requested by a local government agency.
h. To locate victims, assist with victims' immediate health or safety needs, or coordinate the response of emergency vehicles and personnel, when dispatched to an emergency.
i. In advance of or during a routed event or special event, as defined in 725 ILCS 167/5, for those uses allowed under 725 ILCS 167/15.
    1. The notice for UAS use in these instances should be posted at a time, place, and manner as required by 725 ILCS 167/15.

507.5.1 PRIVATE UAS OWNERS

This policy and its restrictions apply to the department's directed use of a UAS owned by a private third party and information gathered by a UAS voluntarily submitted to the Department by a private third party (725 ILCS 167/40).

507.5.2 FACIAL RECOGNITION WITH UAS

Facial recognition software onboard a UAS shall not be used during a flight (725 ILCS 167/17). Use of facial recognition software to evaluate information gathered by a UAS is permissible only under those circumstances described in 725 ILCS 167/17.

507.6 PROHIBITED USE

The UAS video surveillance equipment shall not be used:

- To conduct random surveillance activities.
- To target a person based solely on actual or perceived characteristics such as race, ethnicity, national origin, religion, sex, sexual orientation, gender identity or expression, economic status, age, cultural group, or disability.
- To harass, intimidate, or discriminate against any individual or group.
- To conduct personal business of any type.

The UAS shall not be weaponized (725 ILCS 167/18).

507.7 RETENTION OF UAS INFORMATION

The Records Division supervisor shall destroy all information gathered by the UAS within the timeframe specified by law (725 ILCS 167/20).

Information may be retained by a department supervisor when (725 ILCS 167/20):

a. There is reasonable suspicion that the information contains evidence of criminal activity.
b. The information is relevant to an ongoing investigation or pending criminal trial.
c. The information will be used exclusively for training purposes and all personally identifiable information has been removed from it.
d. The information contains only flight path data, metadata, or telemetry information of the UAS.

507.8 REPORTING

The Records Division supervisor shall report annually, by April 1, to the Illinois Criminal Justice Information Authority the number of UASs owned by the Department and any other required information to be reported under 725 ILCS 167/35.

The report shall contain a copy of the department's current UAS policy (725 ILCS 167/35).

507.9 TRAINING

All members of this department will receive approved training on Unmanned Aircraft System (UAS) Operations a minimum of once every three years. Said training will be documented and maintained by the Training Sergeant.

507.10 COMPLIANCE WITH THE FREEDOM FROM DRONE SURVEILLANCE ACT

If a determination is made that a member has violated the Act, the Department shall take prompt and appropriate action (e.g., training, discipline) (725 ILCS 167/45). If a determination is made that a UAS pilot has willfully violated the Act, the Department shall promptly remove the pilot from its UAS program and take other appropriate action (see the Personnel Complaints Policy) (725 ILCS 167/45).

507.11 DISCLOSURE OF UAS INFORMATION

Information gathered during an inspection of the infrastructure of a designated building or structure shall be given, as soon as practicable, to the requesting local government agency before it is destroyed (725 ILCS 167/20).

The disclosure of information gathered by the UAS is prohibited except (725 ILCS 167/25):

a. To another government agency when there is reasonable suspicion that the information contains evidence of criminal activity or the information is relevant to an ongoing investigation or pending criminal trial.
b. Pursuant to a court order or subpoena in connection with a criminal proceeding.
c. In regard to a completed traffic crash investigation.

Available records of drone usage (e.g., flight path data, metadata, telemetry information of specific flights) may be disclosed subject to the Freedom of Information Act, 5 ILCS 140/1 et seq., and rules adopted under it (725 ILCS 167/25)

507.12 ALTON PD UAS STANDARD OPERATING PROCEDURE

The Alton Police Department maintains a UAS standard operating procedure (SOP) protocol and updates it as needed.

APD UAS SOP 2026 Revised.pdf

Alton Police Department

Small Unmanned Aerial System Protocol

Effective Date: December 1, 2020

Amended : January 21, 2026

Section 1: Introduction

1.1 Purpose

A. The increasing availability of small unmanned aircraft systems ("SUAS") technology allied with image processing applications, real-time video and various sensor payloads, offer an opportunity to collect forensic-quality scene information, provide infrastructure inspections and damage assessments, speed up incident clearance, assist in search and rescue, improve fire observation, and reduce the exposure of law enforcement officers, emergency responders and the public to hazardous conditions.

B. This protocol establishes standard guidelines for the use of SUAS by the Alton Police Department and for the collection, retention and dissemination of images, video and data captured by the SUAS.

1.2 Scope

A. Unmanned aircraft have the potential for many uses in emergency management, law enforcement, and search and rescue applications. Although all of the uses for SUAS cannot be predicted, generally the following are missions for which it may be deployed:

1. To counter a high risk of a terrorist attack by a specific individual or organization if the United States Secretary of Homeland Security determines that credible intelligence indicates that there is that risk.
2. In execution of a search warrant based on probable cause and signed by a judge.
3. If a law enforcement agency possesses reasonable suspicion that, under particular circumstances, swift action is needed to prevent imminent harm to life, or to forestall the imminent escape of a suspect or the destruction of evidence. The use of a drone under this paragraph (3) is limited to a period of 48 hours. Within 24 hours of the initiation of the use of a drone under this paragraph (3), the chief executive officer of the law enforcement agency must report in writing the use of a drone to the local State's Attorney.
4. Search and rescue operations (where there are is no current criminal investigation).
5. For crime scene and traffic crash scene photography. Crime scene and traffic crash photography must be conducted in a geographically confined and time-limited manner to document specific occurrences. The use of a drone under this paragraph (5) on private property requires either a search warrant based on probable cause under Section 108-3 of the Code of Criminal Procedure of 1963 or lawful consent to search. The use of a drone under this paragraph (5) on lands, highways, roadways, or areas belonging to this State or political subdivisions of this State does not require a search warrant or consent to search. Any law enforcement agency operating a drone under this paragraph (5) shall make every

reasonable attempt to only photograph the crime scene or traffic crash scene and avoid other areas.

6. During a disaster or public health emergency, as defined by Section 4 of the Illinois Emergency Management Agency Act. The use of a drone under this paragraph (6) does not require an official declaration of a disaster or public health emergency prior to use. A law enforcement agency may use a drone under this paragraph (6) to obtain information necessary for the determination of whether or not a disaster or public health emergency should be declared, to monitor weather or emergency conditions, to survey damage, or to otherwise coordinate response and recovery efforts. The use of a drone under this paragraph (6) is permissible during the disaster or public health emergency and during subsequent response and recovery efforts.

7. Infrastructure Inspections where every effort will be made to only photograph the building or infrastructure being targeted.

8. Fire observation and damage assessment at the request of a Fire Department. (Arson investigations would be criminal in nature and would fall under the above crime scene mapping requirements.)

9. In response to Public Safety Answering Point (PSAP) dispatched calls for service, when the sole purpose for using a drone is for one or more first responders to locate victims, to assist with immediate victim health or safety needs, or to coordinate the response of emergency vehicles and personnel to an emergency. As used in this paragraph (9), "Public Safety Answering Point" and "PSAP" have the meaning given to those terms in Section 2 of the Emergency Telephone System Act.

