

ISSUE PAPER SERIES

Use and Regulations of Drones for Municipalities

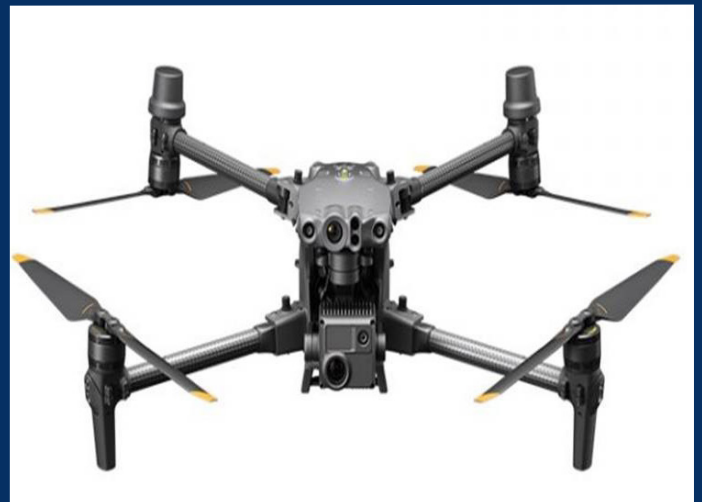
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NEW YORK STATE TUG HILL COMMISSION

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The Tug Hill Commission Technical and Issue Paper Series are designed to help local officials and citizens in the Tug Hill region and other rural parts of New York State. The Technical Paper Series provides guidance on procedures based on questions frequently received by the Commission. The Issue Paper Series provides background on key issues facing the region without taking advocacy positions. Other papers in each series are available from the Tug Hill Commission. Please call us or visit our website for more information.



Use and Regulation of Drones for Municipalities

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Use and Regulation of Drones for Municipalities

Introduction

Drones, also referred to as Unmanned Aerial Vehicles (UAVs) or Unmanned Aerial Systems (UASs), are used widely for both public and private business purposes as well as for recreation. A drone refers to any aerial vehicle that receives remote commands from a pilot or relies on software for autonomous flight. Originally developed for the military and aerospace industries, drones have found their way into the mainstream because of the enhanced levels of safety and efficiency they bring. Drones can carry out a wide variety of tasks, from military operations to package delivery, and can be as large as an aircraft or as small as the palm of a hand. Many drones display features like cameras for collecting visual data and propellers for stabilizing their flight patterns. Sectors such as videography, search and rescue, agriculture and transportation have adopted drone technology.

In New York State, as of February 2023 there were over 10,000 certificated Part 107 remote pilots, with over 300,000 in the United States as a whole. New York State agencies and counties are regularly using drones, and local municipal governments are beginning to find uses for them as well. This paper focuses on understanding requirements around drones and how they can be used for municipal purposes. The terms drone, UAV and UAS are used interchangeably. For information about the recreational uses of drones, see [here](#).

How are New York State and Local Counties Using Drones?

The New York State Department of Environmental Conservation (DEC) has been using drones since 2016 and has several certificated drone pilots on staff. DEC uses drones for a variety of purposes, including: search and rescue, emergency response, scene documentation, forest health monitoring, spill response, survey and mapping, drainage and erosion, wetland delineation, air and water sampling, and compliance inspections

The New York State Police has a [specialty unit](#) for unmanned aerial systems, started in January 2018. Their UAS program supports law enforcement missions, including disaster response and traffic safety. According to their website, the UAS can document and help reconstruct serious motor vehicle crashes in less time than with more typical methods, resulting in shorter road closures, lessening the impact on motorists. Investigators will also use the aerial drones to document and photograph crime scenes. Drones are also used to search for missing or wanted individuals.

Locally, the Oneida County Sheriff's Office has a [UAS team](#) of five members started in 2019. The team uses drones for accident reconstruction, crime scene documentation, hazardous material identification, lawful surveillance, mass gathering support, traffic control assistance, search and rescue, and surveying critical incidents. Oswego County has a UAS Coordinator and recently hosted a [drone safety day](#) at the Oswego County airport.

