



# CTDOT UNMANNED AIRCRAFT SYSTEMS (UAS) STANDARD OPERATING PROCEDURES

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
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## ACKNOWLEDGEMENTS

### **CTDOT Unmanned Aircraft Systems (UAS) Working Group**

The Standard Operating Procedures were developed by the CTDOT UAS Working Group. The UAS Working Group is comprised of the following individuals:

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## INTRODUCTION

The CTDOT UAS Standard Operating Procedures (SOP) are to be reviewed in conjunction with the CTDOT directive Small Unmanned Aircraft Systems (ECD-2019-4) which can be found at the [Engineering and Construction Information Resources](#) page. These SOP's apply to all CTDOT personnel; FAA regulations must be followed by all UAS pilots.

## ORGANIZATIONAL PROCEDURES

### 1. ORGANIZATION

- a. The Bureau Chief will identify an UAS Program Coordinator (PC) who shall administer the CTDOT UAS Program.
- b. The PC will coordinate all CTDOT UAS operations conducted by Department of Transportation (Department) staff or on behalf of the Department. UAS team members shall be designated by the Department's Engineering or Construction Administrator or Director of Communications.
- c. Department consultants and contractors that will be conducting UAS flight missions on behalf of the Department shall coordinate missions with the CTDOT UAS PC and submit required documentation (as outlined in Appendix A) to the UAS PC prior to conducting any flights. Refer to Appendix A for guidance on required documentation.
- d. Personally owned and registered UAS by state employees, state consultants, or state contractors shall not be operated for state business.
- e. The UAS PC will report to the Assistant Chief Engineer, and have the following general duties and responsibilities:
  - i. Maintain a database of all Department employees with FAA Remote Pilot Certificate.
  - ii. Oversee or delegate to other Department staff the UAS Pilot Training Program and maintain a database of those who have completed such training.
  - iii. Maintain all CTDOT UAS Post-Flight Log Forms and UAS Maintenance Log Forms.
  - iv. Ensure compliance with the **UAS Engineering and Construction Directive** and Standard Operating Procedures.
  - v. Ensure compliance with all applicable Federal and State laws.
  - vi. Coordinate with the Office of Communications when necessary.
  - vii. Maintain contact with the FAA and State of Connecticut airports.
  - viii. Maintain a file for each UAS Remote Pilot in Command (RPIC) which shall include copies of the FAA Remote Pilot Certificate, flight logs, training records and UAS incident/accident records.
  - ix. Respond to email requests for UAS support from offices or districts.
  - x. Provide the FAA with any required data, information, documentation or access to CTDOT UAS and equipment.
  - xi. Oversee UAS documentation submittals (as outlined in Appendix A) to the Department by contractors or consultants retained to operate a UAS on behalf of the Department.

## 2. PROCEDURES AND RESTRICTIONS FOR UAS DEPLOYMENT AND USE

- a. The Remote Pilot in Command must obtain applicable authorizations, permits, or certificates required by the Federal Aviation Administration (FAA) prior to deploying or operating the UAS in restricted areas. Those authorizations, permits, and certificates shall be current and submitted to the PC.
- b. The UAS shall be operated only by personnel (RPIC) who have been trained in the operation of the system and who hold a current Part 107 Small Unmanned Aircraft Systems Certificate.
- c. The RPIC must be in a physical and mental condition that would not interfere with the safe operations of the UAS.
- d. The RPIC shall inspect and test UAS equipment prior to each deployment to verify the proper functionality of all equipment and the airworthiness of the device.
- e. The UAS equipment is the responsibility of the RPIC and shall be used with care to ensure proper functionality. Equipment malfunctions shall be brought to the attention of UAS PC as soon as possible so that an appropriate repair can be made or a replacement unit can be procured.
- f. All flights shall be logged on a form or database designed for that purpose. In addition, each deployment of the UAS shall include information regarding the reason for the flight, the time, date, and location of the flight, name of the RPIC and Visual Observer (VO), accident description (if applicable) and a summary of the mission.
- g. The UAS shall be deployed and used to support the Department's personnel and its mission or for the Department's approved UAS training.
- h. The UAS shall not be operated in an unsafe manner or in violation of FAA rules.
- i. The UAS shall not be used for routine observations of the public at large.
- j. The UAS shall not be used for surveillance on the public (without public consent).
- k. The UAS shall not be operated directly over people unless those individuals are directly participating in the operation of the UAS; or located under a covered structure or inside a stationary vehicle that can provide reasonable protection, unless a Certificate of Waiver is obtained from the FAA.
- l. Prior to deployment of the UAS the RPIC shall assess the operating environment and consider risks to persons and property in the immediate vicinity both on the surface and the air. This assessment must include:
  - i. Local weather conditions
  - ii. Local airspace and any flight restrictions (Notices to Airmen and Temporary Flight Restrictions)
  - iii. Location of persons and property on the surface.
- m. In case of emergency situations or in the interest of public safety, if a flight needs to be conducted that is outside of the CTDOT UAS Engineering and Construction Directive and SOP parameters, permission to conduct a flight must be provided by the Chief Engineer or approved designee. However, unless prior waivers or authorizations have been issued by the FAA, a UAS Team pilot shall not deviate from FAA regulations.

