Winnipeg Police Service

Flight Operations Unit Review

Report of Findings and Conclusions

July 2019

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CONTENTS

EXECUTIVE SUMMARY

The Winnipeg Police Service (WPS) Flight Operations Unit (FOU) was established in 2010 to support WPS operational and investigative Service units. The City of Winnipeg provided the capital to purchase the EC120B helicopter from Eurocopter Canada Limited, which became Airbus Helicopters Canada Limited as of January 2014. With the change in company name, the aircraft was re-designated the H120. The Government of Manitoba provided funding to cover the annual operating costs from 2011 to 2016. The provincial funding was then capped at $1.7 million annually for 2017 and 2018. This amount is now included in the total annual funding provided by the provincial government to WPS and it is at their discretion how the funds are spent.

The Winnipeg Police Service retained MNP to conduct an objective, comprehensive review of the Flight Operations Unit. The goal of the review is credible data, information, evidence and findings to inform WPS decisions about whether the funding and resources allocated to the FOU align with public safety priorities and objectives. The specific objectives of this review were to:

- Evaluate the success of the FOU in achieving its primary purpose of supporting the operating and investigative Service units in the detection of criminal acts and the apprehension of suspects;
- Conduct a cost-benefit analysis of the FOU in police operations; and
- Develop and present evidence-based conclusions to the Winnipeg Police Service.

Approach and Methodology

The evaluation framework was developed, and the review conducted, to answer three questions:

1) To what extent are the operational activities of the FOU relevant and/or needed by the communities it services, the operations of the WPS and other law enforcement and emergency services agencies? (*Relevance/Need*)
2) Is the FOU operating as efficiently as it can, given the available budget and resources? Does the use of the helicopter enhance the operational efficiency of the Winnipeg Police Service? (*Efficiency*)
3) Does the FOU provide strategic value to the WPS and the community? (*Performance/Effectiveness*)

MNP applied several different methods to collect data, information and opinion that informed our findings and conclusions. These included:

- Interviews with WPS executive and management, FOU members, representatives of other law enforcement and emergency response organizations and members of the WPS Communications Centre;
- A telephone survey of 600 citizens, representative of the four Winnipeg police districts;
- An online survey made available to the general public and completed by 1,811 respondents;
- An online survey made available to WPS members (sworn officers, civilian members and cadets), completed by 484 respondents;

- Review of WPS documents, reports and systems information;
- Process mapping with the FOU members;
- Direct observation in the Communications Centre and in-flight time in the helicopter; and
- Review of a sample (13 separate events) of FOU videos.

Background and Context

The Winnipeg Police Service is a key player in creating safe communities through crime prevention and effective response to social disorder and criminal activity. Its services include police response to calls for service and investigations, crime prevention and traffic safety and enforcement. The WPS has established four goals supported by several strategies:

- Less crime and victimization
- Engaged communities
- Effective and efficient service
- Healthy organization

The WPS is structured in three major departments (Operations, Investigative Services and Support Services) each led by a Deputy Chief. Operations is further divided into Uniform Operations and Operational Support. Uniform operations operate out of four different districts, covering approximately 475 square kilometers.

The Flight Operations Unit resides in Operational Support/ Speciality Units. The original business case for the establishment of the Flight Operations Unit was based on the belief that the helicopter would allow for an array of responses not previously available to the WPS and that it would increase the level of service and safety for the citizens of Winnipeg as well as the safety of WPS officers. The current mandate of the FOU is to support all operational and investigative Service units in the detection of criminal acts and the apprehension of suspects. The objectives of the FOU, outlined in FOU Annual reports, are:

- Response to crimes in progress for aerial containment and investigation;
- Infrared searches for suspects and evidence, and coordination of ground response;
- Tracking and surveillance of suspect vehicles during police pursuits and subsequent coordination of ground resources;
- Illumination of crime scenes, collision scenes, vehicle stops, search areas, disturbances, and foot pursuits;
- Aerial searches for missing or lost persons;
- Aerial reconnaissance and photography or videotaping of crime scenes, traffic collisions, high-risk incidents or remote areas;
- Aerial platform for Emergency Services for major fires, environmental disasters, or other major incidents;
- Infrared camera scans to provide evidence of illegal grow operations relating to drug investigations; and
- Rapid deployment of Canine Unit members to remote locations under exigent circumstances.

The current service delivery model for the Flight Operations Unit is a patrol and response model, operating on a general patrol schedule aligned with that of other patrol units. The helicopter is scheduled to fly only during evening and overnight shifts. In most situations, the helicopter is staffed by a pilot and two tactical flight officers. The availability, during daytime hours, of the Chief Pilot and Unit Supervisor, trained as tactical flight officers, allows for response to some incidents outside of the regular schedule. The selected shift schedule and staffing model, as well as maintenance requirements determine how many hours AIR1 is available to fly. Since 2011, the Flight Operations Unit has budgeted for and has intended to operate the helicopter for 1,000 in-flight hours annually. From 2011 to 2017, the FOU had has averaged 933 flight hours per year and 78 hours per month. The top five call types responded to by the FOU, between 2011 and 2017, are:

The selected shift schedule and staffing model, as well as maintenance requirements determine how many hours AIR1 is available to fly.

- Suspicious persons
- Domestic disturbance
- Traffic stop
- Well-being
- Break and enter

Although the FOU establishes the **number of flight hours, maintenance requirements and staffing impact the days it is available to fly**. Therefore, availability must also be considered in days. In addition, the current operational model does not enable the helicopter to fly on a 24 hour basis, 365 days per year. Availability can be viewed through two lenses, scheduled flying days and calendar days. The helicopter has been operational for sixty-five (65) per cent of the total calendar days (2,526) between 2011 and 2017. AIR1 has been grounded:

- 462 days for scheduled and unscheduled maintenance
- 327.5 days due to weather
- 95 days due to staffing

Findings and Conclusions

Relevance/Need

To what extent are the operational activities of the Flight Operations Unit relevant and/or needed by the communities it services, the operations of the WPS and other law enforcement and emergency services agencies?

Winnipeg needs and will continue to need several, modern "tools" to support operational and investigative units.

Patrol areas for the WPS are impacted by Winnipeg's population, land area, and population density. The 2017 WPS Annual Report indicated the city was 475.2 square kilometres; which is virtually unchanged since 2001 when the physical area of the city was 473.7 square kilometers. Alternatively, Winnipeg's total population has been growing steadily from 637,200 in 2001 to 749,500 in 2017. As a result, the city's population density has increased from 1,345 per kilometer in 2001 to 1,577 per kilometer in 2017. If the city's footprint expands or the total land area remains the same and the population and density increases, patrol models will be impacted.

Generally, increasing populations are positively correlated with increasing crime rates and calls to police. Even with an increasing population, the total number of emergency and non-emergency calls received by the WPS has been relatively stable between 2012 and 2017. Specifically, in 2017, the total number of emergency and non-emergency calls was four (4) per cent above average. The total number of dispatched events (calls for service where WPS members were sent) has been above the six-year average in 2016 and 2017. Therefore, even though the WPS are only receiving a slightly higher than average number of calls from the public, they are sending their members to a greater number of them.

Property and violent crime rates have been above the six-year average (2012-2017) in both 2016 and 2017. Violent crimes were fifteen (15) per cent higher and property crimes seventeen (17) per cent higher in 2017. Property and violent crime rates in Winnipeg have been higher than the rest of Canada since 2012 and 2013 respectively.

There is a high level of public awareness and understanding of the police helicopter in Winnipeg.

Evaluating relevance or need in a community requires an understanding of the general public awareness of the service or tool. Ninety-nine (99) per cent of the public online respondents and ninety-two (92) per cent of the telephone survey respondents expressed awareness that the WPS was operating a helicopter.

The presence of the helicopter is enhancing citizen's perception of safety in their neighborhoods.

A significant percentage of public online and telephone survey respondents expressed agreement or strong agreement that the helicopter provides a 'sense of security and safety' and 'helped with neighborhood policing'. Fifty-six (56) per cent of online respondents agreed that the police helicopter helped with neighbourhood policing; while, fifty-six (56) per cent agreed that the police helicopter improved their sense of security and safety. Sixty-five (65) per cent of telephone survey respondents agreed that the helicopter helped with neighborhood policing; while seventy-three (73) per cent of telephone survey respondents agreed that the police helicopter improved their sense of security and safety.

The use of the helicopter doesn't appear to be having significant negative impacts on communities.

Thirty-one (31) per cent and twenty-one (21) per cent of online respondents agreed or strongly agreed that they were disturbed by the noise and light of the police helicopter respectively. Six (6) per cent and thirteen (13) per cent of telephone respondents either agreed or strongly agreed that they were disturbed by the noise and light of the police helicopter. Finally, thirty-three (33) per cent of online respondents and twenty-one (21) per cent of telephone respondents either agreed or strongly agreed that the police helicopter causes concern when in the area.

With regard to public complaints, the FOU has received an average of 6.4 noise complaints annually for the last seven years. In the last five years, there have been five (5) or less complaints per year.

The demand for the helicopter cannot be accurately quantified.

One of the best ways of determining the need or demand for the helicopter is to consistently and thoroughly document and monitor the total number of requests for the use of AIR1 and where the requests are coming from. This information should be a key activity measure that informs decision processes about resourcing and justifies the continued use, reinvestment and/or additional investments in the FOU.

One of the best ways of determining the need or demand for the helicopter is to consistently and thoroughly document and monitor the total number of requests for the use of AIR1 and where the requests are coming from.

The WPS records the calls for service, using their Computer Aided Dispatch (CAD) system, when AIR1 is dispatched or when the calls for service are cancelled. All calls for service and/or situations where the helicopter could have been used, are not consistently recorded, monitored, analyzed and reported. The only existing method of identifying when the helicopter was requested and not available is a search of the notes input by the dispatchers in the Communications Centre. However, whether this information is recorded, depends on the level of activity in the Communications Centre at any given time and the individual dispatcher. The information is not completely accurate and therefore MNP did not conduct an analysis and reach any conclusions.

In addition, dispatchers, duty officers and uniform officers have a general understanding of when AIR1 is operational. They may not request its use if they know it is not scheduled to fly. The most accurate analysis would be a combination of calls for service where AIR1 was able to respond, calls for service where AIR1 was requested but was unavailable to respond and situations where it was appropriate for AIR1 to be used but it was unavailable.

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The Winnipeg Police Service conducted an analysis of demand for the 2017 calendar year based on comments recorded in the CAD system. They concluded that of the 292 days that AIR1 was in flight, 15.62% of expressed demand over dispatch was not met. Of the seventy-three (73) days that AIR1 was not in service, fifteen (15) had expressed requests for service that were not met.

Comparatively, policing services in other Canadian jurisdictions are tracking a number of data sets including:

- Units redirected by flight operations participation
- Flight operations response times
- Calls cancelled or declined by operations
- All requests for service for flight operations
- Proactive patrol flight hours
- Flight hours on calls for service
- If the FOU was the first on the scene
- The result of the call attended

The operational model and target annual flight hours are based on desired hours of operation, the staffing model, maintenance and budget rather than demand and identification of its potential use.

One method of determining the relevance/need for the FOU is to identify and analyze the incidents where the WPS is involved and the use of the FOU in these responses, as well as where it is not used. As described above, the number of requests that could not be fulfilled by the Flight Operations Unit should be considered. The operating model was developed to ensure the helicopter is operational in the later evening and over night. It also requires staffing of two tactical flight officers and a pilot. The goal of one thousand (1000) hours specifically addresses the optimal annual operation of the helicopter airframe, with the purpose of managing maintenance cycles for the lifetime of the machine.

Between 2011 and 2017, the annual average number of incidents responded to by the FOU is 2,164. This is approximately 1.1 % of the total number of incidents responded to by the WPS over the same period. To ensure a valid analysis, and an 'apples to apples' comparison, the analysis should consider the types of incidents and only include the number of incidents where the use of AIR1 might have been appropriate. The top five call types responded to by the FOU between 2011 and 2017 are suspicious persons, domestic disturbances, traffic stops, wellbeing and break and enters. These five call types represent thirty-nine (39) per cent of the total calls where the FOU has responded.

A high percentage of Winnipeg Police Service sworn officers have been involved with the Flight Operations Unit on calls or events and the Flight Operations Unit has been very responsive to these requests for service.

Approximately seventy (70) per cent of the sworn officer respondents to the online survey have been involved with the FOU on calls or events. The FOU has been very responsive to these requests for service. Thirty-four (34) per cent have made over ten (10) requests since January 2017. Fifty-three (53) per cent received support on some of their requests, thirty (30) per cent on most of their requests and eleven (11) per cent on all requests made.

Although assistance to external protection agencies has always, and is still envisioned, as one of the roles of the FOU, there are limited, documented requests for assistance by these agencies.

The information gathered through interviews indicated that there are zero (0) to four (4) requests made annually by external agencies, with assistance in search and rescue the most common. The feedback provided is that they consider the helicopter "invaluable" when they have provided assistance.

The lack of memorandums of understanding with external agencies, outlining the potential use of the helicopter, may be affecting requests for its use. Feedback was provided that many external agency team members believe they will be financially charged for use of this tool and therefore only use it when absolutely necessary.

WPS members believe AIR1 could and should be used more.

WPS members who have used AIR1 see its value in helping them do their jobs and keeping them safe. Approximately seventy (70) per cent of survey respondents have been involved with the FOU. Those responsible for dispatching to calls for service in the Communications Centre suggested they could dispatch the helicopter in significantly more situations if it was available. Seventy-four (74) per cent of WPS respondents believe the police helicopter should be used more. Fifteen (15) executive and management as well as FOU members indicated that the police helicopter needs to be used more. Sixteen (16) interviewees indicated there are situations when they need the helicopter to assist in an incident, but it is not available due to maintenance issues, weather conditions or scheduling.

Efficiency

Is the FOU operating as efficiently as it can, given the available budget and resources?
Does the use of the helicopter enhance the operational efficiency of the Winnipeg Police Service?

The organizational structure of the FOU is well designed.

The structure is simple and easy to understand, the span of control is minimal, and the positions are organized around specializations. The unit is in a portfolio of support units intended to assist uniform operations and investigative Service units. The pilots and tactical flight officers have significant discretion about when they operate and the calls for service where they will respond (aligned authority and responsibility).

The public generally believes the police helicopter contributes to the operational efficiency of the Winnipeg Police Service.

Although there were differences between online and telephone survey respondents, the majority believe that the helicopter assists in finding and apprehending criminal suspects, enhances the effectiveness of the WPS and is an important policing tool for a major municipality like Winnipeg. Telephone survey respondents also showed strong agreement to the statements that use of the helicopter assists in deterring crimes or dangerous situations and improves responses to calls for service related to missing persons in Winnipeg.

Winnipeg Police Service respondents to the online survey strongly agree that the use of the police helicopter enhances the operational efficiency of the Winnipeg Police Service.

Eighty-two (82) per cent of the WPS survey respondents agree that the FOU improves the operational efficiency of the Service. Flight Operations Unit members, who participated in interviews and the process mapping session, believe the unique aerial perspective helps to improve the efficiency of the Winnipeg Police Service. It has the ability to provide real-time information and intelligence to ground units, ensuring appropriate response and resourcing.

Intuitively and anecdotally, the use of AIR1 is a time and resource saver, but the WPS does not consistently and in an easily retrievable fashion, collect and analyze the data to quantitively prove it.

Determining efficiency involves comparing what is actually produced or performed with what can be achieved with the same consumption of resources. It is the good use of time and energy in a way that does not waste time or energy. The FOU does not currently collect, analyze and report against efficiency measures. However, the majority of interview respondents believe its unique aerial perspective enables AIR1 to search large areas faster and provides crucial intelligence to ground units. This intelligence should enable much quicker location of suspects and missing persons, resulting in fewer required resources (efficiencies), and better outcomes (effectiveness).

The ability to 'call-off' ground units when not needed, and make them available for other calls, is an efficiency measure used by other Canadian policing agencies. Although the FOU does not have the authority to 'call off' ground units, this "authority" must be clarified and utilized in order to achieve maximum efficiencies.

Performance/ Effectiveness

Does the FOU provide strategic value to the WPS and the community?

The helicopter is able to respond to incidents faster than ground patrol units and can provide critical assistance to ground units.

Response times is a metric commonly used by policing services to measure performance. It is also a measure important to the general public. Response time data was provided by WPS for Priority 0, 1 and 2 events which included 424 FOU dispatched events. In 2017, AIR1 arrived on scene within three (3) minutes for over seventy-three (73) per cent of the events and in only nine (9) per cent of the events did it take them longer than five (5) minutes. When compared to average response times for ground units in 2017 for the same priority level calls, the average response time for ground units was nine (9) minutes for a Priority 0 or 1 call and over thirteen (13) minutes for a Priority 2 call. The quick response of the police helicopter enables more timely intelligence and tracking of the suspect.

One of the primary purported benefits of the use of a helicopter is to reduce the response times of the service and consequently improve their ability to be first on-scene in comparison to ground units. Since 2011, the police

helicopter has arrived first on scene an average of approximately fifty-eight (58) per cent of the total number of events they have attended.

Data collected since 2014 suggests that a greater number of arrests are made when the FOU is involved in the pursuit.

The Flight Operations Unit has attended sixty (60) or sixteen (16) per cent of the three-hundred-and-seventy-two (372) pursuits since 2011. Based on available data, arrests, as a result of pursuits, were made an average of fifty-eight (58) per cent of the time in the period from 2014 – 2017. This rises to seventy-six (76) per cent when the FOU attends the call. When the FOU does not attend the call, arrests are made fifty-five (55) per cent of the time.

In addition, between 2014 and 2017, an average of forty-four (44) per cent of all pursuit calls resulted in some property damage. Only thirty-seven (37) per cent of the calls attended by the FOU resulted in damage. Conversely, injuries (suspect, other civilians or WPS officers) occurred an average of fourteen (14) per cent of the pursuit calls with an average of twenty-two (22) per cent when the FOU was involved in the pursuit and thirteen (13) per cent of the calls they did not attend (these included injuries to either the suspect, other civilians or WPS officers).

Intuitively and anecdotally, the use of the helicopter helps to find missing persons faster, but the lack of recorded outcomes of missing person assists limits the ability to quantitively prove it.

The Flight Operations Unit attended a total of one-hundred and seven (107) missing person calls for service or an average of fifteen (15) per year since 2011. The FOU has not tracked how many of their 'missing person assist' calls resulted in the successful location of the individual(s).

Interview respondents described the benefits of using AIR1 in the search for missing persons as:

- The ability to search a large area in a short period of time
- The infrared camera is able to discern between heat differences
- The spotlight can light up large search areas in the dark
- It allows a broad aerial perspective of spaces where people could be hiding in real time

There is very strong public support for the police helicopter service.

Sixty-six (66) per cent of the online survey respondents and eighty-one (81) per cent of the telephone survey respondents expressed support for the use of the helicopter. Sixty (60) per cent of the online respondents and seventy-five (75) per cent of the telephone survey respondents agreed that the helicopter is an efficient use of WPS funding. Sixty-three (63) per cent of the online respondents and seventy-six (76) per cent of the telephone survey respondents believe the helicopter is worth it because of the benefits it provides.

There is very strong WPS support for the FOU.

Eighty-four (84) per cent of WPS members either agreed or strongly agreed the costs of the unit are justified by the benefits.

Intuitively and in the perception of Winnipeg Police Service officers, the police helicopter enhances the safety of police officers.

Seventy-five (75) per cent of sworn officers believe the use of the helicopter reduced their personal safety risk and eighty-eight (88) per cent believe it increased other officers' safety. Similar results were found with civilian members

of the WPS that completed the survey with ninety-five (95) per cent agreeing that the police helicopter increased officer safety.

Having a tool that provides a real time aerial perspective of a potential crime scene and has the ability to light the scene, can only ensure the location of suspects and officers are made aware of any dangers. In addition, video footage of incidents ensures there is documented evidence of officer conduct, protecting the officer and the WPS from potential liability.

The current helicopter restricts the activities of the FOU.

FOU flight planning is limited due to the single engine construction of the current machine, which impacts the operational abilities of the Unit.

A community's perception and WPS members' belief that the helicopter helps to keep them safe is important but not easy to measure and value. However, it is an important consideration in assessing the effectiveness of AIR1.

This 'social return on investment' is difficult to define, measure and assess. Even if the use of the helicopter was proven to save a life or prevent an injury, this 'value' is immeasurable. The public perception of their safety and security is one of the indicators of the success of a Police Service. Consideration should be given to consistently measure public and WPS members' perception of their safety and the impact the police helicopter has on this perception. In addition, the documentation and tracking of when the police helicopter assisted in preventing bodily injury, death and theft or destruction of property could enable a calculation of social return on investment.

The police helicopter, with its current operational model, and based on its unique abilities, is a good use of WPS funds.

MNP could not complete a full cost benefit analysis of the Flight Operations Unit because outcomes data is not consistently collected in an easily retrievable format. In an attempt to provide a relevant comparison, MNP considered a scenario where all the funds could be redirected to more ground patrol units. MNP concluded that the funds invested in the FOU would pay for 0.7 of a fully staffed patrol car on an annual basis.

Although the WPS does not collect and analyze data required to quantify all aspects of its mandate and objectives, the helicopter is able to respond to incidents faster than ground units, enabling more timely intelligence and tracking of suspects. It also enables a greater number of arrests when involved in pursuits. Anecdotally, the use of the helicopter helps to find missing persons.

Its unique capabilities and proven ability to support operational and investigative Service units, makes it a good use of WPS resources.

The Flight Operations Unit should increase its capability and capacity to spend more time in the air on an annual basis.

The FOU flew an average of 933 hours annually between 2011 and 2017. The helicopter has been grounded for 884.5 days out of a total of 2.526 calendar days in the same period (2011- 2017). The helicopter was grounded 462 days due to scheduled and unscheduled maintenance, 372.5 days due to prohibitive weather conditions and 95 days for staffing.

Approximately seventy-four (74) per cent of WPS survey respondents believe the helicopter should be used more. This was also a common theme in interviews.

The method of increasing 'time in the air' should be determined after a comprehensive analysis of current and potential demand and if a larger and/or second helicopter is purchased. Purchasing a second helicopter would allow the FOU to significantly reduce the annual number of days that it was not operational due to maintenance. Assuming the number of maintenance days could be reduced to zero, it would allow an average increase of sixty-five (65) additional available flying days per year. This analysis assumes no adjustments would be made for flying days lost due to weather and staffing. If the FOU flies an average of four (4) hours per available flying day, gaining sixty-five (65) additional flying days should allow an annual increase of 260 flight hours.

A second helicopter would allow for additional shifts to be scheduled to increase the annual flying hours as well. The Edmonton Police Service has two helicopters and flies on average 1,600 hours per year and the Calgary Police Service, also with two helicopters, flies an average of 2,800 hours per year. A new target annual flight hours should be determined based on an estimation of how the helicopter could be used. This would determine additional staff needs as the number of pilot FTEs does appear to be a limiting factor to increasing the annual flight hours at this time. The team staffing structure (number of TFOs per shift) will also have an impact on additional staffing requirements if a second helicopter were to be purchased.

1 INTRODUCTION AND BACKGROUND

The Winnipeg Police Service (WPS) Flight Operations Unit (FOU) was established in 2010 to support WPS operational and investigative Service units. The City of Winnipeg provided the capital to purchase the five seat, 1.6 ton single engine H120 helicopter. The Government of Manitoba provided funding to cover the annual operating costs from 2011 to 2016. The provincial funding was then capped at $1.7 million annually for 2017 and 2018. This amount is now included in the total annual funding provided by the provincial government to WPS and it is at their discretion how the funds are spent.

The WPS retained MNP to conduct an objective, comprehensive review of the Flight Operations Unit. The goal of the review is credible data, information, evidence and findings to inform WPS decisions about whether the funding and resources allocated to the FOU align with the WPS strategic public safety priorities and objectives. The specific objectives of this review were to:

- Evaluate the success of the FOU in achieving its primary purpose of supporting the operating and investigative Service units in the detection of criminal acts and the apprehension of suspects;
- Conduct a cost-benefit analysis of the FOU in police operations; and
- Develop and present evidence-based conclusions to the Winnipeg Police Service.

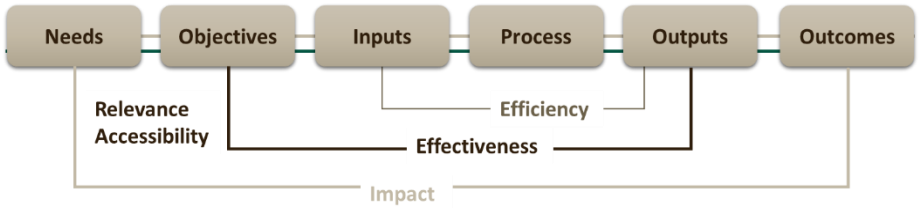
The following report describes how MNP conducted this review and its findings and conclusions.

2 APPROACH AND METHODOLOGY

The general purpose of this review is to determine if the FOU is operating effectively and efficiently and is fulfilling its mandate by achieving its proposed goals and objectives. MNP's approach to the review encompasses multiple elements:

- Accountability – clear delineation of roles and responsibilities in achieving results;
- Effectiveness – the extent to which the unit attains its goals, objectives, outcomes, and supports the overall strategic imperatives of the organization;
- Efficiency & Value – whether the output and quality of results meets expectations given the available resources, target service levels, quality, and reflects improved ways of delivery; and
- Collaboration –delivery of services often requires effective and efficient inputs from various units / departments and integration of these inputs, which in turn requires a high degree of collaboration (e.g. collaboration between FOU and Communication Centre, FOU and other WPS units it supports).

MNP's program evaluation methodology and logic model were embedded in the overall review methodology. The evaluation framework addressed a series of questions related to:



- Relevance / Continued Need – The extent to which the FOU services continue to be relevant to current policing needs;
- Success / Effectiveness – The extent to which the FOU is effective in meeting its objectives;
- Delivery – The way in which the FOU services are designed and administered and opportunities for improvement; and
- Efficiency and Economy / Cost Effectiveness – The extent to which the methods employed are the most appropriate and efficient mechanisms to meet the program objectives.

The findings of the report are organized to answer three general questions:

1) To what extent are the operational activities of the FOU relevant and/or needed by the communities it services, the operations of the WPS and other law enforcement and emergency services agencies? (Relevance/Need)
2) Is the FOU operating as efficiently as it can, given the available budget and resources? Does the use of the helicopter enhance the operational efficiency of the Winnipeg Police Service? (Efficiency)
3) Does the FOU provide strategic value to the WPS and the community? (Performance/Effectiveness)

The review was completed using a three-phased approach:

Phase 1: Project Initiation and Planning

Through collaboration with the WPS Project Oversight Committee, MNP developed the evaluation framework identifying information requirements, data sources and analysis methods. All stakeholders to be involved in the consultation process were identified and the method (s) of consulting with them was determined. Data collection instruments were designed to collect qualitative and quantitative data collection during subsequent project phases.

Phase 2: Data Collection

During Phase 2, MNP requested and compiled available data to complete the evaluation framework. This included input from interviews with WPS members and management as well as external stakeholders. A telephone survey of the general public and online surveys of the general public and WPS sworn officers and civilian members were administered. Research in other Canadian, United States and international Flight Operations Units was completed. MNP also conducted working sessions and process mapping with members of the FOU to understand day-to-day operations. Further working sessions were conducted with supporting departments, to better understand processes and data availability (e.g. Communication Centre Sit-Along). MNP consultants also participated in 'flight-alongs' and observed videos of AIR1 operations.

Phase 3: Data Analysis and Reporting

MNP conducted an in-depth analysis of all data and information collected in Phase 2. Upon completion of this analysis, MNP prepared a draft report. The draft report was reviewed by the WPS Oversight Committee. Revisions were made to reflect feedback.

The following section describes in more detail each of the data collection techniques.

2.1 Stakeholder Engagement

Stakeholders were identified and engaged to understand their unique perspectives in the following three areas:

- **Relevance / Need** for the services of the FOU
- **Efficiency** in the operational processes of the WPS
- **Performance / Effectiveness** in achieving desired outcomes

Table 1: FOU Review Stakeholder Groups

General Stakeholder Group	Specific Stakeholder/WPS Department/ External Agency or Organization	Notification Method(s)	Engagement Technique(s)
General Public	• Citizens of Winnipeg	• WPS Press Release • WPS Webpage • WPS Twitter Account	• Online Survey • Telephone Survey
Winnipeg Police Service	• WPS leadership • FOU members • WPS members that have worked with FOU • WPS members	• Internal Communication • Telephone/Email	• Online Survey • Stakeholder Interviews
Government / Funders	• Province of Manitoba • City of Winnipeg	• Telephone/Email	• In-Person/Telephone Stakeholder Interviews
Other Policing Organizations / Clients / Other Jurisdictions	• RCMP • Morden Police Service • Canadian National Railway (CN) Police • Ste. Anne Police Service • Winnipeg Fire and Paramedic Service (WFPS)	• Telephone/Email	• In-Person/Telephone Stakeholder Interviews

General Stakeholder Group	Specific Stakeholder/WPS Department/ External Agency or Organization	Notification Method(s)	Engagement Technique(s)
Other Jurisdiction Policing Agencies	• Edmonton Police Service • Calgary Police Service • Durham Regional Police	• Telephone/Email	• Telephone Interviews
Regulators	• Transport Canada • Transportation Safety Board	• Telephone/Email	• In-Person/Telephone Stakeholder Interviews
Labour Relations*	• Winnipeg Police Association	• Internal Communication	• N/A (Inform Only)

** Labour Relations was informed of process but did not participate in any stakeholder activities.*

2.1.1 Stakeholder Interviews

In total, 37 interviews (39 interviewees) were completed as outlined in the following table. Interview guides were developed and utilized, asking questions relevant to each stakeholder group and related to the evaluation framework.

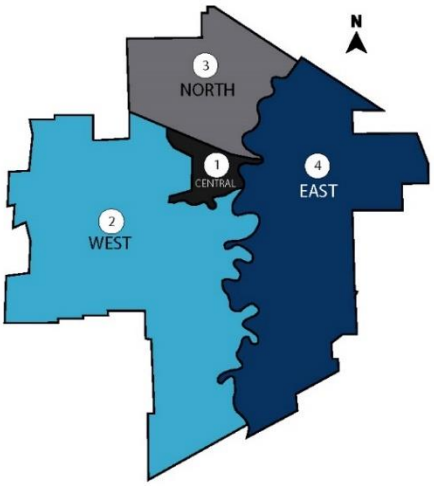
Table 2: Overview of Stakeholder Interviews

General Stakeholder Group	Stakeholder Organization	Stakeholder Participants Role (# of Participants Interviewed)
Winnipeg Police Service	Executive & Management	• Chief of Police (1) • Deputy Chief - Police Operations (1) • Superintendent - Operational Support (1) • Superintendent – Investigative Services (1) • Superintendent - Uniform Operations (1) • Inspector – Duty Office (1) • Duty Office Representative (1) • Major Crimes (Division 43) Inspector (1) • Specialized Investigations (Division 41) Inspector (1) • Training (Division 33) Inspector (1) • Organized Crime (Division 40) Inspector (1) • Traffic (Division 52) Inspector (1) • Manager Strategic Affairs (1)
	Division 50 Management	• Inspector – Operational Support (1) • Staff Sergeant - Operational Support (1)
	FOU	• Unit Supervisor (1) • Chief Helicopter Pilot (1) • Tactical Flight Officers (4) • Helicopter Line Pilots (2) • Previous FOU Members (2)
Government / Funders	Province of Manitoba (Manitoba Justice)	• Manitoba Justice Community Safety Division Policing Services and Public Safety A/Executive Director (1)

General Stakeholder Group	Stakeholder Organization	Stakeholder Participants Role (# of Participants Interviewed)
Other Policing Organizations / Clients	• RCMP • Morden Police Service • CN Police • WFPS • Manitoba Conservation • Transport Canada Aviation Enforcement	• OIC Provincial Support Services and Search and Rescue Coordinator S/Sgt (2) • Police Chief and Sergeant (2) • Inspector (1) • WFPS Deputy Chief (1) • Conservation Officer Special Investigations (1) • Inspector (1)
Other Jurisdiction Policing Agencies	• Edmonton Police Service • Calgary Police Service • Durham Regional Police	• Chief Pilot (1) • Flight Operations Patrol Sergeant (1) • Unit Supervisor and Tactical Flight Officer (2)

2.1.2 Public Survey (Online and Telephone)

To evaluate the public's perception of the FOU, telephone and online surveys were developed by MNP and approved by the WPS. The surveys were designed to determine Winnipeg citizens' awareness and perception of the Winnipeg Police Service helicopter.