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One of seven FAA UAS test sites is located at the [Griffiss International Airport](#) in Oneida County. It is operated by the Griffiss International Airport Commissioner managed by the [Northeast UAS Airspace Integration Research Alliance](#) (NUAIR). NUAIR is a New York based nonprofit organization that provides expertise in unmanned aircraft systems (UAS) operations, aeronautical research, safety management, and consulting services. NUAIR provides testing capacity, drone program management, and UAS validation.

What are Potential Municipal Uses of Drones?

As highlighted in the previous section, emergency response is one of the main uses of drones, and can be augmented with various cameras and sensors mounted on to the drone. Damage assessment after natural disasters can be assisted with drones that can collect aerial imagery of affected areas, evaluate the passability of roads, and document damage for insurance or disaster declarations.

Photography and video captured by drones can highlight areas of interest in a town or village and create content for municipal websites, social media, and tourism and marketing campaigns. Imagery can also provide residents with visual updates on current projects or issues.

Municipal assets, including building roofs, parking lots, storage yards, bridges and roads, can be inspected using drones. This can improve worker safety by keeping employees off roofs, ladders, active roadways, scaffolding, and other hazardous working conditions. With the correct sensors, leaking underground water lines can be located with thermal or visual imagery.

Other possible uses include event planning, code enforcement, traffic studies, evaluation plans, and façade inspections.

How Is a Drone Program Started?

For official municipal purposes, a municipality would need to purchase a drone and have a FAA Part 107 Certificated operator or hold a public agency Certificate or Authorization (COA) if they want to do their own work. Alternatively, they could contract with a private or public entity for project specific drone work. If the municipality wants to contract with a drone operator, the municipality should ensure that the operator is abiding by all the FAA rules and regulations described in the following sections.

The [Federal Aviation Administration](#) (FAA) regulates drones. If purchasing a drone for municipal use, registration is required under what is referred to as Part 107. Detailed information about drone registration is available on the FAA's website [here](#). Registration costs \$5 per drone and is good for three years. Drones must be labelled with their registration number, and starting in September 2023 all drone pilots required to register their drone must operate their aircraft in accordance with the [remote ID rule](#) for pilots.

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Commercial Drone Operator Licenses

In most municipal scenarios, the recommendation is to have an FAA issue Public Agency COA or have a Certificated Remote Pilot operate the municipal drone using the federal regulations under 14 CFR part 107, also known as the small UAS rule or Part 107 for short.

A remote pilot certificate under Part 107 requires taking a 60 multiple-choice question exam, with topics including regulations to UAS rating privileges, limitations and flight operation, effects of weather on UAS performance, emergency procedures, airport regulations, decision making, maintenance and more. To be eligible to take the exam, one must be at least 16 years old, be able to read, understand, speak, and write English, and be well enough in physical and mental condition to fly a drone. A Part 107 remote pilot must also complete an FAA online recurrent course every two years.

What Else Does Part 107 Regulate?

Part 107 regulatory restrictions include:

- Maximum flight altitude of 400 feet above ground level (AGL), or above if the UAS remains within 400' of structure.
- Minimum weather conditions: visibility of three miles and visual flight rules, and 500 feet below clouds.
- Daylight and nighttime operations.
- Special rules to fly over people or moving vehicles.
- Operate in class G airspace or get authorization to operate in class B, C, D or Surface E airspace.
- Pilot must remain in visual line of sight (VLOS).

Can Drones Fly Over People?

Prior to April 2021, the short answer was no. However, new regulations went into effect on April 21, 2021 that do allow drones to fly over people with specific drones, conditions and operators. The details are available on the FAA website [here](#). Generally, drone pilots operating under Part 107 may fly at night, over people and moving vehicles without a waiver as long as they meet specific requirements.

The remote pilot needs to consider the drone's course, speed, and trajectory, including the possibility of a catastrophic failure, to determine if the drone would go over or strike a person not directly involved in the flight operation (non-participant). In addition, the remote pilot must take steps using a safety risk-based approach to ensure that:

1. the UAS does not operate over non-participants who are not under a covered structure or in a stationary covered vehicle;