10. A routed event or special event. The use of a drone under this paragraph (10) requires that:

    a. notice is posted at the event location for at least 24 hours before the event and clearly communicates that drones may be used at the upcoming event for the purpose of real-time monitoring of participant safety;

    b. Notice is posted, if practical, at major entry points to the event clearly informing the attendees that a drone may be used for the purpose of real-time monitoring of participant safety

    c. The drone is flown in accordance with Federal Aviation Administration safety regulations.

    d. Under this paragraph (10), a law enforcement agency may use the drone:

        (1). In advance of an event, before event participants have begun to assemble, for the sole purpose of creating maps and determining appropriate access routes, staging areas, and traffic routes, provided that no personal identifying information is recorded and provided further that no recorded information is used in any criminal prosecution; or

        (2). During the event to proactively support public safety personnel by monitoring the event footprint in real time:

            i. To detect a breach of event space, including a breach by an unauthorized vehicle, an interruption of a parade route, or a breach of an event barricade or fencing;

            ii. To evaluate crowd size and density;

iii. To identify activity that could present a public safety issue for the crowd as a whole, including crowd movement;

iv. To assist in the response of public safety personnel to a real-time public safety incident at the event; and

v. To assess the traffic and pedestrian flow around the event in real time.

B. The Alton Police Department may also respond to other requests for SUAS service as requested to preserve the health, safety, and welfare of people or property.

C. All missions will be flown in accordance with 14 CFR Parts 61, 91 and 107, as applicable.

D. The program coordinator and Chief of Police shall be notified via department email of all flights. For missions flown in the Dronesense software, the built in notifications will serve as notice.

E. The SUAS shall not be used for any personal reason.

1.3 Privacy

A. All SUAS flights shall be compliant with the Illinois Drones as First Responders Act 725 ILCS 167.

B. A SUAS shall not be intentionally used for the purpose of viewing, recording or transmitting images and/or video in a criminal investigation or prosecution at any location or upon any property at which a person has a reasonable expectation of privacy unless:

1. A warrant or court order has been approved for the search of the property;
2. A right-of-way has previously been established.
3. Consent by the owner or person responsible for the property is obtained; or
4. Exigent circumstances exist, to include emergency response, active fire/search and rescue operations, etc. The factual basis for such exigency shall be documented within 24 hours of flight as described in section 1.2.D.

1.4 Transparency

A. To promote transparency about SUAS activities, the department shall, while not revealing information that could reasonably be expected to compromise privacy, the public safety, or the safety of member agency personnel, or that may not be released pursuant to the **Illinois Freedom of Information Act**, The Illinois Drone Privacy Act, or other Applicable Law:

1. Provide reasonable notice to the public regarding where the SUAS is authorized to operate;
2. Make reasonable efforts to inform the public about the UAS program as well as changes that would be expected to materially affect privacy, civil rights, or civil liberties; and
3. If requested, a general summary of the Alton Police Department's UAS operations during the previous calendar year, to include a brief description of types or categories of missions flown, and the number of times the Alton Police Department's members provided SUAS services.

Section 2: Acronyms and Definitions

2.1 Acronyms

- **AGL** : Above Ground Level
- **ATC** : Air Traffic Control
- **AHJ**: Authority Having Jurisdiction
- **BVLOS** : Beyond Visual Line of Sight CFR : Code of Federal Regulations COA : Certificate of Authorization CRM : Crew Resource Management
- **CS** : Control Station
- **FAA** : Federal Aviation Administration
- **GPS**: Global Positioning System
- **ILA** : Inter-Local Agreement
- **LZ** : Landing Zone
- **NAS** : National Airspace System NOTAM : Notice to Airmen
- **NTSB** : National Transportation Safety Board
- **OPAREA** : Operational Area
- **PIC** : Pilot in Command
- **RPIC** : Remote Pilot in Command
- **TFR** : Temporary Flight Restrictions
- **TRACON** : Terminal Radar Approach Control Facility
- **SUAS**: Small Unmanned Aircraft System
- **VFR**: Visual Flight Rules
- **VLOS**: Visual Line of Sight
- **VO**: Visual Observer
- **LAANC**: Low Altitude Authorization and Notification Capability

2.2 Definitions

A. In addition to the acronyms defined in Section 2.1 above and the terms defined elsewhere in these Operational Guidelines, the following definitions shall apply:

1. **Certificate of Authorization (COA)**. An authorization issued by the Air Traffic Organization of the Federal Aviation Administration to a public operator for a specific unmanned aircraft activity.

2. **Authority Having Jurisdiction**. An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, or a procedure.

3. **Civil Twilight.** The time periods between approximately 30 minutes before sunrise until sunrise, and between sunset and approximately 30 minutes after sunset.

4. **Controlled Airspace**. A generic term that covers the different classifications of airspace (Class A, B, C, D and E airspace) and defined dimensions within which ATC services is provided.

5. **Corrective Lenses.** Spectacles or contact lenses.

6. **Crew Resource Management (CRM).** A process designed to aid in the prevention of aviation accidents and incidents by improving performance through an understanding of human factor concepts, which focuses on interpersonal communication, leadership and decision making by the flight crew.

7. **Defined Incident Perimeter (DIP).** A defined perimeter to be determined based on the scope of the operation and applicable FAA requirements.

8. **First Person View (FPV).** A method used to control a radio-controlled aircraft from the pilot's view point via an onboard camera, fed wirelessly to video goggles or a video monitor.

9. **Night**. The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

10. **Nonparticipant**. Any person not associated with the UA flight mission, including the public, spectators and media.

11. **Crew Leader**. – Any person representing a UAS team/group from a participating agency in the regional SUAS program.

12. **Person Manipulating the Controls**. A person other than the remote pilot in command (PIC) who is controlling the flight of a SUAS under the supervision of the remote PIC.

13. **Remote Pilot in Command (Remote PIC or Remote Pilot)**. A person who holds a remote pilot certificate with a SUAS rating and has the final authority and responsibility for the operation and safety of an SUAS operation conducted under part 107.

14. **Unmanned Aircraft (UA)**. An unmanned aircraft weighing less than 55 pounds, including everything that is onboard or otherwise attached to the aircraft that can be flown without the possibility of direct human intervention from within or on the aircraft.

15. **Small Unmanned Aircraft System (SUAS).** A small UA and its associated elements (including communication links and the components that control the small UA) that are required for the safe and efficient operation of the small UA in the NAS.

16. **SUAS Program Coordinator.** The individual designated by the Chief (usually the Traffic Division Supervisor), who is responsible for reviewing and approving the use of the SUAS in a law enforcement mission and having full oversight responsibility for the SUAS and all logistical and administrative elements of the SUAS operations.

17. **Vision Aides.** Binoculars, night vision devices, etc., used only for augmentation of visual observation duties.

18. **Visual Flight Rules (VFR)**. VFR are a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going and any other aircraft in the vicinity. For LCUAS Team purposes, VFR requires a 3 statute mile visibility with operations conducted at least 500 feet below any clouds.

19. **Visual Line of Sight (VLOS).** At all times the UA must remain close enough to the PIC and the person manipulating the flight controls of the UA for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.

20. **Visual Observer (VO)**. A person acting as a flight crew member who assists the small UA remote PIC and the person manipulating the controls to see and avoid other air traffic or objects aloft or on the ground

21. **Dronesense.** Software for flight, record management, situational awareness, and mission planning to be used in conjunction with department UAS assets.

Section 3: Team Organization

3.1 Overview

A. SUAS may be comprised of any of the following flight crew members but are not limited to: a Remote Pilot in Command, a Visual Observer, the SUAS Program Coordinator and other members who assist in the safe operation and maintenance of the SUAS services.