### 3. UAS EQUIPMENT REGISTRATION

All CTDOT owned UAS must be properly registered in accordance with the FAA rules. After receiving the FAA Small UAS Certificate of registration, a copy of the Certificate shall be forwarded to the UAS PC.

### 4. UAS MAINTENANCE

UAS maintenance shall be the responsibility of the UAS RPIC. In addition, all CTDOT owned UAS shall have a minimum yearly inspection completed by a UAS RPIC and the UAS PC prior to March 1st of each year. A UAS RPIC must complete the [CTDOT UAS Inventory and Preventive Maintenance Inspection Form](#) for each UAS and the UAS PC shall sign and retain such records. Failure to complete the inspection, or failure of the inspection, will result in the grounding of the UAS until the inspection is complete and the UAS deemed operable. The UAS PC may complete an inspection of the UAS and its equipment at any time if there is an incident, a malfunction, operational issues or any other reason that the UAS PC determines a warrant inspection.

### 5. PILOT TRAINING REQUIREMENTS

**Pilot Training Requirements were developed for CTDOT personnel who are selected to be a member of the UAS Team. CTDOT consultants and contractors may have their own pilot training requirements that must be met based on the firm's UAS standards.**

**Aeronautical Training** – All in-house personnel selected to be a member of the UAS Team that will be flying the UAS must be able to interpret weather conditions, FAA airspace classes and its restrictions, and read and interpret sectional aeronautical charts.

**Proficiency Training** – In order to maintain proficiency, all pilots should conduct at least one flight per month, to include safe take-off and landings but in no case shall duration between flights exceed 90 days. All flights, including training flights, shall be documented on a UAS Flight Log Form. The PC may require additional flights to demonstrate proficiency. Pilot proficiency training is not limited to actual pilot skills, but also includes knowledge of all pertinent UAS regulations.

**Pilot Eligibility** – Any employee who wishes to be considered part of the UAS Team shall provide the following documentation to the UAS PC for consideration: copy of the FAA Part 107 Remote Pilot Certificate, proof of 50 flights conducted or 10 flight hours. All pilots must be able to show proficiency in specific core competencies of the UAS controls and operating systems before being approved to fly the UAS for the Department. Employee's proficiency will be reviewed by the UAS Committee or its designee. If an employee can demonstrate his/her proficiency skills to operate a UAS and can supply proof of flights, he/she will be recommended to the Bureau Chief for approval.

### 6. UAS VISUAL OBSERVER (VO)

While FAA does not require presence of a VO during the operation of a UAS, it is the Department's requirement that a visual observer be present every time a UAS is being utilized for a mission flight. The VO is not required to have a current Part 107 certificate, however, he

or she shall be knowledgeable of the Department's UAS Engineering and Construction Directive and Standard Operating Procedures. The VO who will be participating in conducting mission flights will be required to fill out a [CTDOT UAS Inventory and Preventive Maintenance Inspection Form](#). The form needs to be submitted once before the first flight. The form will remain on file for subsequent mission flights.