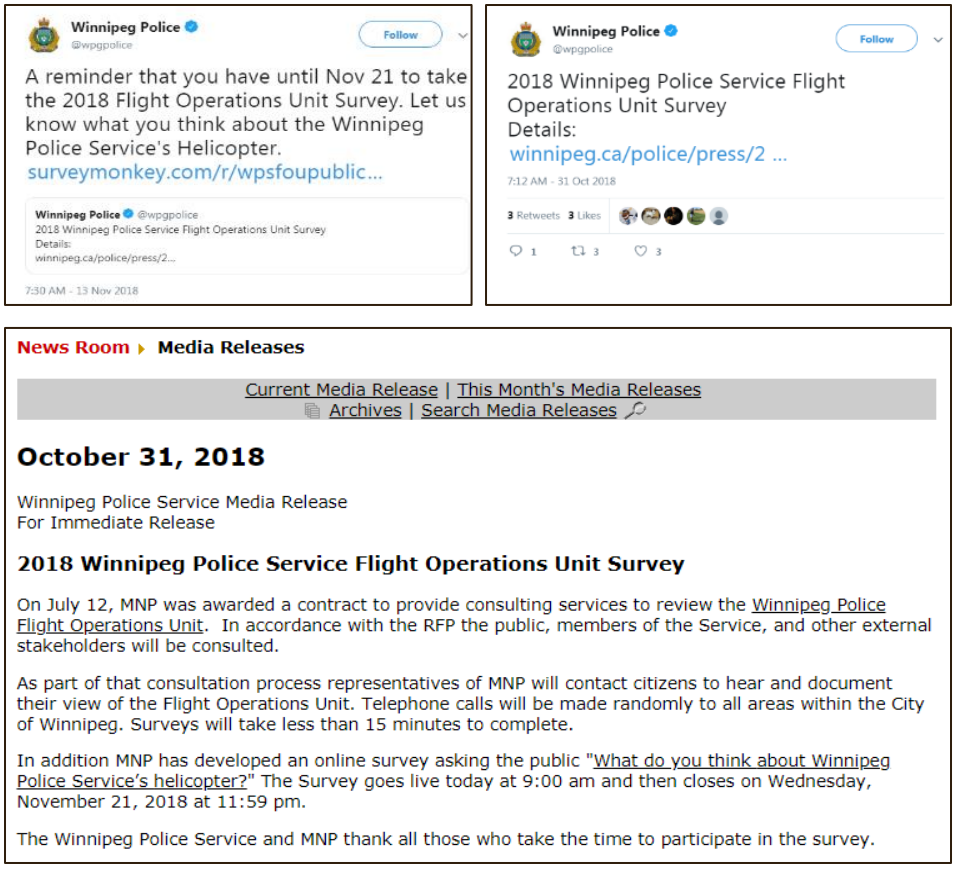


Data collection for the online Public Opinion Survey began October 31, 2018 and concluded November 20, 2018. The telephone Public Opinion Survey was conducted by NRG Research Group between November 5, 2018 and November 19, 2018 from NRG's Winnipeg live agent call centre. For the telephone survey, the four WPS districts of Winnipeg were sampled proportionally to reflect the population within each district. The data was weighted to accurately reflect the age and gender population distribution of the areas based on the 2016 Statistics Canada Census. Respondents outside of the four districts were not included in either the telephone or online survey results. The online survey utilized a convenient sampling method. As a result, only the telephone survey results from the Public Opinion Survey may be generalized to the rest of the city.

A combination of online and telephone data collection methods was utilized for this review to enhance the validity and representativeness of these data collection methods. In total, 1,811 individuals completed the online survey and an additional 600 respondents were randomly selected from a publicly available list of landline and wireless records for the telephone survey. The margin of error for the telephone survey results is +/-4.0 per cent, 19 times out of 20 (NRG Research Group). Pertaining to the online survey, the WPS utilized the following three means to inform the public of the survey:

- WPS Media Release on October 31, 2018
- Winnipeg Police Twitter (@wpgpolice) on October 31, 2018 and November 13, 2018
- WPS webpage banner

Figure 1 - Public Opinion Survey Notifications



In all survey formats, respondents were informed that their responses would be kept confidential and they would not receive any form of compensation for their participation in the survey (i.e. the survey was voluntary). Demographic information for the telephone survey as well as the online survey are depicted in the tables on the next pages (please note that the percentages may not add up to 100% due to rounding). Full survey guides are included in Appendix A.

It should be noted that there were differences in the results of the telephone survey in comparison to online surveys. As a known occurrence, researchers have found that these discrepancies are partially explained by what is known as the 'social desirability bias'. Specifically, previous research has found that telephone survey respondents are more likely, than online survey respondents, to provide socially desirable answers (i.e. provide answers that will be favourably viewed by others). For instance, when asked their opinion about a socially contentious topic over the phone an individual may provide an answer they believe will be favourably understood by the interviewers as opposed to their honest feelings/beliefs on the topic. Alternatively, online surveys, due to a sense of anonymity, are more likely to mitigate the social desirability bias that leads to possibly more negative or positive views on a socially contentious/sensitive topic. To address this known occurrence, both the online and telephone survey responses have been provided as well as a discussion of the differences in responses (if applicable) within the findings section of this report.

Table 3: Online and Telephone Survey Demographic Information

Telephone Survey			Online Survey		
Variable	Per cent of N=600	Number of respondents	Variable	Per cent of N=1811	Number of respondents
Gender			**Gender**		
Male	47%	282	Male	49%	886
Female	52%	312	Female	37%	668
Other			Prefer not to answer	5%	100
			Not Listed	1%	19
			Skipped	7%	138
Age			**Age**		
18-29	15%	90	18-29	12%	215
30-44	31%	186	30-44	36%	654
45-59	25%	150	45-59	27%	493
60+	27%	162	60+	17%	310
			Skipped	7%	139
Region			**Region**		
District 1 (Downtown)	8%	48	District 1 (Downtown)	19%	342
District 2 (West)	36%	216	District 2 (West)	37%	216
District 3 (North)	17%	102	District 3 (North)	12%	102
District 4 (East)	39%	234	District 4 (East)	32%	234
Income			**Income**		
Under $20,000	7%	42	Under $20,000	2%	51
$20,000 - $39,999	12%	72	$20,000 - $39,999	6%	115
$40,000 - $59,999	17%	102	$40,000 - $59,999	14%	257
$60,000 - $79,999	15%	90	$60,000 - $79,999	12%	218
$80,000 - $99,999	10%	60	$80,000 - $99,999	12%	210
$100,000 - $150,000	16%	96	$100,000 - $150,000	20%	358
More than $150,000	8%	48	More than $150,000	12%	205
Prefer not to say	16%	96	Prefer not to say	14%	258
			Skipped	8%	139
Ancestral Background			**Ancestral Background**		
Western of Southern European	35%	210	Western of Southern European	44%	808
Canadian Only	26%	156	Northern or Eastern European	17%	307
Northern or Eastern European	22%	132	First Nation, Inuit, Metis	6%	102
First Nation, Inuit, Metis	7%	42	East Asian	2%	31
East Asian	6%	36	South Asian	<1%	10
South Asian	3%	18	Middle Eastern	<1%	2
Middle Eastern	<1%	6	African	<1%	7
African	1%	6	Other North American	<1%	11
Other North American	2%	12	South American	<1%	3
Latin/South American	1%	6	Prefer not to say	13%	232
Other	1%	6	Not Listed	9%	157
			Skipped	7%	141
Residency in Winnipeg			**Residency in Winnipeg**		
Less than five years	6%	36	Less than five years	3%	58
5-10 years	9%	54	5-10 years	6%	106

Telephone Survey			Online Survey		
Variable	Per cent of N=600	Number of respondents	Variable	Per cent of N=1811	Number of respondents
11-20 years	11%	66	11-20 years	13%	229
Over 20 years	73%	438	Over 20 years	70%	1282
			Skipped	8%	136

2.1.3 Sworn Officer and Civilian Member Survey (Online)

Winnipeg Police Service sworn officers, civilian members and cadets are key stakeholders of the FOU. An online survey was developed by MNP and approved by the WPS for completion by sworn officers, civilian members and cadets. The survey was made available to all members of the WPS. They were informed of the voluntary nature of the survey and that their participation in the survey would be anonymous and not be related to their employment in any way. Data collection for the online sworn officer, civilian members and cadet survey began October 31, 2018 and concluded November 20, 2018. In total, there were 484 respondents representing twenty-five (25) per cent of the total number of sworn officer and civilian members based on the number of employees of the WPS as of 2017. The table below is a breakdown of the participants in the survey (please note that the percentages may not add up to one hundred per cent due to rounding).

Table 4: Overview of Sworn Officer and Civilian Member Online Survey Respondents

Variable	Per cent of N=484	Number of respondents
Role in WPS		
Sworn Officer	77%	372
Civilian Member (including cadets)	22%	106
Other	<1%	5
Skipped	<1%	1
Tenure with the WPS		
Less than 5 years	15%	71
5-10 year	25%	121
11-20 years	37%	178
Over 20 years	23%	113
Skipped	<1%	1
Tenure within your current division of the WPS		
Less than one year	19%	91
1-2 years	32%	156
3-5 years	29%	140
More than 5 years	20%	95
Skipped	<1%	2
Current Division		
General Patrol	32%	154
Communication Centre	7%	32
Records and Reports Management	7%	33
Specialty Unit	9%	44
Community Support	6%	31
Traffic	4%	19
Organized Crime	1%	5
Specialized Investigations	6%	27
Forensics/Intelligence/Technology	4%	18

Variable	Per cent of N=484	Number of respondents
Major Crimes	8%	39
Training	3%	13
Support Services	5%	22
Information Technology	1%	8
None of above	7%	37
Skipped	<1%	2

2.2 Reviews and Observations

2.2.1 Process Mapping

Process mapping was facilitated with members of the FOU to fully understand the 'end to end' activities, tasks, decisions points and 'hand-offs' involved in the operations of the FOU. This type of analysis allows for the identification of opportunities for increased effectiveness and efficiency. Detailed process maps are included in Appendix C. Summaries are provided throughout the findings sections.

2.2.2 Police Helicopter In-Flight

The in-flight demonstration was designed to provide firsthand observation of the FOU as it supported general ground patrol units. Four (4) members of the MNP project team went on a flight (4 different flights) with the FOU to observe how the FOU supports the general patrol units during a shift. The flights were approximately 1.5-1.75 hours in length and included a MNP team member along with a pilot and tactical flight officer. General observations were summarized and incorporated in the findings of this report.

In addition to calls for service, the in-flight observations were designed as an opportunity to understand general activities of the FOU, including communication, response times, and decision-making processes.

2.2.3 Video Footage

The WPS provided MNP with a sample of video footage from thirteen (13) separate recorded events. This video footage was provided to expand the understanding of the MNP project team members outside of their in-flight observations. Footage was selected for a variety of events to represent the ways in which the FOU supports, or is the first responder to, events. MNP reviewed all content and prepared a brief synopsis of events to evaluate the footage against the framework components.

3 WINNIPEG POLICE SERVICE

3.1 Winnipeg Police Service

The Winnipeg Police Service is a central player in creating safe communities through crime prevention and effective response to social disorder and criminal activity. Its services include:

- Police response (including investigations)
- Crime prevention
- Traffic safety and enforcement

The WPS has established four goals supported by several strategies:

- Less crime and victimization
- Engaged communities
- Effective and efficient service
- Healthy organization

Vision

A culture of safety for all.

Mission

Build safe and healthy communities across Winnipeg through excellence in law enforcement and leadership in crime prevention through social development.

The WPS is structured in three major departments (Operations, Investigative Services and Support Services) each led by a Deputy Chief.

Operations

Uniform Officers

- 4 divisions
- Communications

Operational Support

- *Operational Support / Specialty Units*
- Community Support
- Traffic

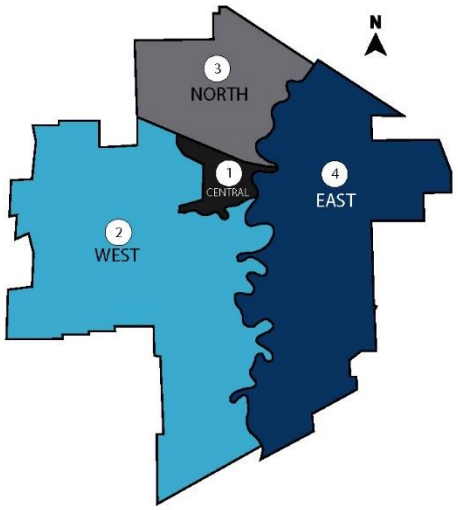
Investigative Services

- Organized crime
- Specialized investigations
- Forensics / intelligence / technology
- Major crimes

Support Services

- Training
- Human Resources
- Information and technology solutions

Uniform operations operate out of four (4) different districts which cover approximately 475 square kilometers. The 2017 Environmental Scan conducted by the Winnipeg Police Board described the characteristics of each district.

Summary of Districts	
Figure 2 - Map of Districts 	**District 1 (Central)** • Smallest population of any district at 61,423 • Highest percentage of lone-parent families • Highest percentage of single people at 43% • 66% of dwellings are apartments
	District 2 (West) • Population of 245,396 • Largest population of people aged 65 and over • Family structure is predominately married couples • 60% of dwellings are single-detached houses
	District 3 (North) • Population of 132,796 • Highest average number of persons living in a private household • 68% of dwellings are single-detached houses
	District 4 (East) • Largest population at 249,754 • Similar demographic profile as District 2

The FOU resides in Operational Support / Specialty Units

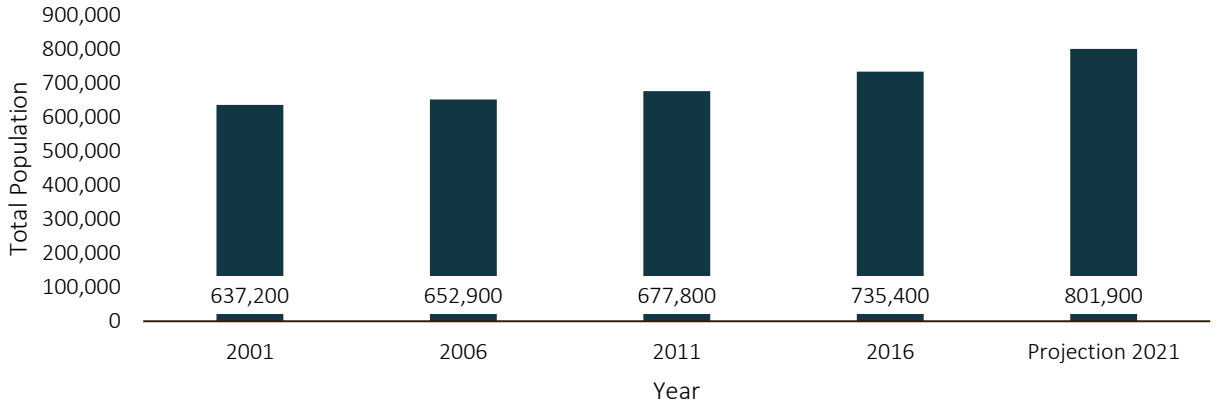
Operational Support / Specialty Units	
• Flight Operations	• Crisis Negotiation
• Canine	• Crowd Management
• Tactical Support	• Ground Search and Rescue
• Special Operations	• Protective Services
• Bomb	• Underwater Search and Recovery

A review of the FOU was conducted with an understanding of contextual elements such as historical and projected population trends, the WPS calls for service and crime rates.

Population Density

Patrol areas for the WPS are impacted by Winnipeg's population, land area, and population density. With regard to land area, the 2017 WPS Annual Report indicated the city was 475.2 square kilometres; [1] which is virtually unchanged since 2001 when the physical area of the city was 473.7 square kilometers. [2] Alternatively, Winnipeg's total population has been growing steadily from 637,200 in 2001 to 749,500 in 2017 (Figure 3). [3] As a result, the city's population density has increased from 1,345 per kilometer in 2001 to 1,577 per kilometer in 2017. By 2021, the City of Winnipeg's total population is expected to grow to 801,900 according to a projection completed by the City of Winnipeg in 2014. If the city's footprint expands or the total land area remains the same and the population and density increases, patrol models will be impacted.

Figure 3: Total Population of Winnipeg Between 2001 and 2016 and a Projection of the Population in 2021

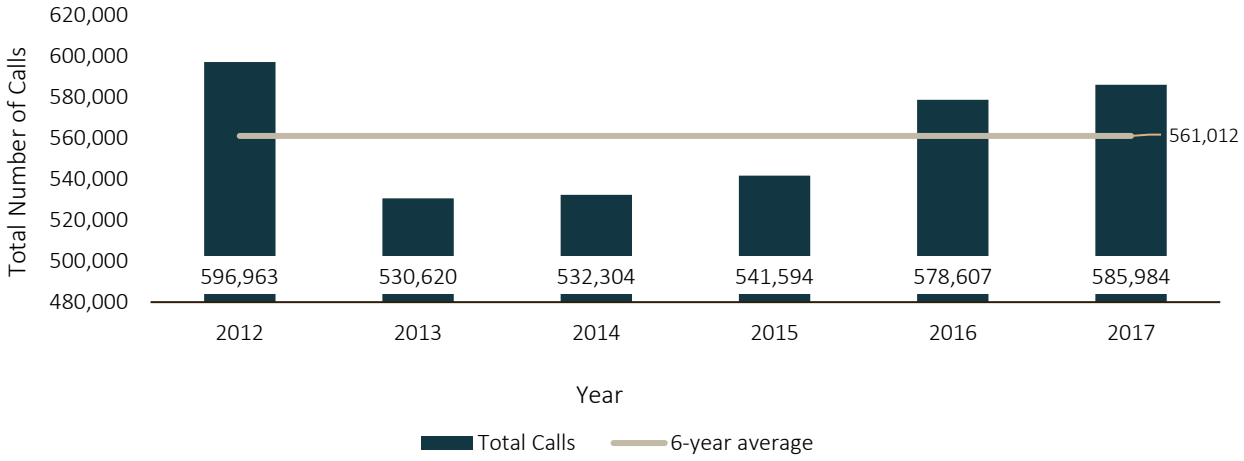


Winnipeg Police Service Calls for Service

Generally, increasing populations are positively correlated with increasing crime rates and calls to police. However, even with an increasing population, the total number of emergency and non-emergency calls received by the WPS has been relatively stable between 2012 and 2017 [4] [5] [6] [7] [8] [1].

In 2016 and 2017 the total number of emergency and non-emergency calls received by the WPS was slightly above the six-year average (Figure 4). Specifically, in 2017 the total number of emergency and non-emergency calls received by the WPS was four (4) per cent above the average.

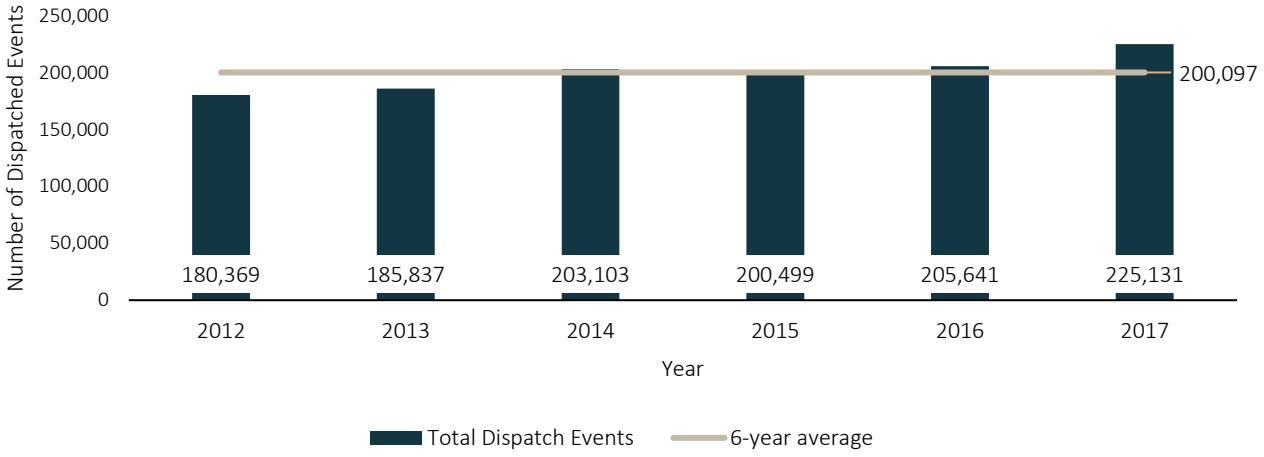
Figure 4: Total Number of Calls Received by the WPS Annually Between 2012 and 2017 Including a Six-Year Average



Similarly, the total number of dispatched events (calls for service where WPS sent their members) has also been above the six-year average for 2016 and 2017 (Figure 5). [1] Most recently in 2017, the total number of calls that WPS members were dispatched to was thirteen (13) per cent higher than the six-year average. Therefore, even though the WPS are receiving a slightly higher than average number of calls from the public, they are sending their members to a greater number of them.

Therefore, even though the WPS are receiving a slightly higher than average number of calls from the public, they are sending their members to a greater number of them.

Figure 5: Total Number of Events Responded to by the WPS Annually Between 2012 and 2017 Including a Six-Year Average



Note: Generally, calls for service to the WPS are dispatched by assigned priority. These priorities are described in subsequent sections. The FOU uses the same priority framework, and also considers the call type by other units. For example, while a break and enter in progress may be a higher priority call, if the ground units have confirmed the number of suspects and their location in the building, they may go to another call.

Crime Rates

Property and violent crime rates have been above the six- year average (2012-2017) in both 2016 and 2017. In 2017, violent crimes were fifteen (15) per cent higher than the six-year average. Property crimes in 2017 were seventeen (17) per cent higher. [9] [10] [11] [12] [13] [14](Figure 6, Figure 7, Figure 8, and Figure 9):

Violent Crimes

Figure 6: Violent Crime Rates (per 100,000 population) Between 2012 and 2017 for Winnipeg Including a Six-Year Average

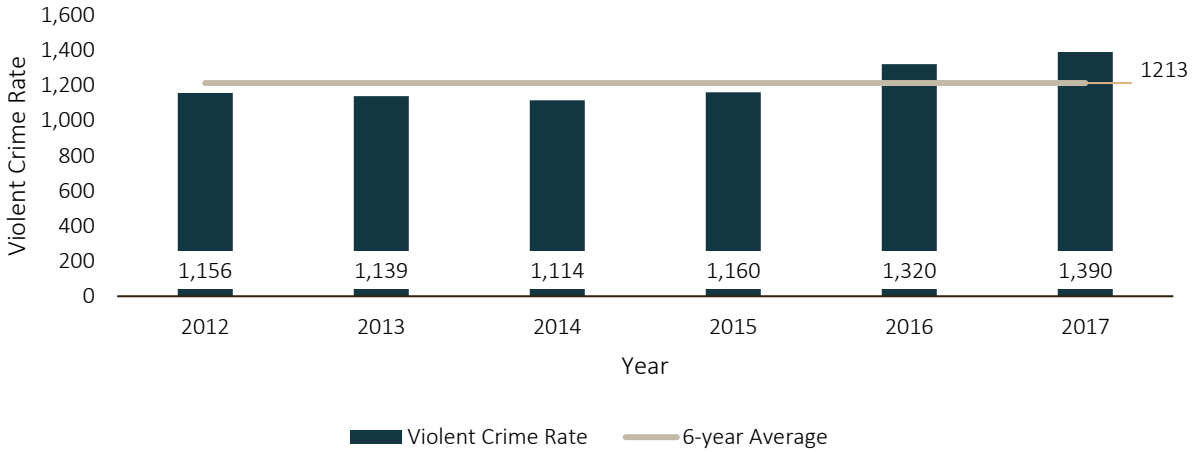
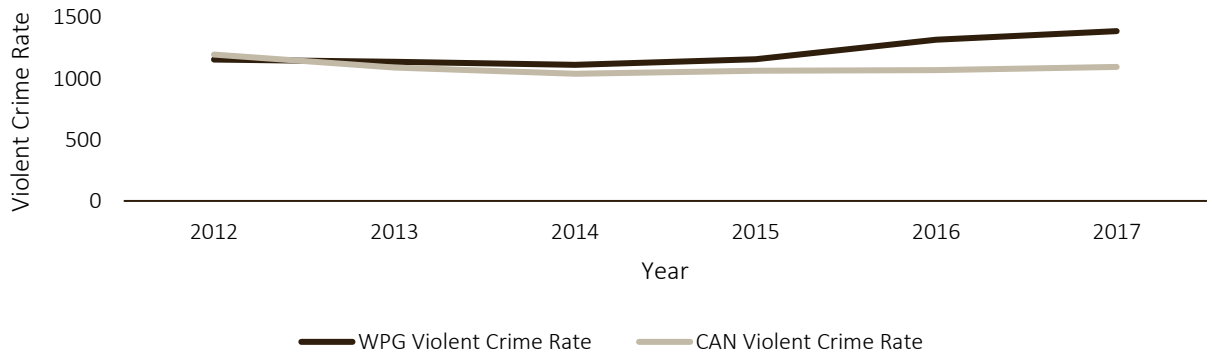


Figure 7: Violent Crime Rates (per 100,000 population) for Winnipeg Compared to Canada between 2012 and 2017



Property Crime

Figure 8: Property Crime Rates (per 100,000 population) Between 2012 and 2017 for Winnipeg Including a Six-Year Average

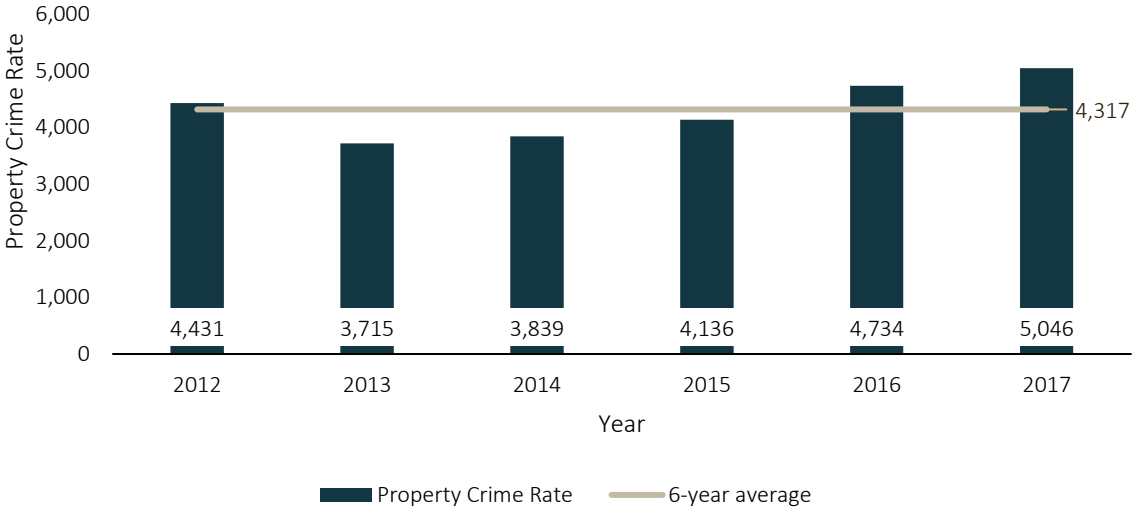
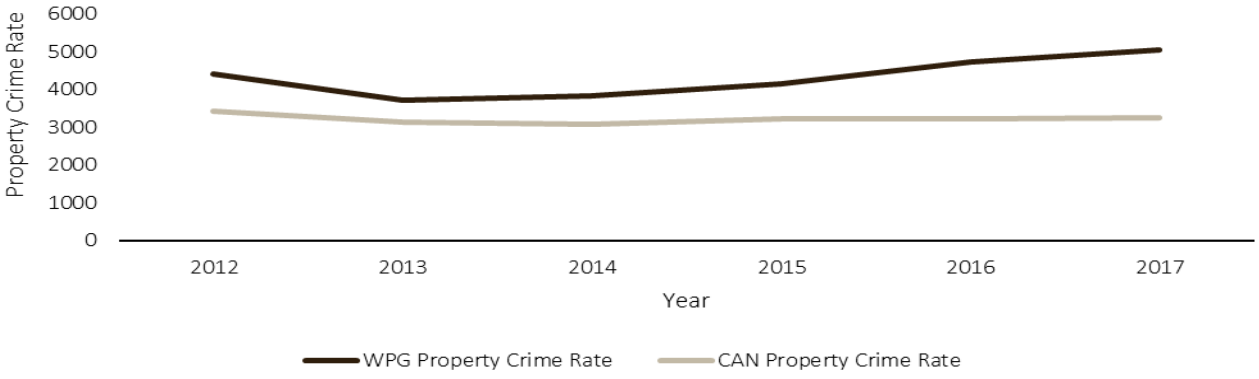


Figure 9: Property Crime Rates (per 100,000 population) for Winnipeg Compared to Canada Between 2012 and 2017



Furthermore, property and violent crime rates in Winnipeg have been higher than the rest of Canada since 2012 and 2013 respectively (Figure 8 and Figure 9).

Crime Severity

Lastly, it is important to note that, since 2012, Winnipeg has had a higher Total and Violent Crime Severity Index Score compared to the rest of Canada (Figure 10 and Figure 11):

Figure 10: Total Crime Severity Index Score for Winnipeg Compared to Canada Between 2012 and 2017

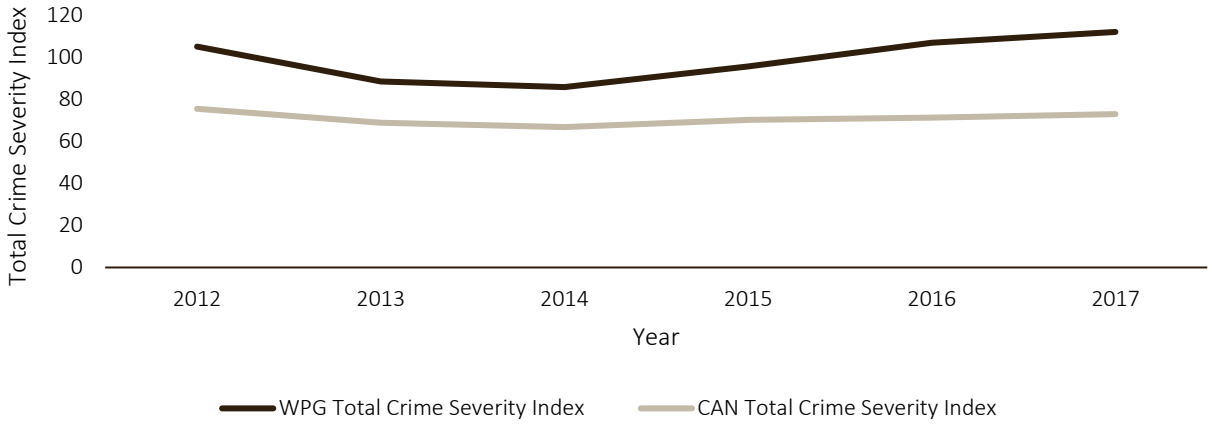
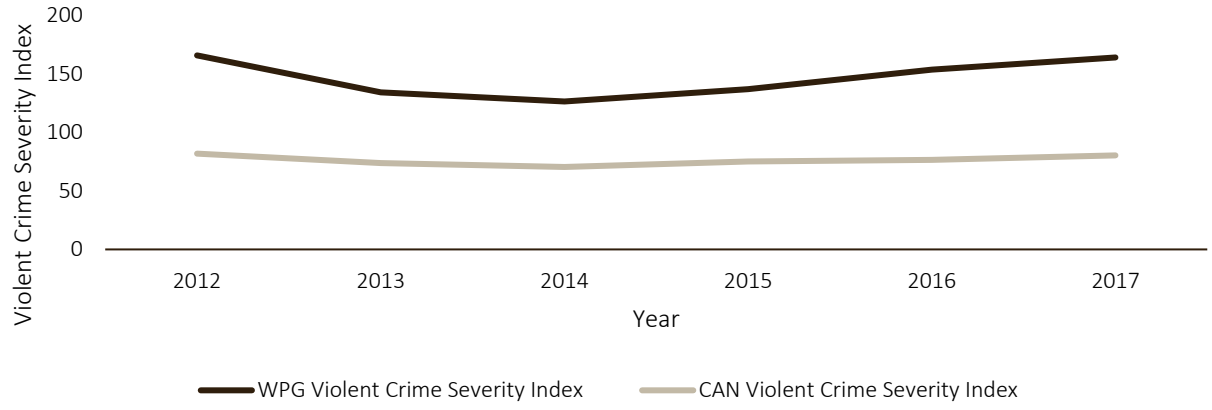


Figure 11: Violent Crime Severity Index Score for Winnipeg Compared to Canada Between 2012 and 2017



Winnipeg has had a higher Total Crime Severity Index Score and Violent Crime Index Score since 2012.

