

# RPAS Board Report

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**COMMUNITY SAFETY DIVISION**



**HAMILTON  
POLICE SERVICE**  
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# TABLE OF CONTENTS

<b>BACKGROUND.....</b>	<b>2</b>
<b>MISSIONS .....</b>	<b>3</b>
SEARCH AND RESCUE .....	3
COLLISION RECONSTRUCTION INVESTIGATIONS .....	4
INVESTIGATIVE .....	4
CRITICAL INCIDENTS.....	4
LARGE SCALE EVENTS .....	4
<b>DEPLOYMENT .....</b>	<b>4</b>
STAFFING .....	4
TRAINING.....	5
POLICY .....	5
<b>FUTURE CONSIDERATIONS.....</b>	<b>5</b>
<b>CONCLUSION.....</b>	<b>6</b>

## BACKGROUND

The Hamilton Police Service is responsible for a diverse geographical region, mixed with both urban and rural areas. In 2020, a proposal to add a Remotely Piloted Aerial System (RPAS) program was approved by the Police Services Board. The program has provided an operational and investigative platform that was previously unavailable to our service without the solicitation of aircraft from outside agencies. Currently, RPAS programs have been established by police services in Niagara, Halton, Peel, Durham, York, Barrie, Toronto, Brantford, Windsor, London, and across Ontario by the O.P.P.

The purpose of the program is to assist our response to a variety of police applications including; search for missing persons, serious/fatal traffic collision investigation, crime scene investigations, critical incident applications and large scale events.

The authorization for the use of the RPAS is outlined in a Hamilton Police Service Standard Operating Procedure (SOP). Currently, RPAS aircrafts are being deployed throughout Ontario by numerous Police Services. These services were sourced for their policies to develop a 'best practice' based policy to be used at the Hamilton Police Service. Clearly noted within the SOP are specific wordings to ensure the strict conditions under which the RPAS may be deployed. RPAS deployments are in accordance with the provisions of the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) and are also consistent with the Guidelines for Using Video Surveillance issued by the Information and Privacy Commissioner/Ontario.

Prior to the commencement of the program, a Privacy Impact Assessment (PIA) was written and reviewed by HPS Legal Services and Federal Crown Attorneys to ensure Municipal, Provincial and Federal Privacy Acts are followed. Guidance to complete the PIA was sought from the Information and Privacy Commissioner's (IPC) whitepaper titled 'Privacy and Drones: Unmanned Aerial Vehicles' (2012), the Office of Privacy Commissioner's (OPC) publication 'Drones in Canada: Will the proliferation of domestic drone use in Canada raise new concerns for privacy?' (2013), and IPC's 'Planning for Success: Privacy Impact Assessment Guide.' (2015). As a result of the PIA research, HPS informs the public, in non-exigent circumstances, when flying RPAS in public areas, and limits the amount of personal information that is collected and retained.

Currently the HPS has four RPAS units;

- Two DJI Mavic 2 Enterprise/Dual units
- One DJI Mini
- One Sky Hero Loki II

## MISSIONS

<b>Mission Type</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>Search and Rescue</b>	<b>3</b>	<b>6</b>	<b>1</b>
<b>Collision Reconstruction</b>	<b>3</b>	<b>19</b>	<b>2</b>
<b>Investigative</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Critical Incidents</b>	<b>0</b>	<b>2</b>	<b>5</b>
<b>Large Scale Events</b>	<b>1</b>	<b>4</b>	<b>1</b>
<b>Totals</b>	<b>10</b>	<b>35</b>	<b>14 (as of May 15)</b>

### Search and Rescue

Of particular concern and focus for our police service are those within our population who are vulnerable due to age, medical and/or mental capacity. Missing persons present a challenge on resources and time is always the key factor for an individual's safety in these cases.

While a number of these calls can be resolved quickly by police intervention, there are the inevitable calls that require the deployment of resources on a much larger scale. Large rural search areas provide ideal operating parameters for the RPAS. Coupled with the resources of ACTION, Ground Search Members, Search Managers and ERU, the RPAS is an invaluable tool as an aerial platform with colour video and FLIR (Forward Looking Infra-Red) capabilities. This would include an aerial view of potential hazardous terrain and shoreline searches in cases of marine based emergencies and search and rescue incidents. This technology enhances the probability of detection while reducing risk to officers due to terrain and location.

The ability to monitor the searchers status and location while concurrently directing their movement results in a far more efficient police search using RPAS data. The RPAS would increase the effectiveness and efficiency of current HPS resources by utilizing terrain mapping software ensuring all search areas are covered by the search team. The efficiency of an aerial platform with FLIR could scan an area for heat signatures, thus reducing the amount of time a ground team would be deployed.

In November 2022, Hamilton Fire deployed an RPAS at the request of HPS to search for a missing elderly female suffering from dementia. The RPAS unit located the female in a heavily brushed area approximately 400 metres from her residence. The missing person suffered some minor cuts and exposure to the cold weather however, she was treated by paramedics on scene and reunited with her family. The RPAS unit was able to locate this missing person long before daylight and a ground search and rescue team could be mobilized. More importantly the missing person was located before any significant injuries or hypothermia set in.

