



OSWEGO COUNTY EMERGENCY MANAGEMENT

UAS CONOPS

John McGraw
John.mcgraw@oswegocounty.com



**OSWEGO COUNTY
EMERGENCY MANAGEMENT OFFICE**

200 North 2nd Street, 2nd Floor
Fulton, NY 13069
Phone: 315-532-8900

John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

To: UAS Pilots and Visual Observers
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200 North 2nd Street, 2nd Floor
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John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

Preamble

The mission of the Small Unmanned Aircraft Systems (UAS) program is to provide aerial support and assistance to Department personnel pursuant to their division's mission and requirements. UASs serve to augment Oswego County Emergency Management air operations and are excellent tools to deploy when Department aircraft are unavailable, if the mission is too dangerous for manned aircraft to be deployed, or when deemed more cost effective than conventional aircraft. Unmanned aircraft shall be operated in a responsible manner consistent with department policy.

This document will define the missions, training requirements, command relationships, standardization, specific flight team responsibilities and duties, and the reporting requirements to which Department employees will adhere to operate and safely deploy unmanned aircraft.



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General Provisions

I. Purpose and Scope

- A. This policy establishes the authorized use and operational guidelines for Unmanned Aircraft Systems (UAS) within the guidelines of Oswego County EMO COA rules and regulations. The UAS program is a function of the individual Divisions who are responsible for purchasing, maintaining, manning, operating, and storing UASs, but with oversight advisory for compliance to regulations by the UAS Coordinator.
- B. This policy is to gain, develop and maintain the trust of the public and first responders it serves. The department's primary intention for integrating UAS technology into its initial actions of hazard mitigation and response matrix is to increase situational awareness to provide real time information for the Incident Commander. The intended purpose is not to share data captured, although the benefit of sharing recorded data may be in the best interest of public safety or public health
- C. This policy is designed to minimize risk to people, property, and aircraft during the operation of the UAS while continuing to safeguard the right to privacy of all persons. It is further designed to keep the department and its personnel from being subject to the civil and criminal penalties for misuse of UASs and remain in compliance with the strict legislative reporting requirements.
- D. This policy is created to ensure that department employees who operate and deploy UAS assets are Remote Pilots in Command (RPIC) as defined in the Federal Aviation Administration (FAA) and have received training on the proper and safe operation of unmanned aircraft.
- E. This policy will define the training and certifications necessary to operate and deploy unmanned aircraft and will establish guidelines and best practices for RPICs to follow to safely deploy UAS assets.



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- F. At all times the department and its personnel shall comply with 14 CFR Parts 107 and/or Certificate of Authorization, plus applicable portions of CFR 14 Parts 61 and 91.

If conflicts exist between FAA regulations and any part of this policy, the most restrictive will apply.

II. Definitions

- A. **Aircraft.** A device that is used or intended to be used for flight in the air. This includes UASs.
- B. **Airworthiness Statement.** The Airworthiness of the UAS is self-certified by the Remote Pilot in Command through a preflight inspection prior to flight.
- C. **Certificate of Authorization (COA).** COA is an authorization issued by the Federal Aviation Administration (FAA) to a public operator for a UAS. After a complete application is submitted, the FAA conducts an operational and technical review. If necessary, provisions or limitations may be imposed as part of the approval to ensure the UAS can operate safely with other airspace users.
- D. **Crewmember.** A person assigned to perform duty while an aircraft is operating.
- E. **Crew Resource Management (CRM).** The effective use of all available resources including human, hardware, and information resources and coordination in the use of those resources by the RPIC, Remote Pilot and Visual Observer.
- F. **First Person View (FPV).** The Remote Pilot is observing the flight solely through the UAV's camera.
- G. **Flight time.** Remote piloting flight time commences when an aircraft moves under its own power for the purpose of flight and ends when the aircraft comes to rest after landing.



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- H. **Image.** Means any capturing of sound waves, thermal, infrared, ultraviolet, visible light, or other electromagnetic waves, odor, or other conditions existing on or about real property in this state or an individual located on that property. Imagery may include data about people, organizations, events, incidents, or objects as well as metadata.
- I. **Line of Sight (LOS).** The Remote Pilot and/or the Visual Observer can see, unaided, the UAS under their control during flight.
- J. **National Airspace System (NAS).** Airspace inside the continental United States. It is further defined through air navigation facilities, equipment and services, airports or landing areas, aeronautical rules, regulations, and procedures. There are two types of airspace within the NAS, controlled and uncontrolled. Operation of a UAS in controlled airspace adds another layer of responsibilities and requirements that must be met to operate the UAS.
- K. **Mission Area of Operations (AOR).** A defined perimeter/parameters to be determined based on the scope and type of the operation and a defined operational ceiling at or below 400 feet above the ground. The altitude of the small unmanned aircraft cannot be higher than 400 feet above the ground, unless the small unmanned aircraft is flown within a 400-foot radius of a structure and does not fly higher than 400 feet above the structure's immediate uppermost limit.
- L. **Temporary Flight Restrictions (TFR).** A TFR is a regulatory action issued via the U.S. Notice to Airmen (NOTAM) system to restrict certain aircraft from operating within a defined area, on a temporary basis, to protect persons or property in the air or on the ground.