4 FLIGHT OPERATIONS UNIT

4.1 History of the Flight Operations Unit (FOU)

In 2009, the Winnipeg Police Service completed an in-depth feasibility study of establishing and operating an Aerial Support Unit. In conducting this study, they collected data and information from the comparator policing agencies of Calgary, Edmonton, Lower Mainland BC and York, who had been operating rotary wing aircrafts (helicopter) from eight (8) to fifteen (15) years.

The recommendation from the study was to purchase a H120 helicopter and staff it with:

- Three (3) pilots
- Three (3) tactical flight officers; and
- One (1) aircraft maintenance engineer.

It was anticipated that this staffing model would ensure the aircraft would be in-service 10 to 19 hours per day, five days per week and the helicopter could respond to 60% of in progress calls. It was believed the helicopter could arrive on a scene quickly, direct units efficiently or reduce the need for ground units. In the case of high-risk police response driving, the helicopter could convey real-time, accurate information that would enable responding units to reduce speeds, thereby lowering the potential risk of collisions and injury.

It was also believed that the helicopter would allow for an array of responses, not previously available to the WPS, that would increase the level of service and safety for the citizens of Winnipeg as well as the safety of WPS officers. This included the ability to search large areas with the use of the thermal imager and spotlight for lost individuals or suspects, river bank searches, observation platform for large events or emergencies, and tactical insertions of specialty units. Specifically, the original business case for the establishment of the FOU, approved by the City of Winnipeg, stated that the unit's objectives would be:

- Criminal escape management – vehicle/foot
- Resource management and force multiplication
- Criminal deterrence-proactive patrol
- Traffic enforcement (street racing/impaired drivers)
- Emergency operations platform
- Search for lost children/adults (e.g. Alzheimer's), river patrol, large rural areas
- Increased public safety
- Deployment of specialized resources (K9, Tactical Support, VIP escort)
- Crowd management/special event management
- Interagency use: WFPS major incident platform (Thermal Imager/30 million candle power spotlight, video downlink)
- Interagency use: outside law enforcement (Corrections, RCMP, and Municipal Forces).

The FOU is regulated and limited by all Federal aviation laws, rules and regulations established by Transport Canada and NAV CANADA. These rules and regulations dictate the conditions in which the helicopter is able to fly and when it cannot. Transport Canada regulates weather minima for the appropriate control zones/designated air spaces and air traffic control at the Winnipeg James Armstrong Richardson International Airport. Air traffic control provides permission for the helicopter to move across designated air spaces.

4.1.1 Approvals

The original recommendation to Winnipeg City Council was that the Council approve an amendment of the 2009 budget to include purchase of a fully-equipped Aerial Support Unit together with a hangar to house the unit. A maximum budget of $3.5 million was approved. It was also recommended that if a funding source was identified, Council would approve a program to fund annual operating expenses (estimated to be $1.3 million). Subsequently, the Province of Manitoba provided funding for the annual operating costs.

A decision was made to lease space at Canadian Forces Base 17 Wing and a staffing model was established to enable 1,000 flight hours per year.

4.2 Arrangements and Agreements

The following sections summarize the formal agreements the FOU currently has in place for maintenance, fuel, insurance, as well as office and hangar space.

4.2.1 Fuel

The FOU has had fuel contracts in place since December 2010 which have included:

- Initial fuel contract awarded to Central Aviation Services (Esso Avitat) from December 1, 2010 to July 31, 2011 for an estimated annual volume of 120,000 litres.
- Following this agreement, the WPS partnered with the Province in their aviation fuel contract (Imperial Oil) to achieve cost efficiencies. This agreement was from November 7, 2011 through September 30, 2013.
- Following expiration of this agreement the fuel service contract was awarded to Kelly Western Services Ltd. This agreement was from 2013 through September 30, 2015 and then extended to September 30, 2018 for 200,000 liters.

4.2.2 Insurance

Insurance for the FOU equipment is provided through the City of Winnipeg with the underwriter Catlin Canada Inc. Insurance coverage includes the helicopter, mission equipment and liability coverage.

4.2.3 Maintenance

As with all aerial equipment, a specified maintenance schedule must be maintained for the helicopter. The WPS has entered in contracts with Novex Helitrades Inc. and Safran Helicopter Engines (formerly Turomeca):

- Maintenance of the helicopter has been conducted by Novex Helitrades Incorporated, operating out of Edmonton, AB since 2011.

- Safran Helicopter Engines (Formerly Turomeca) has provided a support-by-hour service since 2011 to ensure the operation of the helicopter's engine regardless of any issue(s). Specifically, Safran Helicopter Engines repairs and maintains the H120 Turbomeca Arrius-2F engine, which needs to be completely re-hauled every 3,000 hours (approximately every three years) by the FOU.

4.2.4 Hangar Space

The hangar and office space utilized to house the FOU is leased from the Department of National Defense and is located at CFB 17 Wing Winnipeg.

4.3 Equipment

AIR1 is an H120, five-seat, 1.6-ton single engine helicopter that travels at 200 kilometres per hour at 1,000 feet above ground level. Due to the design of the helicopter's rotors, the H120 emits a 68 decibel (dB) noise level compared to 72 dB of a typical car and 73 dB for a typical motorcycle. Based on the WPS operational needs of the H120, the following pieces of equipment were added to the H120:

Table 5: H120 Equipment

Equipment	Details
Infrared Camera	A gyroscopically stabilized camera with zoom as well as thermal imagery that allows AIR1 to track people or evidence by their heat signatures.
Spotlight	A 30 million candle power light that can be utilized for effective searches at night.
Public Address System	A loudspeaker that enables the tactical flight officer to address individuals or large groups of people on the ground.
Video Downlink	Enables the transmission of a live aerial video feed(s) to the WPS or WFPS.
Police Radios	Allows for communications with all agencies and frequencies.
Moving Maps	GPS-based moving map that allows the on-board tactical flight officers to provide accurate, real-time directions to ground units from all agencies working with AIR1.
Dual Controls	Allows for on-board flight training.
Rear View Monitor (On-Board)	Enables individuals in the rear of the helicopter to see exactly what the tactical flight officer sees that is utilized for training and strategic ride-a-longs.

**In 2016, the FOU installed a new infrared camera.*

4.4 Organizational Structure

The *FOU Standard Operating Guidelines* depicts the organizational structure for the FOU and outlines the general duties of each position within the FOU[15].

The FOU was originally approved for 10 positions:

- One (1) unit supervisor (sworn police officer)
- One (1) chief pilot (permanent civilian employee)
- Three (3) pilots (2 civilian, 1 sworn police officer)
- Four (4) tactical flight officers (sworn police officers)
- One (1) aircraft maintenance engineer

Currently there is one less civilian employee and aircraft maintenance is delivered through a service contract.

4.4.1 Roles and Responsibilities

Unit Supervisor

The unit supervisor is responsible for the management and supervision of policy development and implementation, budgets, staff and general operations to ensure safe, effective deployment of resources. The unit supervisor ensures a cohesive team approach, working collaboratively to provide support to uniform operations and speciality units. The unit supervisor is also trained as a tactical flight officer and will respond with the chief pilot to incidents that occur outside of normal operational hours.

Chief Pilot

The chief pilot is responsible for overseeing the active line pilots regarding safe flight operations, flying skills, operational police flying, ongoing training, re-currency and equipment. This position ensures pilot proficiency, develops training standards and researches proposed new operational uses of the aircraft. The chief pilot mentors potential future pilots and acts as a resource to existing pilots and flight crew.

The chief pilot also acts as a line pilot and is responsible for the safe operation of the helicopter during all phases of flight.

Line Pilots

Line pilots are responsible for the safe operation of the helicopter during all phases of flight. Prior to flight, the line pilot obtains weather briefings and ensures that the aircraft is safe and able to perform the required mission. Air Traffic Control communications, weather conditions and operational parameters are continually monitored by the line pilot to ensure optimum flight safety. Where workload permits and it is safe to do so, the line pilot may assist the tactical flight officer with geographic locations, containment and tactics, operation of the searchlight and communications with WPS.

Tactical Flight Officers

Tactical flight officers (TFO) are responsible for utilizing the helicopter platform and the specialized equipment to assist police officers on the ground by providing timely information and intelligence. The TFO also assists with management of pursuits, assists in coordinating tactics on the ground, searches for suspects/victims and analyzes thermal imager information to assist in drug investigations.

4.5 Service Delivery Model

4.5.1 Service Types

There are four (4) primary drivers of AIR1 activity:

- Proactive scanning and patrolling
- Communication Centre dispatch
- Direct requests to the tactical flight officer or inspector
- Planned events

It is important to note that the Flight Operations Unit members consider the focus of AIR1 as an "involvement" resolution and not necessarily a "call" resolution. In other words, they are not there, and do not have the ability to resolve calls for service. This perception of mandate is important and, if agreed upon, should inform how their performance is measured.

It is important to note that the Flight Operations Unit members consider the focus of AIR1 as an "involvement" resolution and not necessarily a "call" resolution.

4.5.1.1 Patrol

The WPS FOU operates on a general patrol shift schedule aligned with that of the other WPS units. This allows the unit to be in the air and available to attend calls for service over a given shift schedule. The general patrol shift schedule is different from a response model, where a unit could be called out to an incident, on an as-needed basis. The patrol model allows the FOU to provide rapid response to calls for service during peak hours. The FOU is budgeted for 1,000 flight hours per year and all scheduled patrols are for evening and over night. The FOU can also be called out to an incident when not scheduled for patrol, but the response times for these calls is longer then when it is actively on duty.

When not assigned to calls for service, the FOU is scanning the WPS calls for service queue as well as viewing the ground for public safety related incidents. Further information related to how the FOU is deployed and responds to calls for service is provided in Section 5.2.3 Decision-Making Structure.

4.5.1.2 Response

The helicopter responds to calls for support from Communications Centre dispatchers or direct requests from officers. More detail about these responses is provided in subsequent sections.

Major Incident Support

The FOU has played a critical role in a number of major incidents since 2011. The FOU is able to provide an aerial perspective and search large areas that are hard to search by foot or with ground vehicles, both of which take a much larger number of resources and time. FOU participation can be critical in:

- Locating individuals either into custody or individuals who may have been in distress;
- Locating key evidence, which could significantly reduce the amount of investigation and search time that could result in never finding evidence, or providing aerial intel for a major incident such as a fire;
- Providing access to the Downlink technology (WFPS) which allows them to have live video access to the aerial intelligence the FOU can provide. This can be critical in supporting and even directing their response to the fire; and
- Supporting redirection and monitoring of traffic.

Overall, they assist in identifying long-term impacts of changing variables in these scenarios.

4.6 Annual Flight Hours and Operational Limitations

Since 2011, the Flight Operations Unit has budgeted for and has intended to operate the helicopter for 1,000 in-flight hours annually. Between 2011 and 2017 the FOU has averaged 933 flight hours per year and 78 hours per month (Figure 12 and Figure 13).[16 17 18 19 20 21 22]

Figure 12: Total FOU Annual Flight Hours between 2011 and 2017 Including a Seven-Year Average

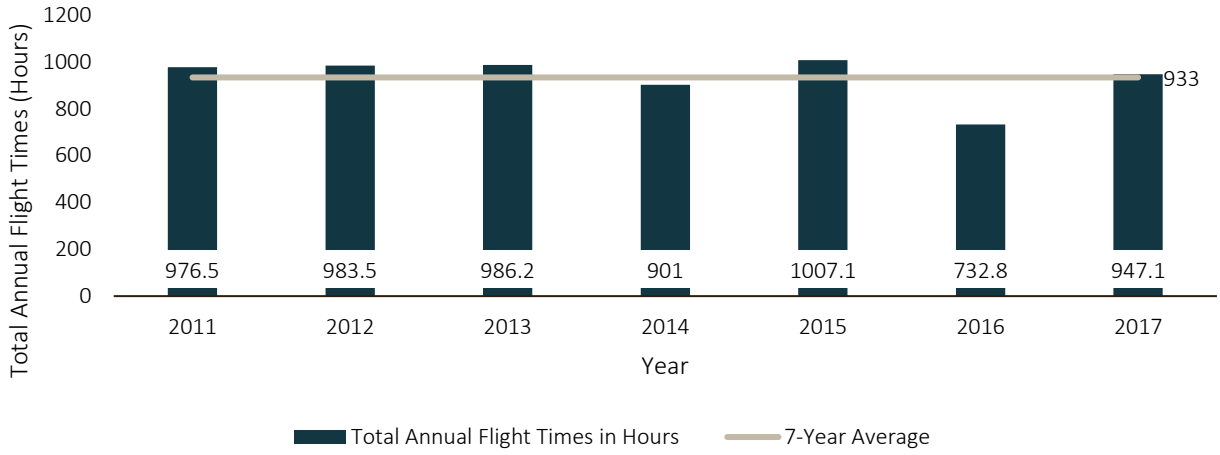
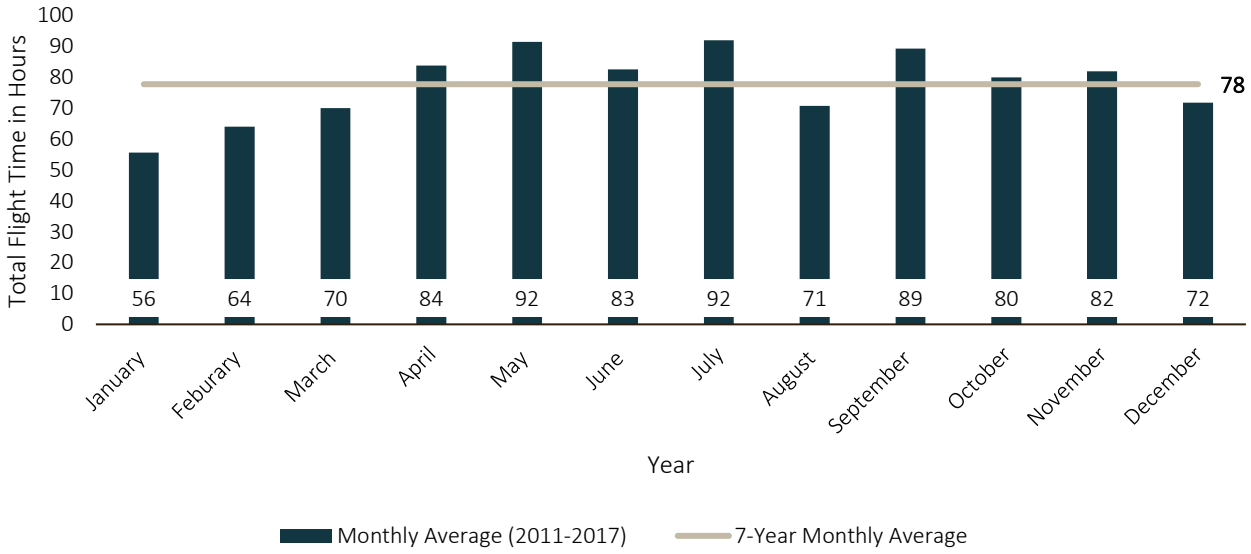


Figure 13: Average Monthly Flight Hours Between 2011 and 2017 Including a Seven-Year Monthly Average



Based on the FOU Annual Reports, the three reasons that the helicopter is not operational are:

1. Scheduled and unscheduled maintenance of helicopter and/or associated equipment
2. Weather conditions
3. Staffing

When considering the availability of a tool, you must assess its availability in the context of the complete operations of the Winnipeg Police Service. The Winnipeg Police Service operates twenty-four (24) hours per day, 365 days per year. Out of a total of 2,526 calendar days between 2011 and 2017 (less 31 days for the month of January in 2011 that the helicopter was not operational), the helicopter was 'grounded' for a total of 884.5 days (Table 6). Specifically, AIR1 was grounded:

- 462 days to scheduled and unscheduled maintenance
- 327.5 days due to weather
- 95 days due to staffing

Table 6: Annual Flight Days Lost to Maintenance, Weather and Staffing Between 2011 and 2017

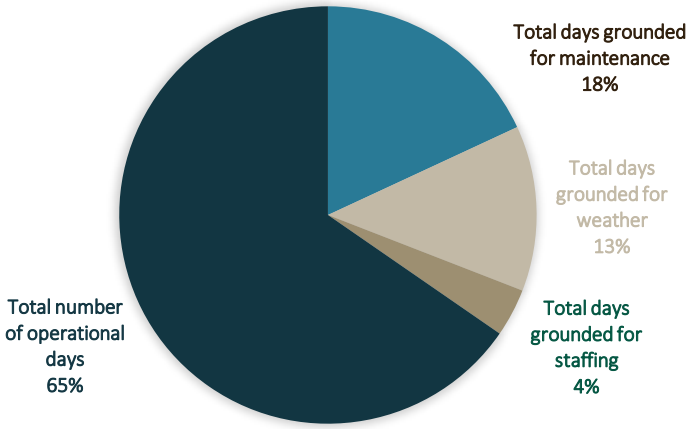
Lost Flying Days	2011	2012	2013	2014	2015	2016	2017	Total	Average
Maintenance	27	61	61	72	59	104	78	**462**	**66**
Weather	18	25	32.5	56.5	71.5	64.5	59.5	**327.5**	**47**
Staffing	DNA*	28	20	25	7	0	15	**95**	**16**
Total days grounded	**45**	**114**	**113.5**	**153.5**	**137.5**	**168.5**	**152.5**	**884.5**	
Operational Days	**289****	**251**	**251.5**	**211.5**	**227.5**	**196.5**	**212.5**	**1,639.5**	

**DNA- Data not available - Lost flying days due to staffing were not recorded by the WPS until 2012.*
***The 2011 total excludes January, as the FOU crews operated in a training mode.*

**In addition to this data not being available, the operational days were impacted because the FOU was not operational until February 2011 (minus 31 days)*

Figure 14 to the right shows that the helicopter was operational for sixty-five (65) per cent of the total calendar days between 2011 and 2017. However, it should be noted that the helicopter cannot be operational one hundred (100) per cent of the time due to the required maintenance (every 100 hours and 1,000 hours, as per equipment maintenance schedules) and weather patterns that are not always conducive for patrols. These results provide an insight into the operational availability of the helicopter since 2011.

Figure 14: Total Operational vs. Non-Operational Days Between 2011 and 2017



5 FINDINGS

The review methodology was designed to answer questions related to:

- Relevance/Need
- Efficiency
- Performance/Effectiveness

The following section outlines MNP's findings in these three areas.

5.1 Relevance / Need

The findings in this section address the extent to which the operational activities of the FOU are relevant and/or needed by the communities that it services, the operations of the WPS and other law enforcement and emergency responder agencies.

5.1.1 Alignment of FOU Mandate to WPS Objectives

MNP reviewed documentation and asked questions as part of stakeholder interviews about the mandate of the FOU. Having a common understanding of "what you exist to do and for whom" is extremely important. As the Flight Operations Unit is considered a support unit within the WPS, the overarching goals of the WPS must be considered. The following are the organizational goals of the WPS:[23]

Table 7: 2015-2019 Organizational Goals of the WPS

1. Less Crime and Victimization	2. Engaged Communities	3. Effective and Efficient Service	4. Healthy Organization
a) Strengthen pro-active policing through the Smart Policing Initiative. b) Continue to focus resources toward a downtown safety strategy. c) Continue efforts to suppress gang activity and recruitment. d) Increase the use of restorative justice and diversion programming. e) Focus efforts to improve traffic safety through enforcement and education.	a) Lead collective action to prevent crime through social development. b) Work with our partners to protect vulnerable persons. c) Enhance communication, transparency and accountability. d) Enhance community relationships. e) Continue to build a service that knows and reflects the communities it serves.	a) Ensure the right people are in the right jobs in the right number. b) Implement innovative technologies. c) Instill a culture of continuous improvement. d) Collaborate to reduce the demand for non-core policing activities.	a) Enhance training and professionalism in the Service. b) Enhance employee safety, health and wellness.

Daily operations of the FOU are focused on supporting the WPS goals of less crime and victimization. According to the City of Winnipeg website, the mandate of the FOU is to "support all operational and investigative Service units in the detection of criminal acts and the apprehension of suspects". It also says the police helicopter is used to provide assistance to WPS units/members with a variety of tasks including: aerial containment and investigation,

infrared search, illumination, aerial photography or video of different situations, aid for other emergency services agencies, and rapid deployment of Canine Unit members.

Interview respondents from the FOU and WPS executive and management provided similar feedback including:

- Ensuring public and officer safety (10 respondents)
- Assisting ground units in apprehension (13 respondents)
- Providing aerial intelligence (10 respondents)
- Tracking individuals and vehicles (6 respondents)
- Keeping "eyes" on suspects during pursuits (8 respondents)
- Acting as a force multiplier (13 respondents)

Furthermore, the FOU is perceived by WPS members to support the WPS goal of being an effective and efficient service. With regard to improving efficiency, the FOU is perceived by WPS members to reduce the amount of time spent conducting searches when assisting ground units on particular calls for service (for example missing person(s); pursuing individuals and vehicles fleeing the scene of a crime; and/or retrieving evidence that was discarded during a pursuit). Furthermore, the FOU is perceived by WPS members, to improve the effectiveness of the WPS by coordinating ground units responding to incidents in the city, providing video evidence for criminal court proceedings, and increasing the likelihood of apprehensions.

The mandate of the FOU is aligned to the Winnipeg Police Service goals and objectives.

The stated mandate of the FOU is aligned to the WPS goals and objectives; specifically, less crime and victimization and effective and efficient service. The performance measurement system should reflect measures related to this mandate.

5.1.2 Demand for the Helicopter

One of the best ways of determining the need (or demand) for the helicopter is to track the total number of requests for the use of AIR1, including incidents where the helicopter was unable to attend. The WPS records all calls for service using the Computer Aided Dispatch (CAD) system, including when AIR1 is dispatched and when the call for service is cancelled or AIR1 is pre-empted. While the Service is able to produce data regarding requests for FOU when AIR1 is requested but not used, such data is not consistently recorded for all events.

Seventy (70) per cent of sworn officers who responded to the online survey have been involved in at least one call for service where AIR1 provided support to ground units. Members were asked in the online survey to consider all of the requests for support they have made since January 2017. As a result, a high percentage, ninety-four (94) per cent of sworn officer survey respondents either received support on most of the requests made (30%) or some of the requests (53%) made; while, eleven (11) per cent received support on all requests made. Although these results cannot be generalized to the rest of the service based on the sampling methodology of the WPS member survey, the results suggest that the majority of WPS service members are aware of the FOU and request support by the Unit.

Figure 15: Support Received on Requests Made Since January 2017

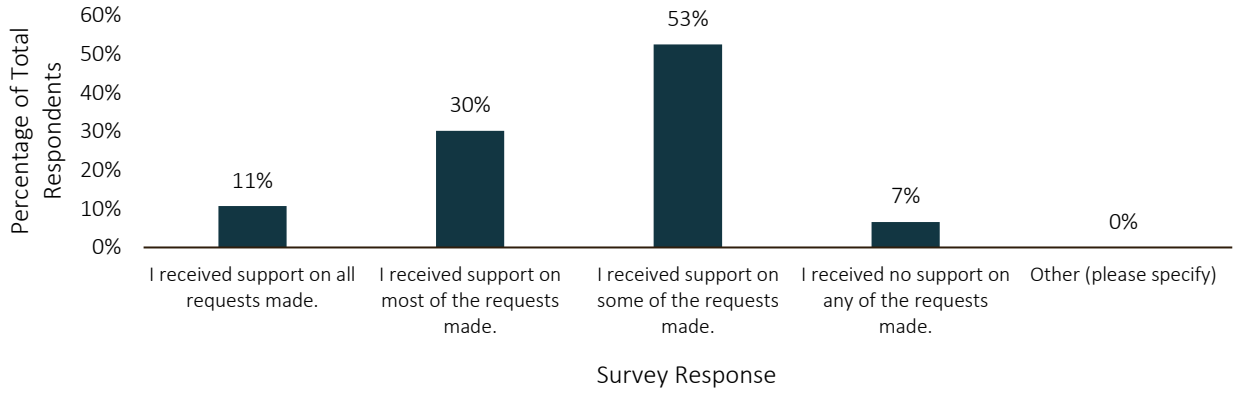
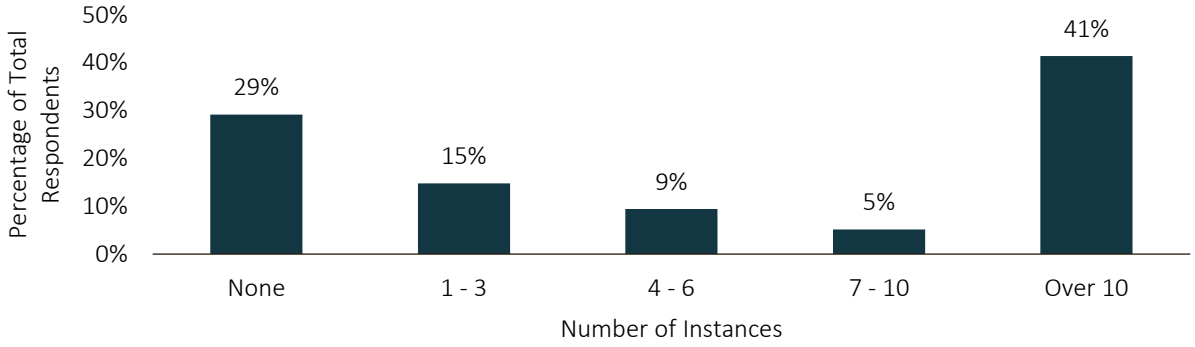


Figure 16: Number of Instances WPS Survey Respondents Were On a Call for Service Where the Police Helicopter Was Involved Since January 2017



MNP interviewed a supervisor in the Communications Centre and one of our consultants spent one shift observing in the Communications Centre. As will be detailed in subsequent sections, requests for the helicopter may come directly from a police officer, the dispatcher and/or supervisory and duty officers. The tactical flight officers may identify a situation where they could assist.

In the Communications Centre, the dispatchers and duty officer know when the helicopter is not in the air or available for dispatch to events. The dispatchers may record in the notes section of the CAD system if AIR1 was requested but not available. However, it was stated that, the documentation of these notes is dependent on the individual dispatcher and the volume of calls at the time. Quantification of demand that could not be met, would require a search and analysis of all notes. It should be noted that it is the opinion of the Communications Centre Supervisor that "we could utilize two helicopters, twenty-four seven (24/7) to respond to the volume of calls".

Dispatchers, duty officers and uniform officers have a general understanding of when AIR1 is operational. They may not request its use if they know it is not scheduled to fly. The most accurate analysis would be a combination of calls for service where AIR1 was able to respond, calls for service where AIR1 was requested but was unable to respond and situations where it was appropriate for AIR1 to be used but it was unavailable.

Winnipeg Police Service Analysis

The Winnipeg Police Service conducted an analysis of demand for the 2017 calendar year based on comments recorded in the CAD system.

Demand by Day

Of the 292 days that AIR1 was in flight, 15.62% of expressed demand over dispatch was not met. These requests were often operationally required such as those involving pursuit.

Of the 73 days that AIR1 was not in service, 15 (4.11%) had expressed requests for service that were not met

Requests for service from within the WPS could only be accounted for if they were issued through text communication. As such, any requests issued verbally over cellular or broadcast, could not be captured. Unless a typed phrase such as "Can AIR1 assist?" is issued through the CAD system, then the request will not be visible to the system.

Most requests for AIR1 are made verbally and none of those are searchable in the database.

The duty officer is made aware of situations where AIR1 was not available. This is the case for scheduled and unscheduled maintenance occurring through an evening shift when requests for service would be expressed. Because of this, a figure cannot be generated for unmet demand in those circumstances.

Figure 17: Summary of FOU Availability by Day (2017)

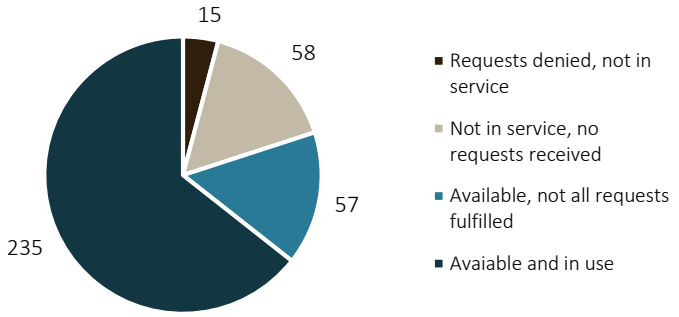
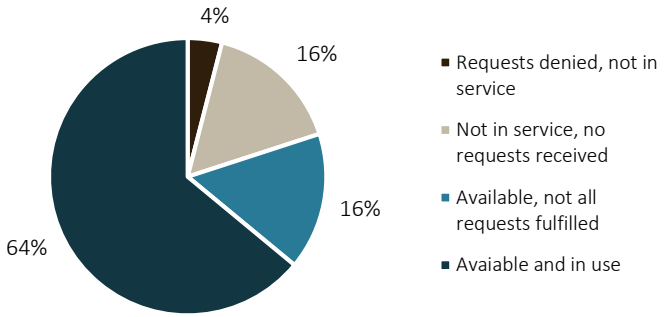


Figure 18: Percent FOU Availability by Day (2017)

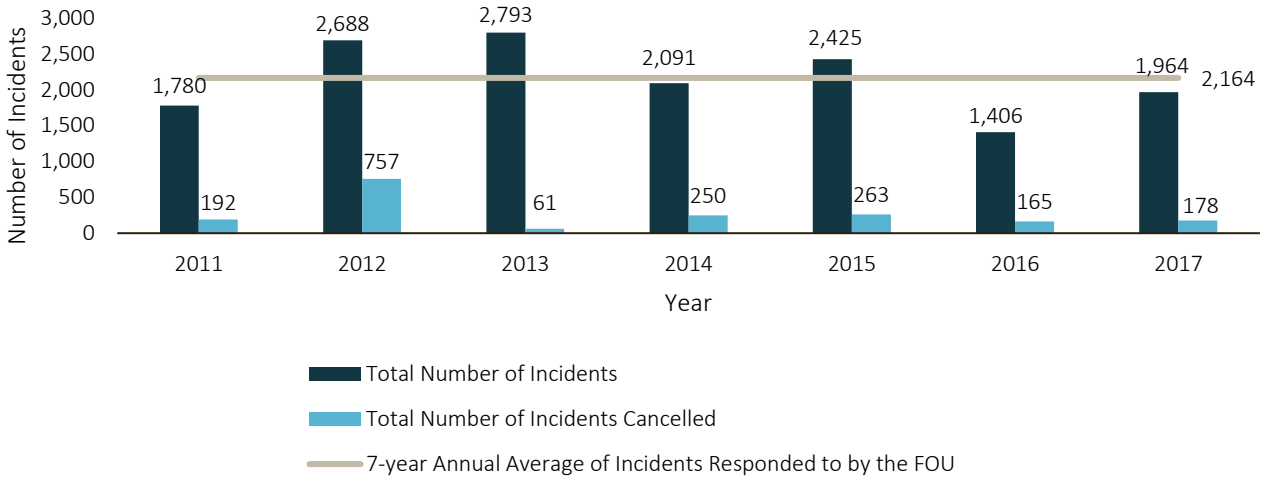


5.1.2.1 Incident Responses

Since 2011, the FOU has prepared and publicly released an FOU Annual Report which includes the total number and types of incidents responded to by the Unit. The annual reports reflect the most accurate operational data regarding the FOU and consequently have been utilized as the basis for the historical operational analysis of the FOU. However, while conducting the historical analysis of the incidents responded to by the FOU, there were discrepancies in the data. Specifically, the total number of incidents responded to in 2011 does not reconcile with the total number of incidents by call type for that year. One explanation for the discrepancy is that the call for service data by call type includes calls that were cancelled and not attended by the FOU. However, fewer calls for service were recorded by call type when compared to total incidents responded to by the FOU for 2011. *As a result, to ensure consistency throughout this report, only the total number of incidents per year that were responded to by the FOU and recorded by the WPS CAD system have been utilized as opposed to the total number of incidents by call type.*

Between 2011 and 2017, the annual average number of incidents responded to by the FOU was 2,164 (Figure 19). Its highest number of responses occurred in 2013. During this same year, the FOU experienced the lowest number of cancelled incidents.