B. Alton PD's SUAS flight crews may be requested for mutual aid missions by other governmental agencies.

C. The Program Coordinator, in conjunction with the Training Sergeant, is responsible for the training of crew members.

D. The Chief of Police, or his designee, will be responsible for the selection of crew members.

3.2 Program Coordinator

A. The Program Coordinator will oversee all unmanned public safety program operations for the Alton Police Department

B. The Program Coordinator responsibilities include, but are not limited to:

1. Ensuring the flight crew has completed all FAA requirements;
2. Maintaining a current list of the department's certified crew members;
3. Monitoring the condition, maintenance and flight records of the Small Unmanned Aerial Systems and all associated equipment;
4. Performing monthly FAA reports and records management duties. (If required)
5. Ensures flight skills and trainings are completed by pilots.

3.3 SUAS Remote Pilot / Pilot-in-Command (PIC)

A. This position is qualified and supports operations by providing real-time situational awareness in the form of electro-optical (daylight) or infrared video/still images.

B. A PIC is the department member who has final authority and responsibility for the operation and safety of flight, has been designated as PIC before or during the flight, and holds the appropriate category, class, and type rating, if appropriate, for the conduct of the flight.

C. The responsibility and authority of a PIC is described by 14 CFR § 91.3

D. The PIC position may rotate duties as necessary with equally qualified pilots and the agency member designated as PIC may change during flight; provided that a PIC must be designated at all times.

3.4 Visual Observer (VO)

A. A Visual Observer is a person acting as a flight crew member who assists the PIC and the person manipulating the flight controls to see and avoid other air traffic or objects aloft or on the ground.

3.5 Other Crew Members

A. Other crew members include any other agency or department members who assist in the safe operation of the SUAS services.

Section 4 - Airspace Authority

4.1 Authority Identification

A. As governmental entities, member agencies may choose to operate under the Small UAS Rule, 14 CFR Part 107 ("Part 107"), or conduct public aircraft operations under a public training or jurisdictional COA.

B. The PIC will determine the appropriate airspace authority for each flight operation based on the type of airspace, time of day and any other pertinent circumstances.

C. The PIC, VO and crew members will follow the rules of the chosen airspace authority, including any approved waivers, for each operation.

4.2 Controlled Airspace

A. Operations in Class B, Class C, or Class D airspace, or within the lateral boundaries of the surface Class E airspace designated for an airport, are not allowed unless prior authorization is received from ATC.

B. When operating in controlled airspace, the PIC must be aware of all traffic patterns and approach corridors to runways and landing areas.

C. The PIC must avoid operating anywhere that the presence of the UAS may interfere with the operations at the airport, such as approach corridors, taxiways, runways, or helipads.

D. The PIC must yield right-of-way to all other aircraft, including aircraft operating on the surface of the airport.

4.3 Data Reporting

A. Documentation of all operations associated with SUAS activities is required regardless of the airspace in which the SUAS operates.

B. Reporting of all SUAS activities conducted under an approved COA or waiver shall be reported as required by the FAA. Unless otherwise required, the following information must be submitted:

1. The number of flights conducted under the COA or waiver;
2. Aircraft operational hours per flight;
3. Ground control station operational hours in support of each flight;
4. Pilot duty time per flight;
5. Equipment malfunctions (hardware/software) affecting either the aircraft or ground control station;
6. Deviations from ATC instructions and/or Letters of Agreement/Procedures;
7. Operational/coordination issues;
8. The number and duration of lost link events per aircraft per flight.
9. Coordinates and address of flights

Section 5 - Flight Crew Qualifications

5.1 PIC Qualifications

A. Officers wishing to become Remote PICs shall participate in a Department designated training course in preparation for taking the Federal Aviation Authority's (FAA) required Remote Pilot certification test.

B. After completion of the training course, Officers will take the Remote Pilot certification test at an available Airman Knowledge Testing Center.

C. Upon successful completion of the test, Officers shall forward a copy of their Remote Pilot certification to the SUAS Program Coordinator and the Training Sergeant. This certification shall be kept with the Remote PIC at all times during any training or actual mission.

D. A Remote PIC should successfully complete a total of 16 hours annual training to include review of this policy, familiarization with the UA's operator's manual and related equipment, and monthly training, to include two (2) takeoff and landing events.

E. The training shall be at a site authorized by the SUAS Program Coordinator. Other training may be implemented throughout the year as determined by the SUAS Program Coordinator. Training shall be documented according to Department policy.

5.2 Proficiency

A. In order to accomplish required currency training, pilots should participate in one (1) hour of monthly training, at a minimum.

B. Recurrent training is not limited to actual pilot/observer skills, but includes knowledge of all pertinent SUAS and aviation matters.

C. All members within the SUAS flight crew shall maintain proficiency in their operator/observer abilities.

D. At a minimum, the PIC must have conducted two takeoffs (launch) and two landings (recovery) with the specific SUAS aircraft type within the previous 90 days prior to flying an operational mission. Members who do not have documented training or flight time for the preceding 90 days shall demonstrate proficiency before performing pilot/observer duties during a mission.

E. The PIC must pass a recurrent aeronautical knowledge test within 24 calendar months of passing either an initial or other recurrent aeronautical knowledge test.

F. Failure to maintain/prove proficiency can result in removal from SUAS operations.

5.3 VO Qualifications

A. The minimum training and certification requirements for a VO are as follows:

1. Completion of a training course for the safe flight of aircraft, including the responsibilities described in 14 CFR Part 91 §91.111, §91.113 and §91.115, regarding cloud clearance, flight visibility, and the pilot controller glossary, including standard ATC phraseology and communication;

2. Valid driver license.

5.4 Restrictions

A. No person may serve as a PIC, person manipulating the controls, VO or other crew member if he or she:

1. Consumed any alcoholic beverage within the preceding 8 hours;
2. Is under the influence of alcohol;
3. Has a blood alcohol concentration of 0.04 percent or greater; and/or
4. Is using a drug, whether prescription, over-the-counter, recreational, or illegal that affects the person's ability to safely operate the aircraft and/or participate in the SUAS operational mission.

B. No PIC or VO may participate in SUAS activities that exceed 16 continuous operation hours in a 24-hour period.

Section 6 -Aircraft Airworthiness and Maintenance

6.1 Airworthiness Certification

A. The PIC(s) and SUAS Program Coordinator are responsible for determining that the unmanned aircraft used by its pilots are airworthy.

B. All unmanned aircrafts must be operated in strict compliance with all provisions and conditions contained in the Airworthiness Safety Release, including all documents and provisions referenced in any applicable COA applications or Part 107 waivers.

6.2 Maintenance

A. The PIC(s) and SUAS Program Coordinator are responsible for the maintenance of all SUAS owned by the Alton Police Department.

B. SUAS maintenance includes scheduled and unscheduled overhaul, repair, inspection, modification, replacement, and system software upgrades of the SUAS and its components necessary for flight.

6.3 Configuration Control

A. A configuration control program must be in place for hardware and/or software changes made to the SUAS to ensure continued airworthiness.

B. Software changes to the aircraft and control station as well as hardware system changes are classified as major changes that must be documented as part of the normal maintenance procedures.

C. Each aircraft that has a major change in software or hardware configuration must be test flown on a test range to confirm the airworthiness of the SUAS.

6.4 Preflight Inspections

A. Before each flight, the PIC should inspect the SUAS to ensure that it is in a condition for safe operation, such as inspecting for equipment damage or malfunction(s), documenting it in the checklist of Appendix A (Pre and Post Flight Checklist) or in Dronesense.

6.5 Maintenance Records

A. The Department shall keep documentation of any maintenance, repair, modification, overhaul or replacement of a system component for each SUAS.

B. The Department should keep record of time-in-service for SUAS components (e.g., airframe, batteries, etc.) at the time of maintenance, repair, modification, overhaul, or replacement procedure(s).