## 7. DISQUALIFICATION FROM UAS PROGRAM

UAS RPIC status may be temporarily suspended at any time for a period to be determined by the Department for reasons including, but not limited to, performance, proficiency or if found operating an UAS in an unsafe manner. Removal or suspension from the team will be the decision of the Bureau Chief of Engineering and Construction with recommendation from the Engineering or Construction Administrator or the Assistant Chief Engineer.

## 8. PROPERTY DAMAGE AND INJURIES

All accidents causing damage to the UAS or property and/or resulting in injuries must be reported immediately by the RPIC to their immediate supervisor and the UAS PC. The UAS PC must report the accidents that cause damage to property or result in injuries to the CTDOT Safety Director of the Health and Safety Division. CTDOT standard protocol shall be followed when reporting property damages and injuries.

The UAS RPIC must report the incident to the FAA within 10 days of any serious injury, loss of consciousness, or property damage (to property other than the UAS) of at least \$500. UAS RPIC must notify the UAS PC when reporting to the FAA.

## 9. DOCUMENTATION OF FLIGHT TIME AND MISSION REPORTING

All UAS flight missions including training shall be documented on a Department approved [CTDOT UAS Pre-Flight Checklist and Flight Log Form](#) within 48 hours or 2 business days of the mission. At a minimum, the original UAS Flight Log Form shall include the date, time, location, RPIC's name and signature, visual observer's name, closest airport and distance to it, flight time, purpose of the flight, and weather conditions.

## 10. DIGITAL DATA

All original digitally recorded data and media recorded by an UAS will be handled and stored in a manner acceptable to the Department.

# OPERATING DESCRIPTION

There are 8 sections to the procedures: Pre-flight Operations, During Flight Operations, Post-flight Operations, Emergency Procedures, Flight Area / Perimeter Management, Accident Reporting, Flight Crew Communication, and Waivers. Each section is reviewed in detail through this operational procedure document.

## 1. PRE-FLIGHT OPERATIONS

Preflight activities are the duty of the Remote Pilot in Command (RPIC) before the start of the flight operation. Activities include inspection of the aircraft, assessment of the operating location, briefing crew members involved in the operation, and equipment checkouts. All flight operations shall be conducted in accordance with the provision of [14 CFR Part 107](#), state and local regulations, and the operator's manual

for the subject aircraft. Follow the link below to review the summary of the Part 107 rules: [https://www.faa.gov/uas/media/Part\\_107\\_Summary.pdf](https://www.faa.gov/uas/media/Part_107_Summary.pdf).

## PLANNING

1. The flight crew shall be familiar with all available information pertaining to the flight such as; take-off and landing, including, but not limited to, the operational limitations of [14 CFR Part 107](#), weather conditions, hazards, no fly zones, informing local authorities, coordination with ground crew, etc.
2. RPIC shall ensure the locations for take-off and emergency landing are adequate (level, no overhead obstructions such as wires, pole, trees, or buildings) upon arrival at the location. At least one emergency landing area shall be identified before the start of operations.
3. RPIC should be aware of all surroundings in the event that an emergency landing is necessary. This includes the ability to recover the UAS.

## INSPECTION

1. Before the first flight of the day, verify all batteries are fully charged.
2. Check the airframe for signs of damage and confirm that the overall condition is adequate for flight.
3. Check the entire aircraft, as per the pre-flight inspection instructions in the manual for the specific aircraft, to make sure it is in good structural condition and no parts are damaged, loose, or missing.
4. Check the propeller or rotor blades for chips, cracks, looseness and any deformation.
5. Check that camera and mounting systems are secure and operational.
6. Perform an overall visual check of the aircraft prior to arming any power systems.
7. Repair or replace any part found to be unsuitable to fly during the pre-flight procedures prior to takeoff.