Figure 19: Total Annual Incidents Responded to by FOU Between 2011 and 2017 Including a Seven-Year Average



Below, Figure 20 depicts the total number of dispatched events by the WPS annually and the proportion of the dispatched events where the FOU responded. On average, the FOU responded to approximately 1.1% of the total WPS dispatched events from 2011 to 2017.

Note: *this data does not discriminate between types of incident responses. There may be many incidents that are not appropriate for AIR1 response.*

Figure 20: Total Annual Number of Incidents Responded to by the WPS and FOU Between 2011 and 2017

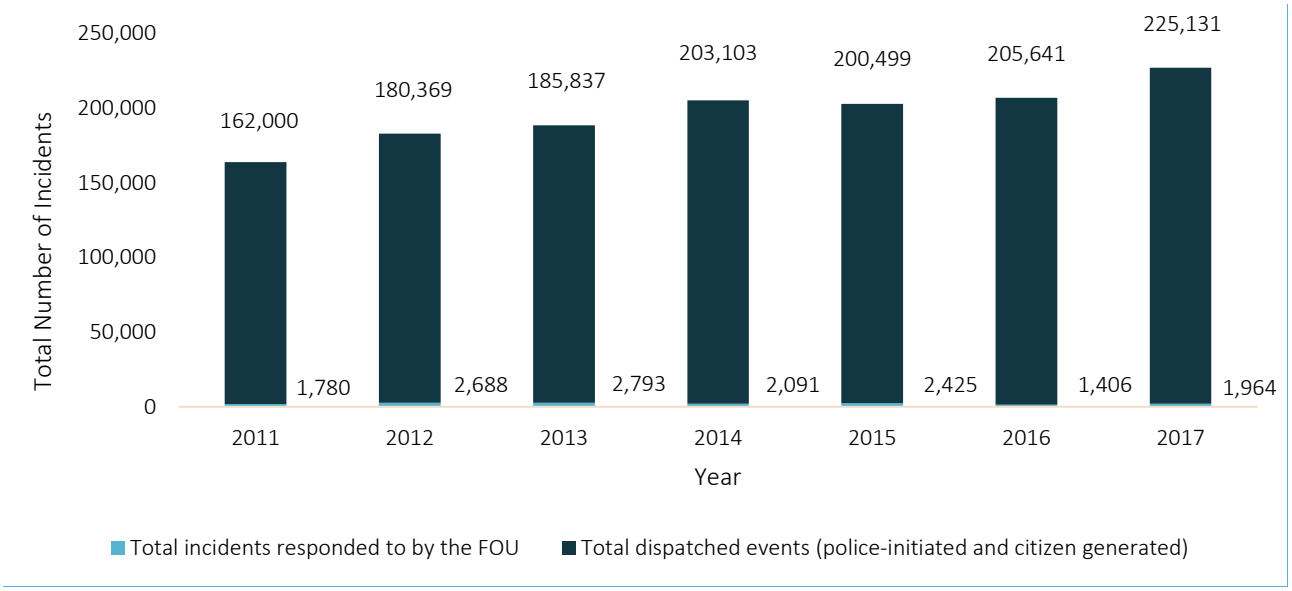


Table 8 depicts the total incidents responded to on a monthly basis between February 2011 and December 2017. July has the highest average number of incidents (232), followed closely by May (223) and September (227).

Table 8: Total Incidents Responded to by the FOU Per Month Between 2011 and 2017

Incident Type	2011	2012	2013	2014	2015	2016	2017	Total	Average per month
January	*Not Operational*	129	122	100	143	157	46	697	116.17
February	121	96	204	105	143	109	136	914	130.57
March	81	63	278	138	156	145	188	1,049	149.86
April	183	125	289	240	262	86	231	1,416	202.29
May	199	268	320	216	260	125	203	1,591	227.29
June	215	258	164	146	234	149	173	1,339	191.29
July	53	413	266	243	215	194	242	1,626	232.29
August	207	310	269	174	231	0	37	1,228	175.43
September	184	357	259	216	237	133	176	1,562	223.14
October	198	160	190	205	232	124	184	1,293	184.71
November	188	232	212	203	141	170	160	1,306	186.57
December	151	277	220	105	171	14	188	1,126	160.86
Total Incidents Attended	**1,780**	**2,688**	**2,793**	**2,091**	**2,425**	**1,406**	**1,964**	**15,147**	
Average Incidents per Month	*161.82*	*224.00*	*232.75*	*174.25*	*202.08*	*117.17*	*163.67*	*182.25*	

Between 2011 and 2017 the FOU has responded to 83 distinct incident types, as summarized in Table 9.

Table 9: Annual Call Responses of FOU by Incident Type Between 2011 and 2017

Incident Type	2011	2012	2013	2014	2015	2016	2017	Total
Suspicious Person	135	240	275	192	200	118	162	1,322
Domestic Disturbance	71	219	283	202	176	109	145	1,205
Traffic Stop	109	158	119	198	236	205	175	1,200
Wellbeing	52	174	171	169	238	141	190	1,135
Break and Enter (residential, commercial, other)	189	192	136	117	146	98	167	1,045
Alarm (burglar, distress, holdup, residential, local)	84	138	139	129	123	85	94	792
Assault	92	147	126	116	106	72	85	744
Disturbance	63	147	176	122	105	45	65	723
Fight	57	128	122	79	99	40	51	576
Gun (known and seen)	95	87	52	62	75	72	100	543
Traffic Complaints	63	66	100	72	53	24	58	436
Weapon	62	69	50	50	63	46	65	405
Shots Fired	87	77	58	50	43	36	48	399
Robbery Person	70	75	65	47	41	36	52	386
Suicide Threat	23	54	56	43	62	37	76	351

Incident Type	2011	2012	2013	2014	2015	2016	2017	Total
Family Trouble	24	53	72	67	50	28	37	331
Robbery Commercial	64	60	52	29	42	24	58	329
Dangerous Situation	26	42	45	37	55	29	49	283
Stabbing Reported	41	40	44	36	42	24	41	268
Impaired Driving	35	50	81	30	25	18	23	262
Damage	34	60	50	32	27	17	28	248
Motor Vehicle Collision	28	38	68	28	30	29	24	245
Follow	21	25	19	18	36	36	52	207
Assault with a Weapon	30	40	37	32	32	17	19	207
Fire	46	37	31	31	22	10	16	193
Stolen Vehicle	18	15	25	25	19	11	23	136
Assistance Required	6	17	32	30	13	11	24	133
Threat Reported	16	22	28	20	19	12	11	128
Theft	14	27	27	18	12	13	11	122
Breach	7	9	39	26	7	2	20	110
Missing Person Assist	11	15	13	14	20	15	19	107
IPDA	0	2	48	36	0	2	18	106
Medical Call	7	11	16	16	19	10	9	88
Warrant	8	5	32	0	14	7	20	86
Traffic Pursuit	2	7	9	9	20	12	20	79
Dispute	6	8	30	10	9	6	3	72
Child Safety	7	10	9	14	10	8	9	67
Special Attention	9	12	26	7	20	0	1	75
Subject Stop	0	17	4	14	11	14	2	62
Warrant Execution	6	16	9	21	2	1	3	58
Prowler	9	13	9	7	10	3	3	54
Subject Pursuit	0	0	8	8	9	4	11	40
Sexual Assault	3	12	9	7	13	4	4	52
Officer	4	12	5	3	2	5	5	36
Gunshot Wound	9	7	5	4	8	1	0	34
SPI Hotspot	0	0	2	8	12	5	5	32
Vice	2	2	9	13	2	0	4	32
Stolen Vehicle Located	3	3	1	6	3	3	12	31
911 Hang-up	1	9	4	4	1	0	2	21
Insecure Premises	3	3	5	2	3	1	2	19
Noise	2	2	2	4	2	4	0	16
Animal	0	4	4	1	4	4	2	19
Serve	0	0	0	0	13	1	0	14
Mental Health Act	0	0	3	4	1	1	2	11
Shoplifting	1	1	1	2	1	3	2	11

Incident Type	2011	2012	2013	2014	2015	2016	2017	Total
SPI Subject	0	0	2	2	5	1	1	11
Investigation	4	5	0	0	0	0	0	9
Abduction	0	3	1	0	0	1	3	8
Bomb Threat	0	0	1	1	3	2	1	8
Graffiti	2	1	1	1	1	1	1	8
Special	0	0	0	0	3	2	2	7
Deter/ID Sex-Trade	0	0	0	6	0	0	1	7
Indecent Act	0	0	0	1	2	2	1	6
Special Event	0	0	0	4	0	0	0	4
Training	1	0	3	0	0	0	0	4
Fraud	0	0	0	2	0	1	0	3
SPI Com	0	0	0	0	2	1	0	3
Panhandler	0	0	2	0	1	0	0	3
Escort	1	0	1	1	0	0	0	3
Sexual Abuse	0	0	0	0	0	0	2	2
Physical Abuse of a Child	0	0	1	0	1	0	0	2
Sudden Death	0	0	0	1	1	0	0	2
Assault - AIR1 Lasered	2	0	0	0	0	0	0	2
Narcotic	2	0	0	0	0	0	0	2
Bill 40	0	0	0	0	0	0	1	1
Lights	0	0	0	0	0	0	1	1
Warrant Enquiry	0	0	0	0	0	0	1	1
Community Engagement	0	0	0	0	0	1	0	1
Stalking	0	0	0	1	0	0	0	1
Convey	0	0	1	0	0	0	0	1
Infrared Camera Required	0	1	0	0	0	0	0	1
Spot Check	0	1	0	0	0	0	0	1
Special Duty	1	0	0	0	0	0	0	1
TOTAL	1,768	2,688	2,854	2,341	2,425	1,571	2,142	15,789

Based on the data presented in Table 9, the five most responded to calls by incident types between 2011 and 2017 were:

Table 10: Top Five Call Types Responded to by the FOU Between 2011 and 2017

Call Type	Total Number of Incidents Responded to between 2011 and 2017
Suspicious Person	1,322
Domestic Disturbance	1,205
Traffic Stop	1,200
Wellbeing	1,135
Break and Enter (including residential, commercial, and other)	1,045

These five call types represent thirty- nine (39) per cent of total calls that the FOU has responded to between 2011 and 2017; while, the top ten call types represent approximately fifty-nine (59) per cent of the total calls responded to between 2011 and 2017. Furthermore, the top ten call types responded to by the FOU are generally aligned to the FOU objectives outlined within the FOU Annual Reports that include the following:

- Response to crimes in progress for aerial containment and investigation;
- Infrared searches for suspects and evidence, and coordination of ground response;
- Tracking and surveillance of suspect vehicles during police pursuits and subsequent coordination of ground resources;
- Illumination of crime scenes, collision scenes, vehicle stops, search areas, disturbances, and foot pursuits;
- Aerial searches for missing or lost persons;
- Aerial reconnaissance and photography or videotaping of crime scenes, traffic collisions, high-risk incidents or remote areas;
- Aerial platform for Emergency Services for major fires, environmental disasters, or other major incidents;
- Infrared camera scans to provide evidence of illegal grow operations relating to drug investigations; and
- Rapid deployment of Canine Unit members to remote locations under exigent circumstances.

5.1.3 Public Understanding and Awareness of the Police Helicopter

Evaluating relevance or need in a community requires an understanding of general public awareness of the service or tool. Ninety-nine (99) per cent of the public online respondents and ninety-two (92) per cent of the telephone survey respondents expressed awareness that the WPS was operating a helicopter. This is a very high level of public awareness.

Figure 21: Public Online Survey Respondents' Awareness that the WPS was Operating a Helicopter

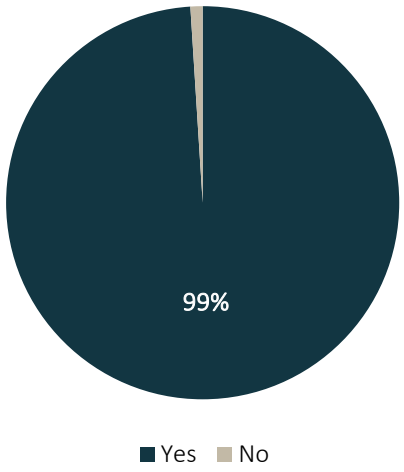


Figure 22: Public Telephone Survey Respondents' Awareness that the WPS was Operating a Helicopter

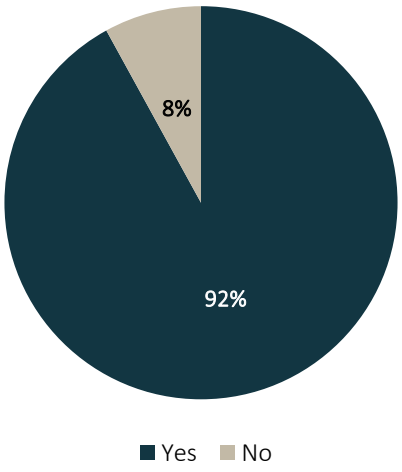
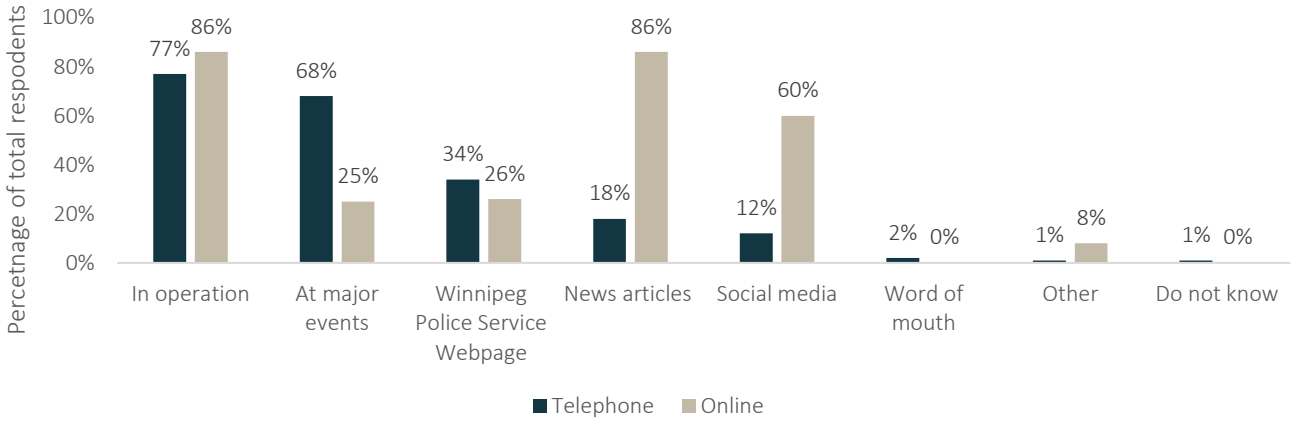


Figure 23 shows the percentage by source of knowledge of public survey respondents, for both online and telephone participants, that have seen or heard about AIR1 and the FOU.

Figure 23: Public Source of Knowledge about AIR1 and the FOU



Impacts of Police Helicopter

The majority of both online and telephone public opinion survey respondents agree (responding as either agree and strongly agree) that the helicopter provides a 'sense of security and safety' and 'helped with neighborhood policing' (Figure 24 and Figure 25). Specifically, fifty-six (56) per cent of online respondents agreed that the police helicopter helped with neighbourhood policing; while, fifty-six (56) per cent agreed that the police helicopter improved their sense of security and safety. Sixty-five (65) per cent of telephone survey respondents agreed that the helicopter helped with neighborhood policing; while seventy-three (73) per cent of telephone survey respondents agreed that the police helicopter improved their sense of security and safety.

Figure 24: Online Survey Respondents on the Potential Impacts of the Police Helicopter

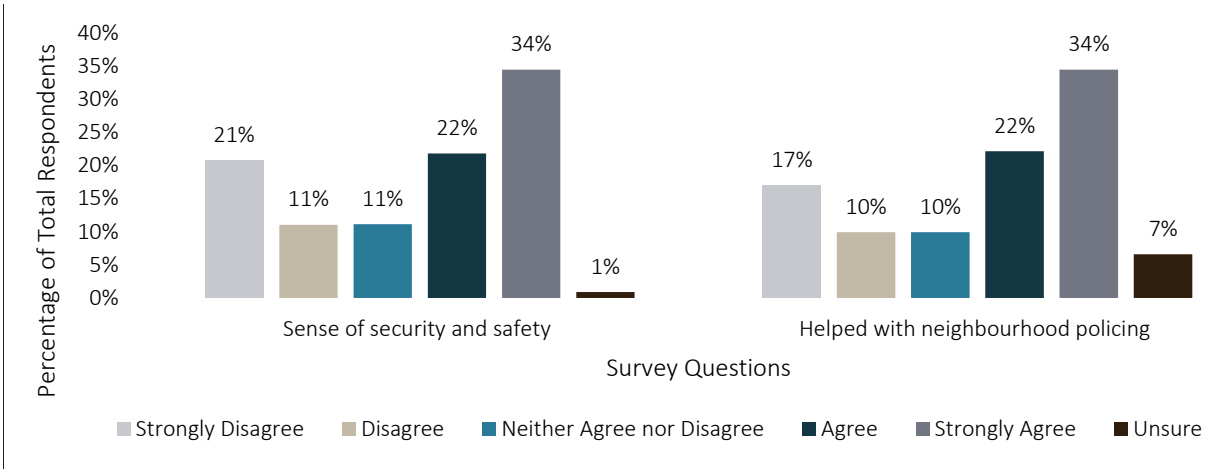
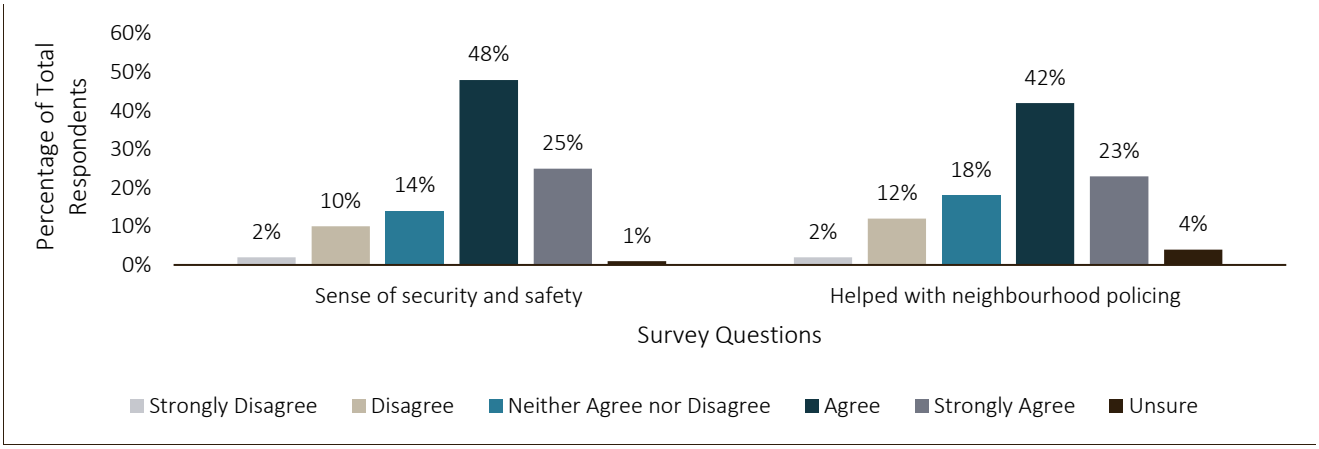


Figure 25: Telephone Survey Respondents on the Potential Impacts of the Police Helicopter



Figures 26 and 27 summarize the survey respondents' opinions on disturbances from noise, light and overall sense of concern when the helicopter is in the area. Thirty-one (31) per cent and twenty-one (21) per cent of online respondents 'agree' or 'strongly agree' that they were disturbed by the noise and light of the police helicopter respectively (Figure 26). Six (6) per cent and thirteen (13) per cent of telephone respondents either 'agree' or 'strongly agree' that they were disturbed by the noise and light of the police helicopter respectively (Figure 27). Finally, thirty-three (33) per cent of online respondents and twenty-one (21) per cent of telephone respondents either 'agreed' or 'strongly agreed' that the police helicopter causes concern when in the area.

Figure 26: Online Survey Respondents on the Potential Impacts of the Police Helicopter

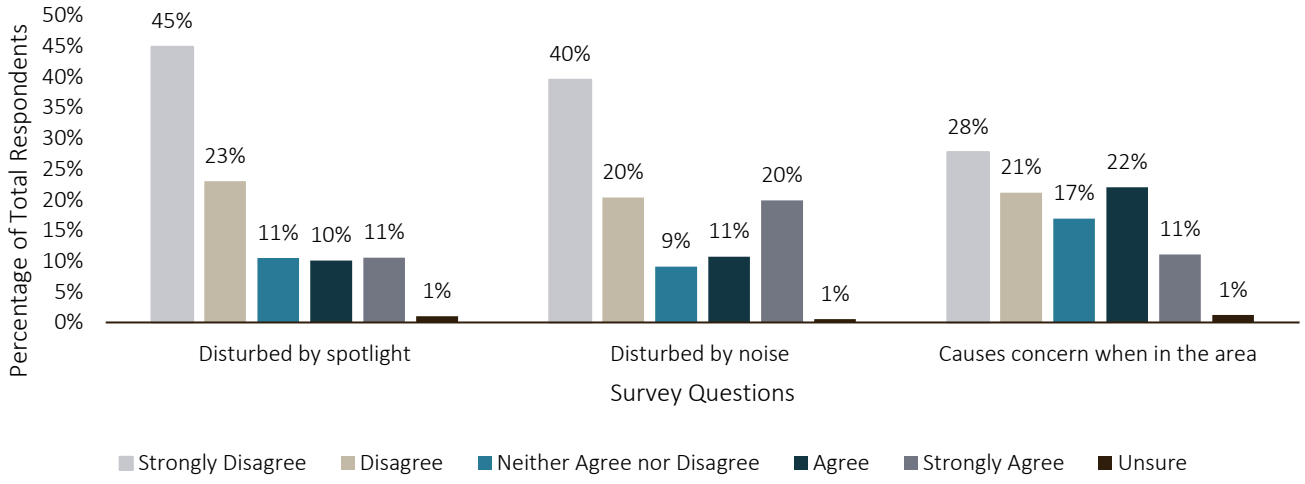
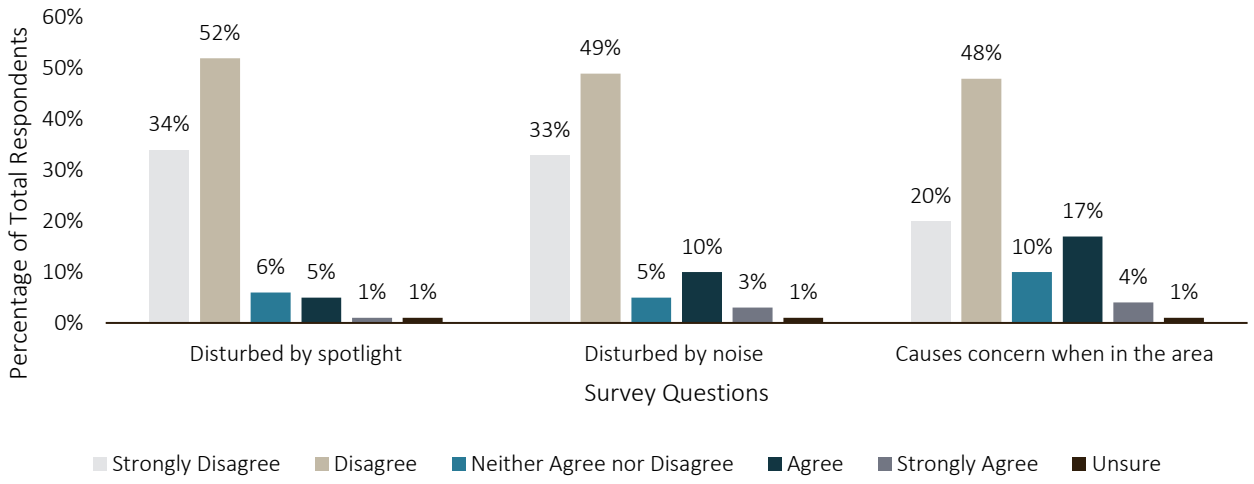


Figure 27: Telephone Survey Respondents on the Potential Impacts of the Police Helicopter



5.1.3.1 Noise Complaints

In their Annual Reports, the FOU reports on all noise complaints they receive. The number of complaints has significantly decreased since 2011. The Unit Supervisor is aware of all complaints received by WPS and someone from the unit addresses all the noise complaints by contacting the individual to discuss the complaint. It is reported that generally, the complainants have been satisfied with the explanations provided by the FOU. The FOU has received an average of 6.4 noise complaints annually for the last seven years but the first two years of operation had significantly more complaints than the last five years. In the last five years, there have been five or less complaints per year.

Table 11: Annual Number of Noise Complaints Between 2011 and 2017

	2011	2012	2013	2014	2015	2016	2017	Average
Total Complaints	20	10	4	3	5*	1**	4	6.4^
Total Individuals	17	N/A	N/A	N/A	N/A	N/A	2	

**One occurred while AIR1 was not in the air flying*

*** Also occurred while AIR1 was not flying*

^ Those that occurred while AIR1 was determined to not be flying have been removed in the average calculation

5.1.4 Public Opinion of Mandate and Need

Seventy (70) per cent of online respondents and ninety-two (92) per cent of telephone respondents 'agreed' or 'strongly agreed' that use of the helicopter provides a safer option for vehicle pursuits. Fifty-five (55) per cent of online respondents and eighty-four (84) per cent of telephone respondents 'agreed' or 'strongly agreed' that it increases officer safety.

Figure 28: Online Survey Respondents' Opinion of the WPS Helicopter Mandate and Need

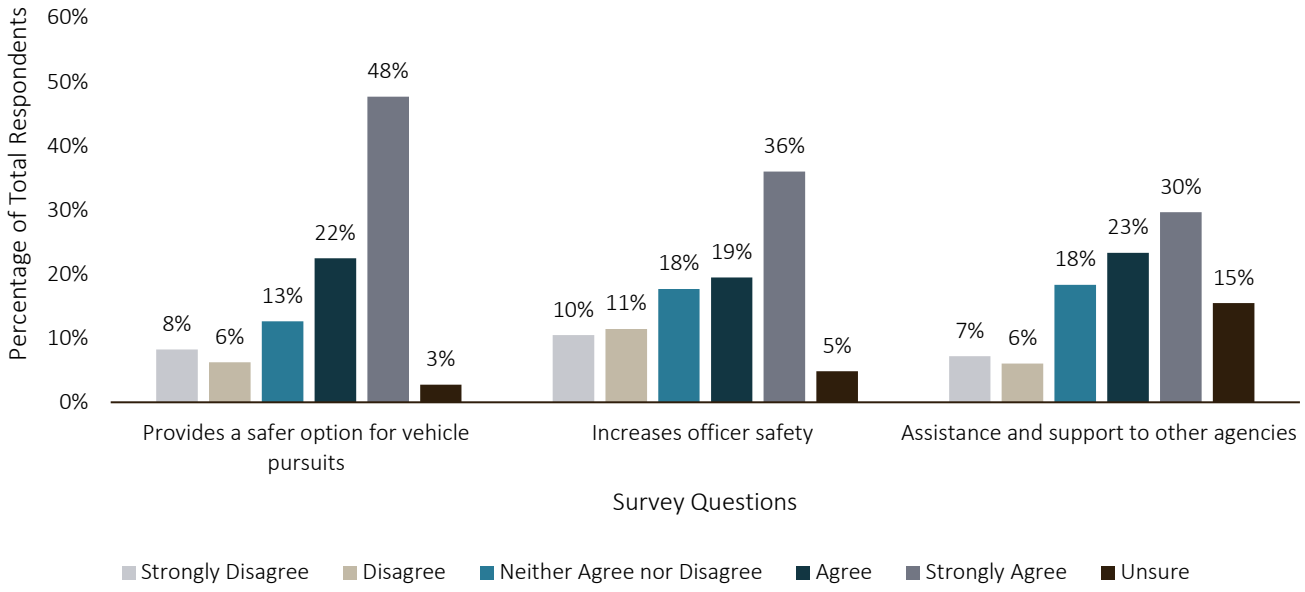
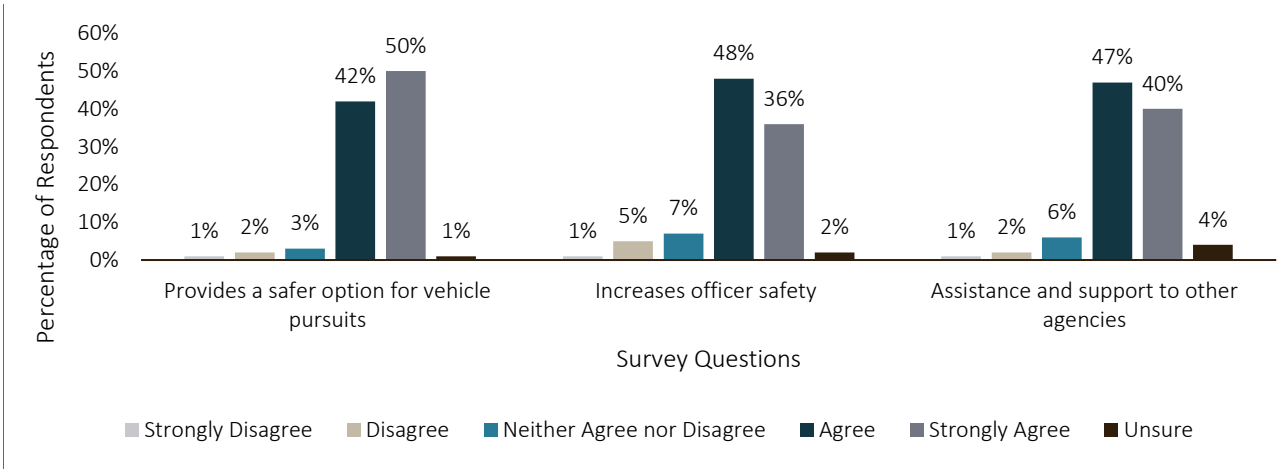


Figure 29: Telephone Survey Respondents' Opinion of the WPS Helicopter Mandate and Need



Fifty-three (53) per cent of online respondents and eighty-seven (87) per cent of telephone survey respondents believe the FOU provides assistance and support to other agencies. Forty-eight (48) per cent of online respondents agree that the FOU maintains public safety at large scale events, forty-four (44) per cent believe it reduces crime in the city and forty-nine (49) per cent agree that it increases public safety. Seventy-nine (79) per cent of telephone survey respondents believe the FOU maintains public safety at large-scale events while seventy (70) per cent of the same respondents believe it reduces crime in the city and eighty-five (85) per cent believe it increases public safety.

