



VANCOUVER POLICE DEPARTMENT

REPORT TO THE VANCOUVER POLICE BOARD

REPORT DATE: June 10, 2019
BOARD MEETING DATE: June 19, 2019
BOARD REPORT # 1909V06

TO: **Vancouver Police Board**

FROM: Steve Eely, Superintendent, South Command, Operations Division

SUBJECT: Recommended Addition to the Regulations and Procedures Manual Section 1.13.3 – Use of Remotely Piloted Aerial Systems (RPAS)

RECOMMENDATION:

That the Vancouver Police Board approves Regulation and Procedure Manual Policy 1.13.3 - *Use of Remotely Piloted Aerial Systems (RPAS)*.

SUMMARY:

To develop a Remotely Piloted Aerial System (RPAS) program within the VPD, including corresponding policy and procedure.

POLICY/BACKGROUND:

Although RPAS, commonly referred to as drone or unmanned aerial vehicles, have been in existence since World War I, reliable real-world applications have only started to take shape within the last 15 years. Technological advancements in avionics, global positioning systems, payload capability and data retrieval have helped to create new deployment opportunities for the military, public safety and commercial/corporate sectors; while dramatic reductions in cost, accessibility and flight functionality have fuelled the hobbyist demand. In an attempt to keep pace with this rapidly growing industry, the Canadian Federal Government appointed Transport Canada (TC) as the “gate-keeper” for all RPAS related matters. TC has spent the last 10 years working with Navigation Canada and the Office of the Information & Privacy Commissioner of Canada in order to draft regulations that are compliant with the *Aeronautics Act* and the *Canadian Aviation Regulations*.

More recently, RPAS manufacturers have started to adapt the purpose and functionality of their craft in order to meet the growing demands of the corporate and private sectors. RPAS are now commonly utilized for aerial surveying, communication relay, railway maintenance, pipeline and power-line monitoring, border patrol, weather tracking, disaster relief, agriculture and fisheries observations. Unfortunately, RPAS have also gained prominence for nefarious purposes related to terrorism and drug smuggling.

Through this evolution, police organizations worldwide have recognized the importance and versatility of RPAS to aid in scene investigations, search and rescue, public order incidents, HAZMAT/CBRNE detection, as well as critical incident management response. RPAS have become a valuable and integral public safety tool.

The VPD first examined the viability of an RPAS program in 2008, then again in 2014 and in 2016. However, due to regulatory uncertainty it was recommended that all evaluations be suspended until TC officially re-classified RPAS systems and implemented regulations based on:

- craft capacity;
- purpose of the mission; and
- geographic location and/or intended flight path.

On October 13, 2017, TC published the first of three significant amendments to RPAS regulations and, as such, the VPD can now make an informed decision with respect to the development of an RPAS program and the purchase of equipment.

Resources

Laurence Rankin, Deputy Chief Constable, Investigation Division
Steve Eely, Superintendent, South Command – Operations Division
Michelle Davey, Superintendent, Investigative Support Services – Investigation Division
Loris Zuccato, Inspector 1272, North Command Duty Officer
Kris Wrathall, Inspector 1577, Emergency Response Section
Joanne Wild, Inspector 1610, General Investigation Section
Dave Duncan, Staff Sergeant 1557, Traffic Section
Kevin Bernardin, Staff Sergeant 1878, Operations Division, District 1
Wade Rodrigue, Sergeant 1961, Emergency Response Unit – Grey Team
Eugene Lum, Sergeant 2200, Vancouver Police Forensic Video Unit
Corey Bech, Sergeant 2226, Forensic Identification Unit
Jack Sarna, Sergeant 2544, Collision Investigation Unit – Team 1
Tom Callaghan, Constable 2687, Operations Division – District 3
Nancy Eng, Senior Director, Financial Services Section
Kathy Wunder, Director Information & Communications Technology Section
Darrin Hurwitz, Counsel, Access and Privacy, Information and Privacy Unit
Christine Wiebe, Mobility Communications Service Coordinator
Richard Kwai, Police Stores Unit, Inventory Planner Buyer
Rick Pickens, Manager, Risk Financing & Loss Control, Vancouver City Hall
Sharon Havill, Inspector, Waterloo Regional Police Service, Field Support Service
Craig Young, Staff Sergeant, Toronto Police Service, Emergency Management & Public Order
Kerry Cherpin, Sergeant, Lethbridge Police Service, Critical Incident Unit
Colin Giles, Sergeant, Ontario Provincial Police, UAS Program Coordinator
Jeff Nazzer, Detective Constable, York Regional Police Service, RPAS Ops Manager
Derek Wohlert, Detective 930, Durham Regional Police Service, Intelligence Section
Chris Anderson, Constable 2612, Edmonton Police Service, Chief Tactical Flight Officer
Mike Bainbridge, Constable 235, Saanich Police Department, Research, Planning & Policy Unit
Barry Low, Constable 594, Saskatoon Police Service, Collision Analyst Unit
Sapinder Mund, Corporal, RCMP D Division, Policy Analyst
Kevin Spear, Constable 4341, Calgary Police Service, Traffic Section
Curtis Warner, Constable 812, Regina Police Service, Traffic Safety Unit

Eric Bloemendal, Aeryon Labs Inc., Regional Sales Manager
Andrew Carson, DraganFly Innovations Inc., Sales Lead
Scott Dexter, York Regional Police Service, Planning, Research & Evaluation
Karen Wilcox, Abbotsford Police Department, Policy Analyst
Transport Canada – Pacific Region Civil Aviation Office
Meghan McDermott, British Columbia Civil Liberties Association
Phil Keith, Director U.S. Department of Justice Office of Community Oriented Policing
Brian Dorow, Deputy Assistant Secretary U.S. Department of Homeland Security