C. Maintenance records should be retrievable from either hardcopy and/or electronic logbook format for future reference. Records kept in Dronesense will serve as an electronic logbook.

6.6 Payload Restrictions

A. Any payload attached must be shown not to adversely affect the flight characteristics or controllability of the aircraft.

B. No SUAS may carry hazardous materials or weapons.

6.7 Storage

A. The PIC should store the aircraft in accordance with manufacturer recommendations.

Section 7 - UAS Operations

7.1 Coordination Requirements

A. Operations in uncontrolled (Class G) airspace may be conducted without ATC permission.

B. In controlled airspace, the operational details must be coordinated, including NOTAM information for which Operational Area(s) ("OPAREA(s)") will be used that day, UAS PIC name, and a cell/land telephone number to call in the event of an emergency, with the ATC having authority. An FAA LAANC authorization may be obtained for part 107 missions if available for the area in question in lieu of contacting ATC directly.

C. In controlled airspace outside the Alton jurisdiction the PIC or Coordinator will obtain a waiver by filing an SGI. This can be done by contacting:

1. FAA System Operations Support Center (SOSC)
    a) 202-267-8276
    b) Email Address: 9-ATOR-HQ-SOSC@faa.gov

7.2 Notice to Airmen (NOTAM)

A. A NOTAM should be issued whenever flight operations are scheduled or required by a COA or Part 107 waiver.

B. A NOTAM may be accomplished by contacting the NOTAM Flight Service Station at (1-877-487-6867) or https://www.1800wxbrief.com/Website/#!/ not more than 72 hours in advance, but not less than 48 hours prior to the operation, unless otherwise authorized as a special provision.

C. The issuing agency will require the:

1. Name and address of the pilot filing the NOTAM request;
2. Location, altitude, or operating area;
3. Radial off nearest airport.
4. Time and nature of the activity.

7.3 Operational Limitations

A. The SUAS must remain within VLOS of the PIC and the person manipulating the controls. Alternatively, the SUAS must remain within VLOS of the visual observer. Unless otherwise permitted by an existing TBVLOS Waiver.

B. At all times the SUAS must remain close enough to the PIC and the person manipulating the controls of the SUAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.

C. Unless otherwise authorized as a special provision, all operations must be conducted in visual meteorological conditions (VMC) following visual flight rules (VFR) weather minimums.

D. SUAS may not operate over any person not directly participating (nonparticipants) in the operation.

E. VO(s) must be used at all times required by a COA or Part 107 waiver.

F. FPV cameras cannot satisfy “see-and-avoid” requirement, but can be used as long as the requirement is satisfied in other ways.

G. Operations will occur at a maximum altitude of 400 feet AGL or, if higher than 400 AGL, remain within 400 feet of a structure unless otherwise approved by waiver.

H. No person may act as a PIC or VO for more than one SUAS operation at one time.

7.4 Safety of Flight

A. All pilots are responsible for halting or canceling SUAS activity if, at any time, the safety of persons or property on the ground or in the air may be jeopardized.

B. Any VO responsible for performing see-and-avoid requirements for the SUAS must have and maintain two-way communication with the PIC.

C. The use of multiple successive VOs (daisy chaining) is prohibited unless otherwise authorized by special provision.

7.5 Prior to Flight

A. The PIC must conduct an assessment of the operating environment. The safety risk assessment must include the following:

1. Local weather conditions,
2. Local airspace and any flight restrictions,
3. The location of persons and property on the surface, and
4. Other ground hazards.

B. The PIC must conduct a pre-takeoff briefing as applicable prior to each launch. The briefing should include, but is not limited to, the:

1. Contents of any applicable COA or Part 107 waiver,
2. Altitudes to be flown,
3. Mission overview,
4. Frequencies to be used,
5. Flight time, including reserve fuel requirements,
6. Contingency procedures to include lost link, divert, and flight termination,
7. Emergency procedures,
8. Roles and responsibilities of each person involved in the operation, and
9. Hazards unique to the flight being flown.

C. The PIC must ensure there is sufficient power for the SUAS to continue controlled flight operations to a normal landing.

D. The PIC must ensure all necessary documentation is available for inspection, including the PIC's remote pilot certificate, aircraft registration (if required), and COA (if applicable).

7.6 Sterile Cockpit Procedures

A. Critical phases of flight include all ground operations involving:

1. Take-off and landing (launch or recovery);
2. All other flight operations in which safety or mission accomplishment might be compromised by distractions.

3. If any distractions occur during critical phases of the flight operation the flight shall be aborted until the distractions can be appropriately mitigated.

B. No crew member may perform any duties during a critical phase of flight not required for the safe operation of the aircraft.

C. No crew member may engage in, nor may any PIC permit, any activity during a critical phase of flight which could:

1. Distract any crew member from the performance of his/her duties; or

2. Interfere in any way with the proper conduct of those duties.

D. The pilot and/or the PIC must not engage in any activity not directly related to the operations of the aircraft.

E. The use of cell phones or other electronic devices by crew members is restricted to communications pertinent to the operational control of the SUAS and any required communications with ATC.

7.7 Night Operations

A. The PIC must be in place 30 minutes prior to night operations to ensure dark adaptation.

B. VOs may be positioned in appropriate locations if necessary during SUAS flight operations.

C. Vision aides may not be used as the primary means for visual observation duties, but are permitted to augment the VOs visual capability.

D. All SUAS flown during civil twilight or at night will be equipped with light emitting diode (LED) position lights installed to comply with 14 CFR §91.209 unless otherwise approved by special provision.

7.8 Observers during Scenario Based Training

A. Observers will receive a safety briefing that addresses the mission intent, non-interference with any mission personnel, and emergency procedures in the event of an incident or accident.

B. Observers will be directed to and contained within a specific observation point that ensures risk of injury is minimized and assures non-interference with the SUAS training mission.

C. A designated flight crew member will ensure that observers do not engage in conversations, discussions, interviews or distractions of any mission personnel from the performance of his/her duties or interfere in any way with the proper conduct of those duties.

D. Observers will be limited to that which can be adequately monitored and protected by the personnel resources onsite.

Section 8 - Launch and Recovery

8.1 Launch and Recovery

A. Prior to take off the SUAS will be programed to allow it to return to home if the signal is lost from the transmitter.

B. When the SUAS is deployed to meet an approved mission task, it shall be recovered within the same general area if possible.

C. A designated safe area of at least 25 feet shall be maintained during lift off between SUAS's and personnel.

D. SUAS's should not be flown within unsafe distances to any object or person.

8.2 Weather –

A. The PIC shall verify the weather conditions in the immediate area of operations. A local source of weather may be utilized, the internet, phone application or may be observed on site. The SUAS should not be flown outside the weather minimums identified by the manufacture or the approved Certificate of Waiver/Authorization (COA) by the FAA. The PIC shall have final determination of risk due to weather and authority over any mission.

8.3 Hazards to the Public –

A. The PIC shall make every effort to ensure that flight operations will not pose any undue risk to the public not directly involved with the effort. The PIC shall have final determination of risk to the public and authority over any launch of his/her own aircraft. In all cases, the SUAS will not be flown over persons that is in violation of the FAA approved COA.

8.4 Hazards to property –

A. The PIC shall make every effort to ensure that flight operations will not pose any undue risk to any property in the area involved with the effort. The PIC shall have final determination of risk to the property and authority over launch of his/her own aircraft. In all cases, the SUAS will not be flow over property that is in violation of the FAA approved COA.