Figure 30: Online Survey Respondents' Opinion of the WPS Helicopter Mandate and Need

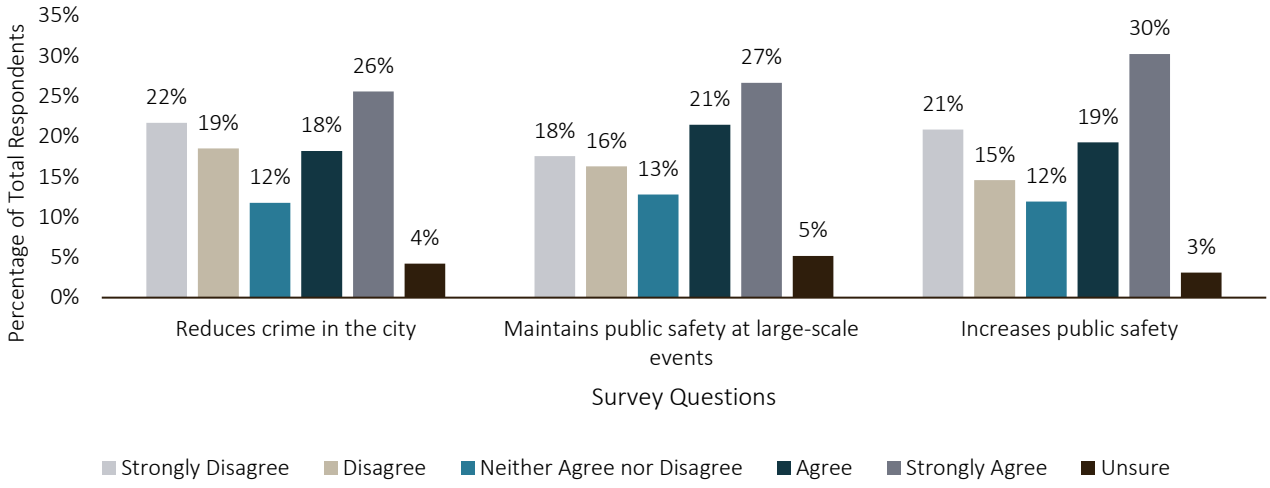
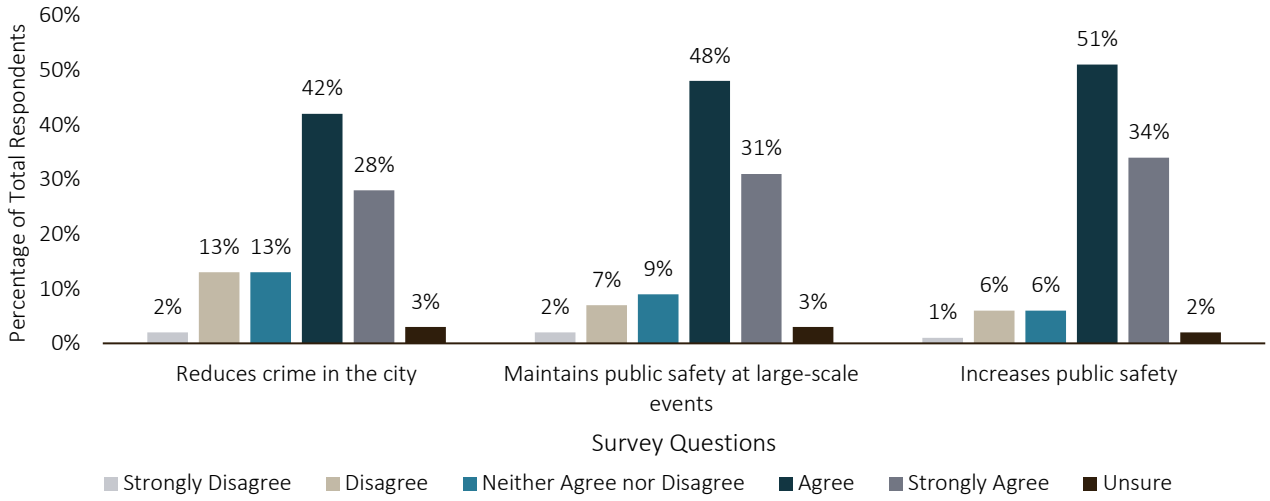


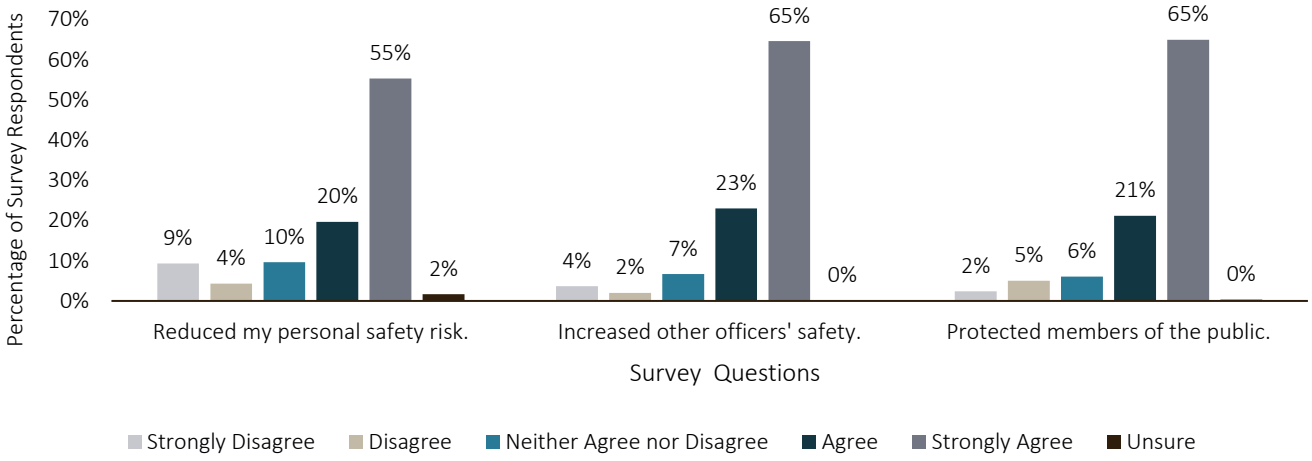
Figure 31: Telephone Survey Respondents' Opinion of the WPS Helicopter Mandate and Need



5.1.5 Winnipeg Police Service Opinion of Mandate of Police Helicopter

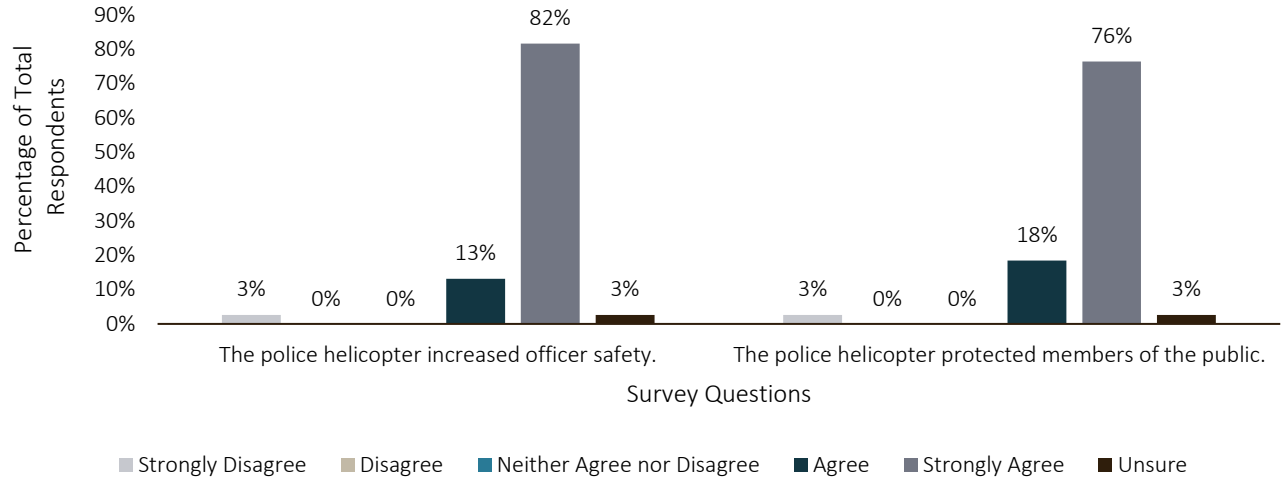
Seventy-five (75) per cent of sworn officers believe the use of the helicopter reduced their personnel safety risk, eighty-eight (88) per cent believe it increased other officers' safety and approximately eighty-six (86) per cent believe it protected members of the public (Figure 32).

Figure 32: Online Survey - Sworn Officers' Opinion of the Mandate of the Police Helicopter



Similar results were found with civilian members of the WPS that completed the survey. Ninety-five (95) per cent agreed that the police helicopter increased officer safety and ninety-four (94) per cent agreed it protected members of the public (Figure 33).

Figure 33: Online Survey - Civilian Members' Opinion of the Mandate of the Police Helicopter



Furthermore, approximately seventy-seven (77) per cent of sworn officers surveyed believe the outcomes of the events involving the FOU were directly attributable to the support provided by the FOU (Figure 34) compared to ninety-two (92) per cent of civilian members (Figure 35). Lastly, only approximately fifty-one (51) per cent of sworn officers believe the use of the helicopter changes a suspect(s)' behaviour compared to forty-two (42) per cent of civilian members.

Figure 34: Online Survey - Sworn Officers' Opinion of the Benefits of the Police Helicopter

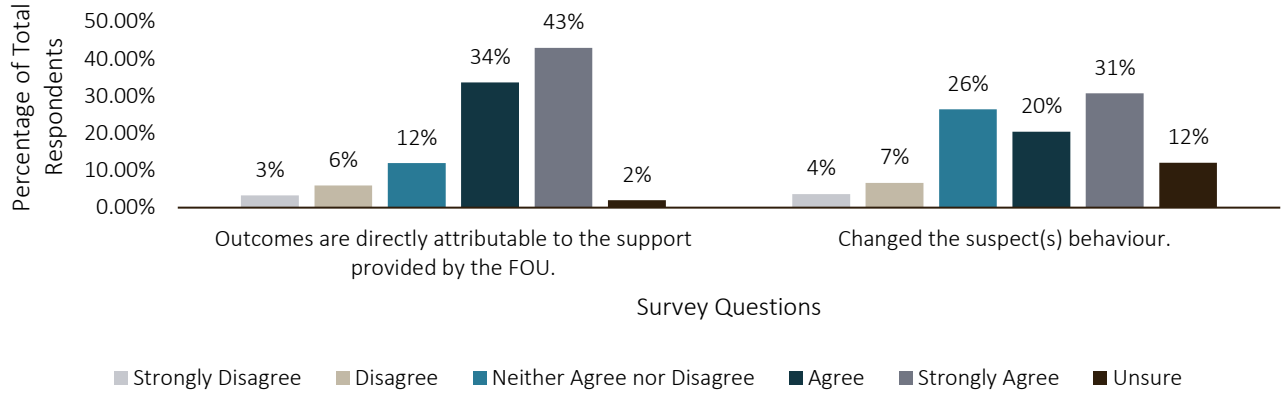
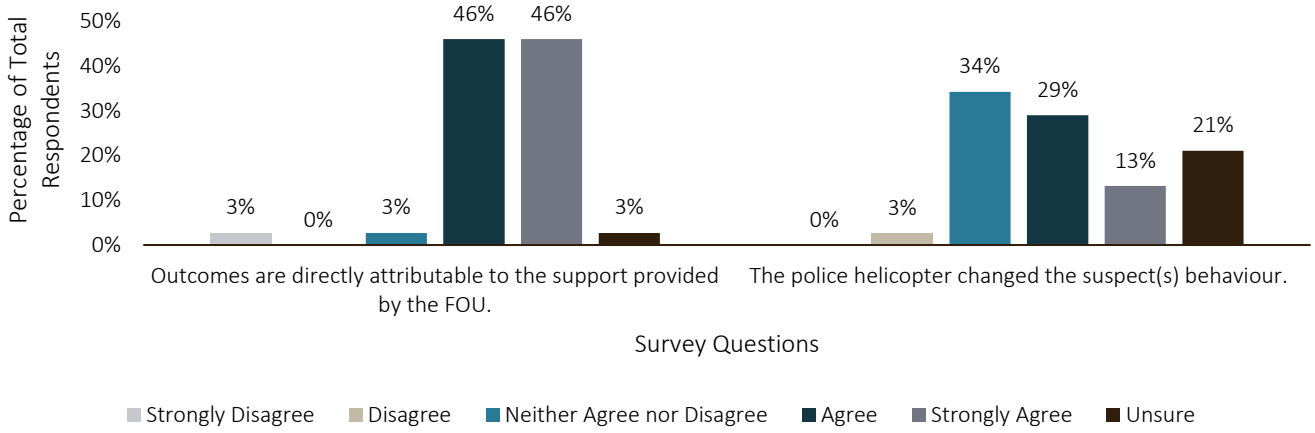


Figure 35: Online Survey - Civilian Members' Opinion of the Benefits of the Police Helicopter

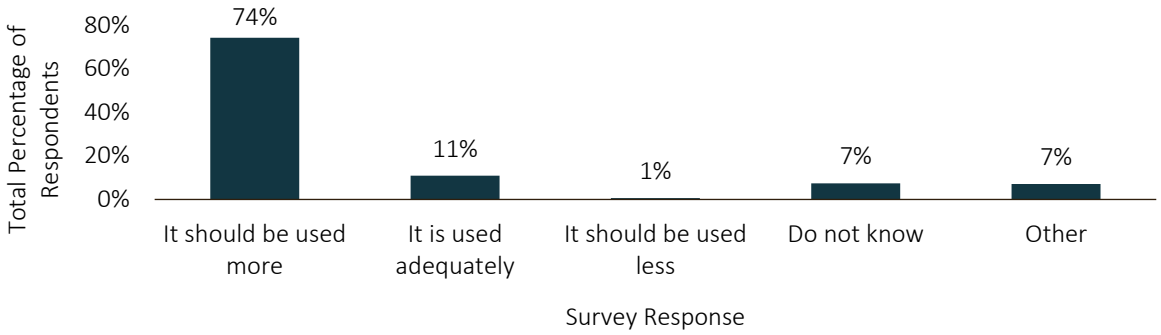


5.1.6 Winnipeg Police Service Opinion of Availability

To understand the perceptions of WPS sworn officers and civilian members about the availability of the helicopter, online survey respondents were asked whether the current helicopter availability met their needs, based on 1,000 hours of flight time per year. Seventy-four (74) per cent of WPS respondents believe the police helicopter should be used more. As well, during WPS service member interviews, fifteen (15) FOU members and WPS executive and management interviewees indicated that the police helicopter needs to be used more. It was also suggested by eight FOU members and WPS executive and management that if that is not possible because of maintenance, then purchasing a second helicopter should be considered. Furthermore, sixteen (16) FOU members and WPS executive and management interviewees stated that there are situations when they need the helicopter to assist in an incident, but it is not available due to maintenance issues, weather conditions, or scheduling.

Seventy-four (74) per cent of WPS respondents believe the police helicopter should be used more

Figure 36: WPS Member Respondents' Opinion on Availability of the Police Helicopter



WPS sworn officer and civilian members indicated improvements they would like to see in the services of the FOU. There were several common themes including:

- Expansion of capacity and capability to complete search and rescues (6 respondents)
- Additional shifts to enable greater availability (87 respondents)
- Better quality camera (2 respondents)
- Investigate and consider drone technology (6 respondents)
- Purchase a second helicopter (18 respondents)

5.1.7 Use by External Agencies and Communities

From the implementation of the FOU in 2011, there were expectations that the FOU would support other public safety organizations. However, there are no formal contracts or memorandums of understanding defining these arrangements. MNP was informed by external agency interviewees that they rarely request the use of the helicopter. Responses regarding the approximate number of requests per year ranged from zero (0) to four (4). The most frequent service request from external agencies is for search and rescue. One explanation for this, is the ability for the FOU to search large areas in a short period of time. However, the mechanical limitations of the H120 restrict its ability to participate in the rescue. The helicopter cannot hover over the same spot so individuals can be lowered to the ground. The FOU is able to guide ground units to the individual(s) requiring emergency assistance.

External agencies can request support from the FOU by contracting senior WPS officials or duty officers. External agency representatives expressed the view that when requests are made, the WPS does everything they can to assist.

One example of the use of the WPS helicopter by external agencies was the Transcona industrial fire that occurred in October 2018. Utilizing the thermal imaging sensor and camera, the WPS helicopter was able to identify and communicate the locations of significant heat signatures to guide the efforts of the Winnipeg Fire and Paramedic Service. As a result, the fire was contained and prevented the evacuation of nearby Transcona residents. The FOU records all events that occur during each shift in the Unit's daily occurrence logs, stating other agencies that are involved. The Unit's Annual Report highlights notable events that occurred during the year, many of which include calls for service that involve assistance to other agencies.

The lack of clear policies, processes and procedures for external assistance may be preventing external agencies from more fully utilizing the helicopter. Although no agency has been financially charged for the use of the helicopter, external agency representatives stated that there is a widespread belief that there is a cost to using the helicopter.

When interviewees were asked if their organization would be able to perform similar tasks without the support of the police service helicopter, four (4) respondents indicated that they would be able to complete these types of tasks using drones or a fixed wing aircraft but if those aren't available that the helicopter is useful in the few situations it is requested.

Five (5) external agency interviewees suggested that allowing better information about accessing Downlink in the live stream, enabling access to an "on-duty" schedule of availability or the purchase of a larger or additional aircraft, capable of rescue missions, are some considerations for enhancements to the service.

5.1.8 Summary of Findings – Relevance/Need

Summary of Findings – Relevance/Need
• The goals and mandate of the FOU are aligned to the WPS goals of less crime and victimization and an efficient and effective service. • Flight Operations Unit members consider the focus of AIR1 as an "involvement" resolution and not necessarily a "call" resolution. In other words, they are not there and do not have the ability to resolve calls for service. This perception is important and if agreed upon, should inform how their performance is measured. • Between 2011 and 2017, the annual average number of incidents responded to by the FOU was 2,164. • Incident responses by the FOU account for approximately 1.1% of total incidents responded to by the WPS from 2011 to 2017. • The top five call types responded to by the FOU between 2011 and 2017 were suspicious persons (1322), domestic disturbance (1205), traffic stop (1200), wellbeing (1135) and break and enter (1045). • Ninety-nine (99) per cent of the public online respondents and ninety-two (92) per cent of the telephone survey respondents expressed awareness that the WPS was operating a helicopter. • The majority of online and telephone public opinion respondents agree that the police helicopter improves their sense of security and safety and helps with neighbourhood policing. • Respondents to the online survey and the telephone survey show high levels of agreement to the statements "provides a safer option for vehicle pursuits" and "increases officer safety". The statements "increases public safety" and "assistance and support to other agencies" received lower levels of support by online survey respondents than from telephone respondents. Telephone survey respondents also showed strong support for the statements "reduces crime in the city" and "maintains safety at large-scale events". • Seventy (70) per cent of sworn officers surveyed have been on a call that involved support from FOU since 2017. • Since January 2017, a high percentage (94%) of sworn officer survey respondents either received support on most of the requests made (30%) or some of the requests (53%) made; while eleven (11) per cent received

Summary of Findings – Relevance/Need
support on all requests made. These results indicate that majority of sworn officers have operational experience with the FOU. • External agencies, other than WFPS, stated that they rarely request use of the police helicopter but when they do, the WPS does everything they can to assist. Since 2011, the FOU has provided assistance to external agencies between zero (0) to four (4) times a year. • There are no memorandums of understanding or formal contracts outlining the parameters of use of the helicopter by external agencies.

5.2 Efficiency

The findings in this section address the extent to which the FOU:

- Is operating as efficiently as it can given its resources, and
- Whether the use of the helicopter enhances the operational efficiency of the Winnipeg Police Service

5.2.1 Organizational Structure

MNP evaluated the organizational structure of the FOU using leading practice organizational design principles.

LEADING PRACTICE DESIGN PRINCIPLES	
Simplicity	A position should be designed around activities that need to be performed and not tailored to the qualifications of the individual
Span of Control	The number of people effectively managed by one person should be selected so as not to sacrifice efficiency and effectiveness
Size and Balance	There should be a reasonable balance in the size of portfolios, so they can be managed
Job Structure	A position should be designed around activities that need to be performed and not tailored to the qualifications of the individual
Specialization	The activities for which a single individual is held responsible should be similar
Decentralization of Authority	The responsibility for making a decision should be placed as far down in the organization as is appropriate
Authority and Responsibility	Leadership should be given responsibility for results and the authority needed to perform the job properly

The FOU resides within the operational support division of police operations. Other units within this portfolio are Tactical, Canine and Bomb. All of these provide specialized support to front-line and investigative units.

The structure of the unit is simple with the chief pilot and line pilots responsible for the safe flight of the helicopter and the tactical flight officers responsible for positioning and monitoring the infrared camera, spotlight, communicating with ground units and dispatch, identifying potential security issues and choosing their flight path. Because of the nature of their work, the FOU must work closely and seamlessly with the WPS Communications Center.

Span of control is minimal and because of it, there are no issues with size and balance. Finally, the pilots and tactical flight officers have a significant amount of discretion to make decisions aligned with their roles and responsibilities while they are operational. However, neither the pilots nor tactical flight officers have the ability to 'call off' ground units (inform ground units that they do not need to respond to an incident that is already under control). In the original business case for the WPS FOU, "calling off" ground units was stated as being a way for the FOU to improve the Service's efficiency and effectiveness. Similarly, other Canadian municipal police services that are operating a helicopter unit utilize "calling off" ground units as a performance metric for improving the efficiency and effectiveness of the service. The underlying rationale is, if the helicopter is able to call off ground units then those ground units will be able to respond to other calls for service. Without the established ability to 'call off' ground patrol units, the FOU may be limiting their ability to support the WPS in reaching its organizational goals.

5.2.2 Staffing Model

The FOU currently has eight (8) full time equivalents including management positions and two flight crews operating on two separate shifts. The Unit generally operates with one pilot and two TFOs in the helicopter unless a TFO is on training or leave. The current complement is:

- Unit Supervisor (sworn police officer) – 1 FTE
- Chief Pilot (permanent civilian employee) – 1 FTE
- Pilots (1 civilian and 1 sworn police employee) – 2 FTEs
- Tactical Flight Officers (All sworn police officers) – 4 FTEs

Interview participants indicated that in the past, there has been difficulty in retaining civilian pilots and the timeframe for hiring and onboarding is eight (8) months. Turnover in the past two to three years has been reported as minimal. It was stated that training is constant as the technical abilities and work environment are unique. Therefore, the management of transfers to this unit must be implemented carefully.

The FOU is currently using a combination of civilian and sworn members as line pilots. Along with scheduled evening shifts for the two line pilots, the daytime hours availability of the Chief Pilot and Unit Supervisor, who is trained as a Tactical Flight Officer, allows for response to critical or emergent incidents that occur outside of the regular flight schedule.

For five of the last seven years the FOU reported at least seven (7) flight days were lost to inadequate staffing created by different leaves (training, sickness, vacation) The following table summarizes the annual flying days lost to staffing with an average of 16 days per year over the last 7 years.

Table 12: Flying Days Lost to Staffing (2011-2017)

	2011	2012	2013	2014	2015	2016	2017	Total	Average
Total days grounded for staffing	NA	28	20	25	7	0	15	95	16

Other jurisdictions MNP researched have one tactical flight officer with the pilot in the helicopter on their regular shifts. Their TFOs are responsible for tracking a number of different performance metrics that Winnipeg is not currently tracking. The Winnipeg FOU is already operating with one TFO if the other is on leave.

The Edmonton Police Service has fewer fulltime TFO's and the Calgary Police Service has the same number. They both operate with two helicopters and higher numbers of annual flight hours. Both organizations have a number of part-time TFOs that operate in other units and can assist in covering any staffing gaps that may arise.

Durham Regional Police Service has a contract for their pilots, maintenance and fuel services and have found that this arrangement works well as trained pilots for their scheduled shifts are guaranteed through their agreement. They have not had issues with missed shifts due to pilots being unavailable.

The FOU members and management indicate there have been some staffing challenges in terms of maintenance. The fact that the engineer must come from Edmonton on planned dates limits any flexibility in scheduling. For example, being able to complete maintenance when grounded because of weather would be a significant benefit. The Calgary Police Service has two full-time aviation maintenance engineers (AME) on staff for maintenance of their helicopters. Furthermore, both Edmonton and Durham have local contractors providing their maintenance service whereas Winnipeg's AME operates out of Edmonton.

5.2.3 Decision-Making Structure

Anecdotal evidence provided in the interviews suggests that there are not many formal policies and procedures in place related to the deployment of AIR1. The only call for service that requires AIR1 be requested is for a 'pursuit' incident and requesting AIR1 is one of the steps in the checklist used by the frontline officers to respond to these calls. The remaining decisions for FOU participation on a call for service or in support of another activity is made at the discretion of the TFO, unit supervisor or duty officer and if there are any aviation limitations, the final decision will be made by the pilot. Interviewees indicated this informal decision-making process is working effectively for the WPS. Feedback from other policing agency flight operations leadership suggested similar decision-making processes with the authority for those decisions residing with similar positions.

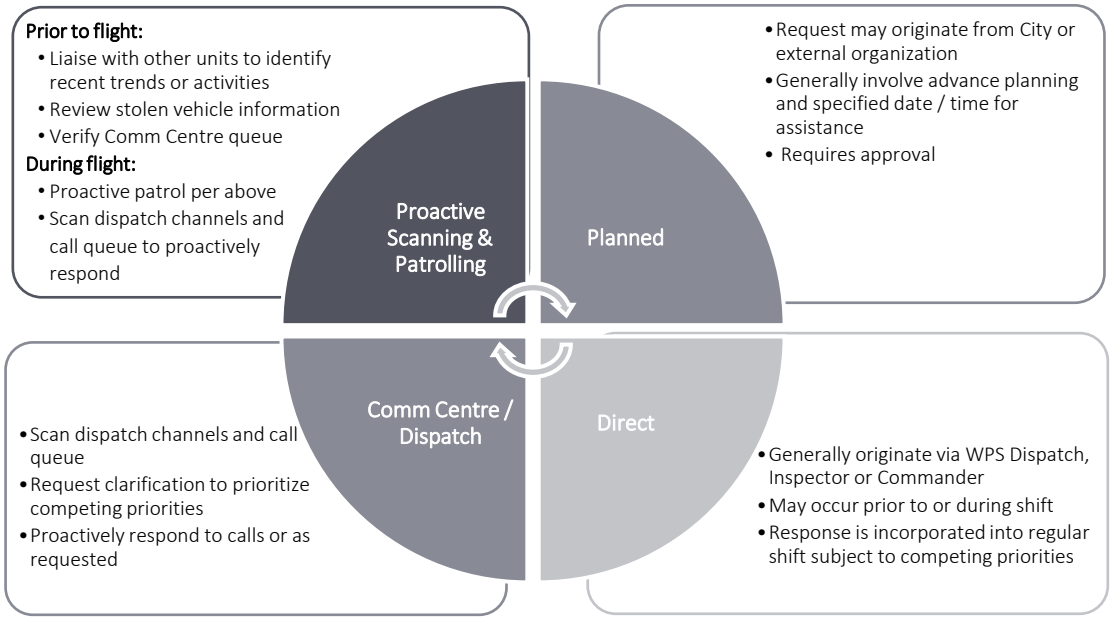
During the process mapping session, the deployment and call assessment decision-making processes were clearly defined and are provided in the following sections.

5.2.3.1 Initiation and Deployment

There are four (4) primary drivers of AIR1 activity:

a. Direct requests to the tactical flight officer, inspector or commander
b. Communication Centre and Dispatch
c. Proactive scanning and patrolling
d. Planned events

Figure 37: Process Mapping - Initiation and Deployment Methods



Prior to the flight, the tactical flight officer liaises with other WPS units to gather information about hot issues or trends to monitor, which may include recent high incident areas for theft or vandalism and/or concerns related to commercial or residential addresses. They also review information about stolen vehicles. Based on the volume of calls originating from the Communications Centre / Dispatch or any planned events, AIR1 can proactively follow up and monitor these hot issues or trends.

AIR1 frequently assumes a "coordinator" role during incident response by providing aerial information to ground units about site details, suspect location, risks and perimeter containment. They can also proactively request specific services or units because their vantage point offers a dynamic perspective of situational needs. During a response, AIR1 will typically clear itself from calls based on the need for active involvement. For instance, AIR1 will clear itself from a call once a suspect is in custody and no additional suspects are assumed.

The FOU considers the focus of AIR1 as an "involvement" resolution and not necessarily a "call" resolution. This allows AIR1 the flexibility to make the best use of its time.

AIR1 is regularly requested for special activities or events and many of these are planned in advance of the specified date as they often involve coordination of logistical details with other WPS units or outside organizations. These events may include street parties/major outdoor events, planned searches/seizures and support to search and rescue exercises. These events may be one-time only events or outcomes of events that support larger investigations to collect data or evidence. The AIR1 TFOs typically receive these requests directly from a WPS inspector or commander prior to the flight. However, they can also occur during a flight.

The majority of calls to which AIR1 responds are received via the Communication Centre / Dispatch and through proactive scanning of the call queue by tactical flight officers during the flight. While in-flight, one TFO monitors the four (4) audio dispatch channels and air traffic control; while the second TFO, when onboard, scans the tablet for the calls in queue.

The FOU 's decision to respond is based on priority of the existing or new need/call and the potential consequences associated with environmental factors. AIR1 has discretion to assign itself to calls most relevant to its services, which is a practice that is followed by other WPS units. While monitoring the channels, AIR1 proactively determines the calls to which it will assign itself unless specifically requested to assign itself to a call-in consultation with Dispatch. Where AIR1 is specifically requested by other WPS members or Dispatch, their status as an available unit is verified and Dispatch liaises with the FOU to confirm their ability to respond to the request.

It was identified that Dispatch cannot be aware of all factors to be considered in AIR1's ability to respond, such as those associated with environmental factors like weather, fuel or distance from targeted response. These are monitored by the pilots. Unlike ground units which are GPS tracked, AIR1's location needs to be geographically logged by the Communication Centre/Dispatch so they can be aware of their general location.

Throughout AIR1 responses, Air Traffic Control is consulted to confirm AIR1 is cleared to respond and cross flight paths within the desired timeframe. FOU members reported that the instances involving delays due to air traffic are generally low as the majority of the calls happen away from the vicinity of the airport and the runway flight paths.

It was noted during the process mapping that it is expected that AIR1 respond to all calls involving an officer in distress, missing persons who may be suicidal, or deemed at high risk, and pursuits.

5.2.3.2 The Flight Operations Unit Assessment Process for Response to Calls

During new call origination, FOU members complete a thorough assessment process to weigh the factors involved in either staying on the current assignment or switching to the new assignment, as described in the table below:

Table 13: Process Mapping – Assessment Process for Call Responses

ACTIVITY	PRIMARY CONSIDERATIONS	SAMPLE ASSESSMENTS
Value of AIR1 Response	Nature of Call/Incident Type	• For instance, if the incident is in an apartment building already surrounded by ground units and all exists are secured, it may not be the most appropriate use of AIR1 to respond. • The TFO generally makes this assessment based on available information. It is important to note that information is evolving and ever changing thereby making this assessment dynamic and based on officer experience and judgement.
Risks associated with aborting current assignment	Officer and public safety, loss of critical intelligence, priority of all	• Will aborting the current assignment put the safety of officers or other stakeholders at risk? • Will there be a loss of critical intelligence which is time / situational dependent? • What is the priority of the new call? • Priority 0 calls involving life in danger will be given top priority barring environmental factors which prevent AIR1 from responding • What is the risk of not responding to the new call?
Ability of AIR1 to Respond	Response times, location, flight path, weather	• How long will it take to respond based on their current location? • What will be the value of the response if time to the new location is a significant factor? • Are there considerations related to fuel and timing of the next fuel stop to be considered?