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- M. **Unmanned Aircraft System / Vehicle (UAS/UAV).** UAS is the unmanned aircraft system and all the associated support equipment, control station, data links, telemetry, communications, and navigation equipment, etc., necessary to operate the unmanned aircraft. The aircraft's flight is controlled either autonomously by hardware within the UAS or under the remote control of a Remote Pilot on the ground or in another ground vehicle. For purposes of this program, the 14 CFR Part 107 compliant UAS shall weigh less than 55 pounds fully loaded. Maximum groundspeed is limited to 100 mph (87 knots).
- N. **Visual Flight Rules (VFR).** All flights with the UAS shall be conducted under VFR conditions and at an altitude below 400' AGL. VFR is established as a 3-mile visibility and a cloud ceiling of 1,000 feet for day operations and 5-mile visibility with a cloud ceiling of 2,000 feet for night operations.



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III. Organizational Definitions

A. UAS Coordinator:

1. Resolve conflicts or disputes that might arise related to policy or mission within their division.
2. Establish protocols to prevent violations of policy, law, and public privacy.
3. Control the dissemination of any information produced by the departments UAS team.
4. Respond to citizens' complaints and respond in a timely manner either by phone and/or in writing. (Director of Emergency Management shall be notified of any citizens' complaints).
5. Shall be ultimately responsible for his/her department reporting requirements under the FAA COA reporting portal (C.A.P.S.).
6. Shall be responsible in providing annual reports or upon request of the Emergency Management Director.
7. The individual responsible for assisting in the tactical and administrative functions related to the UAS program within his/her department, including maintaining a current list of all certified crew members to include Remote Pilots and Visual Observers. The UAS Coordinator is responsible for maintaining the training records for crew members and compliance FAA C.A.P.S. reporting requirements. The UAS Coordinator is also responsible for the condition, maintenance, and flight records of the UAS and its associated equipment within the data reporting software.

B. **Flight team.** Any combination of the RPIC, Remote Pilot or Visual Observer(s).

C. **Remote Pilot.** The individual exercising *pilot at the controls* over the UAS during flight. The Remote Pilot need not be 14 CFR 107 certified if the pilot is under the supervision of



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a RPIC who is in direct communication and in a position to take over control of the UAS, regardless of certification. Undesignated remote pilots may be student pilots at the controls.

- D. **Remote Pilot in Command (RPIC).** The mission commander with on-site authority for the UAS. The individual solely responsible for the overall flight operations for a specific mission. He/She may also act as either Remote Pilot or Visual Observer. Regardless, he/she may not delegate his/her responsibility. An RPIC may only operate one UAS at a time. Each UAS in use shall have its own RPIC assigned.
- E. **Remote Pilot in Command (RPIC).** It is recommended that RPIC's obtain FAA Part 107 Certification.
- F. **Visual Observer.** The individuals trained to always maintain the line-of-sight and 360-degree hazard awareness around the UAS and assist the RPIC in carrying out all duties required for the safe operation of the UAS. Under 14 CFR Part 107.



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IV. Missions

- A. The department's UAS will not be used to monitor members of the public or provide surveillance for law enforcement purposes. Its intended use is to provide greater situational awareness to incident commanders thereby enhancing responder safety in response to and mitigation of emergent situations and incident types unrelated to citizen monitoring or surveillance.
- B. Personnel operating an UAS shall be mindful of privacy rights and absent a warrant or exigent circumstances shall not intentionally record or transmit images in any location where a person would have a reasonable expectation of privacy (e.g., inside house, fenced yard, enclosed area only visible from an elevated position). Operators and observers will take reasonable precautions to avoid inadvertently recording or transmitting images in violation of privacy rights.
- C. Data Collection: Data collected on the UAS SIMM card will follow the Oswego County Sheriffs Department data collection and storage policy. Oswego County maintains its own record and storage center. Data shall be collected for authorized purposes.
- D. Data Oversight and Auditing: Data oversight and auditing procedures will comply with current polices in place for Oswego County. The UAS Coordinator may assist in maintaining compliance and audits every 6 months.
- E. Information sharing agreements:
 - 1. Transfer: will occur by [system to system transfer, Secure File Transfer, NHS Mail etc.]. Information will be shared on a strict need to know basis only and the data will only be processed by staff in order for them to perform their duties in accordance with one or more of the defined purposes.
 - 2. Under no circumstances should personal data be processed in any way that is insecure or left unattended. It is the responsibility of the sender to ensure that the method is secure and that they have the correct contact details for the receiver.
 - 3. Both parties shall comply with all Federal and State laws and regulations governing the confidentiality of the information
 - 4. The data recipient will not release data to a third party without prior approval from the data provider.