Resource Documents

Aeronautics Act (R.S.C., 1985, c. A-2)
Applying for a Special Flight Operations Certificate (SFOC) – Transport Canada (2018)
Canadian Aviation Regulations (SOR/96-433)
Enabling Remotely Piloted Aircraft Systems (RPAS) into Your Commercial Environment – Unmanned Systems Canada (2017)
Listing of Compliant Unmanned Air Vehicles: *In Support of Compliant RPAS Operator SFOC Applications* – Transport Canada (2017)
Navigation Canada – *Vancouver Flight Information Region RPAS Best Practices for Air Traffic Services Coordination* (2015)
Office of the Information & Privacy Commissioner for British Columbia: *Public Sector Surveillance Guidelines – Updated January 2014*
Office of the Information & Privacy Commissioner for British Columbia: Privacy Impact Assessment OIPC File F19-79190
Office of the Information & Privacy Commissioner for British Columbia: Privacy Impact Assessment for Non-Ministry Public Bodies, *Use of Remotely Piloted Aerial Systems (RPAS)*
Proposed Rules for Drones in Canada – Transport Canada (2017)
Regulations Amending the Canadian Aviation Regulations (Unmanned Aircraft Systems) – Canadian Gazette Part 1, Vol. 151, No. 28
Unmanned Aerial Vehicle Manual – Durham Regional Police (2017)
Unmanned Aerial Vehicle Observer Designation – Durham Regional Police (2017)
Unmanned Aerial Vehicle Program Manual – Lethbridge Regional Police Service (2014)
Unmanned Aerial System Manual – RCMP National Program (2017)
Unmanned Aerial Systems Operations Manual – Saanich Police (2017)
VTOL RPAS Systems – Toronto Police Service (2017)
Unmanned Aerial Vehicle Systems Operations Manual – York Regional Police (2015)
Unmanned Aircraft Systems: *Introduction to Transport Canada's UAS Task Force* – Transport Canada (2017)

DISCUSSION:

In 2007, Constable Marc Sharpe of the Ontario Provincial Police (OPP) was the first Canadian police officer to legally deploy an RPAS in the line of duty. Since 2007, numerous police agencies across the country have followed suit and established their own RPAS programs. The VPD Research & Policy Unit recently polled 31 Canadian police agencies and determined that 17 of those agencies had a recognized RPAS program. In addition, VPD members conducted an extensive review of RPAS programs administered by the OPP, Toronto Police Service, Durham Regional Police, York Regional Police, Waterloo Regional Police, and the London Police Service. The purpose of the review was to conduct a comparative analysis of the aforementioned police agencies in hopes of identifying how the VPD can maximize the potential for an RPAS program

while mitigating risk. The data from the review was used to assist in determining what the VPD wanted and/or needed in an RPAS program.

Although RPAS technology is new to the VPD, this technology is certainly not new to policing in Canada as two municipal police departments in BC, the Saanich Police Department and the Abbotsford Police Department, already have functional RPAS programs.

Consultation with the RCMP was also conducted as the RCMP administers and operates Canada's largest RPAS first responder program.

Research with respect to Canadian law enforcement RPAS deployment models is also consistent with U.S. law enforcement applications. The following are some common RPAS applications:

Collision Investigation

- RPAS have the ability to document photographic and video imagery of a motor vehicle/pedestrian accident scene from unique points of view.
- Photogrammetry software can then be used to extrapolate data from an accident scene and produce scaled 3-dimensional diagrams that can be used for investigative and court purposes.
- Collision Investigation Unit members from across Canada report that RPAS software and mapping capabilities can reduce the total amount of time spent at an accident scene by as much as 70%, which has been the experience of York Regional Police.
- Reductions in the time spent at an accident scene reduces the impact on the public and helps restore the flow of traffic in a timely manner.

Scene Investigation and Reconstruction

- RPAS may be used to acquire overviews of investigative scenes and document fragile evidence such as footprints or tire tracks prior to anyone entering that scene. Photographic and video capabilities may also reveal evidence not readily apparent to the naked eye.
- When combined with photogrammetry software, time spent analysing an investigative scene may be greatly reduced resulting in the redeployment of valuable police resources.

Search and Rescue

- RPAS can play a vital role in assisting search and rescue efforts, especially in areas of limited visibility.
- RPAS can be equipped with infrared or Forward Looking Infrared (FLIR) systems to detect heat signatures or "see" in low light or visually obstructed environments such as Stanley Park.

Disaster or Major Event Situational Awareness

- One of the largest challenges faced by first responders in a major disaster zone is understanding the severity and totality of the event. To that extent, RPAS can provide real time data and map the scope of the incident so resources may be deployed in the most efficient manner.

Critical Incident / Tactical Awareness

- During critical incidents, when there is a high degree of risk to life, RPAS can safely provide real time images of hazards, suspects, locations of interest and viable entry/exit ways.
- RPAS can also capture and disseminate real time video imagery that may be used by Command to help determine a basis for a safe resolution of the incident.
- In the event of a CBRNE/HAZMAT incident, RPAS may be deployed to the “hot-zone” and provide an overview of the incident thus reducing the risk associated with dispatching members into areas of harm.

Ethical and Privacy Considerations

The VPD has taken significant steps to ensure the transparency of the RPAS program including consultation with the Office of the Information & Privacy Commissioner for British Columbia (OIPC) and the BC Civil Liberties Association (BCCLA). In doing so, the VPD’s Information and Privacy Unit has authored a 13-page Privacy Impact Assessment (PIA) for Non-Ministry Public Bodies. The document, *Use of Remotely Piloted Aerial Systems*, outlines the purpose and scope of the VPD RPAS program. In brief, the PIA defines the intended use(s) of the RPAS, outlines photographic and video use/retention and provides technical information pertaining to data warehousing and security.

Based on the information provided, the OIPC has stated that they are satisfied the VPD’s program is compliant with the *Freedom of Information and Protection of Privacy Act* and will follow up with the VPD in October 2019 (OIPC File F19-79190, dated June 10, 2019 – Appendix A).