## WEATHER

1. Before each flight, the RPIC and visual observer shall ensure that they gather enough information about the existing and anticipated near-term weather conditions throughout the entire mission environment. As a best practice they shall utilize FAA approved weather resources such as [Meteorological Terminal Aviation Weather Reports \(METERS\)](#), [Terminal Area Forcasts \(TAF\)](#) , etc. to obtain the best information. In order to obtain the latest and most current weather conditions, N [Notices to Airmen \(NOTAMS\)](#), and [Temporary Flight Restrictions \(TFRs\)](#) the RPIC shall obtain a local aviation briefing at 1-800-WXBRIEF or [www.1800WXBRIEF.com](http://www.1800WXBRIEF.com).
2. Wind direction plays a major factor in flight operations. Operators should take precautions to ensure that wind conditions do not exceed the aircraft limits stated in the aircraft operations manual and specifications or the requirements for the specific mission.
3. The RPIC shall ensure that the flight will occur within the weather requirements specified in Part 107.51 (c-d), 3 statute miles, the UA must be kept at least 500 feet below a cloud and at least 2,000 ft. horizontally from a cloud. While the FAA can obtain waivers under Part 107 for certain types of operations in particular locations for night-time or beyond line of sight operations, the vast majority of authorizations are for FAA Visual Flight Rules (VFR) conditions and require Visual Line of Sight (VLOS) between the aircraft and the RPIC, as well as, between the aircraft and the Visual Observer at all times.



## CHECKLIST

**Preflight inspection is required under Part 107.49. The RPIC is required to develop a preflight inspection checklist if the manufacture has not developed one.**

The checklist is usually integrated into the UAS flight software or can be obtained from the UAS vendor. In case the checklist is not available, a standard Flight Checklist (*Figure 1*) shall be made and followed by the flight crew. RPIC shall utilize the checklist to ensure the highest level of safety. At a minimum, this pre-flight checklist shall contain the following:

1. Required documentation (Certificate of Authorization or Certificate of Waiver), Pilot's Certificate, Aircraft Registration, UAS Registration, Visual Observer name
2. Deploy take off / landing pad
3. Weather conditions are suitable
4. Check air frame for cracks and check all screws are tight
5. Propeller(s)/Rotor(s) not damaged and tightly fixed
6. Propulsion system mounting(s) secure
7. Batteries fully charged and securely mounted
8. Communications (datalink) check
9. Ensure the GPS module (if any) has GPS
10. Check mission flight plan
11. "Return Home" and/or "Emergency Landing" locations (if supported by the particular UAS) are selected and located appropriately
12. Ensure sensors are calibrated and that the right setting is loaded
13. Complete flight crew briefing
14. Ensure the launch site is free of obstacles
15. If in controlled airspace must inform the Air Traffic Controller Tower of the nearest airport

FLIGHT CHECKLIST		
PRE FLIGHT	DURING FLIGHT	POST FLIGHT
<p><b>At office</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Aircraft Documentation</li> <li><input type="checkbox"/> NOTAM</li> <li><input type="checkbox"/> Local regulations and permissions.</li> <li><input type="checkbox"/> Proximity to the airport.</li> <li><input type="checkbox"/> Weather condition permits flying.</li> <li><input type="checkbox"/> All Batteries Charged</li> <li><input type="checkbox"/> Flight Gear check</li> </ul> <p><b>In the field</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Scan area for obstacles, e.g. take-off and landing area.</li> <li><input type="checkbox"/> Wind check</li> <li><input type="checkbox"/> Daily Flight Report filled.</li> <li><input type="checkbox"/> Assemble UAV, ensure screws are tight and propeller check</li> <li><input type="checkbox"/> Sensor/ Camera setting check</li> <li><input type="checkbox"/> Batteries securely mounted</li> <li><input type="checkbox"/> Ensure GPS fix</li> <li><input type="checkbox"/> Confirm Mission flight plan</li> <li><input type="checkbox"/> Operators checklist (Integrated)</li> <li><input type="checkbox"/> RC remote check (if used)</li> <li><input type="checkbox"/> Final airframe inspection</li> <li><input type="checkbox"/> Flight Crew briefings, e.g. flight mission and safety</li> <li><input type="checkbox"/> Wind check again for launch.</li> </ul>	<p><b>After launch</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Aircraft reached safe altitude.</li> <li><input type="checkbox"/> Confirm observer has the aircraft in sight.</li> <li><input type="checkbox"/> All systems green</li> <li><input type="checkbox"/> Satellite and GPS check</li> <li><input type="checkbox"/> Check Battery remaining</li> </ul> <p><b>Before Landing</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Ensure UAV flight done according to mission plan.</li> <li><input type="checkbox"/> Scan landing area for obstacles.</li> <li><input type="checkbox"/> Wind check</li> <li><input type="checkbox"/> Observer briefing for landing</li> <li><input type="checkbox"/> All systems green</li> </ul>	<p><b>After landing</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Power down UAV</li> <li><input type="checkbox"/> Remove and safely store batteries</li> <li><input type="checkbox"/> Airframe inspection</li> <li><input type="checkbox"/> Check camera/ sensor to ensure data collected</li> <li><input type="checkbox"/> Transfer data and flight log</li> <li><input type="checkbox"/> Make logbook entry</li> </ul> <p><b>Back at office</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Flight and Maintenance Report</li> <li><input type="checkbox"/> Charge Batteries</li> <li><input type="checkbox"/> SD card cleaned and ready to use</li> <li><input type="checkbox"/> Airframe checked</li> <li><input type="checkbox"/> Data processed</li> </ul>

