

<b>TO:</b>	<b>CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON SEPTEMBER 7, 2016</b>
<b>FROM:</b>	<b>JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL &amp; ENGINEERING SERVICES AND CITY ENGINEER</b>
<b>SUBJECT:</b>	<b>UNMANNED AIR VEHICLE (“UAV”) USE IN THE MUNICIPAL GOVERNMENT ENVIRONMENT</b>

**RECOMMENDATION**

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the following information report concerning the use of Unmanned Air Vehicles (“UAV’s”) **BE RECEIVED** for information.

**PREVIOUS REPORTS PERTINENT TO THIS MATTER**

- None

**2015 - 19 STRATEGIC PLAN**

The following report supports the Strategic Plan through the strategic focus area of *Growing our Economy* by implementing local, regional, and global innovations through the use and review of emerging technologies.

**BACKGROUND**

At its July 28<sup>th</sup> 2015 meeting, Council passed the following recommendation:

*“the Civic Administration BE REQUESTED to report back on the potential use of drone technology in the municipal environment by the City of London.”*

The recommendation was related to an enquiry to see if staff have taken, or are intending to take, advantage of drone technology as a tool for inspection and progress monitoring of new infrastructure installation and other functions. (File number 55, Drone Technology, CWC Deferred Matter List).

The following information provides an overview of UAV’s, their potential uses and the regulatory framework that governs their use.

## CONTEXT

Over the course of the last number of years, there has been significant interest and discussion in the use of UAV's commonly referred to as "drones". UAV's are any aircraft that is remotely controlled and has no pilot onboard. They range in size from mini palm sized recreational UAV's to larger "quadcopter" style UAV's designed to carry payload including cameras and sensors tailored to the required use. While previously reserved for military application, UAV's are becoming increasingly popular amongst recreational and commercial users in North America.

The Federal Government through Transport Canada regulates the use of UAV's in Canada. If the drone is used for recreational uses and weighs less than 35 kg, no special permission is required to fly.

The Regulations are more detailed and onerous where the UAV weighs over 35kg or more, or is being used for industrial, inspection, training, educational, or commercial use. Under these conditions the operator of the UAV is required to obtain a Special Flight Operations Certificate ("SFOC"). The SFOC requires operators to provide information regarding how, when and where they intend to use their UAV, along with flight safety details.

Operating a UAV without a SFOC (where one is required) may lead to assessed fines in the amount of \$5,000 for an individual and \$25,000 for a corporation. Where the UAV operator has received an SFOC but does not comply with the conditions, a penalty of \$3,000 for an individual and \$15,000 for a corporation may be applied.

UAV operators must also comply with all other applicable laws and regulations, including the Canadian Criminal Code and provincial and municipals laws relating to trespassing and privacy. Additional information is available on the Transport Canada website (<http://www.tc.gc.ca/eng/civilaviation/drone-safety.html>).

## DISCUSSION

The use of UAV's has become increasingly popular within industries where accessibility is a major obstacle. Such industries include: mining, agriculture, fishery observation, aerial surveying, border patrol, law enforcement, and disaster relief just to name a few. In these applications UAV use allows for improved access in remote locations. UAV use also allows for safer access where observations in dangerous areas are required.

The use of UAV's in the municipal environment is largely undocumented. The use of UAV's within municipalities has been met with a number of obstacles, including; privacy issues, public safety, and Transport Canada's restriction on their use. While Transport Canada may allow for exemptions from particular requirements under special circumstances, each application for a SFOC is reviewed on a case by case basis and it is unclear what methodology is applied to these exemptions. Transport Canada notes the following restrictions when operating a UAV:

- Avoid flying over private property or taking photos/ videos without permission
- Avoid flying within a 9km radius from any aerodrome (ie. airport, heliport, helipad or seaplane base, etc.)
- Avoid flying closer than 150m from people, animals, buildings, structures, or vehicles
- Avoid flying higher than 90 metres (300 feet) above the ground
- Avoid flying in populated areas or near large groups of people, including sporting events, concerts, festivals, and fireworks shows.
- Avoid flying near moving vehicles, highways, bridges, busy streets, or anywhere you could endanger or distract drivers
- Anywhere you may interfere with first responders

The graphic below highlights the approximate 9km radii surrounding the three aerodromes within the City of London. These aerodromes are; the helipad at Victoria Hospital, the helipad at University Hospital, and the London International Airport.

**Figure 1 – UAV Aerial Exclusion Zone**



As illustrated in Figure 1, Transport Canada prohibits the use of UAV's throughout a majority of London due to the close proximity to the hospital helipads and the London International Airport. Special permission from Transport Canada would need to be granted through the SFOC process to allow the commercial use of UAV within the 9km radii of London's aerodromes.

The other restrictions listed by Transport Canada would also exclude the commercial use of UAV's within the City of London unless special permission was granted through the SFOC process.

Potential areas of use for an UAV for the City of London include such activities as:

- Aerial surveying
- Construction Management
- Bridge Inspection
- Site analysis, planning and design
- Environmental design (engineering, architecture, urban design)
- Marketing
- Emergency Response Coordination
- Environmental Impact Assessment and Monitoring

## **CONCLUSION**

Commercial UAV use within Canada has expanded significantly over the last 10 years, largely due to the advancements in UAV technology and the vast expanse of Canada's geography which makes UAV use so advantageous.

Commercial use of UAV's has many advantages within a variety of industries that operate in remote areas, however their use in urban environments is significantly more restrictive.

The advantages would need to be weighed against the need for public privacy/safety and the cost of the UAV's and SFOC requirements as the operator of the UAV will need to obtain the necessary SFOC paperwork from Transport Canada and adhere to the requirements noted in that documentation. The use of the UAV by the City would require special permission through the SFOC process. At the present time, there are no plans for the purchase of a UAV unit for use by the municipality.

**Acknowledgements**

This report was prepared by Brian Nourse, P. Eng., Environmental Services Engineer, Construction Administration Division with the assistance of Blair Masschelein, C.E.T., Technologist II, Construction Administration Division.

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