The VPD has also consulted the BCCLA as to the purpose of the RPAS program and have invited the BCCLA to be involved in the development of RPAS policy. Where possible, the BCCLA’s recommendations have been incorporated in the development of RPAS policy.

Transport Canada (TC)

As stated, TC is the governing body that regulates the hobby and commercial RPAS industries within Canada. On June 1, 2019, TC adopted new amendments regulating the use of RPAS within Canada. These amendments divided RPAS use into two distinct categories:

- Basic Operations; and
- Advanced Operations.

For ease of review, this document will only examine the *Advanced Operations RPAS* category as this classification is most closely associated to public safety applications.

The Advanced Operations RPAS category is intended for users wishing to fly in urban areas, within controlled airspace or close to locations that airplanes, helicopters and/or floatplanes land and take off. Under the Advanced Operations category, pilots are required to:

- hold an advanced pilot certificate that is specific to small RPASs;
- have liability insurance;
- register and mark their RPAS with a unique identification number provided by TC;
- operate an RPAS that meets a design standard;

- follow a set of flight rules;
- get approval from air traffic control when flying in a controlled airspace aerodrome (note: there are three aerodrome locations in and around Vancouver that will require consultation prior to flight); and
- fly at least 30 meters from bystanders.

Pilot Permit

Pilots who intend to fly in the Advanced Operations category are now required to pass an online knowledge test and flight review specific to small RPAS. Testing may take place at TC’s Pacific Region Civil Aviation Office or through an approved ground or flight training school. Areas of instruction include:

- air law and procedures relevant to a Special Flight Operations Certificate (SFOC) including: general provisions, flight rules, air traffic control services and aviation occurrence reporting;
- flight instrumentation (altimetry, GPS, airspeed and heading indicators);
- navigation (aeronautical charts, pre-flight preparation, flight operations, wake turbulence, avoidance and data command links);
- meteorology (required for line-of-sight operations);
- the operating environment; and
- theory of flight.

Special Flight Operations Certificate (SFOC)

The SFOC is the certificate issued by TC that grants special flight privileges falling outside of the Basic and/or Advanced Operations category. The VPD will obtain an SFOC for any flight falling outside the Advanced Operations parameters.

Transport Canada Compliant RPAS

On December 8, 2017, TC published a list of compliant RPAS and RPAS manufacturers. Although the list was intended to support TC’s view of industry standards, no rationale or testing criteria was published. TC has since amended their list of compliant RPAS and RPAS manufacturers to include RPAS systems that have received a safety assurance declaration by their manufacturer. A link to TC’s, [Drones Eligible for Advanced Operations](#) has been included. All three VPD RPAS meet TC’s Advanced Operations eligibility standard.

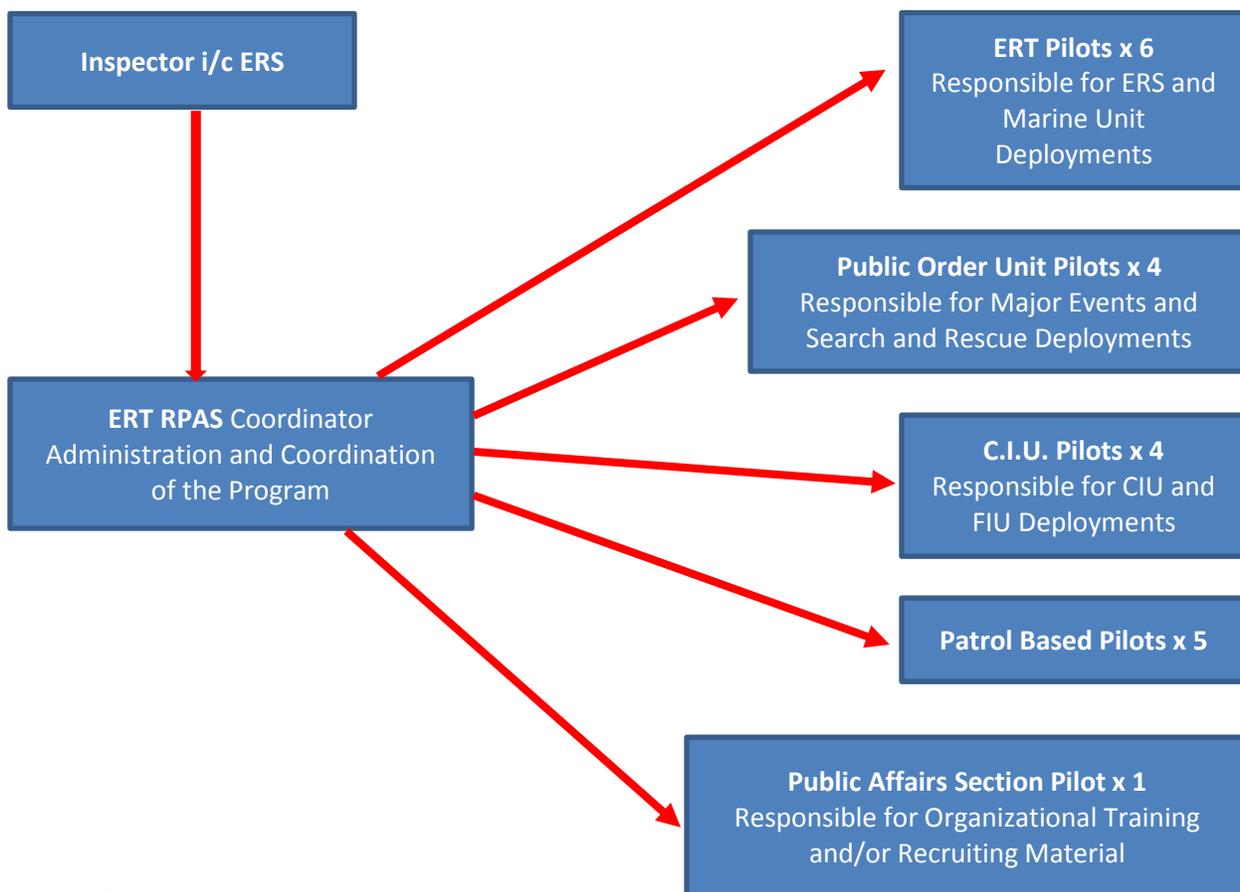
RPAS Structure within the VPD

Comparative analysis with other Canadian police agencies shows that RPAS are of operational value to the following VPD sections and units.