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- F. All missions will be flown in accordance with FAA regulations, 14 CFR Parts 107 and/or Certificate of Authorization, applicable portions of 14 CFR Parts 61 and 91, current FAA National Policy regarding UAS Operational Approval and the Oswego County EMO Unmanned Aircraft policy.
- G. Approved Uses/Missions: All UAS mission requests shall be authorized by a UAS Coordinator, or his/her designee. The RPIC will coordinate with the UAS Coordinator, or his/her designee to build a list of missions that will be considered for approval, such as but not limited to *aiding in search and rescue operations, crime scene photography, crash reconstruction, hazmat scene deployment, major disaster scenes, storm damage, fire scenes, tactical situations, communications tower inspections, public affairs events, maintenance, and training.*
- H. Other case by case missions may be approved by UAS Coordinator or his/her designee if those missions are immediately necessary to preserve the health, safety, and welfare of people or property within the State of New York.
- I. Request for UAS support outside of our organization will comply with the New York State mutual aid system or the agency assistance policy in place for local law enforcement agencies.
- J. Public notification policy of UAS operation:
 - 1. At the request of incident commander or RPIC “Hyper-Reach” (a mass dialing program) can be requested to notify the public that a drone operation is taking place over a certain area.
 - 2. Pre-planned missions may be announced on the county website and/or through the issuance of a press release.
- K. Weather Brief: Weather shall be obtained by the RPIC for the local area of operation to include Meteorological Aerodrome Reports (METAR) and Terminal Area Forecasts (TAF) from the closest airport reporting weather conditions. 1-800-WX BRIEF will provide a



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live briefer with access to this data. Review of NoTAMs and Temporary Flight Restrictions (TFRs) are required prior to launch. Additional weather information should be obtained from the National Oceanic Atmospheric Administration (NOAA) (<http://www.aviationweather.gov/adds/>), or another site or cell phone application to review the following: weather radar, ceiling/visibility, wind/temperatures, turbulence, Significant Meteorological Information (SIGMET), NoTAMs, TFRs and icing.

- L. Pre-Flight Briefing: RPIC, Remote Pilot and Visual Observer and any other flight team members must participate in the pre-flight briefing, led by the RPIC prior to aircraft launch, which includes, but is not limited to:
 1. Review of the mission's goals and expected outcomes
 2. Review of current and forecasted weather conditions
 3. Review of current Notice to Airmen (NoTAMs) and Temporary Flight Restrictions (TFRs) that have been issued for the proposed flight area.
 4. Identification of mission limitations and safety issues such as battery charge, GPS strength, and potential for radio interference.
 5. Review of proposed Mission AOR - flight area, including maximum ceiling and floor.
 6. Review of communication procedures between RPIC, Visual Observer, and other personnel used to support the mission. Including verifying cell phone numbers used to communicate with Air Traffic Control in the event of a fly-away or other flight emergency.
 7. Review of emergency/contingency procedures including aircraft system failure, flight termination, divert, and lost link procedures.
 8. Execution of a pre-flight check utilizing the approved checklist.
8. The RPIC shall declare to crew members the type of authorization the flight is being conducted under, Part 107, Blanket COA, or Jurisdictional COA.



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The RPIC will be responsible to ensure that the above steps have been accomplished prior to flight.

Mission Debrief: After changeover or landing, the RPIC shall debrief all missions.

- O. Pilot at the controls: A person operating a small UAS must either hold a remote pilot airman certificate and be acting as RPIC or be under the direct supervision of the RPIC who is able to take immediate control of the aircraft.

- P. Line of Sight: With vision that is unaided by any device other than corrective lenses, the Remote Pilot in Command, the Visual Observer (if one is used), or the person manipulating the flight controller of the small unmanned aircraft system must be able to see the unmanned aircraft throughout the entire flight. Visual line of sight is required in order to know the unmanned aircraft's location and flight status (attitude, altitude, and direction of flight), observe the airspace for other air traffic or hazards, and to determine that the unmanned aircraft does not endanger the life or property of another. All flight team members essential to the operation of the unmanned aircraft shall be able to verbally communicate at all times. If Tactical Beyond Visual Line of Sight (TBVLOS) operations are being conducted, adherence to those procedures is required.

- Q. Preflight and Postflight Documentation: Equipment check, and weather will be documented by the RPIC in a logbook prior to all UAS operations. After each flight or end of a duty cycle, the RPIC or his/her designate will complete a flight log documenting the UAS's operations in accordance with CFR 14 Parts 61 and 91 through approved and standardized software.