### Figure 1: Example of a Flight Checklist

*This checklist is considered a guide and not definitive checklist for all UAS. Exercise a good judgement when operating UAS. Consult local UAS agency or vendors to ensure your checklist is appropriate.*

#### DOCUMENTATION

Once the RPIC confirms the location is safe to fly and becomes familiar with the surroundings, it is required that he/she document all the details in a UAS Flight Log Form. The Flight Log Form can often be filled out prior to arrival at the site as a part of mission planning, and then signed off by the RPIC once on site and the RPIC has confirmed that the operation can be conducted safely at the site. Furthermore, it is required that such a report be completed for each mission regardless of whether it is completed prior to, or after the flight, as the report serves as an essential piece of documentation associated with the UAS operation.

An example of what the Flight Log Form shall contain is:

1. Altitudes to be flown
2. Mission/Flight purpose
3. Planned Flight Time or Launch and Landing Time
4. Contingency procedures
5. Pilot Name
6. Observer(s) name(s)
7. UAS registration model and number
8. Closest Airport
9. Date & Time

## 2. DURING FLIGHT OPERATIONS

- a. The UAS RPIC shall launch, operate, and recover the aircraft from preset locations; so that the aircraft will fly according to the mission plan.
- b. After the UAS is launched, the flight crew shall have a clear view of the aircraft at all times, called Visual Line of Sight (VLOS). Observation locations should be selected for the maximum line of sight throughout the planned flight operations area (Part 107.31).
- c. All flight operations must be conducted using a minimum of a Remote Pilot and a Visual Observer (VO). However, it is advisable to utilize more than one VO, as outlined in Part 107.33, depending on the complexity of the flight mission to perform general safety, visual observation, and hazard and traffic avoidance (Part 107.37).
- d. To ensure the flight is going according to the flight plan, the Remote Pilot and VO must be able to maintain effective communication with each other at all times (Part 107.33).
- e. The VO shall be informed on what the aircraft is supposed to be doing and the altitude of the aircraft above ground level.
- f. Part 107.39 does not permit UAS flights over persons not directly involved in the operations. Flights taking place over populated areas, heavily trafficked roads, or an open-air assembly of people are not allowed under regulation (unless through waiver). If the mission dictates that flight operations be conducted in such areas, the RPIC must obtain a waiver before conducting a flight.
- g. The visual observer(s) shall make the pilot aware of any possible flight hazards during the flight.
- h. Upon any failure during the flight, or any loss of visual contact with the UAS, the RPIC must command the aircraft back to the recovery location or utilize the built-in fail-safe features to

recover the aircraft. Emergency procedures as defined in the specific UAS operator's manual shall be followed.