• Collision Investigation Unit	• Emergency Response Section
• Forensic Identification Unit	• Major Crime Section
• Major Events Unit / Public Order Unit	• Marine Unit
• Public Affairs Section	• Training & Recruiting Section

Presently, it is not practical to create a stand-alone RPAS unit or purchase a dedicated RPAS for each of the aforementioned sections. Therefore, the VPD's RPAS program will be coordinated through the Inspector i/c of the Emergency Response Section (ERS) and a central portfolio holder within ERS will be tasked with maintaining the administrative and training functions of the program. Selection for this portfolio was based on existing shifting models as well as the existing knowledge base and use of robotic systems within ERS.

Select members from the Collision Investigation Unit, Emergency Response Section, Public Order Unit, Public Affairs Section, Patrol and Civilian staff have been identified and will be trained to become RPAS pilots. Once trained, those members will be relied upon to assist other units within the department. For example, a pilot from the Collision Investigation Unit may be asked to deploy the RPAS over Stanley Park to help locate a missing child. A current list of trained RPAS pilots shall be maintained by the RPAS Coordinator and made available to the Duty Officer.



Reporting

The ERT RPAS Coordinator shall be responsible for tracking all RPAS flights and documenting mission data as required. Based on the craft, flight documentation may be stored electronically without the RPAS Coordinator or the RPAS Pilot having to act. However, regardless of craft capability, all flight missions will be recorded via manual flight log and stored in a central location. An example of such a flight-log is provided in Appendix B.

Risk Management

Risk may be divided into operational risk – the potential physical risk posed by an RPAS – and policy risk – the risk associated with gathering data. In both circumstances risk can be mitigated through training, safety, and policy protocols that ensure RPAS deployments are conducted in appropriate environments and circumstances.

Budget Implications

Craft Selection

TC's list of eligible RPAS has restricted consumer choice to only a few RPAS manufacturers and models that meet the needs of the VPD. For the purposes of this report, the methodology used to select an RPAS unit(s) will not be discussed, other than to note that the recommended crafts are TC compliant. It shall also be noted that the price for an RPAS can vary greatly depending on the craft's capabilities and software package. Research indicates that the majority of Canadian police agencies, with an RPAS program, typically own more than one RPAS platform ranging in price from \$5000 to \$100,000 per unit. After analysing technical data, program research and reviewing first hand accounts from Canadian police agencies currently operating an RPAS program, VPD purchased the following:

- FLIR SkyRanger x 1 unit;
- Mavic 2 Enterprise x 2 units; and
- Spark x 3 units. **(Training Purposes Only)**
Note: Pictures of all three RPAS can be found in Appendix C.

The FLIR SkyRanger package is includes:

- Aeryon SkyRanger vehicle with tough-pad tablet and mission software;
- 19mm vector enabled camera system
- 3-axis stabilized gimbal HD-Zoom video and still imagery camera system
- Pix 4D Pro mapping software
- extra joystick controller
- spare kit
- smart battery(s)
- member training (ground and flight school)
- 1 x ICOM IC-A6 portable aviation radio
Note: Funding for the FLIR SkyRanger has been provided through a generous grant from the Vancouver Police Foundation.

The Mavic 2 Enterprise package includes:

- Mavic 2 Enterprise vehicle x 2
- thermal imager
- battery charger

The Spark package includes:

- Spark vehicle x 3
- control system

- extra batteries

Note: Funding for the Mavic and Spark platforms has been provided through the VPD's equipment budget.

Telecommunication Expense

Both Mavic 2 Enterprise systems require a dedicated smart phone to act as a controlling device for the craft as well as act as a conduit for firmware and software updates. VPD Mobility Communications Services provided the necessary cellular equipment as required.

Ground School Training

Transport Canada encourages all RPAS pilots to complete and pass a compliant ground school course before attempting TC's pilot exam and practical test. Approved courses can be taken online or in person and are offered by a variety of private RPAS schools or associations. Learning objectives shall include:

- | | |
|---------------------------------|----------------------------------|
| • Canadian Aviation Regulations | • flight & aerodynamic theory |
| • aeronautical safety | • essentials of meteorology |
| • aerodromes and airports | • operating & flight rules |
| • aeronautical maps & charts | • air law |
| • communicating with NAV Canada | • SFOC application process |
| • insurance requirements | • radio operators certification |
| • flight operations | • flight & mission planning |
| • pilot navigation | • weather constraints |
| • airspace recognition | • final exam – 60% mark required |

Ground School prices range from \$200 per pilot for a one day on-line course to \$1000 for a multi-day in-person course. Based on TC's aforementioned criteria, the VPD selected InDro Robotics, a local B.C. company, to provide ground school training for all VPD members. InDro Robotics has agreed to attend the Tactical Training Center and train 20 VPD members over the course of four days. At the end of day four, InDro Robotics has also agreed to put 10 members through TC's practical application test.

Total Ground School Training cost = \$ 9,975.00 (\$498.75 per pilot).

Transport Canada Exam cost = \$ 10.00 (per student)

TC pilot certification is good for the life of the pilot. However, TC may revoke a pilot's certification if the identified pilot has not participated in a recurrent training activity for a period of two years or more.¹

Insurance

As the owner/operator of an RPAS weighing more than 250 grams but less than 25 kilograms, TC requires that all operators of civil RPAS systems have special liability insurance covering the

¹ Transport Canada: *Standard 921.04 Recency Requirement.*

RPAS and any "...injuries, losses, damages or otherwise that could be reasonably caused through the operations of an RPAS."²

TC has set a base insurance rate of \$100,000 as described in subsection 606.02(8) of the *Canadian Aviation Regulations*.