8.5 Hazards to personnel –

A. The PIC shall make every effort to ensure that flight operations will not pose any undue risk to the personnel directly involved with the effort. The PIC shall have final determination of risk to the public and authority over any launch of his/her aircraft.

8.6 Proximity to controlled airspace –

A. Operations inside any controlled airspace B,C,D shall only be performed after notifying ATC and if necessary obtaining an SGI (Special Governmental Interest outlined in FAA Order JO 7200.23A).

Section 9 - Launch and Landing Zones

9.1 Launch Site Selection

A. Launch site selection shall be driven by safety first and foremost. Selection of launch sites will be considered based upon:

1. Ability to maintain adequate buffer zones between aircraft and personnel. The PIC shall maintain a buffer of at least 25 feet between SUAS operations and all non-essential personnel. A designated individual can be identified as a safety officer to ensure the safety of the launch and recovery area.
2. Environmental Assessment- No launches shall occur until all environmental assessments have been considered. The PIC has the final authority to abort any launch based upon hazards to the environment, themselves, or other personnel in the area.
3. The PIC shall select a launch site that ensures SUAS departures are not amongst or over people unrelated to the mission.

9.2 Landing Site and Alternate Sites

A. Primary Landing site –

1. Typically, the primary landing site shall be the same as the launch site. The PIC has final authority for any approaches to the primary site and may wave off any approach deemed unsafe.

B. Alternate landing sites

1. The PIC shall designate at least one alternate landing site. In the event that the primary landing site is deemed unsafe, procedures to utilize the secondary site will be invoked.

C. Mission Abort Sites

1. The PIC may optionally designate an “abort site” whereby the aircraft may be “dumped” in an emergency situation. The abort site shall be so far removed as to provide absolute minimal risk should the aircraft be required to vacate airspace in an emergency. The SUAS may be flown to this site and inserted without regard to the safety of the aircraft or flight equipment should the PIC deem it necessary.

D. Landing Safety & Crowd control

1. All landing sites shall be maintained and operated as the launch sites. Personnel shall maintain a buffer of at least 25 feet between SUAS operations and all non- essential personnel.

Section 10 - Emergency/Contingency Procedures

10.1 Lost Link / GPS Procedures

A. Lost link is an interruption or loss of the control link between the control station and the unmanned aircraft, preventing control of the aircraft resulting in the SUAS performing pre-set lost link procedures such as the following:

1. In the event of a lost link while operating in controlled airspace, which cannot be re-established within 10 seconds, a designated crew member will immediately notify the appropriate ATC.

B. When possible, lost link and lost GPS procedures should comply with the following:

1. The aircraft autopilot will enter a lost link mode within 10 seconds of the lost link condition being detected, return to the LZ or other defined lost link waypoint within the SUAS OP AREA, and land.
2. If the aircraft loses GPS, the PIC should immediately attempt to land the aircraft in a safe location by controlling it manually or landing at the current location within the OP AREA.
3. If both GPS and data link are lost, the aircraft must automatically land at the current position.
4. The SUAS lost link mission should avoid transit or orbit over populated areas.

10.2 Emergency or Fly-Away Procedures

A. In the event of a fly-away or other emergency scenario while operating in controlled airspace, designated crew member will immediately notify ATC or nearest controlling facility.

B. The crew member will state PIC intentions, and provide the following:

1. The nature of the emergency,
2. Last known SUAS position, altitude, and direction of flight, and
3. Maximum remaining flight time.

10.3 Lost Sight

A. If a VO loses sight of the SUAS, the VO will notify the PIC immediately.

B. If the SUAS is visually reacquired promptly, the mission may be continued. If not, the PIC must immediately abort the flight and land the SUAS.

10.4 Lost Communications

A. The PIC must land the SUAS if communication with the VO is lost and the PIC cannot gain VLOS.

Section - 11 Incident/Accident/Mishap Reporting

11.1 FAA Reporting Criteria

A. All accidents/mishaps involving SUAS operations, where any of the following occur, shall be reported to the FAA:

1. Fatal injury, where the operations of a SUAS results in a death occurring within 30 days of the accident/mishap;
2. Serious injury, where the operation of a SUAS results in a hospitalization of more than 48 hours, the fracture of any bone (except for simple fractures of fingers, toes, or nose), severe hemorrhage or tissue damage, internal injuries, or second or third degree burns;
3. Total unmanned aircraft loss;
4. Substantial damage to the SUAS where there is damage to the airframe, power plant, or onboard systems that must be repaired prior to further flight. Damage to property, other than the unmanned aircraft greater than $500.

B. When operating under a COA, any incident/mishap that results in an unsafe/abnormal operation shall be reported to the FAA including, but not limited to:

1. A malfunction or failure of the unmanned aircraft's on-board flight control system (including navigation);
2. A malfunction or failure of the ground control station flight control hardware or software (other than loss of control link);
3. A power plant failure or malfunction;
4. An in-flight fire;
5. An aircraft collision;
6. Any in-flight failure of the unmanned aircraft's electrical system requiring use of alternate or emergency power to complete the flight;
7. A deviation from any provisions contained in the COA;
8. A deviation from an ATC clearance and/or Letter(s) of Agreement/Procedures;

C. A lost control link event resulting in a fly-away or execution of a preplanned/unplanned lost link procedure.

D. All incidents or accidents are required to be reported to the FAA within 10 days, unless such incident or accident occurs while operating under a COA, which must be reported as soon as reasonably practicable and before any additional flights occur.

11.2 FAA Report Submission

A. Any incident or accident that occurs while operating under a COA can be reported to the FAA via the CAPS On-Line Accident/Incident Report and initially reported via email at:

1. **9-AJV-115-UASOrganization@faa.gov**.

B. All other incident/accident reports may be submitted to the FAA Regional Operations Center by phone at 817-222-5006 or electronically at http://www.faa.gov/about/office_org/field_offices/fsdo/.

C. The report should include the following information:

1. SUAS PIC's name and contact information;
2. SUAS PIC's FAA airman certificate number;
3. SUAS registration number issued to the aircraft, if required;
4. Location of the accident;
5. Date of the accident;
6. Person(s) injured and extent of injury, if any or known;
7. Property damaged and extent of damage, if any or known; and
8. Description of what happened.

11.3 NTSB Reporting Criteria

A. All accidents/mishaps involving SUAS operations, where any of the following occur, shall be reported to the NTSB in compliance with 49 CFR §830.2:

1. Any person suffers death or serious injury;
2. Flight control system malfunction or failure such as a fly-away;
3. Inflight fire;
4. Aircraft collision in flight;
5. More than $25,000 damage to objects other than the aircraft;
6. Release of all or a portion of a propeller blade from an aircraft, excluding release caused solely by ground contact.

B. All incidents or accidents are required to be reported to the NTSB as soon as reasonably practicable and before any additional flights occur.

11.4 NTSB Report Submission

A. All incident/accident reports may be reported to the NTSB's Response Operations Center at 844-373-9922.

B. The report should include the following information:

1. Type and registration marks on the SUAS;
2. Name of owner and operator of the SUAS;
3. Name of the PIC;
4. Date and time of the accident;
5. Location of the operating area; and
6. Nature of the accident, the weather and the extent of damage to the SUAS.

11.5 Dronesense Safety Reporting

C. Any incident that could present a safety issue if repeated whether due to pilot error, adverse weather, mechanical failure, or software systems failure that does not rise to the level of the reporting requirements listed above should be documented with a safety incident report in Dronesense.

1. Examples of incidents that would meet this requirement would be:

a) A crash of the UAS system resulting in damage only to the SUAS and not causing injury.

b) High interference in an area causing video or telemetry loss to the SUAS.

c) Dangerous wind gusts created by a natural or man made structure.

d) Any other situation where the RPIC observed that factors negatively impacted the safety of the flight.

