

## Consideration of Drone Technology

### **Definition:**

Drones are aircraft which makes the operator a pilot under Canadian Aviation Regulations.

*Transport Canada* defines drones as **Remotely Piloted Aircraft Systems (RPAS)**

### **Popularity:**

In 2017 it was estimated that 3 million drones would be produced and shipped worldwide (Gartner).

It is estimated that consumer drone shipments will surpass 29 million by 2021. In 2020 sales of US consumer drones surpassed \$1.25 Billion dollars and are predicted to reach \$63.6 Billion dollars by 2025. (Business Insider)

A typical consumer drone has a short operating time, typically one hour or less and up to 5000 meters of travel. They typically weigh less than 2 kg and are priced less than \$5,000 dollars.

### **Legislation:**

Transport Canada on Jan 09, 2019 issued (*Canadian Aviation Regulations, Part IX-Remotely Piloted Aircraft Systems, SOR/96-433*) to provide clarity on the rules and jurisdiction for drone operation in Canada.

Transport Canada has jurisdiction and responsibility to enforce these regulations and keep the public safe. Local police forces may collaborate with Transport Canada in investigations and enforcement including the levy of fines.

Other legislation that may apply:

Criminal Code:

- Offences against Air or Maritime Safety
- Breaking and Entering
- Mischief
- Voyeurism
- Creating a nuisance
- Invasion of Privacy

Any Violations of Provincial or Municipal Laws, including the Trespass Act.

## **Municipal Consideration:**

Federal jurisdiction over drone operation does not prevent a municipality from enacting drone regulations for purposes within its municipal jurisdiction. By-laws must not contradict existing federal drone regulations.

To date, the most common municipal bylaws enacted apply to drone operations within public parks (though a greater number of municipalities are enacting bylaws that preclude operations over streets and other areas). For example, the Ontario *Municipal Act, 2001* delegates power from the provincial governments to municipalities to make laws relating to public parks, and create offences arising from the violations of those laws.

A number of cities have banned the use of drones on Municipal owned properties. These include Calgary (parks and streets), Mississauga (parks), and Richmond BC (parks or school grounds) to name a few. These bans are enforced by Municipal By-law officers.

Federal regulations are extensive and cover most potential misuses of drones including privacy and collection of information, further regulation by municipalities with the exception of an outright ban which could be enforced by By-Law officers, or a ban on use on city streets, would be excessive

## **Some of the Rules for individual use:**

You need a drone pilot licence (certificate) to fly drones that weigh 250 grams (g) up to and including 25 kilograms (kg)

Drones in Canada over 25 kgs require a Special Flight Operations Certificate (**SFOC**).

No licence (certificate) is required for drones under 250 grams (g) including camera or payload.

You need to be 14yrs old to get a basic licence and 16yrs old to get an advanced licence. Children under 14 must be supervised by someone with a licence.

Drones over 250 grams (g) must be registered with Transport Canada and marked with a clearly legible Transport Canada registration number.

All drones (unless they have an **SFOC or RPAS Flight Authorization**) must be:

- in Visual Line Of Sight (**VLOS**) at all times, this means unaided visual contact at all times
- below 122 Meters (400 feet) vertically

- not more than 100 feet (30 m) above any building or structure, if the aircraft is being operated at a distance of less than 200 feet (61 m), measured horizontally, from the building or structure.
- Not used while operating a moving vehicle, vessel or manned aircraft.
- away from emergency operations and advertised events
- **AWAY** from forest fires, outdoor concerts and parades
- **Far away** from other aircraft, don't fly anywhere near airplanes, helicopters and other drones

### Basic licence

If you meet **all 5** of these conditions, you are conducting **basic** operations:

- You fly it in uncontrolled airspace
- You fly it more than 30 meters (100 feet) horizontally from bystanders
- You never fly it over bystanders
- You fly it more than 3 nautical miles (5.6 km) from a certified airport or military aerodrome
- You fly it more than 1 nautical mile (1.9 km) from a certified heliport

If you do not meet **any 1** of these conditions you are conducting advanced operations.

### Advanced Licence

If you meet **any 1** of these conditions you are conducting advanced operations:

- You want to fly it in controlled airspace
- You want to fly it over bystanders
- You want to fly it within 30 meters (100 feet) of bystanders (measured horizontally)
- You want to fly it less than 3 nautical miles (5.6 km) from a certified airport or a military aerodrome
- You want to fly it less than 1 nautical mile (1.9 km) from a certified heliport

For advanced operations here are some of the rules you must follow:

- Have a drone with the appropriate Safety declaration for the intended operation
- Pass the Small Advanced Exam
- Pass a Flight Review with a flight reviewer
- Seek permission from Air Traffic Control (NAV CANADA or the Department of National Defence) to fly in controlled airspace (request an RPAS Flight Authorization from NAV CANADA)

## **Penalties:**

You could face serious penalties, including fines and/or jail time if you break the rules.

For Individuals:

- Up to \$1,000 for flying without a drone pilot licence (certificate)
- Up to \$1,000 for flying unregistered or unmarked drones
- Up to \$1,000 for flying where you are not allowed
- Up to \$3,000 for putting aircraft and people at risk

For corporations:

- up to \$5,000 for flying without a drone pilot certificate (licence)
- up to \$5,000 for flying unregistered or unmarked drones
- up to \$5,000 for flying where you are not allowed
- up to \$15,000 for putting aircraft and people at risk

If you break more than one rule, you could receive multiple penalties

## **Summary:**

Drone popularity will only increase as evidenced by sales statistics. Their popularity is expanding rapidly as consumers recognize their value as tools for adventure, artistic purpose, photography, creative selfies, exploring, property surveillance, etc., the list is exhaustive.

Commercial uses range from: agriculture, construction, mining, insurance, police, pipeline and hydro line inspections, search and rescue operations, survey mapping, environmental monitoring, disaster oversight, and so much more.

Technology upgrades including downsizing units and increasing air time will only make the units more popular, also there will be a demand for increasing load capacity for delivery options to remote areas and potentially in urban areas as well.

One of the biggest concerns about drone technology is a concern for privacy. This is covered under the Canadian Aviation Regulations.

In today's world privacy is a rare thing. Security concerns and the preponderance of surveillance cameras on businesses and residences alike, as well as cellphone technology, traffic cameras, street view cameras, ATM cameras, satellite surveillance etc., make moments of privacy very rare. Drone technology will only lessen those rare moments as photos and video are taken of activities in your backyard, lounging in the pool, barbecuing, when you are out on a boat, camping in the woods, etc.

Council should consider whether the potential benefits of allowing either individual use or commercial drones within their municipalities outweigh the potential loss of privacy concerns.