Mr. Rick Pickens – Manager, Risk Financing and Loss Control, City of Vancouver – recommended that the VPD purchase five-million dollars worth of third party liability insurance.

Cost Summary

2019 Budget Breakdown		
1	Operations Equipment - RPAS x 3	\$112,226.81
2	Training Equipment - RPAS x 3	\$2,000.00
3	Telecommunications Equipment	\$3,791.48
4	Ground School Training and Transport Canada Certification	\$10,675.00
5	RPAS Fleet Insurance (per year)	\$12,375.00 *
6	Vancouver Police Foundation Grant	<\$100,000.00>
	Total VPD Cost, 2019	\$41,068.29

*UPDATED COST FROM ORIGINAL ESTIMATE

CONCLUSION:

For a variety of reasons, RPAS are becoming commonplace within Canadian society and Canadian policing. Advancements in technology coupled with a decrease in cost and clarification of regulatory oversight have made owning and flying an RPAS easier than ever. Since 2007, Canadian police agencies have worked with TC to develop regulations that recognize the unique challenges inherent to public safety. The latest version of TC’s regulations were released on June 1, 2019 and provide a viable foundation for which the VPD can base its program on.

Recommendations

It is recommended that,

The Vancouver Police Board (VPB) receive this report and approves the addition to the VPD Regulation and Procedure Manual, Section 1.13.3 - *Use of Remotely Piloted Aerial Systems (RPAS)*.

Author: S/Sgt. Don Chapman Telephone: 604-717-3451

Submitting Executive Member:

Superintendent Steve Eely

² Transport Canada: The Review and Processing of an Application for a Special Flight Operations Certificate of an RPAS.

Appendix A



OFFICE OF THE
INFORMATION &
PRIVACY COMMISSIONER
for British Columbia

Protecting privacy. Promoting transparency.

June 10, 2019

Darrin Hurwitz
Counsel, Access and Privacy
Vancouver Police Department
3585 Graveley Street
VANCOUVER BC V5K 5J5

Dear Darrin Hurwitz:

**Re: Privacy Impact Assessment
Vancouver Police Department File
OIPC File F19-79190**

Thank you for providing our office with the Privacy Impact Assessment for the use of Remotely Piloted Aerial Systems (RPAS) and draft Vancouver Police Department (VPD) Proposed Policy.

As a delegate of the Commissioner, my comments are made under s. 42(1)(f) of the *Freedom of Information and Protection of Privacy Act* (FIPPA). Having said this, my review does not constitute approval of this initiative or affect the Commissioner's later discretion or decision making should the initiative become the subject of a privacy complaint. It remains the responsibility of VPD to ensure compliance with all of its duties and obligations under FIPPA.

Overview

The PIA outlines VPD's proposed RPAS program. VPD proposes the use of RPAS as a platform to gather digital imagery to support public safety, enhance investigative techniques, expand operational awareness and aid in critical incident resolution. The Emergency Response Section will administer the RPAS program and all operations will be in accordance with regulations established by Transport Canada and Navigation Canada.

VPD's proposed use of RPAS include:

- Mass casualty events;
- Disaster response;
- Rescue events;
- Lost and/or missing persons;
- Mass event situational awareness aid;
- Investigative crime scene aid (mapping, modeling and documentation);
- Investigation of a hazardous material release or suspected energetic object;

- Critical incident and life preservation flights including but not limited to barricaded suspects, hostage situations, active deadly threat scenarios, high risk search warrants, and suicidal persons;
- Pursuant to a search warrant;
- Flight testing, training and demonstrations; and
- Mutual agency aid provided the scope of the mission falls within VPD's PRAS regulations.

I note that the proposed policy states RPAS are not limited to the above noted purposes. I recommend that if VPD plans to use RPAS for any other purpose to consult our office.

Authorities

VPD identifies FIPPA authorities for collection, use and disclosure of personal information for the RPAS program in the PIA.

I agree that:

- s.26(b) likely allows VPD to collect personal information with the use of RPAS for the purposes of law enforcement;
- s.27(3)(a) is likely satisfied as the information is about law enforcement;
- s.32(a) likely authorizes VPD to use personal information for the purpose for which that information was obtained;
- s.33.1(2)(a) likely authorizes VPD to disclose personal information to another law enforcement agency in Canada;
- s.33.2.(c) likely permits VPD to disclose personal information to an office or employee in support of public safety, operational awareness, critical incident resolution, and or to aide in investigative techniques; and
- s.33.2(i) likely permits VPD to disclose personal information to a public body or law enforcement agency in Canada to assist in a specific investigation.

I note that s.33.1(1)(c) is also cited as an authority for disclosure. This section allows a public body to disclose personal information inside or outside of Canada in accordance with an enactment of British Columbia, other than this Act, or Canada that authorizes or requires its disclosure. It is not clear what enactment VPD is relying on for this authority. We would appreciate clarification on this matter.

Risks

The PIA indicates that RPAS flights will not be conducted for random surveillance except in exigent circumstances where there is an imminent risk to life or safety. Personal information unrelated to the intended purpose of the RPAS deployment may be inadvertently captured during operational flight or training exercise. The PIA states that VPD will take all reasonable measures to avoid the capture of unrelated personal information.

Security

Public bodies are required to take all reasonable measures to protect personal information under their control. In this case, the amount and sensitivity of personal information VPD collects will be relatively high, therefore the level of security must also be high. The PIA notes that all collected data stored on the RPAS device will be encrypted on the device using AES-256 and will be handled in accordance with VPD's Security Policy. It also notes that access to collected data will be limited to VPD individuals who have a need-to-know the information and who have the appropriate security screening level. In addition, the PIA also says access will be managed via QuickDME Digital Evidence Manager where access and retrieval of collected data will be logged.