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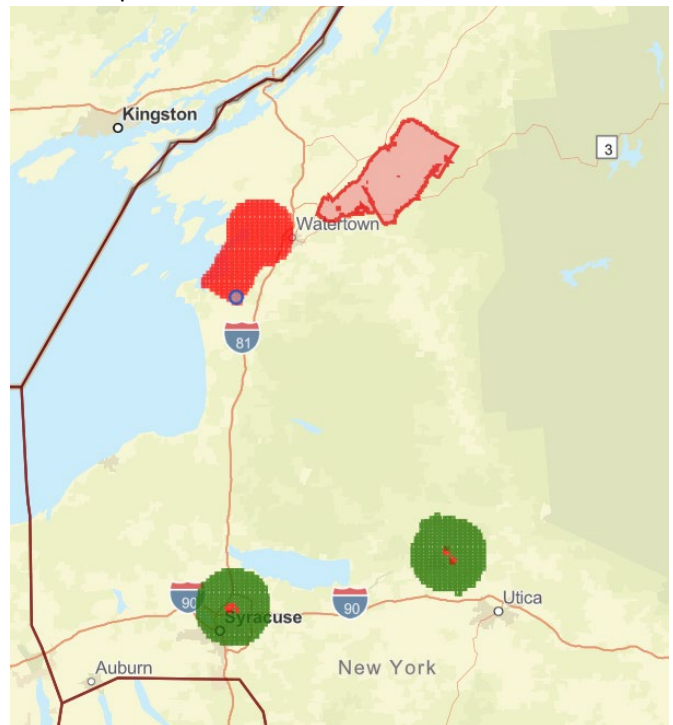
2. the UAS will pose no undue hazard to other aircraft, people, or property in the event of a loss of control of the aircraft for any reason; and
3. the small UAS is not operated in a careless or reckless manner so as to endanger the life or property of another.

If the remote pilot cannot comply with these requirements, then the flight must not take place or the flight must be immediately and safely terminated.

Can Drones be Flown Near Airports and in All Types of Airspace?

Drone operators should exercise extreme caution when flying near airports because it is difficult for manned aircraft to see and avoid a drone while flying. Drone operators must avoid manned aircraft and are responsible for any safety hazard their drone creates in an airport environment.

Airspace regulations are detailed and can be reviewed [here](#). There are two categories of airspace, controlled and uncontrolled. Generally, in uncontrolled airspace called Class G airspace, FAA does not require airspace authorization to fly. This class of airspace is found outside of controlled airspace. If a municipality found itself in need of authorization to fly a drone in controlled airspace, they would need to seek approvals through FAA's [DroneZone](#) or through an approved UAS Service Supplier using [Low Altitude Authorization and Notification Capability](#) (LAANC). There is also an app called [B4UFLY](#) that can provide guidance to drone pilots. Near the Tug Hill region, there are classes of airspace with additional regulations in the vicinity of the Watertown International Airport, Fort Drum, Syracuse Hancock International Airport, and Griffiss International Airport. An interactive mapper is available [here](#).



Drone pilots also need to be aware of Military Operating Areas (MOA) and restricted airspace. Several areas of Tug Hill are within these two areas. Operation within a MOA is permitted but pilots need to research the scheduled activity within the MOA and exercise extreme caution prior to conducting flights. Operations are not permitted within restricted airspace without special permission from the governing military installation.

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Can Drones be Flown Over State Land?

The NYS Office of Parks, Recreation, and Historic Preservation has adopted [rules](#) that require [permits](#) for launching and landing drones from state parks' property.

The NYS DEC has a detailed drone [policy](#). Rules are broken down by land classification. On Tug Hill, most DEC land is categorized as State Forest, State Wildlife Management Area, or Conservation Easement. On state forests, a temporary revocable permit is required. On state wildlife management areas and conservation easements, DEC requests that potential drone users contact their nearest DEC Wildlife office or DEC Lands and Forests office for more information.

Can Municipalities Regulate Drones?

The FAA controls airspace, so municipalities cannot regulate the airspace above their municipality. However, municipalities can adopt local laws that regulate take-off and landing using their land use regulatory authority.

Filing a Complaint

The FAA is the agency that handles complaints about drones. Information is available on their website [here](#). The two FAA local offices that cover Tug Hill are:

Albany	7 Airport Park Boulevard Latham, NY 12110	(518) 785-2020	Jefferson, Lewis, Oneida Counties	Contact
Rochester	1 Airport Way Rochester, NY 14624	(585) 436-3880	Oswego County	Contact