ACTIVITY	PRIMARY CONSIDERATIONS	SAMPLE ASSESSMENTS
		• E.g. If refuelling is planned in the next 10 minutes, is it worth attending the new call for 3-4 minutes and then departing? • Are there constraints with Air Traffic Control and potentially having to wait to cross flight paths? • Is weather a potential factor?
Aircraft / Flight Capabilities	Crew safety, mechanical and equipment limitations	• There is strict adherence to a 30% fuel reserve based on aviation safety standards and regulations • Where circumstances warrant it, AIR1 may use up to 10% of its fuel reserve as "flex" for operational response while 20% is strictly held as the minimum threshold of available fuel to safely return AIR1 for refuelling • An assessment of crew health for fatigue and general wellness is also conducted during fuel stops and throughout the flight • AIR1 model *(H120)* requires more direct hands-on pilot control than types of aircraft used in other jurisdictions which contributes to higher pilot fatigue • The volume of call monitoring across 4 audio channels, air traffic control, call assessment and active response contributes to a high degree of sensory stimulation particularly in situations where there is only 1 TFO on board • Discretion is used in assessing the crew's health

5.2.3.3 Time Categorization, Maintenance and Documentation

Formally, the FOU does not track how non-flight hours are spent by Unit members between patrol flights or on days when they are down due to weather or maintenance.

During the process mapping sessions, the FOU participants described the activities and time required to complete the "non-flight" activities during their shifts. These are depicted in the following tables:

5.2.3.3.1 Time Categorization

To understand the documentation processes related to non-flight time and maintenance activities, the process mapping included a breakdown of typical activities that are undertaken by FOU members. The following table outlines activities and associated time required for completion during a typical FOU shift.

Table 14: Process Mapping - Non-Flight Time Activity Breakdown

ACTIVITY	ESTIMATED TIME	COMMENTARY
Preparation and commencement routine	60 minutes preparation 60 minutes post flight	• Safety check • Flight preparations • Queue verification and liaison with other units • Documentation
Re-fuelling	15-20 minutes from skids down to skids up	• Minimum 2 stops during a shift • May be up to 3 refuelling stops
Approximate Total	**2.5 – 3 hours**	

5.2.3.3.2 Maintenance

The following table describes the activities and associated amount of time that is required for typical planned maintenance. The time associated with unplanned maintenance is variable and dependant upon the equipment failure.

Table 15: Process Mapping - Maintenance Activities of FOU (Planned and Unplanned)

ACTIVITY	ESTIMATED TIME	COMMENTARY
Planned maintenance	3 – 5 shifts per required schedule	• Planned maintenance at 100 hours; 500 hours; 1,000 hours; and 1,500 hours • Scale and scope of maintenance increases at higher hour intervals
Unplanned maintenance or equipment failure	Variable based on part and mechanic availability	• Typically related to equipment malfunction or breakage (E.g. camera, GPS, spot light) • AIR1 is considered to be grounded if the camera is not functioning

5.2.3.3.3 Documentation

The operational activities of the FOU are recorded daily, monthly, and annually. Specifically, the following daily operational activities of the FOU are recorded:

- Date
- Call type
- Incident numbers
- If the FOU was first on scene
- The result of the call attended (e.g. an arrest was made)

Additionally, the FOU use an Excel spreadsheet to record the date, if the shift was during the day or in the evening, members working the shift, number of hours in flight for the shift and additional comments about the events that took place during the shift.

Daily operational activities recorded by the CAD system and the FOU, are augmented in the monthly reports that contain the total number of:

- Incidents responded to
- Captures
- Flight hours
- Flying days lost to staffing, weather or maintenance
- Special projects (e.g. training with other police services)
- Noise complaints received
- Additional comments pertaining to repaired parts or required training completed.

Finally, annual reports completed by the FOU include the following information:

- Total number of incidents involving laser pointers being used by citizens on the ground and the number of arrests occurring from those incidents;
- Total number of noise complaints received by the unit, the corresponding number of citizens that have made those complaints, and the response by the FOU to the individual complaints;
- Anecdotal highlights of unique calls for service that the FOU responded to during the year;

- Total number of flight hours by quarter and by month;
- Annual and quarterly totals of flight hours lost due to maintenance, staffing, or weather;
- Total number of incidents responded to by the FOU by quarter, month, and call type;
- A heat map of where the FOU responded to calls for service in the city; and
- Total number of pursuits and follows conducted with and without the FOU.

Lastly, the FOU compiles and stores all video footage that was recorded in the secure WPS IT network. When footage is requested as evidence, the TFO downloads and produces a DVD of the incident in question, which is an edited version of the full flight video specific to the incident or occurrence in question. The DVDs are supplemented by narratives written by a TFO and delivered directly to the Manitoba Criminal Court following a secure delivery process.

Other jurisdiction's policing services are tracking a number of additional data sets including:

- Units redirected by flight operations participation
- Flight operations response times
- Calls cancelled or declined by flight operations
- All requests for service for flight operations
- Proactive patrol flight hours
- Flight hours on calls for service
- Administrative hours
- Training hours
- Public relation hours

5.2.4 Public Response to Operational Efficiency and Enhancement of Police Services

Results from the online and telephone survey found that the majority of respondents agreed that the helicopter enhances the effectiveness of the WPS, assists in finding and apprehending criminal suspects, and that the helicopter is an important policing tool for a major municipality like Winnipeg (Figure 38 and Figure 39).

Figure 38: Online Survey Respondents' Opinion on Whether the Police Helicopter Enhances Police Operations

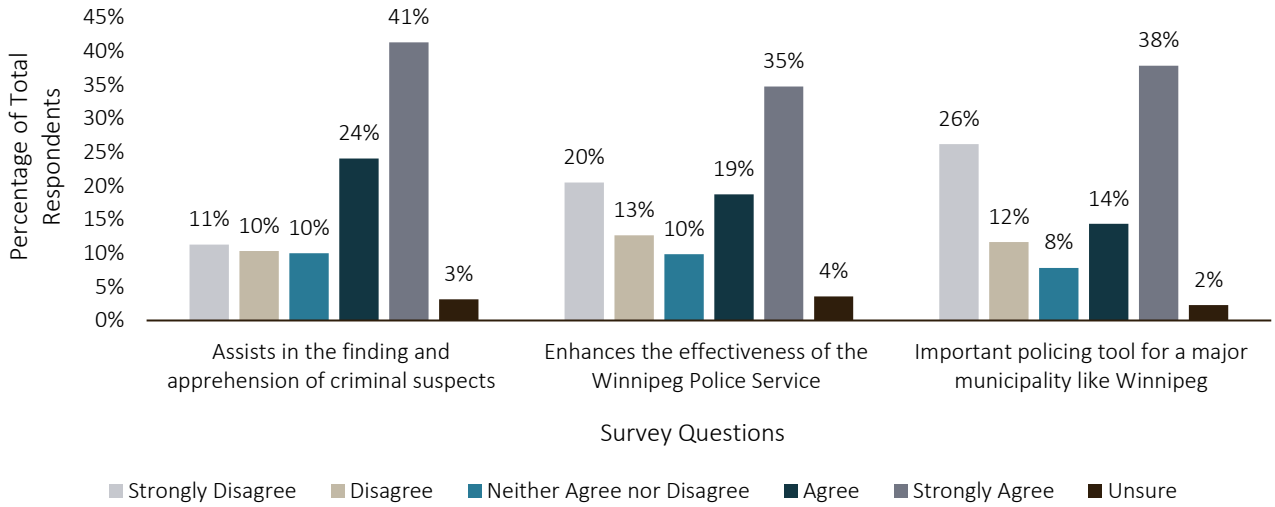
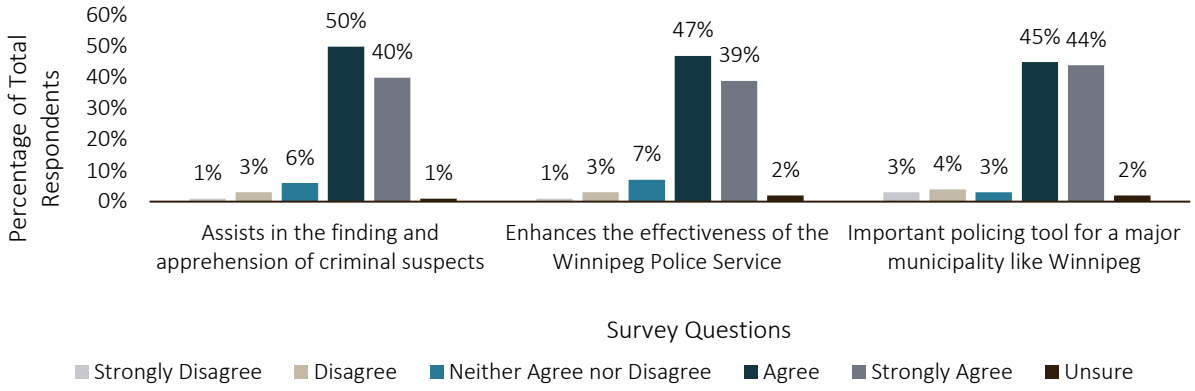


Figure 39: Telephone Survey Respondents' Opinion on Whether the Police Helicopter Enhances Police Operations



The majority of telephone survey respondents agree that the police helicopter assists in detecting crimes or dangerous situations and improves responses to calls for service related to missing persons in Winnipeg (Figure 40). Furthermore, the majority of telephone survey respondents disagree that the helicopter negatively impacts the privacy of Winnipeg residents. Forty-nine (49) per cent of online respondents agree that the police helicopter assists in detecting crimes or dangerous situations and thirty-four (34) per cent agree it improves responses to calls for service related to missing persons in Winnipeg. The majority of online respondents disagree that the police helicopter negatively impacts the privacy of Winnipeg residents.

Figure 40: Telephone Survey Respondents' Opinion on Whether the Police Helicopter Enhances Police Operations

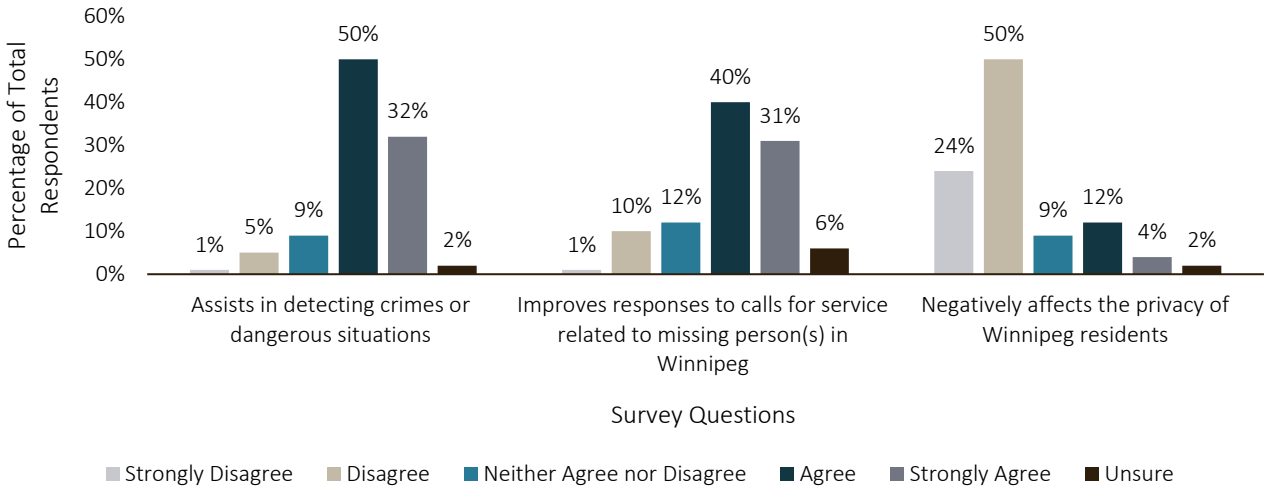
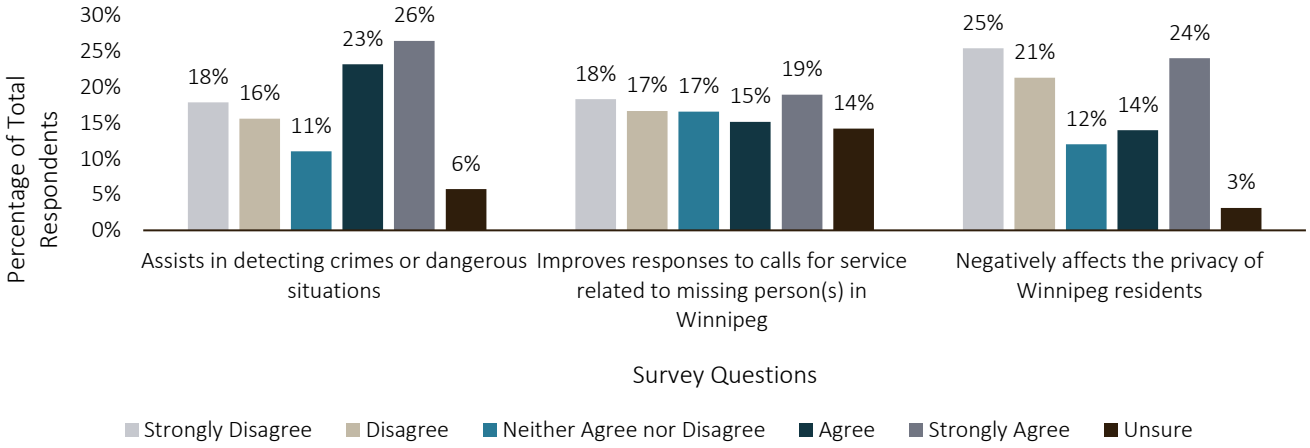


Figure 41: Online Survey Respondents' Opinion on Whether the Police Helicopter Enhances Police Operations



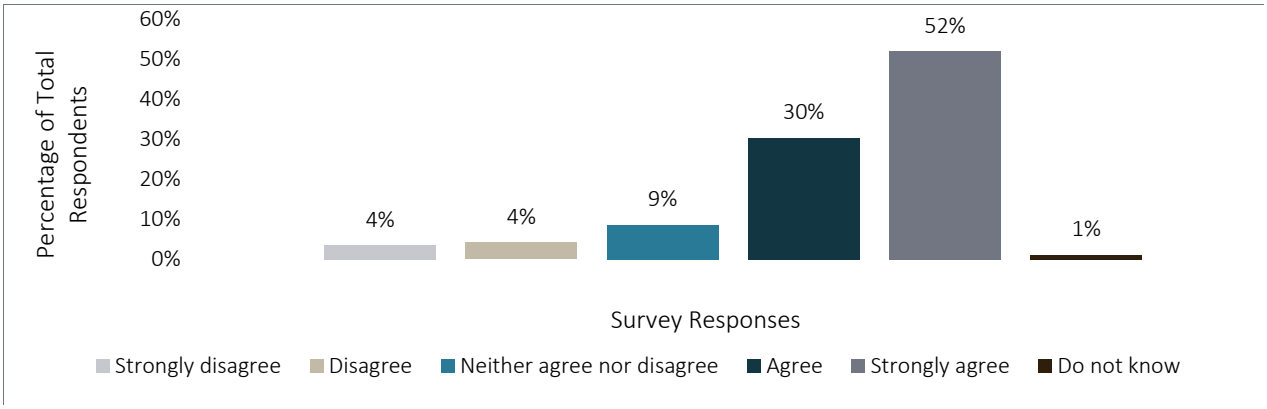
5.2.5 FOU Member, Sworn Officer and Civilian Member Response to Operational Efficiency

Flight Operations Unit members who participated in interviews and the process mapping session believe that the use of the police helicopter improves the efficiency of the service due to its unique aerial perspective. For example, the ability to provide real-time, aerial intelligence to ground units. In addition to the aerial perspective, the onboard infrared camera, spotlight, and video capabilities make the police helicopter a unique resource for the WPS that cannot be replicated utilizing other available means. One of the benefits of the technology is the addition of video evidence for prosecution as well as ensuring the WPS members followed proper protocol. This protects the WPS and the officer, reducing liability issues.

Furthermore, officer safety has been noted as a benefit of the FOU because of its ability to light up an area at night, locate suspects that are hiding from officers, as well as provide information about the scene prior to the arrival of ground units. For example, WPS service members are not going into an active scene with limited information about the ongoing incident. Members of the FOU stated that the mere presence of a spotlight on a suspect has been enough to prevent the escalation of a situation until the arrival of ground units on scene. Pertaining to aerial intelligence, FOU members stated that the helicopter is able to provide officers with real-time information about the status of an incident, specific location information, and/or can identify the need for backup or medical assistance.

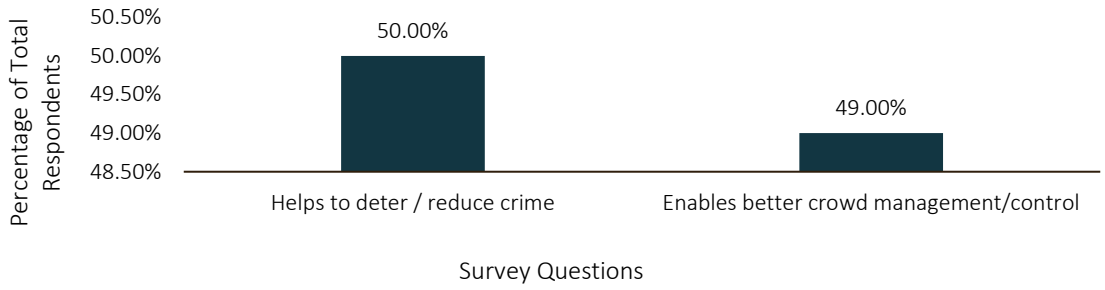
Overall, the majority of the FOU members that were interviewed believe that the police helicopter improves the WPS's efficiency since it is able to locate suspects and evidence quickly, mitigating the escalation of some calls for service, and providing video evidence for court cases as well as verification the WPS followed proper protocols while performing their duties. Furthermore, eighty-two (82) per cent of WPS survey respondents agree that the FOU improves the operational efficiency of the WPS (Figure 42).

Figure 42: WPS Survey Respondents' Opinion of Whether the Police Helicopter Increases the Operational Efficiency of the WPS



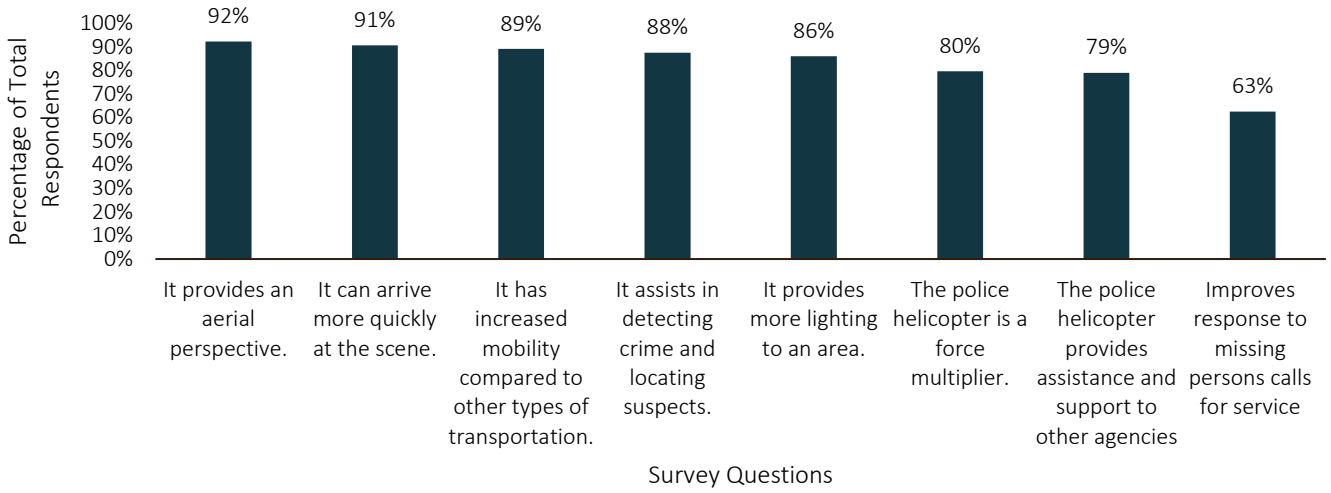
Alternatively, fifty (50) per cent of respondents believe the helicopter helps to deter / reduce crime and forty-nine (49) per cent believe it enables better crowd management/control (Figure 43).

Figure 43: WPS Survey Respondents' Opinion of Why the Police Helicopter Increases the Operational Effectiveness of the WPS



In addition to the questions noted above, WPS members were asked in the survey about their opinion on other operational benefits/enhancements provided by the FOU. Over eighty (80) per cent of respondents indicated that other benefits/enhancements of the FOU include: providing an aerial perceptive; quicker response times to calls for service; has better mobility compared to other types of WPS transportation; assists in detecting crime and locating suspects; provides more lighting to a scene/area; and serves as a force multiplier. Furthermore, seventy-nine (79) per cent believe it provides assistance and support to other agencies; and sixty-three (63) per cent believe that it improves response to missing person calls for service (Figure 44).

Figure 44: WPS Survey Respondents' Opinion of Other Operational Benefits/Enhancements Provided to the WPS from the Police Helicopter



Additionally, the online survey completed by WPS members provided an opportunity for feedback to open-ended questions. When asked how the police services helicopter has made a difference in their policing activities, common themes included:

- Good for vehicle pursuits and monitoring situations (87 respondents)
- Increases police and public safety (76 respondents)
- Searching large areas quickly (24 respondents)
- Helpful for major events (24 respondents)
- Strong video and photographic abilities (14 respondents)
- Timely intelligence (26 respondents)

Note: Not all respondents to the survey answered the open-ended questions.

Finally, when asked how the helicopter could further enhance the operational efficiency of the Winnipeg Police Service, the response was limited. Eleven (11) respondents stated that the helicopter should have greater availability or a second helicopter should be added. Eight (8) respondents suggested the helicopter should be disbanded. Two (2) respondents commented general patrol should be fully equipped and one (1) said the helicopter needs better trained crews.

5.2.6 Savings in Time and Costs

There are a number of benefits that the FOU provides to ground units in the WPS that were reported during interviews including that it saves a significant amount of time and frees up resources to focus on other priorities and attend more calls for service. These benefits were identified in stakeholder interviews and include but are not limited to:

- The ability to arrive quickly on scene and provide aerial intelligence that can direct or redirect units to calls for service
- The ability to search large areas in shorter periods of time with less resources

- Assistance with containment of an area that would otherwise require additional ground units
- The location of individuals quickly on a vast number of calls for service that will otherwise require ground units to spend additional hours locating those individuals before the calls can be closed

WPS did not have the data in an accessible format to allow MNP to compare time and resource requirements for calls for service the FOU attended versus those it did not attend. MNP could not quantify the actual time and cost savings from their participation in these calls.

5.2.7 Summary of Findings - Efficiency

Summary of Findings - Efficiency
• The FOU is currently operating with a combination of civilian and sworn pilots and two tactical flight officers in the helicopter on each shift. Other jurisdictions operate with one tactical flight officer in the helicopter. • The WPS contracted maintenance service is Edmonton-based. Although maintenance service occurs on a well-defined schedule, unscheduled maintenance may take longer and it limits any ability to create synergies between maintenance scheduling and weather groundings. Other Canadian jurisdictions have full-time maintenance engineers on staff. • The Flight Operations Unit was not able to provide MNP with data, in a complete and easily retrievable manner, that would enable quantification of efficiencies. It is possible that some of this information is available in incident files but is not easily extractable. • Results from the online and telephone surveys of the general public found that the majority of respondents agreed that the helicopter enhances the effectiveness of the Winnipeg Police Service, assists in finding and apprehending suspects and is an important policing tool for a major municipality like Winnipeg. • The responses were more varied between the public online and telephone surveys. Only a majority of the telephone survey respondents agreed that the police helicopter assists in detecting crimes or dangerous situations and improves responses to calls for service related to missing persons in Winnipeg. The majority of telephone and online respondents do not agree that the helicopter negatively impacts the privacy of Winnipeg residents. • Eight-two (82) per cent of WPS survey respondents agree that the FOU improves the operational efficiency of the WPS. Flight Operations Unit members who participated in interviews and the process mapping sessions believe the unique aerial perspective helps to improve the efficiency of the WPS. It has the ability to provide real time information and intelligence to ground units ensuring proper response and resourcing. • The ability to 'call off' ground units when not needed and make them available for other calls is an efficiency measure used by other Canadian policing agencies. Although the FOU does not have the authority to 'call off' ground units, this authority must be clarified and utilized in order to achieve maximum efficiencies. These types of instances should then be tracked and reported.

5.3 Performance/Effectiveness

The analysis in this section considered the performance or effectiveness of the FOU in terms of quantifiable outcomes and ultimately if the FOU provides strategic value to the WPS and the community.

5.3.1 Utilization

One of the major factors impacting the effectiveness of the FOU is availability to respond to calls for service and/or identify potential issues from its aerial perspective. Therefore, its utilization, measured by actual flight hours was compared to available flight hours.

The WPS has established a target number of flight hours comparted to actual flight hours per year. It has been set at 1000 since its inception. Factors impacting available flight hours are capacity of the equipment (flying range, fuel capacity, etc.), staffing model, weather and maintenance requirements.

From 2011 to 2017, the FOU had an average of 933 total flight hours annually and approximately 78 hours per month.

Table 16: Actual Utilization vs. Target (2011-2017)

	2011	2012	2013	2014	2015	2016	2017	Average
Target Flight Hours	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Actual Flight Hours	976.5	983.5	986.2	901	1007.1	732.8	947.1	933
Variance to target hours	(23.5)	(16.5)	(13.8)	(99)	7.1	(267.2)	(52.9)	(67)
Available Flight Days	289	251	251.5	211.5	227.5	196.5	212.5	234
Target Flight Hours/Available Flying Day	3.5	4.0	3.9	4.7	4.4	5.1	4.6	4.3
Actual Flight Hours/ Available Flying Day	3.4	3.9	3.9	4.3	4.4	3.7	4.3	4

Table 17: Numbers and Reasons for Lost Flying Days (2011-2017)

Lost Flying Days	2011	2012	2013	2014	2015	2016	2017	Average
Maintenance Days	27	61	61	72	59	104	78	66
Weather days	18	25	32.5	56.5	71.5	64.5	59.5	47
Staffing	31*	28	20	25	7	0	15	15

**Lost flying days due to staffing were not recorded by the WPS until 2012. The 2011 total includes January, as the FOU crews operated in a training mode.*

5.3.2 FOU Generated Calls for Service

The FOU does not currently record how much of its total time is spent proactively patrolling the city versus how many flight hours are spent actively responding to calls for service. It is assumed any time while on patrol and not assigned to a call for service would be considered proactive patrolling.

In 2016 and 2017, the FOU did track how many calls for service, by priority level, were initiated by the unit while on patrol, by priority level. In 2016, the FOU initiated ten (10) calls for service and seventeen (17) in 2017. The calls for service range from Priority 0 to 9 with about fifty (50) per cent of these calls being urgent in nature (Priority 0-4). *It should be noted that Priority 8 and 9 calls are not relevant to the Flight Operations Unit.*

Table 18: Calls Initiated by the FOU by Priority Level

Priority Level	2016	2017
Priority 0 – Major Disaster; Officer in need of assistance	1	1
Priority 1 – Danger to life or grievous bodily harm	1	2

Priority Level	2016	2017
Priority 2 – Impending danger to life or grievous bodily harm	0	0
Priority 3 – Urgent person incident	3	4
Priority 4 – Urgent property incident	0	2
Priority 5 – Non-urgent person incident	1	1
Priority 6– Non-urgent property incident	0	1
Priority 7 – Low risk or threat	4	6
Priority 8 – Telephone response	0	0
Priority 9 – Planned Response	0	0
TOTAL	10	17

5.3.2.1 Deterrence of Crime

The verification of the FOU's ability to deter crime would require the use of a randomized control trial or a quasi-experimental design. However, a proper experiment is outside the scope of this review and is not something that can be completed retroactively utilizing the data collected by the WPS. Alternatively, survey and interview questions with sworn officers and civilian members from the WPS asked if they agree or disagree that the presence and aerial patrol of AIR1 deters crime. Most of the interview results with the WPS members indicated that they do not believe that the helicopter is able to deter crime. Similarly, only forty-two (42) per cent of civilian members and fifty-one (51) per cent of sworn officers either agreed or strongly agreed that AIR1 changed suspect's behaviour. Furthermore, interviews with some WPS members found that they believe AIR1 is able to effectively disperse large, disorderly crowds (e.g. a large fight outside of a bar).

The public, either online or by telephone, were not asked if they believed that AIR1 was able to deter crime. However, the public was asked if they felt that AIR1 was able to maintain public safety at large-scale events which may be seen as a measure of crime deterrence. The results of the online and telephone surveys were divergent in that only forty-eight (48) per cent of online respondents either agreed or strongly agreed that AIR1 was able to maintain public safety at large scale events; while, seventy-nine (79) per cent of telephone respondents agreed or strongly agreed.

5.3.3 Response Time

Response time is a metric commonly used by policing services to measure performance. It is also a measure very important to the general public. This response time is critical in emergency situations and can be the difference in 'life and death' situations. WPS tracks response time using the CAD system. This requires Dispatch to assign a unit to a call and receive confirmation from the officers once they arrive. The dispatcher marks them "on-scene". It was anecdotally reported that CAD response time data would not be accurate as the FOU has to advise the dispatcher to "mark" them on the scene. This may not occur as soon as they are actually there, especially if there is activity on the radio. They will wait to voice their arrival on scene until after the radio is clear. The FOU's infrared camera also allows them to have the location of the call "in sight" before they physically arrive.

MNP consultants who participated in the ride-along activity observed the FOU's ability to be "on scene" either physically near or have the scene in focus of the camera in less than three (3) minutes of the address being entered into the GPS system. MNP was not able to observe response time in the video footage provided as the video footage began once the FOU had already arrived on scene.

Response time data was provided by WPS for Priority 0, 1 and 2 events which included 424 FOU dispatched events. In 2017, the FOU arrived on scene within three minutes for over seventy-three (73) per cent of the events and in only nine (9) per cent of the events did it take them longer than five (5) minutes to arrive on scene. The average response time for this data set was 2.7 minutes. When compared to average response times for ground units in 2017 for the same priority level calls the average response time for ground units to a Priority 0 or 1 call in 2017 was nine (9) minutes and over thirteen (13) minutes for a Priority 2 call. This quick response enables more timely intelligence and tracking of the suspect.

5.3.4 First On-Scene

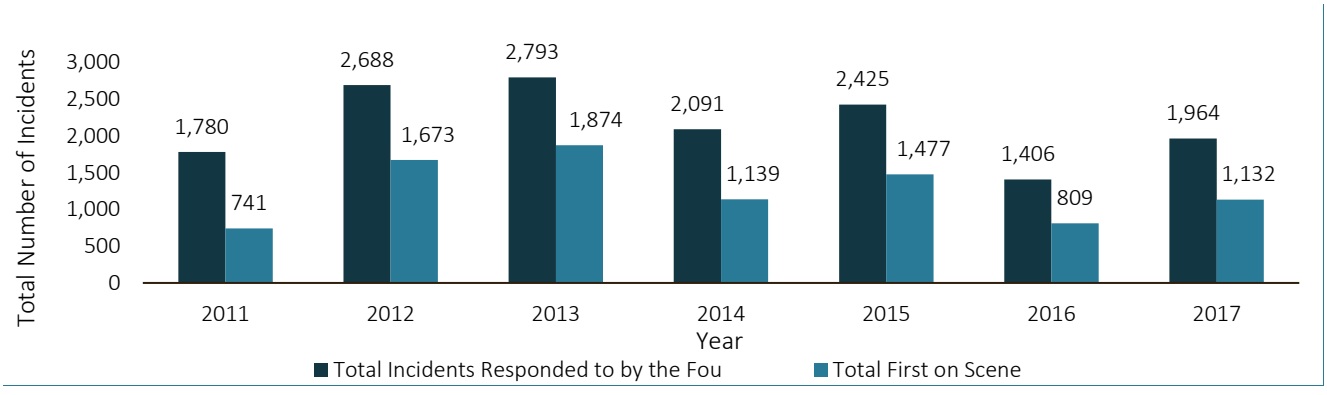
One of the primary purported benefits of the use of a helicopter is to reduce the response times of the service and consequently improve their ability to be first on-scene in comparison to ground units. The specific benefits of having a police helicopter arrive first on-scene are to provide aerial intelligence to ground units before they arrive, determine if ground units are required or not and provide on-going visual containment of an incident until ground units are available to respond.