The security controls described in the PIA are consistent with the reasonable security provisions set out in s.30 of FIPPA.

Retention

The PIA indicates that VPD will destroy collected data that has no evidentiary value after 30 days. VPD will retain collected data deemed to have an evidentiary value for at least one year.

The potential use of RPAS for surveillance is a concern. However, my understanding is that VPD's proposed policy does not allow for random surveillance except in exigent circumstances where there is an imminent risk to life or safety and with permission of the Duty Officer or designate. As this PIA indicates this is a new policy for VPD, I will contact you in October to follow up with you and ask how the implementation of the policy is progressing.

Sincerely,

<Original Signed By>

Julie Downs
Policy Analyst

Appendix B

RPAS Flight-Log

Incident Number:					Incident Type:			
Member/Unit that Requested the RPAS Deployment:								
Pilot PIN	Observer PIN	Craft	Date	Start Time	Weather	Flight Time	GPS Coordinates	Ceiling Height

NARRATIVE

Will the RPAS Data need to be retained for an investigative purpose?	
Yes - Member Requesting Pin:	No - member Pin:

Appendix C



FLIR SkyRanger R60



Mavic 2 Enterprise



Spark

Proposed Policy

1.13 Operational Support Services

1.13.3 Use of Remotely Piloted Aerial System (RPAS)

(Effective: XXXX:XX:XX)

POLICY

The Vancouver Police Department (VPD) supports the use of an Remotely Piloted Aerial System (RPAS) as a platform to gather digital imagery in an effort to support public safety, enhance investigative techniques, expand operational awareness and aid in critical incident resolution.

The Chief Constable, his/her delegate and/or a qualified VPD RPAS Pilot may authorize the deployment of a RPAS for specific purposes including but not limited to:

- Mass casualty events;
- Disaster response and recovery;
- Search & Rescue;
- Lost and/or missing persons;
- Mass event situational awareness aid;
- Investigative scene aid (mapping, modeling and documentation);
- Investigation of a hazardous material release or suspected energetic object;
- Critical incident and life preservation flights including but not limited to barricaded suspects, hostage situations, active deadly threat scenarios, high risk search warrants, and suicidal persons;
- Pursuant to judicial authorization;
- Flight testing, training and demonstrations;
- Public Affairs awareness and education applications;
- Training applications; and
- Mutual agency aid provided the scope of the mission falls within the VPD's RPAS regulations.

The VPD RPAS program shall be administered by the Emergency Response Section and all operations shall be carried out by VPD members in accordance with regulations established by [Transport Canada](#) and [Navigation Canada](#).

Flight missions may be recorded and all recorded digital flight imagery that is of evidentiary or training value shall be handled and stored in accordance with the Regulations and Procedures Manual [Section 1.9.17 - Video Evidence](#) and the Forensic Video Unit's *Standard Operating Procedures*. Imagery and/or data that is of no evidentiary or training value shall be retained for a period of 30 days and then purged in accordance with the VPD Forensic Video Unit's policy.

Electronic and/or manual flight logs will be kept in accordance with the VPD RPAS Operation Manual.

Information pertinent to conducting an RPAS investigation may be found in the Regulations and Procedures Manual [Section 1.6.52 - Drones & Unmanned Aerial Vehicles \(UAVs\)](#).

DEFINITIONS

Aeronautics Act R.S. 1985, c. A-2: the legislation that governs civil aviation in Canada (authority for establishment of the Canadian Air Regulations (CARs)).

Aerodrome: a location from which aircraft flight operations take place.

Canadian Aviation Regulations (CARs): the rules that govern civil aviation in Canada.

Canadian Domestic Airspace: includes all airspace over the Canadian land mass, the Canadian Arctic and Archipelago and certain areas over the high seas (CARs 101.01(1)).

Collection: collection of personal information occurs when an individual's image or voice is captured by a surveillance system. The personal information may be played back, displayed, saved or stored, or disclosed to other public bodies or organizations.

Command and Control Link (C2): the data link between the RPAS and the control station for the purpose of managing flight.

Crew Member: a person assigned to duties essential to the operation of the unmanned aerial vehicle during flight time.

Flight Review: Transport Canada sanctioned practical exam designed to assess a pilot's ability to operate an RPAS in a safe manner.

Handover: the act of passing pilot-in-command responsibilities from one control station or pilot to another.

Lost Link: the loss of command and control link contact with the RPAS such that the pilot-in-command can no longer manage the aircraft's flight.

Model Aircraft: an aircraft, the total weight of which does not exceed 35kg that is mechanically driven or launched into flight for recreational purposes and that is not designated to carry persons or other living creatures (CARs 101.01(1)).

NAV Canada: the company that owns and operates Canada's civil air navigation services.

Notice to Airmen (NOTAM): a notice filed with an aviation authority to alert aircraft pilots of potential hazards along a flight route or at a location that could affect the safety of the flight.

Operations Manager: is responsible for RPAS operations, as required and identified, within the SFOC.

Payload: in the case of an RPAS, means a system, an object or collection of objects onboard or otherwise connected to the RPAS that performs, or is related to, a mission function but is not required for flight.

Payload Operator: a crew member responsible for the operation of any payload carried by the RPAS while in flight.

Personal Information: recorded information about an identifiable individual, other than contact information. Video and audio recordings of an individual's image and voice are considered identifiable information.

Photogrammetry: the science of making measurements from photographs and establishing exact positions of surface points.

Remotely Piloted Aerial System (RPAS): a power-driven aircraft where the aircraft and its components are operated without an on-board flight crew. It is also commonly referred to as a drone, Small Unmanned Aircraft (SUA), Unmanned Aerial Vehicle (UAV) and Unmanned Aerial System (UAS). The Vancouver Police Department operates several different systems that are capable of carrying both still and video cameras, infrared cameras or thermal imagery. When in operation, the RPAS is flown by a pilot remotely, while a payload operator is responsible to capture any images and/or video.