- R. Maintenance: Maintenance must be up to date prior to launch. Accurate UAS maintenance reporting is the responsibility of the Division Program Coordinator in accordance with the manufacturer recommendations. When maintenance is performed, a test flight shall be conducted and documented in accordance with the manufacturer's instructions. The RPIC will not fly any aircraft that he/she suspects does not meet airworthiness requirements following the preflight inspection. Timely maintenance and accurate reporting are required to enhance mission availability and safety.



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- S. Payloads: Any payload used on a UAS shall be approved by the UAS Coordinator.
Weapons and dispersal payloads shall not be used.



V. Establishing a TFR for a Critical Incident

In the event of a critical incident (Mass Fatality Incident, Mass Casualty Incident or other disaster) that needs to be preserved for privacy, evidence collection, or provide a safe environment for the operation of the incident a TFR may be requested with communicating with the local ATC or the Domestic Event Network (DEN) at 866-598-9522.

A TFR may assist with the prevention of news media and/or recreational pilots from flying over the incident.

Reference FAA AC91-63C for additional information (Attached at end of the CONOPS)

The most frequently issued TFR is the 91.137, which are used for disasters, hazards on the ground and in the air, forest fires, etc. An important point to remember is that only the 91.137(A)(1) prevents everyone, including the press from entering the area unless authorized by the authority in charge of the operation.

There are 3 types of the 91.137 TFR

A1- Protect persons and property on the surface or in the air from a hazard associated with an incident on the surface.

No person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

A2- Provide a safe environment for the operation of disaster relief aircraft.

No person may operate an aircraft within the designated area unless at least one of the following conditions are met:

- (1) The aircraft is under the direction of the official in charge of the operation.
- (2) The aircraft is carrying law enforcement officials.
- (3) The aircraft is operating under the ATC approved IFR flight plan.
- (4) The operation is conducted directly to or from an airport within the area or is necessitated by the impracticability of VFR flight above or around the area due to



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weather, or terrain and the operation does not hamper or endanger relief activities and is not conducted for the purpose of observing the disaster.

(5) **The aircraft is carrying properly accredited news representatives**, and, prior to entering the area, a flight plan is filed with the appropriate FAA or ATC facility specified in the Notice to Airmen and the operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized.

A3- Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event which may generate a high degree of public interest.

No person may operate an aircraft within the designated area unless at least one of the following conditions is met:

(1) The operation is conducted directly to or from an airport within the area or is necessitated by the impracticability of VFR flight above or around the area due to weather, or terrain and the operation does not hamper or endanger relief activities and is not conducted for the purpose of observing the disaster.

(2) The aircraft is operating under an ATC approved IFR flight plan.

(3) The aircraft is carrying incident or event personnel, or law enforcement officials.

(4) **The aircraft is carrying properly accredited news representatives** and, prior to entering that area, a flight plan is filed with the appropriate FAA or ATC facility specified in the NOTAM.

Getting a TFR Issued

Contact the nearest Air Traffic Control facility. If possible, have the latitude/longitude of the location in Degrees/Minutes/Seconds format. If unable to contact a local Air Traffic facility, contact the DEN or SOSC at the numbers below.

Syracuse Hancock International Airport ATC -

NOTE: The SOSC deals with TFRs on a daily basis and if you have any questions or would like assistance with a TFR call the SOSC at 202-267-8276. For any other security related question or concern relating to aviation contact the Domestic Events Network (DEN) at 866-598-9522.



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VI. Emergency Procedures:

- A. Emergency Procedures stated in the manufacturer’s operations manual shall be complied for all UAS operations. In the event of an emergency involving the safety of persons or property, the RPIC may deviate from the procedures of this directive relating to aircraft, equipment, and weather minimums to the extent required to meet the emergency.
- B. No member of the department, regardless of involvement in an emergency, shall make any statements to the general public or to news-gathering agencies without the knowledge and approval of the UAS Coordinator and the Director of Oswego County Emergency Management or the Oswego County Sheriff’s Office.
- C. Lost Link - An interruption or loss of command-and-control link contact with the UAS such that the remote pilot can no longer manage the aircraft’s flight and as a result of the control loss the UA is not operating in a predicable or planned manner.
 1. LOSS OF UAS FLIGHT CONTROL (Lost link):
 - i. The UAS lost link procedures shall be initiated which shall automatically cause the UAS to climb to its ceiling altitude and return to and land at the launch site. If positive control of the UAS cannot be maintained and the UAS is leaving the operation area or the UAS poses a risk to life and/or property, the RPIC will issue an Engine Kill command.
 - ii. LOSS OF GPS SIGNAL Should the UAS lose GPS signal during autonomous operations, the RPIC must immediately command the UAS into manual mode and land as soon as practical. If positive control of the UAS cannot be maintained and the UAS departs the operation area or the UAS poses a risk to life and/or property, the RPIC will issue an Engine Kill command.
- D. Loss Of Visual Contact. If visual contact with the UAS is lost, the RPIC shall command the aircraft into a hover mode and the RPIC and/or Visual Observer shall try to re-establish visual contact. If visual contact cannot be re-established within a reasonable amount of time determined by the RPIC, then lost link procedures shall be executed.