One example of AIR1 arriving first on a scene involved an incident with two males causing a disturbance at a residence for unknown reasons. After arriving on scene, AIR1 quickly had a visual on the two suspects and was able to contribute to their apprehension after providing ground units with directions to the location of both suspects that had fled on foot. Another example involved a male youth that had left his family home intoxicated and was threatening to harm himself. After arriving on scene, AIR1 quickly located the male youth and was able to provide on-going visual containment until a ground unit was available to make contact with the male youth.

Over half of WPS sworn officer interview respondents indicated that the police helicopter is able to improve the efficiency of the service by saving members time either by eliminating the need for them to respond to a call for service and/or reducing the amount of time it takes to locate suspects on scene. Unfortunately, MNP was unable to verify these claims since the WPS does not track the number of times that the FOU has called off ground units or saved time searching an area. Consequently, MNP was able to confirm that since 2011 the FOU has arrived first on-scene an average of fifty-eight (58) per cent of the total number of incidents that they have responded to (Figure 45)[24].

Since 2011, the FOU have arrived first on-scene an average of fifty-eight (58) per cent of the total number of incidents they have responded to.

Figure 45: Total Number of Incidents the FOU was First On-Scene Between 2011 and 2017



5.3.5 Pursuits and Follows

The current mandate of the FOU is to support all operational and investigative Service units in the detection of criminal acts and the apprehension of suspects. One of its objectives is tracking and surveillance of suspect vehicles during police pursuits and subsequent coordination of ground resources. In 2004, due to the heightened public safety risk of pursuits, the WPS adopted new internal policies and procedures establishing the parameters for entering or aborting a police pursuit in Winnipeg. The annual number of pursuits in Winnipeg have been reduced from 122 in 2004 to 29 in 2011 (the year the FOU was established). Pursuit data has been provided in the FOU Annual Reports as well as tracked by the Police. A combination of these data sources was used to develop Table 19 below. Utilizing the annual FOU reports, the WPS have been involved in a total of three hundred and seventy-two (372) pursuits between 2011 and 2017 with the FOU assisting on sixty (60) pursuits or approximately sixteen (16) per cent. Although, in 2014 the Police began to track pursuit data that indicates the FOU attended an average of twelve (12) per cent of pursuit events. MNP could not reconcile these differing data sets. The Police data was regarded as the most accurate data for the applicable years the data was available. Therefore, the Police data was utilized to complete the analysis in Section 5.3.5.1.

Table 19: Total Annual Number of Pursuits by the WPS and FOU Involved Pursuits Between 2011 and 2017

Year	Total Number of WPS Pursuits	FOU Involved Pursuits	% of FOU Attended Pursuits	FOU Missed Pursuits
2011	29	2	7%	27
2012	37	5	14%	32
2013	30	4	13%	26
2014	42	7*	17%	35
2015	70	7*	10%	63
2016	80*	9*	11%	71
2017	83	11*	14%	72
7-year Average	53	8	12%	47

**Indicates data points that did not match between the two data sources (the default data set that was utilized was the Patrol Vehicle Operations data as that was then used for the analysis completed in the following sections related to outcomes for these types of events)*

Several examples of expediting the conclusion of pursuits were provided during interviews with Winnipeg Police Service members. One example was an incident where AIR1 was dispatched to an accident involving a vehicle that was fleeing WPS ground units at a high rate of speed. Once AIR1 visually contained the vehicle, ground units were instructed to disengage and were able to follow the directions of AIR1 to the vehicle at a safe speed. Eventually the vehicle was abandoned and AIR1 was able to direct ground units to the location of the suspects that fled the vehicle on foot. Another example, was when AIR1 tracked a motorcycle that evaded the WPS while travelling at speeds of approximately 200 km/hr. The individual on the motorcycle left Winnipeg only to return at a later time under the assumption that they had evaded arrest. However, AIR1 had tracked the individual the entire time without the knowledge of the driver of the motorcycle. Once the motorcycle driver entered the city, AIR1 utilized the spotlight, making the motorcycle driver pull over. He was subsequently arrested by WPS ground units, directed to the individual by AIR1.

In addition to pursuits, the FOU has supported 'follows' that are coordinated police resources utilized to prevent a pursuit from starting. In 2004 the WPS implemented follows to "…coordinate police resources to overwhelm a suspect offender with superior tactics and numbers prior to being able to flee the police" (Annual FOU Report, 2011). In 2015, the FOU began to track the number of 'follows' that it had been dispatched to (Table 20). Between 2015 and 2017, the FOU has been involved with an average of thirty three (33) follows annually. However, the specific results of each instance where the FOU participated are not easily accessible to verify the outcomes of this activity. Essentially, we are unable to ascertain if there is a difference in 'follows' that AIR1 was and was not involved in.

Table 20: Total Annual Number of Follows that AIR1 was Dispatched and Involved In as well as Dispatched and Cancelled between 2015 and 2017

	AIR1 Dispatched and Involved	AIR1 Dispatched and Cancelled
2015	27	9
2016	32	4
2017	40	12
3-year average	33	8

Finally, no consistent, easily retrievable data was available regarding time and resources expended to pursuit related arrests. Therefore, MNP could not quantitively determine whether the use of the helicopter expedited the process to conclusion.

5.3.5.1 Incidents Related to Pursuits

Winnipeg Police Service interviewees were asked whether they believe the helicopter reduces operational risk and improves officer safety and, if so, how. General themes suggested the police helicopter contributes to police officer safety by providing aerial intelligence, lighting up areas at night and tracking vehicles allowing ground units to fall back on high-risk pursuits. The presence of the helicopters locates and "keeps an eye on suspects" and helps to deescalate situations.

The following table was developed utilizing data provided by the Patrol Vehicle Operations Unit and summarizes the injuries and property damage results of pursuit calls attended by FOU and those they did not attend. FOU attended on average thirteen (13) per cent of the pursuit calls between 2014 and 2017.

Table 21: Pursuit Data Demonstrating Damage, Injuries and Arrest Occurrences When the FOU Attended or Did Not Attend Between 2014 and 2017

	2014			2015			2016			2017		
	Total	FOU Attend	FOU Did Not Attend	Total	FOU Attend	FOU Did Not Attend	Total	FOU Attend	FOU Did Not Attend	Total	FOU Attend	FOU Did Not Attend
Total Pursuits	**42**	**7**	**35**	**70**	**7**	**63**	**80**	**9**	**71**	**83**	**11**	**72**
Damage	19	3	16	29	4	25	36	1	35	37	4	33
Injuries	3	1	2	15	3	12	10	2	8	13	1	12
Suspect	2	1	1	13	3	10	6	1	5	8	1	7
Civilian	0	0	0	0	0	0	3	0	3	4	0	4
WPS Officer	1	0	1	2	0	2	1	1	0	1	0	1

	2014			2015			2016			2017		
	Total	FOU Attend	FOU Did Not Attend	Total	FOU Attend	FOU Did Not Attend	Total	FOU Attend	FOU Did Not Attend	Total	FOU Attend	FOU Did Not Attend
Arrests	24	3	21	43	5	38	44	9	35	47	10	37

Table 22: Percentage of Total Pursuits Where Damage, Injuries or Arrests Occurred When the FOU Attended or Did Not Attend Between 2014 and 2017

Total	2014			2015			2016			2017		
	% of Total Calls	% FOU Attend	% FOU Did Not Attend	% of Total Calls	% FOU Attend	% FOU Did Not Attend	% of Total Calls	% FOU Attend	% FOU Did Not Attend	% of Total Calls	% FOU Attend	% FOU Did Not Attend
		17%	**83%**		10%	90%		11%	89%		13%	87%
Damage	45%	43%	46%	41%	57%	40%	45%	11%	49%	45%	36%	46%
Injuries	7%	14%	6%	21%	43%	19%	13%	22%	11%	16%	9%	17%
Arrests	57%	43%	60%	61%	71%	60%	55%	100%	49%	57%	91%	51%

Between 2014 and 2017 an average of forty-four (44) per cent of all pursuit calls resulted in some property damage; thirty-seven (37) per cent of the calls attended by the FOU resulted in damage and forty-five (45) per cent of the calls they did not attend had resulting damage. Injuries occurred on average fourteen (14) per cent of the pursuit calls; twenty-two (22) per cent of the calls the FOU attended and thirteen (13) per cent of the calls they did not attend (these included injuries to either the suspect, other civilians or WPS officers).

Arrests were made on average in fifty-eight (58) per cent of the total calls; seventy-six (76) per cent of the calls attended by the FOU and fifty-five (55) per cent of the calls the FOU did not attend. There appears to be a higher arrest rate for the pursuit calls that the FOU attends. This number has increased from forty-three (43) per cent in 2014 to one hundred (100) per cent in 2016 and ninety-one (91) per cent in 2017. The risk of damage appeared to be lower on average for the calls attended by the FOU and risk of injury was higher on average for calls FOU attended, although it was lower in the final year of data when compared to the pursuit calls the FOU did not attend.

Arrests were made on average in fifty-eight (58) per cent of the total calls; seventy-six (76) per cent of the calls attended by the FOU and fifty-five (55) per cent of the calls the FOU did not attend.

Table 23: Average Percentage of Damage, Injuries and Arrests that Occurred During Pursuits When the FOU Attended and Did Not Attend

	Average		
	% of Total Calls	% FOU Attend	% FOU Did Not Attend
Total		13%	87%
Damage	44%	37%	44%
Injuries	14%	22%	13%
Arrests	58%	76%	55%

5.3.6 "Captures" (Identifications/Apprehensions)

The current mandate of the FOU is to support all operational and investigative Service units in the detection of criminal acts and the apprehension of suspects. The FOU has only been recording the number of identifications and the number of apprehensions attributable to the FOU since 2014. Identifications are defined by the FOU as individuals that have been identified by AIR1 during a patrol as non-criminal persons of interest. For example, when the WPS are responding to a domestic disturbance call for service, they are mandated to talk to both parties involved in the incident. As a result, the FOU will record one identification if they are able to locate and guide ground units to an individual that was involved in a domestic disturbance call and was not on scene when ground units initially arrived. An apprehension is when an individual is taken into custody after being identified by AIR1 and charged with a crime.

Identifications are defined by the FOU as individuals that have been identified by AIR1 during a patrol as non-criminal persons of interest.

An apprehension is when an individual is taken into custody after being identified by AIR1 and charged with a crime.

Between 2011 and 2017, the FOU was involved in identifying/apprehending a total of 1,570 persons of interest or approximately eleven (11) per cent of the total number of incidents the unit responded to. This is an average of 224 per year[16] [17] [18] [19] [20] [21] [22].

Table 24: Total Annual Captures Between 2011 and 2017

	2011	2012	2013	2014	2015	2016	2017	Total	Average
Taken into custody/arrests	127	N/A	N/A	105	112	60	252	Not complete	
Non-Criminal	N/A	N/A	N/A	82	235	115	97	Not complete	
Total	127	185	200	187	347	175	349	1,570	224

N/A – Separated data was not available; the total includes both arrests and non-criminal location of individuals for both 2012 and 2013

Annually, there are numerous events that serve as examples of operational success when the presence of the FOU directly contributed to the apprehension of individuals. For example, AIR1 responded to an in-progress residential break and enter call, quickly identifying four suspects after arriving first on scene. Once the four suspects noticed AIR1 they fled the area and separated into two groups heading in two different directions. AIR1 was able to maintain visual containment on two suspects that hid in a nearby yard, while the other two suspects were captured by a patrol unit. After all four suspects were in custody, AIR1 was able to locate the discarded stolen property using the infrared camera. This was used as evidence against the four suspects. Although the Flight Operations Unit records the number of captures, and the types of anecdotes described above, they do not link back to calls for service and do not compare to situations where they have not been involved. Therefore, there is no valid method of quantitively determining if the use of the helicopter improves apprehension rates.

Flight Operations Unit members were asked how they believed the use of AIR1 helped to improve apprehension of offenders. Responses included that the helicopter helps to locate individuals and evidence in a more efficient manner using infrared technology and the spotlight during evening incidents. Information is provided to ground patrols in real time, so they are better able to apprehend these individuals.

5.3.7 Missing Person Assists

Based on the WPS call for service data, the FOU attended a total of one hundred and seven (107) calls for service or an average of fifteen (15) calls per year to assist in the location of missing individuals (Table 25). For instance, AIR1 was called upon to assist a missing person call that covered a large geographic area both inside and outside Winnipeg due to multiple cell phone pings on the individual's cell phone. The RCMP were also involved in the search and could not locate the suspect based on the information gathered from the multiple cell phone pings. As a result, AIR1 performed a successful search in a remote area utilizing the infrared camera that located the individual's vehicle inside a wooded area. After locating the vehicle, AIR1 guided the RCMP to the specific location of the vehicle at which time the RCMP located the missing individual inside the vehicle and transported them to hospital for required medical assistance.

Table 25: Annual Missing Person Assist Calls for Service Attended by the FOU Between 2011 and 2017

	2011	2012	2013	2014	2015	2016	2017	Total	Average
Missing Person Assist	11	15	13	14	20	15	19	107	15

The FOU has not tracked the number of individuals found as a result of their assistance with Missing Person Assist calls for service. However, additional measures of benefit are attached to this call type. As the helicopter is equipped with technology that enables a comprehensive search of most terrain in a short time, assistance from AIR1 may aid and streamline the ground search process, particularly with events that occur at night or in densely wooded areas. Resolution of MPA calls depends on the contribution of different units with various skills which, in combination, support to the progress toward finding a missing person.

Interview respondents described the benefits of using AIR1 in the search for missing persons including:

- The ability to search a large area in a short period of time (19 respondents)
- The infrared camera is able to discern between heat differences (12 respondents)
- The spotlight can light up large search areas in the dark (10 respondents)
- It allows a broad aerial perspective of spaces where people could be hiding in real time (2 respondents)

Although the helicopter is an asset in searching for missing or injured persons, it is limited to providing direction to ground units during search and rescue missions. The reason is the single engine does not allow the helicopter to hover over an area for any length of time. As a result, the helicopter is not able to allow search and rescue team members to rappel down from the helicopter to an injured person(s). Nine (9) interviewees suggested purchasing a dual-engine helicopter to enhance the FOUs' ability to provide this type of assistance during a search and rescue operation.

5.3.8 Public Survey Results of AIR1's Impact on Public and Officer Safety

Approximately half of the online survey respondents believe the police helicopter and FOU increases public and officer safety in Winnipeg. Furthermore, seventy (70) per cent of respondents agreed that the FOU provides a safer option for vehicle pursuits in comparison to patrol cars.

- Seventy (70) per cent agree AIR1 provides a safer option for vehicle pursuits (15% disagree)
- Forty- eight (48) per cent agree AIR1 maintains public safety at large-scale events (32% disagree)

- Fifty-six (56) per cent agree AIR1 increases officer safety (22% disagree)
- Fifty (50) per cent agree AIR1 Increases public safety (35% disagree)

A much larger percentage of telephone survey respondents believe the police helicopter and FOU increases public and officer safety in the city of Winnipeg at almost eighty-five (85) per cent of respondents.

- Eighty- seven (87) per cent agree AIR1 provides assistance to support other agencies (3% disagree)
- Eight-five (85) per cent agree AIR1 Increases public safety (7% disagree)
- Eight-four (84) per cent agree AIR1 increases officer safety (6% disagree)
- Seventy- nine (79) per cent agree AIR1 maintains public safety at large-scale events (9% disagree)
- Seventy-six (76) per cent agree AIR1 reduces crime in the city (15% disagree)
- Seventy (70) per cent agree AIR1 provides a safer option for vehicle pursuits (14% disagree)

5.3.9 WPS Opinion of AIR1's Impact and Officer Safety

There is a very high level of agreement that AIR1 supports officer safety. Seventy-five (75) per cent of sworn officers believe the use of the helicopter reduced their personal safety risk, eighty-eight (88) per cent believe it increased other officers' safety and approximately eighty-six (86) per cent believe it protected members of the public.

Similar results were found with civilian members of the WPS that completed the survey, with ninety-five (95) per cent agreeing that the police helicopter increased officer safety and ninety-four (94) per cent agreeing it protected members of the public.

Again, it is very difficult to prove that something did not happen and identify direct correlations. However, intuitively, having a tool that provides a real-time aerial perspective of a potential crime scene and has the ability to light the scene, can only ensure officers know the location of suspects and are made aware of any dangers. In addition, video footage of incidents ensures there is documented evidence of officer conduct, protecting the officer and the WPS from potential liability.

5.3.10 Cost Benefit and Value

MNP could not complete a full cost-benefit analysis as part of this review because the data is not available to quantify the benefits. As well, we could not complete a 'social return on investment' calculation. Having said that, a community's perception and WPS members' belief that the helicopter helps keep them safe, is important but not easy to measure and value. In the future, it is an important consideration in assessing the effectiveness of AIR1. Even if the use of the helicopter was proven to prevent injury or save a life, this 'value' is immeasurable. The public perception of their safety and security is one of the indicators of the success of a Police Service. Consideration should be given to consistently measure public and WPS members' perception of their safety and the impact the police helicopter has on this perception. In addition, the documentation and tracking of when the police helicopter assisted in preventing bodily injury, death and theft or destruction of property could enable a calculation of social return on investment.

The Winnipeg Police Service does not consistently, and in an easily extractable format, collect outcome data to allow comparisons in the events the FOU participated in and those it did not. In order to provide a relative and relevant comparison, MNP determined the cost of operating one general patrol unit during 2017.

The total annual operating costs of the FOU between 2011 and 2017 have ranged from $1.33 million in 2012 to $1.93 million in 2016. The average annual cost over the seven years of operations are $1.65 million. The annual operating costs for the FOU make up on average 0.7% of the total annual police budget based on the last five (5) years.

5.3.10.1 Annual Operating Costs

Staffing costs make up fifty-six (56) per cent of total annual costs. Operating costs including fuel, maintenance and insurance are thirty-three (33) per cent of total costs and the remaining incremental costs are eleven (11) per cent of the total costs. The largest incremental costs are training, and the cost associated with the lease for the hangar space. Financial expenditures for the FOU have increased by an average of four (4) per cent over the seven years of operation with increases in staffing costs of four (4) per cent, a six (6) per cent average increase in operating costs and nine (9) per cent increase in incremental costs.

Table 26: Annual Operating Costs of the FOU Between 2011 and 2017

	2011	2012	2013	2014	2015	2016	2017	Percentage of Total Costs	Average Annual % Increase (Decrease)
Subtotal personnel costs	$852,308	$765,680	$853,430	$991,888	$1,002,222	$1,025,034	$1,048,951	56%	4%
Subtotal operating costs	$438,765	$433,116	$502,034	$523,581	$651,483	$719,859	$577,241	33%	6%
Subtotal incremental costs	$138,887	$128,933	$162,748	$245,882	$150,818	$188,515	$183,204	11%	9%
Total Annual Costs	$1,429,960	$1,327,729	$1,518,212	$1,761,351	$1,804,523	$1,929,849	$1,809,395		
Percentage Increase (decrease)		(-7%)	14%	16%	2%	7%	(-6%)	4%	

5.3.10.2 Comparison of Annual Expenditures to Annual Flight Hours

Financial expenditures and annual flight hours increased by almost the same amount based on annual average increases. Annual expenditures increased by an average of four (4) per cent and annual operational flight hours increased by three (3) per cent. Staffing costs per flight hour have increased by an average five (5) per cent, operating costs by seven (7) per cent, other incremental costs by thirteen (13) per cent and total costs per flight hour have increased by six (6) per cent.

Table 27: Comparison of Annual Expenditures to Annual Flight Hours of the FOU Between 2011 and 2017

	2011	2012	2013	2014	2015	2016	2017	Average Per cent Increase (decrease)
Annual Operational Flight Hours	883.5	984	986	901	1,007	733	947	3%
Personnel Costs/ operational flight hour	$965	$779	$865	$1,101	$995	$1,399	$1,108	5%
Operating costs/ operational flight hour	$497	$440	$509	$581	$647	$982	$609	7%
Incremental costs/ flight hour	$157	$131	$165	$273	$150	$257	$193	13%
Total Expenditures/ flight hour	$1,619	$1,350	$1,539	$1,955	$1,792	$2,634	$1,910	6%

5.3.10.3 Lease Versus Buy

It was reported during consultation with other policing agencies that they all own their flight operations and helicopter assets and were able to access the necessary funds for the purchase either through internal capital funds, grants from funders or fundraising efforts.

Consequently, the "lease vs. buy" option in most cases is a financing decision. If the cash for the capital expenditure is available, police services purchase the helicopter. The lease option may be a more preferred option for those that may not have the lump sum of cash but could cash flow lease payments.

The financing decision would ultimately depend on the lease interest rate compared to the cost of the debt for the funder. All things being equal, the lease option would remove the burden of having to dispose of the asset if there was a need for upgrade or at the end of its useful life.

In most cases, the financial differences in a lease vs. buy scenario are relatively immaterial, particularly for a not-for-profit because the accounting and income tax differences between the two options are moot.

There may be other advantages outside of the finance related elements of the lease versus buy decision. For example, the lease may provide more flexibility in an environment with quickly advancing technology which may be a more important consideration for the higher-end technology of the flight operations equipment (e.g. infrared camera). A short-term lease would provide this flexibility, if equipment needed to be updated on a more regular basis.

5.3.10.4 Comparison to Utilization of Resources on Additional General Patrol Units

Rare comments were made during the interviews that the funding for the Flight Operations Unit could be redirected to ground patrol units. MNP did not complete a full comparative review of AIR1 and a ground patrol unit. That type of review would have to include in-depth assessments of the operational capabilities of each.

MNP prepared the 2017 cost of a two officer general patrol unit to compare with the funding provided for the FOU during the same year. The following general patrol financial data was provided to MNP from WPS Finance. The hourly rates are not fully loaded and only include officer salaries and benefits (for two first class officers) as well as vehicle maintenance and fuel. They do not include other officer equipment, training costs, overtime or any overhead costs. A previous analysis completed by WPS indicated that it requires eighteen (18) FTEs to staff one patrol unit for full time coverage. Based on this comparison, the cost of operating the FOU during 2017 was equivalent to the cost of operating 0.7 general patrol units.

Table 28: 2017 Operational Cost of One (1) General Patrol Unit

	Annual Cost for Patrol Car
Salaries and benefits	$59
Annual salary and benefits for one first class officer (hourly cost for one first class officers $59 x 2,080 annual hours)	$122,720
FTEs needed	18
Total salary and benefits cost for one patrol unit (2 first class officers)	$2,208,960
Hourly cost of vehicle maintenance and fuel	$31
Total annual vehicle cost (24*365*$31)	$271,560

Table 29: 2017 Operational Cost Comparison of One (1) General Patrol Unit and FOU

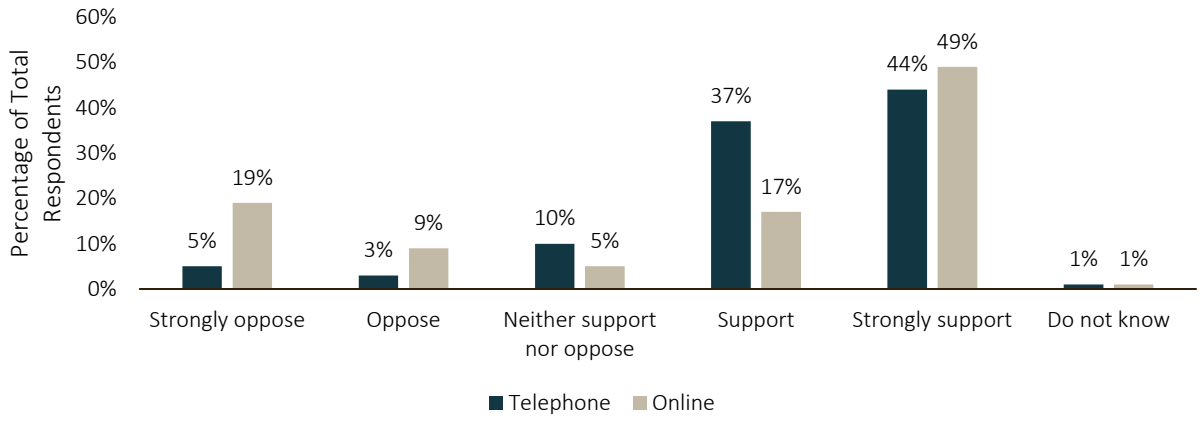
	Annual Cost for Patrol Car	Annual FOU Costs 2017
Salaries and benefits	$2,208,960	$1,048,950
Vehicle maintenance and fuel	$271,560	$760,445
Total Annual Cost	**$2,480,520**	**$1,809,395**
	Patrol Units/FOU Expenditures	0.7

5.3.11 Public Perception of Resource Utilization

The public was asked questions about their level of support for the police service helicopter and whether they felt it was a good use of WPS funding for the benefits that it provides. As indicated in the figure below, the majority of online and telephone survey respondents either strongly agree or agree that the police service helicopter is an efficient use of WPS funding and worth it because of the benefits it provides.

Sixty (60) per cent of online survey respondents and seventy-five (75) per cent of telephone respondents agree AIR1 is an efficient use of WPS funding. Twelve (12) per cent of telephone and thirty (30) per cent of online respondents disagreed with this statement.

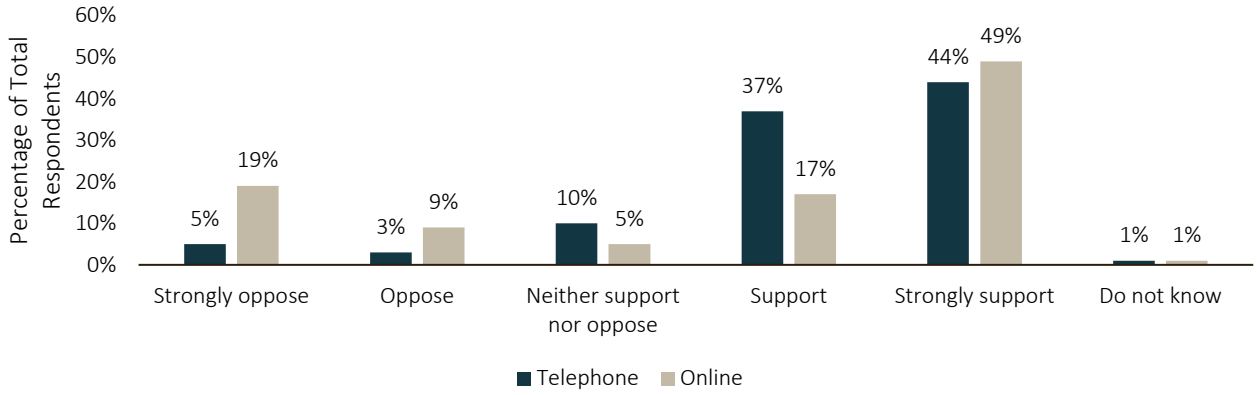
Figure 46: Online and Telephone Survey Respondents' Opinion of Whether the Police Helicopter is an Efficient Use of WPS Resources



5.3.12 Public Support for the Police Service Helicopter

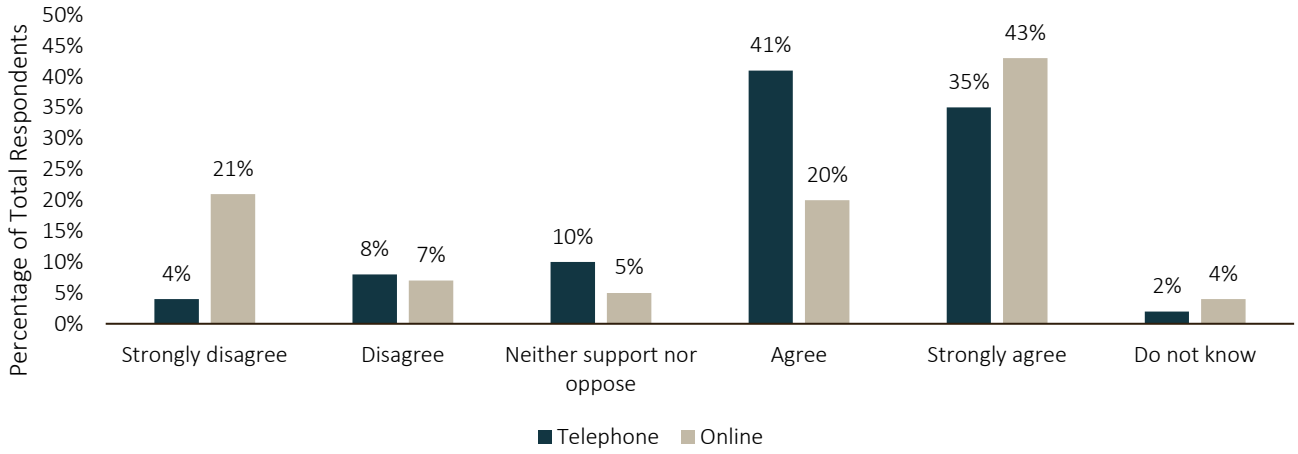
In the online and telephone survey, the general public was asked a series of questions related to the value of the helicopter. As indicated in Figure 47, the majority of respondents 'strongly support' or 'support' the use of the police helicopter with sixty-six (66) per cent of online respondents and eighty-one (81) per cent of telephone respondents stating support.

Figure 47: Online and Telephone Survey Respondents' Support or Opposition for the Police Helicopter



Sixty-three (63) per cent of online survey respondents and seventy-six (76) per cent of telephone respondents agree the costs of AIR1 are justified by the benefits it provides. Twelve (12) per cent of telephone and twenty-eight (28) per cent of online respondents disagreed with this statement.