Section 12 - Information Management

12.1 Collection

A. All SUAS flights will be documented by an incident/case report through the Alton Police Records System or Dronesense, and through flight records/logs. All SUAS flight reports in the Alton Police Records System shall include a copy of:

1. The email notification of the Program Coordinator and Chief of Police or notation that Dronesense notified both.
2. An email to the Program Coordinator and Chief of Police containing the reason for a flight conducted under exception 15-3 (necessary to prevent harm to life, escape, or destruction of evidence) of the Drones as First Responders Act for the State's Attorney's Office including the Alton Police Department case number, date and time of flight, reason for exigency, and outcome of the flight.

B. At a minimum, flight logs should include:

1. Date and time,
2. Operational area,
3. Name of the PIC,
4. Name of the VO if applicable,
5. Aircraft identification,
6. Flight time,
7. Any incidents/accidents/mishaps, and
8. Purpose of the flight.

12.2 Retention

A. Unless required as evidence of a crime, as part of an on-going investigation, for training or otherwise required by law, information will not be captured.

B. Data kept as evidence shall be downloaded to an external storage device (DVD, thumb drive, etc.) and entered into evidence in accordance with Department policy.

C. All logs and checklists shall be kept for a minimum of five years.

D. The Program Coordinator shall audit the maintenance and flight logs annually. Only the Program Coordinator may reset the SUAS flight time counter.

12.3 Dissemination

A. All SUAS-related information will only be provided pursuant to a request for public records, which request will be processed in accordance with the Open Records Act and any rules or policies of the member agency receiving the request adopted in accordance with the Open Records Act.

B. Department members will not post, transmit, or otherwise disseminate any records or data, including images or videos, obtained via UAS for personal use without the consent of the department.

C. SUAS collected information that is not maintained in a system of records covered by the Privacy Act shall not be disseminated outside of the Department unless dissemination is required by law, or fulfills an authorized purpose.

12.4 Dronesense

A. Unless extenuating circumstances exist, missions should be flown in Dronesense when a compatible aircraft is flown.

1. In cases where a flight controller is not compatible with Dronesense, A mission should be logged in Dronesense as soon as practical but not later than seven (7) days after the flight detailing the flight including which aircraft was flown, the type of mission, area it was flown in, and any other relevant information.

2. If an incompatible aircraft must be flown, the email notification to the Program Coordinator and Chief of Police must state the reason for such use i.e. the primary aircraft was unavailable due to damage.

B. Missions flown in Dronesense or later imported as described above will be labeled with the Alton Police Department case number.

C. While flying in Dronesense, internet access should be provided to the flight controller if possible to enable the full features of the software. If no internet access is possible, the flight controller should be connected to the internet as soon as is practical to allow the telemetry data to upload to the software.

D. When taking off with Dronesense, automatic notifications will be made to the Program Coordinator and Chief of Police.

E. The PIC should advise all units responding and the Alton Police Telecommunicators which mission type the PIC is starting in Dronesense so that they can join the mission for overall situational awareness.

F. The PIC and other users of Dronesense should attempt to use the software within the guidelines established in this procedure as well as those provided by Dronesense.

G. Live Streaming of the video feed from drones or other video devices may be done through Dronesense by any Alton Police Officer or Telecommunicator in an effort to rapidly share information in a rapidly evolving incident. That video is for investigative leads only and is not recorded or stored within Dronesense. If the PIC, Watch Commander, Program Coordinator, or Chief of Police determine that video should be recorded then the video or other media would need to be recorded at the source i.e. the flight controller or on the drone itself.

1. Any drone video that is recorded must be reviewed by a supervisor and only retained if it is evidence or kept for training purposes. Any drone video kept for training purposes must be approved by the Program Coordinator, and any evidence should be uploaded to Command Central Evidence or tagged on a disk if necessary.

Appendices

Appendix A:

APD Pre-Flight/Post-Flight Checklist

ALTON POLICE DEPARTMENT
1700 E. Broadway • Alton, Illinois 62002
Telephone: (618) 463-3505 Fax: (618) 462-3797
E-mail: traffic@altonpolice.com Website: www.altonpolice.com

1. **Before leaving for the launch site:**
   - ☐ Make sure a formatted micro SD card with enough free space is inserted
   - ☐ Check to see the remote controller, Intelligent Flight Battery and display device are fully charged.
   - ☐ Check the propellers to make sure they are properly attached and not damaged
   - ☐ Ensure the flight location is not in controlled airspace, unless covered by a Certificate of Waiver or COA.
   - ☐ Check the weather to make sure it's suitable (www.aviationweather.gov)
2. **Upon arrival at the launch site:**
   - ☐ Check for any interference
   - ☐ Check for any obstacles that may interfere with flight and make sure VO is aware of them
   - ☐ Verify the weather is appropriate for flight
3. **SUAS preparation:**
   - ☐ Verify microSD is fully inserted and battery is properly seated
   - ☐ Ensure the sensors for the Obstacle Sensing System are clean
   - ☐ Mount viewing device (phone or tablet) and plug it in (if applicable)
   - ☐ Position antennas
   - ☐ Turn on controller and viewing device, set brightness level, and check the flight mode
   - ☐ Ensure SUAS is on a solid level surface
   - ☐ Turn on the SUAS
   - ☐ Verify the piloting app is successfully connected to the aircraft
   - ☐ Make sure the gimbal can move unobstructed and remove the lens cap if necessary
   - ☐ Check the compass calibration and calibrate, if necessary
   - ☐ Check the SUAS LEDs
4. **Pilot app check:**
   - ☐ Ensure to set the maximum flight altitude
   - ☐ Ensure the Return to Home altitude is correctly set
   - ☐ Verify enough GPS satellites are locked and home point is correctly set
   - ☐ Make any necessary camera setting adjustments

5. **Take off check:**
    - ☐ Check to see of the launch site is clear for take off
    - ☐ Start the motors
    - ☐ Take off and hover
    - ☐ Make sure the aircraft is stable while hovering
    - ☐ Check flight controls by gently moving the sticks, one at a time, and ensure the aircraft responds correctly
    - ☐ Start video recorder, if required

6. **After landing:**
    - ☐ Ensure motors are turned off
    - ☐ Turn off the aircraft
    - ☐ Turn off the remote controller
    - ☐ Inspect aircraft for any damage
    - ☐ Remove the micro SD card for download, if required, otherwise ensure no information has been stored
    - ☐ Replace all equipment in its proper storage container
    - ☐ Recharge batteries
    - ☐ Fill out flight log, notify Program Coordinator of flight results

Appendix B:

APD USE OF SUAS SAO NOTIFICATION FORM

ALTON POLICE DEPARTMENT
1700 E. Broadway • Alton, Illinois 62002
Telephone: (618) 463-3505 Fax: (618) 462-3797
E-mail: traffic@altonpolice.com Website: www.altonpolice.com

Alton Incident/Case Number: _____

The Alton Police Department deployed its

- Autel Evo 2 Dual
- Autel Evo 2 Pro
- DJI Matrice 4T
- DJI Avata V1
- Other SUAS _____

Date of Deployment: _____

Time of Deployment: _____

Location of Deployment: _____

Reason for Deployment: _____

_____

_____

_____

_____

Pilot in Command Name/DSN:_____

Pilot in Command Signature: _____

Appendix C:

CONTINGENCY PLAN CHECKLIST

ALTON POLICE DEPARTMENT
1700 E. Broadway • Alton, Illinois 62002

Telephone: (618) 463-3505 Fax: (618) 462-3797

E-mail: traffic@altonpolice.com Website: www.altonpolice.com

Event	Result	Procedure
Battery Depletes	Unmanned aerial system (UAS) incapable of continuing flight operations	UAS return to base (RTB) as soon as practical; cease data collection
Ditch Procedures	UAS incapable of continuing flight operations	Identify safe landing area; attempt a controlled landing; if able, land UAS in water (shallow preferred for ease of recovery) away from public
Fuel Depletes	UAS incapable of continuing flight operations	UAS RTB as soon as practical; cease data collection
Hazardous Weather	UAS incapable of continuing flight operations	UAS RTB as soon as practical; cease data collection
Hostile Environment	Mission impacted by hazard (e.g. air traffic, public activity	See and avoid; take evasive action as required with safety taking precedence; UAS RTB as soon as practical
Loss of Communications	Mission impacted by lack of communications hazard	Maintain visual line of sight (VLOS); take evasive action as required with safety taking precedence; UAS RTB as soon as practical
Loss of Control Signal	UAS not controllable	Maintain VLOS; UAS RTB and land without harm to UAS or contacting surrounding objects
Loss of Direct Visual	UAS could become hazard if unable to regain visual control	Regain direct visual of UAS; contact mission payload operator and/or visual observer to determine status

Event	Result	Procedure
Loss of GPS Signal	Use extreme caution as the positional data for the UAS will not be accurate	Assume manual control of the UAS; Maneuver and climb UAS to reacquire GPS signal; if GPS signal cannot be acquired, determine whether safe UAS control can be maintained; if safe flight cannot be maintained, land as soon as possible
Loss of Situational Awareness (SA)	UAS could become hazard if unable to regain SA	Climb to safe altitude; reorient with use of sensors; RTB as required
Privacy Impact	Possible public complaint	Cease data collection; after RTB, complete an assessment
UAS Failure	UAS incapable of continuing flight operations	Maintain VLOS; UAS RTB as soon as practical

Appendix D:

Flight and Maintenance Logs

ALTON POLICE DEPARTMENT
1700 E. Broadway • Alton, Illinois 62002
Telephone: (618) 463-3505 Fax: (618) 462-3797
E-mail: traffic@altonpolice.com Website: www.altonpolice.com

To be completed in Dronesense.

Appendix E:

APD SUAS TRAINING AND STANDARDS

ALTON POLICE DEPARTMENT
1700 E. Broadway • Alton, Illinois 62002
Telephone: (618) 463-3505 Fax: (618) 462-3797
E-mail: traffic@altonpolice.com Website: www.altonpolice.com

The test methods and process for evaluating system capabilities and/or operator proficiency are roughly the same. Start by performing repeated trials using elemental test methods to measure individual capabilities and improve muscle memory for basic skills. Then graduate to performing repeatable combinations and sequences of test methods to measure trade-offs in capabilities for a given system configuration. Then embed the test methods into training scenarios to quantitatively compare baseline capabilities with actual readiness to perform tasks within uncontrolled environments. This helps measure the degradation of performance due to the environmental variables within scenarios.

The following content will serve as examples of training apparatus which reflect both:

- Low cost / easily constructed training apparatus to be assembled and used at any work place. These apparatus serve as an alternative where space and funding may be prohibitive.
- The National Institute of Standards and Technology Standard Test Methods for Small Unmanned Aircraft Systems (SUAS)

Both of the above options are ideal establishing standards and quantitative measurements that focus training, measure operator proficiency, assess airworthiness of particular aircraft, and assist with informed decision making for future purchases.

Individuals wishing to be qualified as a Public Safety Remote Pilot are required to perform the following standards set forth by the National Fire Protection Association's (NFPA) **Standard for Small Unmanned Aircraft Systems (SUAS) used for Public Safety Operations** job performance requirements (JPR's).

Qualified Public Safety Remote Pilots will meet or exceed the minimum proficiency level of "Proficient" established by NIST Standard Test Methods for the following apparatus:

1. Maneuvering: Hold Position and Altitude
2. Maneuvering: Orbit a Point
3. Maneuvering: Fly Straight and Level
4. Maneuvering: Avoid Obstacles (Figure-8s)
5. Maneuvering: Land Accurately
6. Payload Functionality: Point and Zoom Cameras
7. Payload Functionality: Identify Objects
8. Payload Functionality: Inspect Objects
9. Payload Functionality: Map Wide Areas
10. Payload Functionality: Drop

These are the notations to report for each test trial. Use of a common test form is optional:

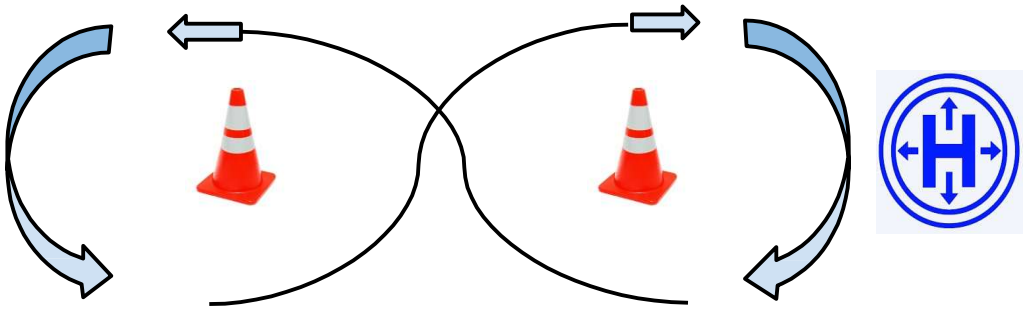
- Make/Model/Configuration of the system to be tested.

- Name (or Code) of the pilot in charge of the test trial.
- Organization and location at which the test trial is being conducted.
- Date (yyyy-mm-dd) and time (2400) of the test trial.
- Pertinent environmental conditions as measured just prior to the test trial using appropriate devices (e.g., wind speed and direction, temperature, humidity, pressure, altitude, etc.).
- Ratio of successful tasks to faults (tasks: faults). This ratio can be used to determine the reliability of the system or proficiency of the pilot.
- Average result of any specific task metrics across the number of successful tasks completed.
- Total elapsed time (minutes) adding up all sequential timer increments in the test trial.
- Calculated average rate of successful tasks completed (tasks/minute). This number can be compared to others with varying levels of confidence depending on the number of successful tasks completed.

Link to NIST:

www.nist.gov/el/intelligent-systems-division-73500/response-robots/aerial-systems

Figure of Eight



Purpose

- The Purpose of this test method is to quantitatively evaluate the operator's ability to maintain orientational direction while flying in a figure of eight pattern.

Metrics

- Completion of maximum repetitions
- Average time per repetition

Duration

- 10 minutes

Apparatus

- This test apparatus consists of two cones equally spaced four feet apart.
- Performed in either GPS or attitude mode.

- A designated takeoff / landing zone will be identified.

Procedure

1. Place the aircraft at starting location on designated takeoff / landing zone.
2. Launch the aircraft from the designated area and travel in a counterclockwise rotation.
3. Maintain preferred flight elevation either above or below eye level.
4. The aircraft must pass around each cone in a very controlled manner.
5. Five repetitions will be completed and operator will change orientational direction by rotating platform 90 degrees.
6. Repeat steps until 0, 90, 180, and 270 degrees have been flown.
7. After the completion of five repetitions in each direction (0, 90, 180, and 360 degrees) reverse orientation and complete procedure in a clockwise orientation.