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- E. Loss Of UAS Power (Engine Failure)/UAS Crash. In case of an engine failure, the UAS will not be able to maintain flight. Flight Team Members will immediately attempt to locate the UAS, assess the scene for injuries, and render first aid if necessary.

- F. Flight Termination. The intentional and deliberate process of performing controlled flight into terrain (CFIT). Flight termination must be executed in the event that all other contingencies have been exhausted, and further flight of the aircraft cannot be safely achieved, or other potential hazards exist that require immediate discontinuation of flight.

- G. Accident Notification and Investigation: The RPIC must report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least \$500 (not including the unmanned aircraft). All in flight accidents and incidents involving fatalities, injuries, property damage, and lost link shall be reported to the UAS Coordinator or his/her office in command immediately for appropriate assistance with guidance. If FAA regulations require the FAA to be notified within 24 hours, the same notification and reporting protocols will be followed as the 10-day notification process. RPIC shall document the accident on the Oswego County Accident Reporting Form (attached to this document).



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VII. Training and Standardization

- A. The UAS Coordinator or his/her designee shall review and approve a training curriculum to assess the knowledge, skills, and abilities of RPICs and Visual Observers requiring additional training certifications ensuring satisfactory compliance with this policy.
- B. Remote Pilot in Command (RPIC) training requirements:
 1. A RPIC may be authorized to operate more than one type of UAS if he/she is trained and current in each individual model. The RPIC may only operate one UAS at a time.
 2. The RPIC shall show proficiency in basic aeronautical knowledge as it relates to the use and operation of UAS assets. The RPIC shall pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center or comply the 14 CFR Part 107 protocols for a licensed and current 14 CFR Part 61 pilot. The basic aeronautical knowledge training, at a minimum shall include:
 - i. FAA rules pertaining to UAS flight operational limitations.
 - ii. All aspects of 14 CFR Part 107.
 - iii. Knowledge of the rules and responsibilities described in 14 CFR 91.
 - iv. Crew Resource Management.
 - v. Mission planning requirements for establishing the Mission and/or Perimeter.
 - vi. Mission briefing requirements to include departments approved checklists and manufacturer's recommendations.
 - vii. Mission debriefing requirements.
 3. The RPIC shall show proficiency operating the specific UAS model in flight including emergency procedures. The RPIC's proficiency shall be evaluated by the UAS Program Coordinator or his/her designee who has mastered aeronautical knowledge and training as it pertains to the use of an unmanned aircraft.
 4. The RPIC shall show proficiency communicating and *crew resource management* with the flight team members (Visual Observer and Remote Pilot) demonstrating satisfactory communications between team members. The RPIC's communications will be evaluated at all stages of the flight continuum: pre-flight inspection, flight operations, and post flight procedures.



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5. The RPIC shall demonstrate proficiency in all the technology and support equipment associated with any assigned mission to take advantage of the full capabilities of the UAS. The RPIC's proficiency shall be evaluated by an approved pilot who has mastered aeronautical knowledge and training as it pertains to the use of unmanned aircraft.
6. Upon RPIC approval, the program coordinator shall prepare an Inter-Office Memorandum indicating that:
 - i. The RPIC has demonstrated proficiency operating unmanned aircraft.
 - ii. The RPIC has met all training requirements to operate unmanned aircraft.
 - iii. The RPIC is authorized to operate UAS assets while carrying out his/her duties in an official capacity.
7. The memorandum shall be submitted to the employee's supervisor final approval. Copies of the memorandum shall be place in the employees electronic/paper personnel file and a copy of training records shall be maintained by the UAS Coordinators Office.
8. Every year after an RPIC's certification, no later than January 31st, shall re-evaluate the RPIC's proficiency and document the results in a memorandum. At a minimum the memorandum will indicate that:
 - i. The employee has demonstrated proficiency operating unmanned aircraft.
 - ii. Has successfully completed annual recertification in the subjects listed in paragraph B. (2) of this section.
 - iii. Notate that the UAS Coordinator or his/her designee is authorizing the employee to operate unmanned aircraft while carrying out his/her duties in an official capacity for the current calendar year.
 - iv. The memorandum shall be submitted to the employee's supervisor for final approval and copies of the memorandum shall be place in the employees' electronic/paper personnel file and a copy retained by the UAS Coordinators Office.