RPAS Pilot Certificate (Advanced Category): qualification certificate that allows the holder of the certificate to:

- Fly an RPAS in a controlled airspace;
- Fly an RPAS over bystanders;
- Fly within 30 meters of bystanders; provided that,
- The RPAS has been registered with Transport Canada;
- The RPAS has been marked with a visible identification indicator; and
- The RPAS pilot has passed the Small Advanced RPAS Exam and the RPAS Flight Review.

Scene Security Officer: a VPD member, designated by the pilot in command, responsible for operational scene security including any unexpected safety concerns during the span of flight operations including pre and post flight procedures.

Sense and Avoid: the capability to see, sense or direct conflicting traffic or other hazards and take the appropriate action.

Small Advanced Exam: online exam administered by Transport Canada designed to test the knowledge requirements for RPAS pilots.

Special Flight Operations Certificate (SFOC): legislative authority to conduct RPAS operations within Canadian Domestic Airspace (Section 602.41 CARs).

RPAS Program Coordinator: responsible for all administrative functions of the RPAS program and identified within the SFOC application.

RPAS Operator: in respect of an aircraft, means the person that has possession of the aircraft or RPAS, as owner, lessee or otherwise.

RPAS Pilot: the crew member in charge of the RPAS during flight operation who has met the required qualification standards for the system being operated.

Unmanned Aerial System: an unmanned aerial vehicle (RPAS) and its associated elements which are operated with no pilot on-board.

Unmanned Aerial Vehicle (RPAS): a power driven craft that is operated without a flight crew member on board.

RPAS/UAS Base: a VPD unit where an approved UAS/RPAS is deployed.

Vancouver Area Control Center: is responsible for the provision of control services via radar, multiateration (MLAT), and satellite for IFR operations, largely during the enroute phase of flight and for positive control of high density aviation traffic areas, such as in the vicinity of major airports served by commercial carriers.

Vancouver Flight Information Region: covers airspace mainly above the central and southern part of British Columbia.

Visual Line-of-Sight: unaided (corrective lenses and/or sunglasses are exempt)visual contact with the aircraft sufficient enough to be able to maintain operational control of the aircraft, known location, and be able to scan the airspace in which it is operating to decisively see and avoid other air traffic or objects.

Visual Observer: a crew member who assists the pilot with sense and avoid duties.

PROCEDURE

Type and Purpose of Operation

Subject to restrictions, RPAS operations shall be conducted for the following purposes:

1. To obtain digital aerial images and/or video in support of public safety, operational awareness, critical incident resolution and/or to aid in investigative techniques (e.g. crime scene mapping, modeling and documentation).
2. Flight testing, maintenance flights, flight training and demonstration flights.
3. All flight operations shall be conducted as part of a police operation with appropriate, situationally dependent security provisions in place to minimize risks to the public and others involved in the operation.

Restrictions

1. Members shall not:
 - a. use any personally owned or otherwise acquired RPAS for the purpose of any police investigation or operation;
 - b. alter the RPAS and /or its system in any manner;
 - c. use the RPAS for any personal or unapproved purpose;
 - d. operate an RPAS in flight except in accordance with a SFOC, or an air operator certificate (Section 602.41 of the CARs); and
 - e. use the RPAS to obtain or record any aerial images or video that are not for the purpose of supporting a police investigation, training, demonstration, public affairs, maintenance flights or flights that could otherwise be deemed to be unprofessional.
2. Flights will not be conducted for surveillance purposes, however may be used in exigent circumstances where there is an imminent risk to life or safety that can be alleviated by using an RPAS and/or where prior judicial authorization is so authorized. Permission must be obtained from the Duty Officer or designate in such circumstances.
3. Flights will not be conducted for the purpose of recording and/or identifying members of the public involved in peaceful protests or demonstrations.
4. At no time shall an RPAS and a piloted aircraft operate in the same airspace at the same time. In such circumstances, the RPAS shall land immediately to avoid a collision.

Flight Parameters

RPAS flight parameters will include but are not limited to:

1. All flights will be conducted by trained VPD members on behalf of the VPD or another public safety service.
2. Flight locations shall take place within the Vancouver Flight Information Region unless approved by the Duty Officer or designate.
3. The Duty Officer or designate shall be notified prior to and at the conclusion of all flight operations.
4. The E-Comm Central Dispatcher, Team Manager or District Dispatcher shall be notified prior to any RPAS deployment and provided information related to the intended flight location and duration.
5. The E-Comm Central Dispatcher, Team Manager or District Dispatcher shall be notified at the conclusion of a flight mission.

6. In accordance with Transport Canada, the managing director or designate of any aerodrome within the prescribed flight path of a VPD RPAS shall be notified prior to and at the conclusion of the flight. Aerodrome contact information includes:
 - a. Vancouver International Airport
 - i. Planning: 604-775-9531
 - ii. Operations: 604-775-9531 (Request Emergency Supervisor)
 - b. Vancouver Harbour Tower
 - i. Planning: 604-688-2748
 - ii. Operations: 604-688-9254 (Request Emergency Supervisor)

Flight Operations

1. RPAS flights shall be conducted by an RPAS Pilot and a Visual Observer.
2. Every RPAS flight shall be documented via:
 - a. post flight collection and storage of electronic and manual logs;
 - b. inspection and maintenance logs; and where required,
 - c. an RPAS Pilot and/or Observer shall document their involvement in an investigation as required by Regulations and Procedures Manual Section [-1.16.1 General Occurrence Reports](#).
 - d. Where practicable, all requests for RPAS services shall be communicated to and approved by the RPAS Coordinator or designate prior to deployment.
 - e. Where it is not practicable for the RPAS Coordinator to pre-approve an RPAS flight, the Inspector or designate i/c of ERS and the RPAS Coordinator will be notified via email and/or voice mail of the RPAS mission.