### 3. POST FLIGHT OPERATIONS

- a. RPIC should scan the landing area for potential obstruction hazards and recheck weather conditions.
- b. RPIC should announce to the observer, and any other people around, that the aircraft is on final approach and inbound to land.
- c. RPIC should always be prepared to reject or abort a take-off or landing, called a "go-around," if the RPIC becomes aware that such an operation cannot be safely made due to an unexpected weather situation, emergency, hazard or miscalculation.
- d. Carefully land the aircraft away from any obstructions and people on landing pad.
- e. After landing:
  - i. Shut down the UAS and disconnect the batteries.
  - ii. Power-down the camera or sensors.
  - iii. Visually check aircraft for signs of damage and/or excessive wear.
  - iv. Verify that mission objectives have been met.
  - v. If imagery or other data are recorded onboard the aircraft during flight, transfer the data as necessary to a backup storage device.
  - vi. Enter recording flight time and other flight details on the CTDOT UAS Flight Log Form.
  - vii. In case there are multiple flights to be conducted, repeat checklist steps to prepare the aircraft for launch again.
  - viii. Ensure all equipment is accounted for and properly stored for return to office.

### 4. UAS EMERGENCY PROCEDURES

Emergency procedures are specific to each UAS type as designed by the manufacturer. It is the responsibility of the flight crew to be proficient with the aircraft operational manual provided by the vendor before any flight operations are conducted. It is also a best and safe practice to prepare an Emergency Checklist in case of emergencies. The RPIC should always be prepared to execute an emergency procedure in instances where there is a lost link, loss of GPS, or there are other aircraft or obstructions in the flight path. He/she should brief the flight crew before the start of the flight operations about emergency procedures and have a mission abort site for landing in the case of an emergency. After the aircraft has safely landed, the type of emergency should be documented for maintenance purposes if applicable.

Some possible emergencies due to system failures are as follows:

- a. Loss of Datalink communications
- b. Loss of GPS
- c. Autopilot Software error/failure
- d. Loss of Engine power
- e. Ground Control System failure
- f. Intrusion of another aircraft into the UAS mission airspace

This is not meant to be a comprehensive list as the types of failures and associated emergency conditions vary for different UAS, airspace events, and crew performance.

Many UAS have a number of failsafe options in case of failures or emergency situations. These include using methods of stabilization and an automated Return to Home (RTH) mode. Other features include fail-recovery software. The specific failsafe options available for each type of UAS are described in the UAS documentation (Operator's Manual, Checklists, etc.). These fail-safe mechanisms should be tested during training and currency flights. Flying without these fail-safe mechanisms in place is not recommended.

An emergency avoidance procedure should be determined before landing. Options include land immediately, move to a predetermined location and altitude, or another approach. All possible incursions must be assessed for risk mitigation.

## 5. FLIGHT AREA / PERIMETER MANAGEMENT

The selection of launch and landing sites is based first and foremost on safety. It is the job of the RPIC to ensure that all flight operations are within the FAA-issued airspace authorization parameters and UAS flight limits. Flight boundaries, including any restrictions imposed by FAA approvals, nearby airport locations, restricted areas, TFRs, etc. shall be reviewed prior to commencing flight operations. In addition, the RPIC should identify the following:

- a. Primary Take-off and Landing Site. Typically the primary landing shall be the same as the launch site but they can be separate locations. The RPIC has final authority for any approaches to the primary site and can elect to reject an approach deemed unsafe.
- b. Alternate landing sites. The RPIC shall designate at least one alternate landing site. In the event that a landing is not possible and the primary landing site is deemed unsafe, procedures to utilize the back-up site can be revised. The RPIC must identify the best next possible site and initiate landing.
- c. Mission Abort Sites. The RPIC may optionally designate an alternate landing site whereby the aircraft may be landed in an emergency situation. The alternate landing site shall be located so as to provide absolute minimal risk if the aircraft is required to vacate airspace in an emergency. If the RPIC deems it necessary, the UAS may be flown to this site and landed without regard to the risk to the flight equipment or the unmanned aircraft. The safety of persons, manned aircraft, and property shall be prioritized over the risk to the UAS equipment.
- d. Flight Over populated areas. The RPIC should make every effort to select a landing site that avoids approaches over populated areas.
- e. Landing Safety & Crowd control. All landing sites should be maintained and operated in the same manner as the launch sites. A buffer of at least 50 feet should be maintained at all times between aircraft operations and all nonessential personnel (all personnel other than the UAS Operator/RPIC and the Visual Observer).