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C. UAS Observer Training requirements:

1. Visual Observers are not required to deploy UAS assets under Part 107 (except during night operations); however, it is highly encouraged for a UAS Visual Observer to assist the RPIC during all missions for risk mitigation purposes.
2. When operating under the COA a trained Visual Observer is required.
3. Visual Observers may be both formally trained and designated or can be chosen *ad hoc* for a specific mission under Part 107.
4. Designated Visual Observer's training is applicable to all UAS models.
5. Designated UAS Visual Observers shall have completed sufficient training to efficiently communicate pertinent inflight observations with the RPIC so that the UAS aircraft remains clear of conflicting air traffic and obstructions.
6. This training, at a minimum, includes:
 - i. Knowledge of the supporting tasks described 14 CFR 107 with respect to maintaining Line of Sight, and effective communication.
 - ii. Knowledge of the supporting tasks described in 14 CFR 91: Operating Near Other Aircraft; Right-of-Way Rules; and Basic VFR Weather Minimums.
 - iii. Familiarity with UAS to be flown.
 - iv. Familiarity with specific mission profile(s) to be flown.
 - v. Familiarity with flight location.
 - vi. Familiarity with local flight issues/hazards.
 - vii. Familiarity with primary/secondary communication plans.



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200 North 2nd Street, 2nd Floor
Fulton, NY 13069
Phone: 315-532-8900

John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

7. Duties of the Visual Observer, Performed as member of the flight crew:
 - I. Attend pre-flight crew briefing. Understand all aspects of flight profile.
 - II. Maintaining constant communication with Pilot in Command (PIC).
 - III. Maintain visual with UAS. Momentary loss of visual is acceptable, as long as visual is reacquired within a reasonable time. If visual is not reacquired, notify PIC immediately so that UAS can be recalled to home point or directed to land.
 - IV. Notify PIC of any hazards to flight, whether ground based or airborne.
 - V. Notify PIC of any impending weather issues (ceiling, visibility, wind) that may affect flight operations.
 - VI. Be directive with navigation/altitude changes to avoid hazards.
 - VII. Adhere to Sterile Cockpit procedures.
 - VIII. Observe one UAS at a time.

8. Daisy Chaining (In addition to above):
 - i. All VOs will have primary and secondary means of communication.
 - ii. One VO will be positioned with PIC at all times.
 - iii. Communications checks will be performed by all crew members prior to flight.
 - iv. Simultaneous operations require separate daisy chaining of VOs for each UAS.

9. Passing VO duties from one to another will be accomplished by the following:
 - i. PIC will advise all VOs when UA is moving from one observation sector to another.
 - ii. Passing VO must have sight of UA and inform receiving VO of approximate position, heading and altitude.
 - iii. Receiving VO will state when UA is positively identified.
 - iv. Passing VO will then pass VO duties to receiving VO with radio call. Receiving VO will acknowledge with radio call, completing handoff.
 - v. If successful handoff is not accomplished, PIC will orbit UA present position until handoff is completed

10. If formal training is not available for UAS Visual Observers, the RPIC is responsible for briefing the *ad hoc* observer and ensuring the understanding of the role and the supporting tasks in C (5.) of this section to the observer.



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11. Night operations require that the RPIC and Visual Observer are trained to recognize and overcome visual illusions caused by darkness and understand physiological conditions which may degrade night vision. According to the waiver, the training must be recorded and presented to the FAA Administrator's designee. The RPIC/VO document that the required training was performed. The RPIC/VO documentation will be held within the UAS Coordinators office.
12. *Ad hoc Visual Observers* are selected on a case-by-case basis and no memoranda or documentation retention on their training is required.
13. *Ad hoc Visual Observers* need not be members of the department.



John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

VIII. Position Responsibility and Duties:

A. Remote Pilot-in-Command (RPIC)

1. The RPIC is solely responsible for everything the flight team does or fails to do.
2. The RPIC is authorized to refuse any flight request based on current meteorological conditions, physiological conditions, or for any other reason that RPIC believes will affect the safety of the flight. Should the RPIC refuse a flight for any reason, they shall inform the Incident Commander as soon as possible of such refusal and the reason for refusal.
3. While the UAS is in flight, the RPIC is authorized and responsible for making all decisions regarding use of the UAS including, but not limited to, direction of UAS, duration of flight time, capabilities of the UAS, and use of affixed certified equipment.
4. The RPIC is responsible for the safe conduct of all flights, including, but not limited to:
 - i. Flight planning and preparation, including pre-flight inspections of UAS and equipment.
 - ii. Weather briefing.
 - iii. Flight operations, including course, air speed, altitude, and duration.
 - iv. Landing zone selection.
 - v. Go/no-go and landing judgments with regard to weather minimum or other criteria.
 - vi. All Very High Frequency (VHF) air-to-air, air-to-ground, Air Traffic Control (ATC) communications, and any other radio communications.
 - vii. Timely reporting of new or previously unknown hazards to safe flight encountered.
 - viii. Post-flight inspection, to include assuring batteries are recharged and to ensure the duty aircraft is ready for the next mission.
 - ix. After each deployment, maintaining and making appropriate entries in UAS logbooks.