Fault condition

- Failure to maintain elevation
- Inability to fly around each cone
- Failure to use controlled manner of flight

Follow the Path

Purpose

- The Purpose of this test method is to quantitatively evaluate the operator's ability follow a path of travel while maintaining orientational direction.

Metrics

- Completion of maximum repetitions
- Average time per repetition

Duration

- 10 minutes

Apparatus

- This test apparatus consist of five cones in a linear formation equally spaced three feet apart.
- Performed in either GPS or attitude mode.
- A designated takeoff and landing area will be identified.

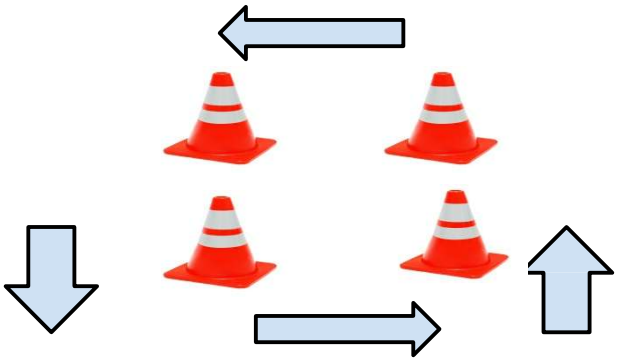
Procedure

1. To begin place the aircraft on the designated takeoff / landing zone.
2. Launch the aircraft and fly over the cones in a straight line then land the aircraft in the designated takeoff / landing zone on the other end of the line.
3. The first direction of travel will be with the nose of the aircraft facing forward in the direction of travel (0-degree orientation).
4. Maintain preferred flight elevation either above or below eye level.
5. Five repetitions will be completed and operator will change orientational direction by rotating nose of aircraft 90 degrees.
6. Repeat steps until 0, 90, 180, and 270 degrees have been flown.
7. After the completion of five repetitions in each direction (0, 90, 180, and 360 degrees) reverse orientation and complete procedure in a clockwise orientation.

Fault condition

- Failure to maintain elevation
- Inability to fly over each cone
- Failure to use controlled manner of flight

Four Corners



Purpose

- The purpose of this test method is to quantitatively evaluate the operator's ability to maintain orientational flight.

Metrics

- Completion of maximum repetitions
- Average time per repetition

Duration

- 10 minutes

Apparatus

- This test apparatus consists of four cones in a square formation equally spaced four feet apart.
- Performed in either GPS or attitude mode.
- A designated takeoff and landing zone will be identified.

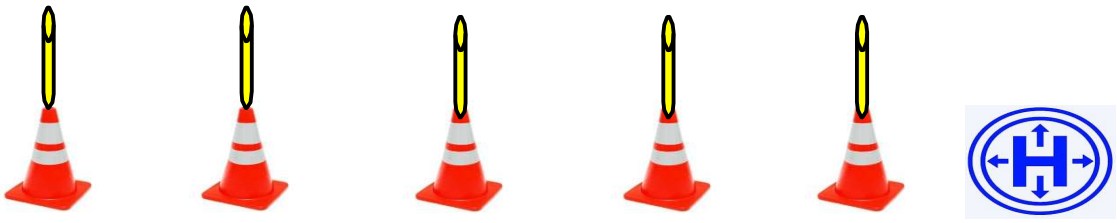
Procedure

1. To begin, place the aircraft on the designated takeoff / landing zone.
2. Launch the aircraft from designated launch / landing zone and travel in a counterclockwise direction over the cones. The first direction of travel will be with the nose of the aircraft facing forward in the direction of travel (0 degree orientation).
3. Maintain preferred flight elevation either above or below eye level.
4. The aircraft must pass over the top of each cone in a very controlled manner.
5. Five repetitions will be completed and operator will change orientational direction by rotating nose of aircraft 90 degrees.
6. Repeat steps until 0, 90, 180, and 270 degrees have been flown.
7. After the completion of five repetitions in each direction (0, 90, 180, and 360 degrees) reverse orientation and complete procedure in a clockwise orientation.

Fault condition

- Failure to maintain elevation
- Inability to fly over each cone
- Failure to use controlled manner of flight

Serpentine



Purpose

- The Purpose of this test method is to quantitatively evaluate the operator's ability avoid contacting obstacles while traveling in a serpentine path.

Metrics

- Completion of maximum repetitions
- Average time per repetition

Duration

- 10 minutes

Apparatus

- This test apparatus consists of five cones with attached pool noodles to create vertical post. Each pool noodle will need a ¾" pipe run through the center of it and then placed in the top of the cone. The cones should be spaced in a straight line three feet apart (see diagram)
- Performed in either GPS or attitude mode.
- Prop guards are recommended
- A designated takeoff and landing zone will be identified.

Procedure

1. To begin place the aircraft on the designated takeoff / landing zone.
2. Launch the aircraft from the designated takeoff / landing zone. The nose of the aircraft will be facing forward (0 degree orientation).
3. Direction of travel will be serpentine around each cone beginning in a counterclockwise direction.
4. Maintain preferred flight elevation either above or below eye level.
5. Five repetitions will be completed and operator will change orientational direction by rotating the aircraft 90 degrees.
6. Repeat steps until 0, 90, 180, and 270 degrees have been flown.
7. After the completion of five repetitions in each direction (0, 90, 180, and 360 degrees) reverse orientation and complete procedure in a clockwise orientation.

Fault condition

- Failure to maintain elevation
- Inability to fly around each cone
- Failure to use controlled manner of flight

Payload Drop Accuracy

Description:

This test method evaluates the capability to drop a payload accurately from a defined altitude. The system performs a series of drops on a metered platform from different altitudes. The payloads can be weighted surrogates or operationally significant delivery items.

Metric:

- Average Radius from Center in Centimeters (Inches)

Duration:

- 40-80 minutes to complete 10-20 tasks.

Apparatus:

- Landing Platform (Quantity 1).: 2.4 x 2.4 m (96in x 96 in) square platform with 10 cm (4 in) circular bands to measure the landing radius.

- Bucket Targets (Quantity 4): 20 cm (8 in) diameter or 7.5 liter (2-gallon) white buckets with internal black rings around the inside bottom and a 7.5 cm (3 in) black letter to identify the target. The bucket size should be considered based on the designated drop altitude.

- Surrounding Lines (Quantity: 4): Concentric chalk/paint lines on the ground at 2m (6.5ft), 4m (13ft), and 6m (20ft) to capture less accurate drops.

Preparation:

- See general Trial Preparation guidance.

Procedure

1. Establish a hover position SOUTH of the landing platform at least 6 m (20 ft) range from the platform and at the designated drop altitude AGL. See concentric markings on the ground to ensure the distance.
2. Start the trial timer and onboard video recording if available.
3. Move to directly over the drop zone and refine position.
4. Announce a loud audible warning of intent to drop along with a countdown to inform personnel on the ground.
5. Drop the payload and pause the timer.
6. Land the aircraft on any available space on or near the landing platform.
7. Note on the form the outer-most concentric ring occupied by any ground contact of the payload. This is the measurement of the payload drop radius. Contact with the lines, if not exceeded, shall be considered within the smaller concentric ring.
8. Repeat steps 1-7 from each of four different directions, North-East-South-West, until the timer expires. Reset the timer and continue if necessary to complete at least 10 repetitions.
9. Report on the form:
    a. Each payload drop radius (cm)
    b. Total number of tasks completed successfully (tasks).
    c. Total elapsed time including all timer increments (minutes).

Fault Conditions

- Touching the apparatus, ground, or surrounding safety containment structure during a repetition.