## 6. ACCIDENT REPORTING

Within 10 calendar days after an accident (as defined by regulation) and before additional flights, the operator must provide notification to the FAA per Part 107.9.

FAA defines an accident when:

- a. Any person suffers death or serious injury.
- b. Damage to any property, other than the small UAS if the cost is greater than \$500 to repair or replace the property.

The accident report can be submitted to FAA Regional Operations Center (ROC) electronically or by telephone using the following directory:

Figure 4-1. FAA Regional Operations Centers Telephone List

FAA REGIONAL OPERATIONS CENTERS	
LOCATION WHERE ACCIDENT OCCURRED:	TELEPHONE:
DC, DE, MD, NJ, NY, PA, WV, and VA	404-305-5150
AL, CT, FL, GA, KY, MA, ME, MS, NC, NH, PR, RI, SC, TN, VI, and VT	404-305-5156
AK, AS, AZ, CA, CO, GU, HI, ID, MP, MT, NV, OR, UT, WA, and WY	425-227-1999
AR, IA, IL, IN, KS, LA, MI, MN, MO, ND, NE, NM, OH, OK, SD, TX, and WI	817-222-5006

Source: FAA Advisory Circular (AC) 107-2

The ROC Reports may also be made to the nearest jurisdictional Flight Standards District Office (FSDO) ([https://www.faa.gov/about/office\\_org/field\\_offices/fsdo/](https://www.faa.gov/about/office_org/field_offices/fsdo/)). The report shall include the following information:

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

UAS accidents are reported to the FAA ROC. However, in some cases, according to FAA AC 107-2 (4.5.2), an UAS accident must be reported to the National Transportation Safety Board (NTSB). The AC directs the RPIC reporting an accident to the FAA to consult the NTSB website ([www.nts.gov](http://www.nts.gov)) for more information. It is important to understand the regulations so that proper reports and notifications can be prepared following an accident. Enforcement action can be taken against the operator if notification is not made within the prescribed timeframe.

## 7. FLIGHT CREW COMMUNICATION

The knowledge of flight management process is crucial for effective communication. It is important for the RPIC, VO, and other essential flight personnel to maintain communication at all times. During all operations the RPIC and VO shall acknowledge that they received a message. This way the flight crew can coordinate flight operations in an organized and effective manner. A proper decision making structure (communications plan) shall be identified prior to Pre Flight Operations and shall be followed by the flight crew at all times.

## 8. WAIVERS

Waiver must be obtained before flight operations are conducted in Class B, C, D, and E airspace. The FAA maintains a website to file waivers.

→ [https://www.faa.gov/uas/request\\_waiver/](https://www.faa.gov/uas/request_waiver/)

Instructions for filling out the waiver are linked to the website link above. Applications with incomplete or incorrect information will be rejected. The RPIC will need to follow the provisions of the waiver which will vary by location. The RPIC will be required to provide a copy of an approved waiver to the UAS PC.

According to AC 107-2 5.8.1, "Unless the flight is conducted within controlled airspace, no notification or authorization is necessary to operate at or near an airport." When operating in the vicinity of an airport, the RPIC must be aware of all traffic patterns and approach corridors to runways and landing areas (AC 107-2 5.8.1, 5.8.1.1, 5.8.1.2). Operations in the vicinity of airports in uncontrolled airspace do not require airport operator/management notification. However, adherence to CFR 107.43 "Operations in the vicinity of airports" is required. 107.43 states, "No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base." As a result, it is important to allow for additional pre-flight planning time to become knowledgeable about the specific non-towered airport operations. It is also best practice to have the local emergency responder's phone number on hand in case of emergencies.