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5. Flight Operations – Operational Control – Remote Pilot-in-Command Authority:
 - i. The RPIC shall initiate the flight only when confident the flight can be conducted safely.
 - ii. If required by FAA, the RPIC shall ensure a FAA Notice to Airmen (NOTAM) is released for every flight involving the UAS in the national airspace when operating under the COA – unless exempted by addendum to approved certificate of waiver.
 - iii. If required by FAA, the RPIC shall ensure there is a Certificate of Authorization (COA) from the FAA to conduct flights in the national airspace.
 - iv. If an emergency COA is required by the FAA for a particular flight, the RPIC shall forward the requested documents to the DPC, and AOD Chief Pilot for review and assessment before forwarding to the FAA.
 - v. For operations that may present a hazard to other aircraft due to natural disaster or active shooting scenarios, the RPIC may request a Temporary Flight Restriction (TFR) be initiated around the Mission AOR.

- B. UAS Visual Observer: Assistance shall include, but not be limited to:
 1. Performing assignments assigned by a RPIC.

 2. Assisting the RPIC in the safe conduct of all flights, including but not limited to:
 - i. The Observer shall assist in see-and-avoid operations of the UAS. The Visual Observer shall remain in contact with the RPIC and communicate any obstacles the aircraft might encounter.
 - ii. If the flight becomes a hazard to ground personnel or other aircraft, the Visual Observer shall immediately notify the RPIC.
 - iii. During any phase of flight, if the Visual Observer notices a malfunction with the aircraft, he should immediately notify the RPIC.



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C. UAS Inspections:

1. Before every flight, the RPIC is responsible for pre-flight inspections of the UAS according to the pre-flight checklist, and manufacturer's recommendations.
2. Any anomalies found by the RPIC shall be fixed before any flight is conducted.
3. After every flight, a post-flight inspection shall be conducted by the RPIC according to the post-flight checklist and any manufacturer's recommendations.

D. UAS Checklist:

1. There shall be a checklist generated for each phase of flight: Pre-flight, Run-up, Take-off, Emergency Landing, and Post-flight.
2. The checklist that will be built into the fleet management software and all flight logs will be synchronized into the fleet management software after each flight for accurate recordkeeping.
3. The RPIC shall not deviate from a checklist.
4. The UAS Coordinator or his/her designee is responsible for making sure all checklists are up-to-date and current for each aircraft make and model.

VIII. Reporting Requirements

- A. Flight Log Software: The UAS Coordinator shall be responsible for standardization of flight log requirements pursuant to FAA regulations.
- B. A flight log shall be completed and synchronized in the fleet management software following every UAS flight by the RPIC including maintenance checks and training flights. If the situation of the mission does not allow for immediate entry of the flight data into the fleet management software, then the information can be recorded the following day.

This policy will be reviewed every 2 years or as changes are made which would impact the drone program.



John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

Visual Observer Part 91 Reference Sheet

§91.111 Operating near other aircraft.

(a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.

(b) No person may operate an aircraft in formation flight except by arrangement with the pilot in command of each aircraft in the formation.

(c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

§91.113 Right-of-way rules: Except water operations.

(a) *Inapplicability.* This section does not apply to the operation of an aircraft on water.

(b) *General.* When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(c) *In distress.* An aircraft in distress has the right-of-way over all other air traffic.

(d) *Converging.* When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way. If the aircraft are of different categories—

(1) A balloon has the right-of-way over any other category of aircraft;

(2) A glider has the right-of-way over an airship, powered parachute, weight-shift-control aircraft, airplane, or rotorcraft.

(3) An airship has the right-of-way over a powered parachute, weight-shift-control aircraft, airplane, or rotorcraft.

However, an aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft.



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(e) *Approaching head-on.* When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

(f) *Overtaking.* Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) *Landing.* Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-282, 69 FR 44880, July 27, 2004]

§91.115 Right-of-way rules: Water operations.

(a) *General.* Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right-of-way by any rule of this section.

(b) *Crossing.* When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right-of-way.

(c) *Approaching head-on.* When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.

(d) *Overtaking.* Each aircraft or vessel that is being overtaken has the right-of-way, and the one overtaking shall alter course to keep well clear.

(e) *Special circumstances.* When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.