A second example of the efficacy of RPAS use for missing persons was in January 2023. A 90 year old male who went missing on his 100 acre property was located collapsed by an HFD RPAS

approximately 100 metres from his residence. The missing person was located quickly enough that he was transported to hospital in stable condition. Once again police requested the assistance of the HFD to deploy an RPAS to assist with a search due to the unavailability of HPS pilots.

## Collision Reconstruction Investigations

The use of an RPAS at collision investigations assists with capturing a current aerial view of the collision scene. RPAS facilitates the collection of accurate data that assists in the creation of a scalable map (and an accurate record of perishable evidence such as tire marks) from which measurements can be obtained. For any calculation to be accurate the source information and evidence must also be accurately measured and recorded.

The resulting RPAS images are stitched together to create an accurate overhead map that is easily integrated with other measuring tools commonly used by the Reconstructionist like Total Stations or 3D Laser Scanners. In so doing, the Reconstructionist can create an accurate and complete electronic 3D model of a collision scene from which measurements can be obtained. The RPAS provides a portion of the map that none of the other tools can provide. The RPAS greatly reduces the time required to process and map large scenes and to gather a large quantity of evidence allowing roads to reopen more quickly.

## Investigative

The RPAS enables investigators to obtain a detailed aerial view of a crime scene immediately after an event, thus enhancing evidence gathering for investigative and court purposes. The same technology used for Collision Investigations is applied here.

## Critical Incidents

The RPAS provides immediate and ongoing information to assist Incident Commanders and on-ground personnel to make the most informed decisions during hostage rescue / barricaded person / high risk warrant service incidents.

## Large Scale Events

The RPAS provides police and other emergency services with enhanced situational awareness by streaming a live aerial perspective that is unavailable to first responders on the ground. RPAS technology can assist with locating a lost child, identify and locate an ongoing criminal event, or the location of a medical emergency. This comprehensive aerial perspective enhances public and first responder safety by identifying ingress/egress routes and evacuation routes.

## DEPLOYMENT

### Staffing

The management of assets and the deployment of the RPAS will fall under the Commander of the Community Safety Division or designate. Operators have been identified and selected from the Public Order Unit, Collision Reconstruction Unit and Emergency Response Unit. Eleven HPS members are currently trained as Pilots.

## Training

All pilots have successfully completed all Transport Canada (TC) training requirements and completed a flight review to achieve the TC Advanced RPAS certificate. Only candidates that successfully complete all of these steps will be considered HPS Pilots and operate the RPAS.

The training requirements for pilots from TC are specific when seeking to use RPAS for commercial purposes. Pilots are required to log all flight hours and maintain one hour of flight time per quarter annually to be considered current and deployable.

The Hamilton Police Service recognizes the importance in training all members that will be involved in the RPAS program. Annual training focuses on the protection of privacy and will adhere to Section 8 of the Charter. Training will also ensure the program adheres to the regulation of the MFIPPA. Additional training in scene mapping and photogrammetry is included for Collision Reconstruction and Crime Scene purposes.

Through our partnerships with Mohawk College and the Hamilton Fire Department, the RPAS program has maintained effectiveness in the areas of research and development, training, designated training flight locations, and maintenance.

## Policy

The HPS SOP provides the guidelines for the use of the RPAS and all deployments must be approved by the Commander of the Community Safety Division or designate. The SOP and PIA have been reviewed and approved by HPS Legal Services and Federal Crown Attorneys to ensure all RPAS deployments follow legislative requirements.

The HPS PIA provides the guidelines to assess the programs compliance with the Canadian Charter of Rights and Freedoms, the Municipal Freedom of Information Protection of Privacy Act R.S.O. 1990, c.M.56 (MFIPPA), and to identify broader privacy concerns that may arise, to inform senior management of any potential privacy risks associated with the program.

The HPS has never considered arming RPAS units or utilizing facial recognition software with the program.

## FUTURE CONSIDERATIONS

The current HPS fleet is currently limited in its flight capabilities in poor weather and duration of deployments. The small number of pilots and RPAS units limits the availability to deploy RPAS when needed. The partnerships with Hamilton Fire and the MOU with Mohawk College provide access to more robust RPAS capable of flying in inclement weather for extended durations.

There have been multiple occurrences since the inception of the HPS RPAS program where Hamilton Fire and Mohawk College were requested to assist with ground search and rescue. The concern with using other agencies is that it ties up resources that may be needed elsewhere.

The HPS should expand RPAS response capabilities by increasing the number of pilots and units available to deploy from each division without delay or dependency on other agencies.

## CONCLUSION

The RPAS program has enabled the Hamilton Police Service to use their resources more effectively and efficiently during Ground Search and Rescue operations. Collision investigations are mapped more efficiently, while best evidence is collected, allowing roads to be reopened in an expedient manner. RPAS provides commanders with real time situational awareness during Critical Incidents and Crowd Management events when decisions must be made in a timely manner.

The Hamilton Police Service is responsible for providing effective policing to the community. The RPAS enhances police response during missing person searches, serious and fatal collision investigations, crime scene processing, critical incidents and crowd management. The RPAS program greatly improves public and officer safety during these high-risk events.