### REFERENCES:

→ **Operation and Certification of Small Unmanned Aircraft Systems**

Final Rule of Federal Aviation Administration Part 107:

<https://www.federalregister.gov/documents/2016/06/28/2016-15079/operation-and-certification-of-small-unmanned-aircraft-systems>

→ **Federal Aviation Administration Advisory Circular 107 – 2**

Small Unmanned Aircraft Systems:

[https://www.faa.gov/documentlibrary/media/advisory\\_circular/ac\\_107-2.pdf](https://www.faa.gov/documentlibrary/media/advisory_circular/ac_107-2.pdf)

## APPENDIX A – CONTRACTOR AND CONSULTANT PROCEDURE TO OBTAIN PERMISSION FOR UAS MISSION

Contractors and Consultants will be required to submit the following to the Program Coordinator at least three months in advance of planned flight to request approval to fly on behalf of the Department.

1. Project number
2. Town or City
3. Phase (Planning, Design, Construction, Maintenance, Inspection)
4. Background information of UAS company:
  - a. Name of UAS company
  - b. Address
  - c. Previous UAS mission descriptions and client references
  - d. Contact person
5. Resumes and remote pilot certificate numbers of UAS personnel
6. Proof of insurance that meets requirements stated in Appendix B
7. FAA issued UAS registration document
8. UAS Model and UAS serial number
9. Photographs of UAS that will be used (front, back, each side, top and bottom). FAA issued registration number must be clearly displayed on one of the photographs.
10. UAS operation manual (link or copy)
11. On site contact information (cell phone number) for the designated person responsible for the overall safety of the UAS operation
12. Name and phone number of visual observer(s) during flight
13. Description of flight objective
14. Map stating project location and distance from the nearest airport
15. Waivers or authorizations if applicable under Part 107 (check for additional restrictions such as TFRs and NOTAMs)
16. Flight Safety Plan for each location:
  - a. Aerial photo of location
  - b. Airspace classification of each flight
  - c. Detailed flight path of each flight
  - d. Location of take-off, landing (longitude/latitude). Public or private. If taking off from private property, written permission is required from the property owner
  - e. Start and end times at each location
  - f. Altitude of flight(s) (max)
  - g. Duration of flight(s)
  - h. Speed of UAS (max)
  - i. Emergency and Contingency Plan:
    - I. Plan of action
    - II. Traffic control (if needed)
17. Pre-flight inspection checklist
18. Contact list of authorities and property owners to be notified

## APPENDIX B – INSURANCE REQUIREMENTS FOR THE USE OF UAS

### INSURANCE

Owner/Operator shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damage to property which may arise from or in connection with the ownership, maintenance or use of the Unmanned Aerial Vehicle.

### MINIMUM SCOPE AND LIMIT OF INSURANCE

Coverage shall be at least as broad as:

**Aviation Liability Insurance** on an “occurrence” basis, including products and completed operations property damage, bodily injury with limits no less than \$1,000,000 per occurrence, and \$2,000,000 in the aggregate. This coverage may also be provided by endorsement to a Commercial General Liability policy. In that event then:

**Commercial General Liability (CGL):** Insurance Services Office Form CG 00 01 covering CGL on an “occurrence” basis including products and completed operations, property damage, bodily injury and personal and advertising injury with limits no less than \$2,000,000 per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

### OTHER INSURANCE PROVISIONS

The Aviation Liability or General Liability policy is to contain, or be endorsed to contain, the following provisions:

1. **The Entity, its officers, officials, employees, and volunteers are to be covered as additional insureds** with respect to liability arising out of work or operations.
2. For any claims related to this project, the **Owner’s/Operator’s insurance coverage shall be primary insurance** coverage.
3. Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Entity.

### ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers authorized to conduct business in the state with a current A.M. Best rating of no less than A: VII.

### WAIVER OF SUBROGATION

Owner/Operator hereby grants to Entity a waiver of subrogation which any insurer may acquire against Entity, its officers, officials, employees, and volunteers, from Contractor/Vendor/Operator by virtue of the payment of any loss. Owner/Operator agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation but this provision applies regardless of whether or not the Entity has received a waiver of subrogation endorsement from the insurer.

### ATTACHMENTS

- [CTDOT UAS Inventory and Preventive Maintenance Inspection Form](#)
- [CTDOT UAS Pre-Flight Checklist and Flight Log Form](#)
- [CTDOT UAS Visual Observer Acknowledgement Form](#)