§91.119 Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:



**OSWEGO COUNTY
EMERGENCY MANAGEMENT OFFICE**

200 North 2nd Street, 2nd Floor
Fulton, NY 13069
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John McGraw – UAS Coordinator
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(a) *Anywhere*. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) *Over congested areas*. Over any congested area of a city, town, or settlement, or over any open-air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) *Over other than congested areas*. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) *Helicopters, powered parachutes, and weight-shift-control aircraft*. If the operation is conducted without hazard to persons or property on the surface—

(1) A helicopter may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and

(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989, as amended by Amdt. 91-311, 75 FR 5223, Feb. 1, 2010]

§91.155 Basic VFR weather minimums.

(a) Except as provided in paragraph (b) of this section and §91.157, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace in the following table:

| Airspace | Flight visibility | Distance from clouds |
|-----------------|--------------------------|-----------------------------|
| Class A | Not Applicable | Not Applicable. |
| Class B | 3 statute miles | Clear of Clouds. |
| Class C | 3 statute miles | 500 feet below. |



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| | | |
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| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| Class D | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| Class E: | | |
| Less than 10,000 feet MSL | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| At or above 10,000 feet MSL | 5 statute miles | 1,000 feet below. |
| | | 1,000 feet above. |
| | | 1 statute mile horizontal. |
| Class G: | | |
| 1,200 feet or less above the surface (regardless of MSL altitude) | | |
| For aircraft other than helicopters: | | |
| Day, except as provided in §91.155(b) | 1 statute mile | Clear of clouds. |
| Night, except as provided in §91.155(b) | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |



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| | | |
|--|------------------|----------------------------|
| For helicopters: | | |
| Day | 1/2 statute mile | Clear of clouds |
| Night, except as provided in §91.155(b) | 1 statute mile | Clear of clouds. |
| More than 1,200 feet above the surface but less than 10,000 feet MSL | | |
| Day | 1 statute mile | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| Night | 3 statute miles | 500 feet below. |
| | | 1,000 feet above. |
| | | 2,000 feet horizontal. |
| More than 1,200 feet above the surface and at or above 10,000 feet MSL | 5 statute miles | 1,000 feet below. |
| | | 1,000 feet above. |
| | | 1 statute mile horizontal. |

(b) *Class G Airspace.* Notwithstanding the provisions of paragraph (a) of this section, the following operations may be conducted in Class G airspace below 1,200 feet above the surface:

(1) *Helicopter.* A helicopter may be operated clear of clouds in an airport traffic pattern within 1/2 mile of the runway or helipad of intended landing if the flight visibility is not less than 1/2 statute mile.

(2) *Airplane, powered parachute, or weight-shift-control aircraft.* If the visibility is less than 3 statute miles but not less than 1 statute mile during night hours and you are operating in an



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EMERGENCY MANAGEMENT OFFICE

200 North 2nd Street, 2nd Floor
Fulton, NY 13069
Phone: 315-532-8900

John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

airport traffic pattern within $\frac{1}{2}$ mile of the runway, you may operate an airplane, powered parachute, or weight-shift-control aircraft clear of clouds.

(c) Except as provided in §91.157, no person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet.

(d) Except as provided in §91.157 of this part, no person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport—

(1) Unless ground visibility at that airport is at least 3 statute miles; or

(2) If ground visibility is not reported at that airport, unless flight visibility during landing or takeoff, or while operating in the traffic pattern is at least 3 statute miles.

(e) For the purpose of this section, an aircraft operating at the base altitude of a Class E airspace area is considered to be within the airspace directly below that area.

[Doc. No. 24458, 56 FR 65660, Dec. 17, 1991, as amended by Amdt. 91-235, 58 FR 51968, Oct. 5, 1993; Amdt. 91-282, 69 FR 44880, July 27, 2004; Amdt. 91-330, 79 FR 9972, Feb. 21, 2014; Amdt. 91-330A, 79 FR 41125, July 15, 2014]

Community Engagements and Outreach

1. Information is available on the [Oswego County UAS Website](#).
2. Located on the website is a UAS Dashboard that the community can view flight information data with limited information due to privacy and data policies.
3. Located on the website are forms that the community can use to request demonstration for their organization or community event.
4. Our UAS team will participate in any community events as requested.
5. FAA Drone Safety Days – Annually the FAA provide information for UAS programs to assist with education and flight safety for the general community.
6. Changes to UAS policy that would significantly affect privacy, civil rights or civil liberties will be posted on the Oswego County UAS website.



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Phone: 315-532-8900

John McGraw – UAS Coordinator
Email: john.mcgraw@oswegocounty.com

Compliance with the Civil Rights and Civil Liberties:

"UAS-recorded data will not be collected, disseminated or retained solely for the purpose of monitoring activities protected by the U.S. Constitution, such as the First Amendment's protections of religion, speech, press, assembly, and redress of grievances (e.g., protests, demonstrations) Collection, use, dissemination, or retention of UAS-recorded data should not be based solely on individual characteristics (e.g., race, ethnicity, national origin, sexual orientation, gender identity, religion, age, or gender), which is a violation of the law."