Duty Officer

1. The Duty Officer Shall:
 - a) be notified prior to and at the conclusion of all RPAS flights; and
 - b) in the event of a collision or injury, the Duty Officer shall notify the Inspector i/c ERS and where applicable, the Inspector i/c Professional Standards Section and the City of Vancouver Risk Management Department: 604-873-7700 or risk.management@vancouver.ca.

RPAS Pilot

1. The RPAS Pilot shall:
 - a. successfully complete the prescribed RPAS training;
 - b. hold a valid advanced RPAS Pilot Certificate;
 - c. meet the qualifications listed in the VPD RPAS Standard Operating Procedures Manual;
 - d. ensure that all RPAS flights are conducted in accordance with the SFOC;
 - e. make the required notifications in accordance with the SFOC;
 - f. complete the VPD RPAS Pre-Flight Checklist;
 - g. brief the designated Visual Observer and ensure they are capable of completing their responsibilities;
 - h. maintain responsibility for ensuring that operating procedures detailed in the current SFOC and supporting applications are followed during all flights;

- i. keep detailed notes regarding the type and purpose of operation including:
 - I. dates and times of the operation;
 - II. incident number(s);
 - III. the requesting officer/unit; and
 - IV. lawful authority to fly.
- j. disclose any notes, training logs, electronic imagery/data that may be pertinent to the investigating unit;
- k. be responsible for the deployment of the RPAS and its safe operation for incidents described above; and not violate any federal and/or provincial search authorities during operations and shall consider privacy concerns of persons and/or property not directly involved in the operation; and
- l. report RPAS flight plans to NAV Canada.

Visual Observer

1. The Visual Observer shall:
 - a. familiarize themselves with the role of a Visual Observer as contained in the VPD RPAS Standard Operating Procedures Manual;
 - b. complete the VPD RPAS Pre-Flight Checklist;
 - c. maintain a consistent line of sight with the RPAS while in flight; and
 - d. immediately notify the RPAS Pilot of any safety issue or concerns.

Privacy

1. It is recognized that personal information, unrelated to the intended purpose of the RPAS deployment, may be inadvertently captured during an operational flight or training exercise.
2. All reasonable efforts, as operationally feasible, to avoid the capture of unrelated personal information shall be made by the RPAS pilot. Unless information is required to meet prosecutorial disclosure obligations, prior to the disclosure of any personally identifiable information outside the VPD, the VPD Information and Privacy Unit shall be consulted.
3. All reasonable efforts will be made to remove personal information of those not related to the investigation or purpose of flight. This includes but is not limited to faces, addresses, license plates, and voices.

Data Storage

1. All information collected during an RPAS deployment shall be stored in accordance with the Regulation & Procedures Manual [Section 1.9.17 – Video Evidence](#) and the Forensic Video Unit's *Standard Operating Procedures*.
2. Imagery and/or data that is of no evidentiary value shall be purged after a period of 30 days by the member who order the video to be obtained.

Safety

1. Safety is of paramount concern in all RPAS deployments and shall be the primary concern for the RPAS pilot prior to conducting any flight.
2. All persons directly involved in the RPAS flight operation shall be familiar with the contents of the SFOC, supporting application, and departmental policy.
3. For the purpose of operational and/or training flights, persons directly involved include: pilot, crew member and scene security officer.

4. The RPAS Program Coordinator will maintain an electronic document outlining the environmental and situational factors required for an RPAS deployment.
5. All pilots shall adhere to all safety requirements set forth by:
 - a. the RPAS manufacturer;
 - b. the SFOC;
 - c. VPD RPAS Operating Procedures Manual; and
 - d. [NAV Canada's RPAS Best Practice Manual](#).
6. Effective, complete and timely communication is critical to aviation safety. NAV Canada may be contacted in the following manners:
 - a. Email – RPASVRFIR@navcanada.ca (non-emergent communication).
 - b. Area Control Center Operations Shift Manager
 - Phone: 604-586-4500 (emergent situations including rogue lateral or vertical fly away scenarios).
 - Email: VRSM@navcanada.ca
7. Towers
 - a. Vancouver Tower (CTVR)
 - Planning: 604-775-9531
 - Operations: 604-775-9531 (Request Emergency Supervisor)
 - b. Vancouver Harbour Tower (CYHC)
 - Planning: 604-688-2748
 - Operations: 604-688-9254 (Request Emergency Supervisor)
 - c. A list of all other BC Flight Towers may be located at: [NAV Canada – Vancouver Flight Information Region RPAS Best Practice for Air Traffic Services Coordination](#).
8. The Duty Officer shall be notified in the event of an RPAS collision or injury.
9. If there is injury and/or significant property damage as a result of an RPAS collision, Transport Canada shall be notified at (tc.aviationservicespac-servicesaviationpac.tc@tc.gc.ca or Toll Free Phone: 1-800-305-2059) and policy pertaining to Regulations and Procedures Manual [Section: 5.2.3 – Damage as a Result of Police Action](#) shall be followed.

VPD RPAS Operation Manual

1. The VPD RPAS Operation Manual (RPASOM) is available to all RPAS Pilots and Visual Observers to assist with specific guidance for RPAS operations.
2. The VPD RPASOM content will be date stamped, reviewed and approved annually, and amended as required by the ERS Inspector.
3. The RPAS Program Coordinator, Pilots, and Visual Observers are responsible for familiarizing themselves with any changes/updates to the SFOC and or the VPD RPASOM.
4. The VPD RPASOM shall be accessible to the RPAS Pilot and/or crew during RPAS deployments.

Reporting

1. The VPD RPAS Coordinator shall coordinate the tracking of all RPAS flight missions and collate that data as required.
2. RPAS Flight missions that are not automatically electronically recorded and/or stored by the RPAS craft shall be recorded by the RPAS Coordinator and/or RPAS Pilot in a manual RPAS Flight-Log.
3. Amendments to RPAS policy should be made available on the VPD's public website.
4. RPAS flights that do not comply with or adhere to policy shall be brought to the attention of the ERS Inspector for further review and action if required.