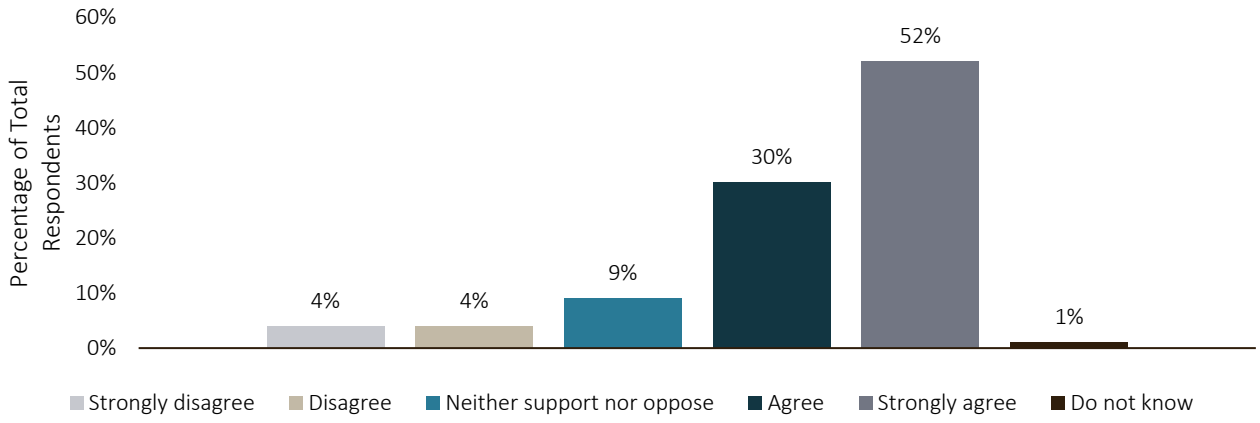
Figure 48: Online and Telephone Survey Respondents' Opinion of Whether the Costs of Operating the Police Helicopter are Justified by the Benefits It Provides



5.3.13 WPS Member Perception of Resource Utilization and Effectiveness

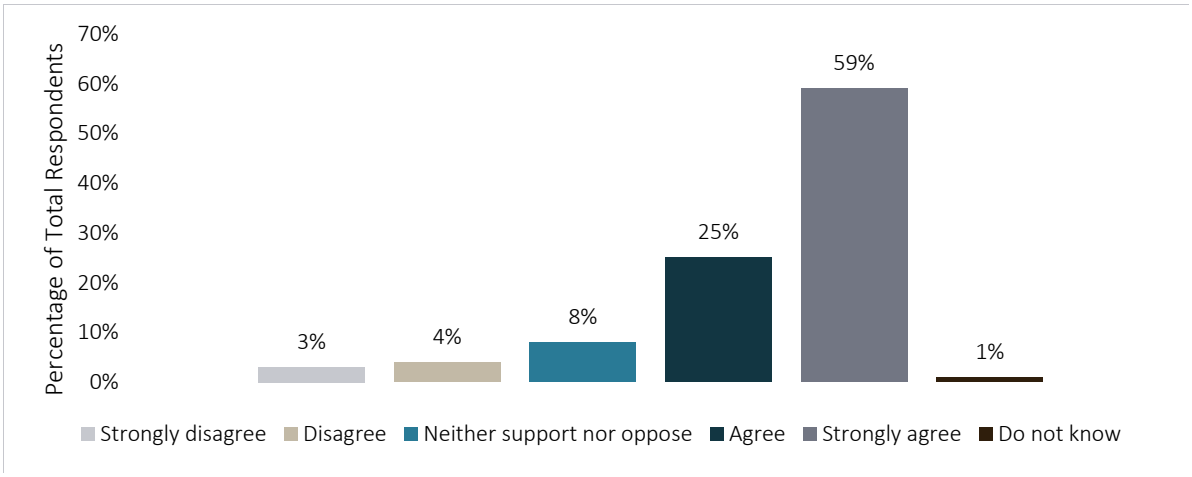
The majority of the WPS members participating in the survey were also found to agree that AIR1 is an efficient use of WPS funding (Figure 49). Eighty-two (82) per cent of WPS members agreed or strongly agreed the police helicopter is an efficient use of WPS resources.

Figure 49: WPS Survey Respondents' Opinion on Whether the Police Helicopter is an Efficient Use of WPS Resources



Eighty-four (84) per cent of WPS members either agreed or strongly agreed the costs of the unit are justified by the benefits it provides. This would indicate strong internal support for the WPS FOU (Figure 50).

Figure 50: WPS Survey Respondents' Opinion of Whether the Costs of Operating a Police Helicopter are Worth It Because of the Benefits it Provides



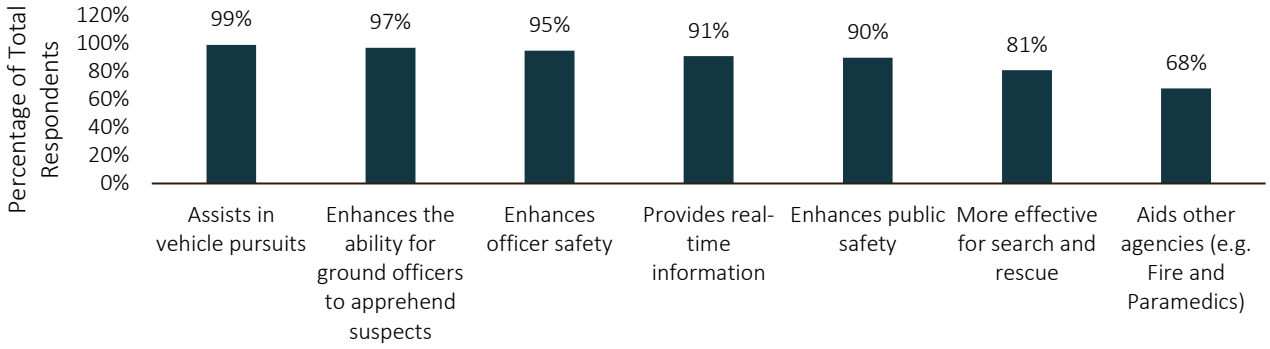
In addition to the survey data, interviews were conducted with members of the FOU and WPS to determine perceptions about the costs associated with the police service helicopter. The overwhelming majority of interview respondents (91%) indicated that they strongly agree that the police helicopter is an efficient use of the WPS funding and that the costs of operating the helicopter are worth it for the benefits it provides. There were a couple of respondents who mentioned that the funding could be used to obtain additional officers or that the costs could potentially go towards different less costly methods that can operate similar to a helicopter such as drones or a fixed wing aircraft.

Over eighty (80) per cent of WPS survey respondents believe the FOU increases WPS operational effectiveness by:

- Assisting in vehicle pursuits
- Enhancing the ability of ground patrol to apprehend suspects
- Enhancing officer safety

- Providing real-time information
- Enhancing public safety

Figure 51: WPS Survey Respondents' Opinion of Why the Police Helicopter Increases the Operational Effectiveness of the WPS



5.3.14 Comparison Between Helicopters, Fixed Wing Aircrafts and Drones

Anecdotal evidence collected during the stakeholder interviews suggested that although there are alternatives that may be more cost effective to complete some of the functions the helicopter currently provides, such as fixed wing aircraft and unmanned aerial vehicles, they cannot currently provide all the functionality and benefits of the helicopter. This is not necessarily an 'either or' situation. A combination of tools would be seen as optimum. Please note: Comparisons should be completed in the context of the complete operational model, not just the functionality of the equipment. The following table summarizes some of the benefits and limitations of each of the aerial support options.

Table 30: Aerial Support Comparisons

	Benefits	Limitations
Helicopter (Single Engine)[25] [26]	• Fast mobilization and response • Ability to land away from airport • Flexibility • Spotlight • Infrared camera • Patrol support • Maneuverability • Lower altitude flying • Flexibility to work in poorer weather than a fixed wing aircraft • Criminal flight • Public Address system • Moving map system • Fire suppression • VIP protection/escorts	• Cannot actively assist in search and rescue (due to single engine) • Noise • High operating expenses • Lower endurance (2.5 to 3 hours)
Fixed Wing Aircraft (FWA)[27] [28]	• Lower operating costs than a helicopter	• Need for a runway • Visual continuity

	Benefits	Limitations
	• Endurance (up to 7 hours) • Infrared camera • Moving Map System • Quieter operations	• Night illumination (no ability to add spotlight) • Search and rescue operations • High altitude only • Weather restrictions • Limited continuity for criminal flight • No ability to aid in fire suppression • No public address system • No VIP protection/escorts
UAV (Drones)[29] [30] [31] [32] [33] [34] [35] [36]	• Lowest operating cost option • Fast mobilization • Can be equipped with optical, zoom, infrared, mapping technologies • Search & rescue • Accident & traffic management • Traffic collision reconstruction • Dealing with bombs and hazardous materials • Risk reduction • Endurance (large drones – 20+ hours)	• Many airspace restrictions • Privacy challenges – constitutional rights • Lack of endurance (small drones – 1 hour) • WFPS drone has to be in sight at all times (larger drones do not have this limitation)

5.3.15 Summary of Findings – Performance/Effectiveness

Summary of Findings - Performance/Effectiveness

- Since 2011, the Flight Operations Unit has been budgeted for and has intended to operate the helicopter for 1000 in-flight hours annually. From 2011 to 2017, the FOU has had an average of 933 total flight hours annually and approximately 78 hours per month.
- The FOU contributed to increased public safety by identifying incidents in progress. This was demonstrated by data from 2016 and 2017 detailing how many calls for service were initiated by the FOU. In 2016, ten (10) calls for service were initiated and seventeen (17) in 2017. The calls for service ranged from Priority 0 to Priority 9 with approximately fifty (50) per cent of these calls being urgent in nature (Priority 0 to 4).
- In 2017, AIR1 arrived on scene within three minutes for over seventy-three (73) per cent of the events and in only nine (9) per cent of the events did it take them longer than five minutes to arrive on scene. The average response time for this data set of 424 dispatched events was 2.7 minutes.
- When compared to average response times for ground units in 2017 for the same priority level calls the average response time for ground units to a Priority 0 or 1 call in 2017 was nine (9) minutes and over thirteen (13) minutes for a Priority 2 call.
- Since 2011, the FOU has arrived first on-scene an average of fifty-eight (58) per cent of the total number of incidents that they have responded to.
- Since 2011, the WPS have been involved in a total of 372 pursuits with the FOU assisting on sixty (60) pursuits or approximately sixteen (16) per cent of the total number of pursuits in Winnipeg. The FOU attended on average twelve (12) per cent of the pursuit calls between 2014 and 2017. This decreased from

Summary of Findings - Performance/Effectiveness

seventeen (17) per cent of total calls to ten (10) per cent of total calls between 2014 and 2015, remained fairly stable at eleven (11) per cent of calls in 2016 and increased to fourteen (14) per cent of total pursuit calls in 2017.

- Between 2014 and 2017 an average of forty-four (44) per cent of all pursuit calls resulted in some property damage, thirty-seven (37) per cent of the calls attended by the FOU resulted in damage and forty-five (45) per cent of the calls they did not attend had resulting damage.
- Injuries occurred an average of fourteen (14) per cent of the follow/pursuit calls, twenty-two (22) per cent of the calls the FOU attended and thirteen (13) per cent of the calls they did not attend (these include injuries to either the suspect, other civilians or WPS officers).
- Arrests were made on an average of fifty-eight (58) per cent of the total calls, seventy-six (76) per cent of the calls attended by the FOU and fifty-five (55) per cent of the calls the FOU did not attend.
- Between 2011 and 2017, the FOU was involved in identifying/apprehending a total of 1,570 persons of interest or approximately eleven (11) per cent of the total number of incidents the unit responded to or an average of 224 per year.
- The FOU attended a total of 107 calls for service or an average fifteen (15) calls per year to assist in the location of a missing individual(s).
- The majority of general public respondents 'strongly support' or 'support' the use of the police service helicopter with sixty-five (65) per cent of online survey respondents and eighty-two (82) per cent of telephone respondents indicating this respectively.
- The overwhelming majority of online and telephone survey respondents either strongly agree or agree that the police service helicopter is an efficient use of WPS funding and worth it because of the benefits it provides.
- There is strong agreement by WPS members that the costs associated with AIR1 are an efficient use of WPS resources and that the costs are justified by the benefits it provides (eighty-four (84) per cent).
- The total annual operating costs of the FOU between 2011 and 2017 have ranged from $1.33 million in 2012 to $1.93 million in 2016. The average annual costs over the seven years of operations are $1.65 million. The annual operating costs for the FOU make up on average 0.7% of the total annual police budget based on the last five years.
- Staffing costs make up fifty-six (56) per cent of total annual costs, operating costs including fuel, maintenance and insurance are thirty-three (33) per cent of total costs and the remaining incremental costs are eleven (11) per cent of the total costs.
- Financial expenditures and annual flight hours increased by almost the same amount based on annual average increases. Annual expenditures increased by an average of four (4) per cent and annual operational flight hours increased by three (3) per cent staffing costs per flight hour have increased by an average five (5) per cent operating costs by seven (7) per cent other incremental costs by thirteen (13) per cent and total costs per flight hour have increased by six (6) per cent.

Summary of Findings - Performance/Effectiveness
• If the funds to the Flight Operations Unit were redirected to additional ground patrol units, 0.7 additional 24/7 general ground patrol units could be added.

6 CONCLUSIONS

The following section outlines the conclusions of this review and the supported by findings and/or rationale. They are organized in the following sections:

- Relevance/Need
- Efficiency
- Performance/Effectiveness

6.1 Relevance/ Need

To what extent are the operational activities of the FOU relevant and/or needed by the communities it services, the operations of the WPS and other law enforcement and emergency services agencies?

1. Winnipeg needs and will continue to need several, modern "tools" to support operational and investigative units.

Supporting Findings and Rationale

Patrol areas for the WPS are impacted by Winnipeg's population, land area, and population density. The 2017 WPS Annual Report indicated the city was 475.2 square kilometres; which is virtually unchanged since 2001 when the physical area of the city was 473.7 square kilometers. Alternatively, Winnipeg's total population has been growing steadily from 637,200 in 2001 to 749,500 in 2017. As a result, the city's population density has increased from 1,345 per kilometer in 2001 to 1,577 per kilometer in 2017. If the city's footprint expands or the total land area remains the same and the population and density increases, patrol models will be impacted.

Generally, increasing populations are positively correlated with increasing crime rates and calls to police. Even with an increasing population the total number of emergency and non-emergency calls received by the WPS has been relatively stable between 2012 and 2017. Specifically, in 2017, the total number of calls was four (4) per cent above average. The total number of dispatched events (calls for service where WPS members were sent) has been above the six- year average in 2016 and 2017. Therefore, even though the WPS are only receiving a slightly higher than average number of calls from the public, they are sending their members to a greater number of them.

Property and violent crime rates have been above the six-year average (2012-2017) in both 2016 and 2017. Violent crimes were fifteen (15) per cent higher and property crimes seventeen (17) per cent higher in 2017. Property and violent crime rates in Winnipeg have been higher than the rest of Canada since 2012 and 2013 respectively.

2. There is a high level of public awareness and understanding of the police helicopter in Winnipeg.

Supporting Findings and Rationale

Evaluating relevance or need in a community requires an understanding of the general public awareness of the service or tool. Ninety- nine (99) per cent of the public online respondents and ninety-two (92) per cent of the telephone survey respondents expressed awareness that the WPS was operating a helicopter.

3. The presence of the helicopter is enhancing citizen's perception of safety in their neighborhoods.

Supporting Findings and Rationale

A significant percentage of public online and telephone survey respondents expressed agreement or strong agreement that the helicopter provides a 'sense of security and safety' and 'helped with neighborhood policing'. Fifty-six (56) per cent of online survey and seventy-three (73) per cent of telephone survey respondents agreed or strongly agreed that the helicopter provides a sense of security and safety. Fifty-six (56) per cent of online respondents and sixty-five (65) per cent of telephone survey respondents agreed or strongly agreed that the police helicopter helped with neighborhood policing.

4. The use of the helicopter doesn't appear to be having significant negative impacts on communities.

Supporting Findings and Rationale

Thirty-one (31) per cent and twenty-one (21) per cent of online respondents agreed or strongly agreed that they were disturbed by the noise and light of the police helicopter respectively. Six (6) per cent and thirteen (13) per cent of telephone respondents either agreed or strongly agreed that they were disturbed by the noise and light of the police helicopter. Finally, thirty-three (33) per cent of online respondents and twenty-one (21) per cent of telephone respondents either agreed or strongly agreed that the police helicopter causes concern when in the area. With regard to official complaints, the WPS only records complaints about noise from the use of AIR1. Based on this recorded information, the FOU has received an average of 6.4 noise complaints annually for the last seven years. However, in the last five years, there have been five (5) or less complaints per year.

5. The demand for the helicopter cannot be accurately quantified.

Supporting Findings and Rationale

One of the best ways of determining the need or demand for the helicopter is to consistently and thoroughly document and monitor the total number of requests for the use of AIR1 and where the requests are coming from. This information should be a key activity measure that informs decision processes about resourcing and justifies the continued use, reinvestment and/or additional investments in the FOU.

The WPS records the calls for service, using their Computer Aided Dispatch (CAD) system, when AIR1 is dispatched or when the calls for service are cancelled. All calls for service and/or situations where the helicopter could have been used, are not consistently recorded, monitored, analyzed and reported. The only existing method of identifying when the helicopter was requested and not available is a search of the notes input by the dispatchers in the Communications Centre. However, whether this information is recorded, depends on the level of activity in the Communications Centre at any given time and the individual dispatcher. The information is not completely accurate and therefore MNP did not conduct an analysis and reach any conclusions.

In addition, dispatchers, duty officers and uniform officers have a general understanding of when AIR1 is operational. They may not request its use if they know it is not scheduled to fly. The most accurate analysis would be a combination of calls for service where AIR1 was able to respond, calls for service where AIR1 was requested but was unavailable to respond and situations where it was appropriate for AIR1 to be used but it was unavailable.

The Winnipeg Police Service conducted an analysis of demand for the 2017 calendar year based on comments recorded in the CAD system. They concluded that of the 292 days that AIR1 was in flight, 15.62% of expressed demand over dispatch was not met. Of the seventy-three (73) days that AIR1 was not in service, fifteen (15) had expressed requests for service that were not met.

Comparatively, policing services in other Canadian jurisdictions are tracking a number of additional data sets including:

- Units redirected by flight operations participation
- Flight operations response times
- Calls cancelled or declined by operations
- All requests for service for flight operations
- Proactive patrol flight hours
- Flight hours on calls for service
- If the FOU was the first on the scene
- The result of the call attended

6. The operational model and target annual flight hours are developed based on desired hours of operation, the staffing model, maintenance and budget rather than demand and identification of its potential use.

Supporting Findings and Rationale

One method of determining the relevance/ need for the FOU is to identify and analyze the incidents where the WPS is involved and the use of the FOU in these responses, as well as where it is not used. As described above, the number of requests that could not be fulfilled by the Flight Operations Unit should also be considered. The operating model was developed to ensure the helicopter is operational in the later evening and over night. It also requires staffing of two tactical officers and a pilot. The goal of one thousand (1000) hours appears to be selected based on the desired hours of operation, staffing model and the maintenance requirements, rather than demand forecasts and identification of its potential use.

Between 2011 and 2017, the annual average number of incidents responded to by the FOU is 2164. This is approximately 1.1 per cent of the total number of incidents responded to by the WPS over the same period. To ensure a valid analysis, and an 'apples to apples' comparison, the analysis should consider the types of incidents and only include the number of incidents where the use of AIR1 might have been appropriate. The top five call types responded to by the FOU between 2011 and 2017 are suspicious persons, domestic disturbances, traffic stops, wellbeing and break and enters. These five call types represent thirty-nine (39) per cent of the total calls where the FOU has responded.

7. A high percentage of Winnipeg Police Service sworn officers have been involved with the Flight Operations Unit on calls or events and the Flight Operations Unit has been very responsive to these requests for service.

Supporting Findings and Rationale

Approximately seventy (70) per cent of the sworn officer respondents to the online survey have been involved with the FOU on calls or events. The FOU has been very responsive to these requests for service. Thirty-four (34) per cent have made over 10 requests since January 2017. Fifty-three (53) per cent received support on some of their requests, thirty (30) per cent on most of their requests and eleven (11) per cent on all requests made.

8. Although assistance to external protection agencies has always, and is still envisioned, as one of the roles of the FOU, there are limited, documented requests for assistance by these agencies.

Supporting Findings and Rationale

The information gathered through interviews, indicated that there are zero (0) to four (4) requests made annually by external agencies, with assistance in search and rescue the most common. The feedback provided is that they consider the helicopter "invaluable" when they have provided assistance.

The lack of memorandums of understanding with external agencies, outlining the potential use of the helicopter, may be affecting requests for its use. Feedback was provided that many external agency team members believe they will be financially charged for use of this tool and therefore only use it when absolutely necessary.

9. WPS members believe AIR1 could and should be used more.

Supporting Findings and Rationale

WPS members who have used AIR1 see its value in helping them do their jobs and keeping them safe. Approximately seventy (70) per cent of survey respondents have been involved with the FOU. Those responsible for dispatching to calls for service in the Communications Centre suggested they could dispatch the helicopter in significantly more situations if it was available. Seventy-four (74) per cent of WPS respondents believe the police helicopter should be used more. Fifteen(15) executive and management as well as FOU members indicated that the police helicopter needs to be used more. Sixteen (16) interviewees indicated there are situations when they need the helicopter to assist in an incident but it is not available due to maintenance issues, weather conditions or scheduling.

6.2 Efficiency

Is the FOU operating as efficiently as it can, given the available budget and resources?

Does the use of the helicopter enhance the operational efficiency of the Winnipeg Police Service?

1. The organizational structure of the FOU is well designed.

Supporting Findings and Rationale

The structure is simple and easy to understand, the span of control is minimal and the positions are organized around specializations. The unit is in a portfolio of support units intended to assist uniform operations and investigative Service units. The pilots and tactical officers have significant discretion about when they operate and the calls for service they respond to (aligned authority and responsibility).

2. The public generally believes the police helicopter contributes to the operational efficiency of the Winnipeg Police Service.

Supporting Findings and Rationale

Although there were differences between online and telephone survey respondents, the majority believe that the helicopter assists in finding and apprehending criminal suspects, enhances the effectiveness of the WPS and is an important policing tool for a major municipality like Winnipeg. Telephone survey respondents also showed strong agreement to the statements that use of the helicopter assists in deterring crimes or dangerous situations and improves responses to calls for service related to missing persons in Winnipeg.

3. Winnipeg Police Service respondents to the online survey strongly agree that the use of the police helicopter enhances the operational efficiency of the Winnipeg Police Service.

Supporting Findings and Rationale

Eighty- two (82) per cent of WPS survey respondents agree that the FOU improves the operational efficiency of the WPS. Flight Operations Unit members who participated in interviews and the process mapping session, believe the unique aerial perspective helps to improve the efficiency of the WPS. It has the ability to provide real time information and intelligence to ground units, ensuring appropriate response and resourcing.

4. Intuitively and anecdotally, the use of AIR1 is a time and resource saver, but the WPS does not consistently and in an easily retrievable fashion, collect and analyze the data to quantitively prove it.

Supporting Findings and Rationale

Determining efficiency involves comparing what is actually produced or performed with what can be achieved with the same consumption of resources. It is the good use of time and energy in a way that does not waste time or energy. The FOU does not currently collect, analyze and report against efficiency measures. However, the majority of interview respondents believe its unique aerial perspective enables AIR1 to search large areas faster

and provides crucial intelligence to ground units. This intelligence should enable much quicker location of suspects and missing persons, resulting in fewer required resources (efficiency) and better outcomes (effectiveness).

The ability to 'call off' ground units when not needed, and make them available for other calls, is an efficiency measure used by other Canadian policing agencies. Although the FOU does not have the authority to 'call off' ground units, this authority must be clarified and utilized in order to achieve maximum efficiencies.

6.3 Performance/ Effectiveness

Does the FOU provide strategic value to the WPS and the community?

1. The helicopter is able to respond to incidents faster than ground patrol units and can provide critical assistance to ground units.

Supporting Findings and Rationale

Response times is a metric commonly used by policing services to measure performance. It is also a measure important to the general public. Response time data was provided by WPS for Priority 0, 1 and 2 events which included 424 FOU dispatched events. In 2017, AIR1 arrived on scene within three (3) minutes for over seventy-three (73) per cent off the events and in nine (9) per cent of the events did it take them longer than five minutes. When compared to average response times for ground units in 2017 for the same priority level calls, the average response time for ground units was nine (9) minutes for a Priority 0 or 1 call and over thirteen (13) minutes for a Priority 2 call. The quick response of the police helicopter enables more timely intelligence and tracking of the suspect.

One of the primary purported benefits of the use of a helicopter is to reduce the response times of the service and consequently improve their ability to be first on-scene in comparison to ground units. Since 2011, the police helicopter has arrived first on scene an average of approximately fifty-eight (58) per cent of the total number of events they have attended.

2. Data collected since 2014 suggests that a greater number of arrests are made when the FOU is involved in a pursuit.

Supporting Findings and Rationale

The Flight Operations Unit has attended sixty (60) or sixteen (16) per cent of the three hundred and seventy-two (372) pursuits since 2011. Based on available data, arrests, as a result of pursuits, were made an average of fifty-eight (58) per cent of the time in the period from 2014 – 2017. This rises to seventy-six (76) per cent when the FOU attends the call. When the FOU does not attend the call, arrests are made fifty-five (55) per cent of the time.

In addition, between 2014 and 2017, an average of forty-four (44) per cent of all pursuit calls resulted in some property damage. Only thirty-seven (37) per cent of the calls attended by the FOU resulted in damage. Conversely, injuries (suspect, other civilians or WPS officers) occurred on average of fourteen (14) per cent of the follow/pursuit calls with an average of twenty-two (22) per cent when the FOU was involved in the pursuit and thirteen (13) per cent of the calls they did not attend (these included injuries to either the suspect, other civilians or WPS officers).

3. Intuitively and anecdotally, the use of the helicopter helps to find missing persons faster, but the lack of recorded outcomes of missing person assists limits the ability to quantitively prove it.

Supporting Findings and Rationale

The Flight Operations Unit attended at total of one hundred and seven (107) missing person calls for service or an average of fifteen (15) per year since 2011. The FOU has not tracked how many of their 'missing person assist' calls resulted in the successful location of the individual(s).

Interview respondents described the benefits of using AIR1 in the search for missing persons as:

- The ability to search a large area in a short period of time
- The infrared camera is able to discern between heat differences
- The spotlight can light up large search areas in the dark
- It allows a broad aerial perspective of spaces where people could be hiding in real time.

4. There is very strong public support for the police helicopter service.

Supporting Findings and Rationale

Sixty-six (66) per cent of the online survey respondents and eighty-one (81) per cent of the telephone survey respondents expressed support for the use of the helicopter. Sixty (60) per cent of the online respondents and seventy-five (75) per cent of the telephone survey respondents agreed that the helicopter is an efficient use of WPS funding. Sixty-three (63) per cent of the online respondents and seventy-six (76) per cent of the telephone survey respondents believe the helicopter is worth it because of the benefits it provides.

5. There is very strong WPS support for the FOU.

Supporting Findings and Rationale

Eighty-four (84) per cent of WPS members either agreed or strongly agreed the costs of the unit are justified by the benefits.

6. Intuitively and in the perception of Winnipeg Police Service officers, the police helicopter enhances the safety of police officers.

Supporting Findings and Rationale

Seventy-five (75) per cent of sworn officers believe the use of the helicopter reduced their personal safety risk and eighty-eight (88) per cent believe it increased other officers' safety. Similar results were found with civilian members of the WPS that completed the survey with ninety-five (95) per cent agreeing that the police helicopter increased officer safety.

Having a tool that provides a real time aerial perspective of a potential crime scene and has the ability to light the scene, can only ensure the location of suspects and officers are made aware of any dangers. In addition, video footage of incidents ensures there is documented evidence of officer conduct, protecting the officer and the WPS from potential liability.

7. The current helicopter restricts the activities of the FOU.

Supporting Findings and Rationale

FOU flight planning is limited due to the single engine construction of the current machine, which impacts the operational abilities of the Unit.

8. A community's perception and WPS members' belief that the helicopter helps to keep them safe is important but not easy to measure and value. However, it is an important consideration in assessing the effectiveness of AIR1.

Supporting Findings and Rationale

This 'social return on investment' is difficult to define, measure and assess. Even if the use of the helicopter was proven to save a life or prevent an injury, this 'value' is immeasurable. The public perception of their safety and security is one of the indicators of the success of a Police Service. Consideration should be given to consistently measure public and WPS members' perception of their safety and the impact the police helicopter has on this perception. In addition, the documentation and tracking of when the police helicopter assisted in preventing bodily injury, death and theft or destruction of property could enable a calculation of social return on investment.

9. The police helicopter, with its current operational model, and based on its unique abilities, is a good use of WPS funds.

Supporting Findings and Rationale

MNP could not complete a full cost benefit analysis of the Flight Operations Unit because outcomes data is not consistently collected in an easily retrievable format. In an attempt to provide a relevant comparison, MNP considered a scenario where all the funds could be redirected to more ground patrol units. MNP concluded that the funds invested in the FOU would pay for 0.7 of a fully staffed patrol car on an annual basis.

Although the WPS does not collect and analyze data required to quantify all aspects of its mandate and objectives, the helicopter is able to respond to incidents faster than ground units, enabling more timely intelligence and tracking of suspects. It also enables a greater number of arrests when involved in pursuits. Anecdotally, the use of the helicopter helps to find missing persons.

Its unique capabilities and proven ability to support operational and investigative Service units, makes it a good use of WPS resources.

10. The Flight Operations Unit should increase its capability and capacity to spend more time in the air on an annual basis.

Supporting Findings and Rationale

The FOU flew an average of 933 hours between 2011 and 2017. The helicopter has been grounded for 884.5 days out of a total of 2,526 calendar days in the same period. The helicopter was grounded 462 days due to scheduled and unscheduled maintenance, 372.5 days due to prohibitive weather conditions and 95 days for staffing.

Approximately seventy-four (74) per cent of WPS survey respondents believe the helicopter should be used more. This was also a common theme in interviews.

The method of increasing 'time in the air' should be determined after a comprehensive analysis of current and potential demand and if a larger and/or second helicopter is purchased. Purchasing a second helicopter would allow the FOU to significantly reduce the annual number of days that it was not operational due to maintenance. Assuming the number of maintenance days could be reduced to zero, it would allow an average increase of sixty-five (65) additional available flying days per year. This analysis assumes no adjustments would be made for flying days lost due to weather and staffing. If the FOU flies an average of four (4) hours per available flying day, gaining sixty-five (65) additional flying days should allow an annual increase of 260 flight hours.

A second helicopter would allow for additional shifts to be scheduled to increase the annual flying hours as well. The Edmonton Police Service has two helicopters and flies on average 1,600 hours per year and the Calgary Police Service, also with two helicopters, flies an average of 2,800 hours per year. A new target annual flight hours should be determined based on an estimation of how the helicopter could be used. This would determine additional staffing needs as the number of pilot FTEs does appear to be a limiting factor to increasing the annual flight hours at this time. The team staffing structure (number TFOs per shift) will also have an impact on additional staffing requirements if a second helicopter were to be purchased.

APPENDIX A - STAKEHOLDER INTERVIEW GUIDES

APPENDIX B - PUBLIC OPINION AND WPS SURVEY RESULTS

APPENDIX C - PROCESS MAPS

APPENDIX D – OTHER JURISDICTIONAL RESEARCH

Canada

POLICE SERVICE	POLICE SERVICE DETAILS	HELICOPTER / EQUIPMENT DETAILS	RESPONSES AND TYPES OF CALLS
CALGARY, ALBERTA[37] [38] [39]	**Police Officers:** 2,215 **Population:** 1,246,337 **Area (sq km):** 848 **Districts:** 8 **Annual Budget ($M):** $492.7	**Equipment:** Two (2) EC-120 helicopters **Lease/Purchase:** Purchased **Features:** • One of the quietest helicopters available. • Enclosed tail rotor (Fenestron) which reduces the noise signature of the aircraft. • Daylight/thermal imager cameras • Latest tech in mapping systems • 30 million candle watt light	**Responses by Helicopter:** 2017: 4,887 **Call Types:** • Responds to life threatening incidents • Air support for ground units • Has an increased efficiency to detect, prevent, and reduce crime through patrols.
DURHAM REGION, ONTARIO[40] [41] [42]	**Police Officers:** 871 **Population:** 682,250 **Area (sq km):** 2,537 **Districts/Divisions:** 5 **Annual Budget ($M):** $208.69	**Equipment:** One "JetRanger" Helicopter **Lease/Purchase:** Purchased **Features:** • Fully steerable thermal imaging system • 30 million candlepower search-light • Video-recording devices	**Responses by Helicopter:** 2017: 1,092 **Call Types:** • Missing person searches • Suspect searches • Drug detection and eradication • Aerial photography • Break-in deterrence • Police safety • Community safety • Vehicle pursuits • Aerial surveillance
EDMONTON, ALBERTA[39] [43] [44] [45] [46]	**Police Officers:** 1,775 **Population:** 932,456 **Area (sq km):** 700	**Equipment:** One – Airbus H-125 One – Airbus EC-120 helicopters, one has now been decommissioned **Lease/Purchase:** Purchased **Features (of both helicopters):** • Digital Camera and infrared system • GPS navigational	**Responses by Helicopter:** More than 2,550 calls per year on average **Call Types:** • Vehicle and fleeing suspect pursuits as well as assisting officers with high-risk vehicle stops or incidents. • Provide backup to Edmonton Police Service officers, RCMP

	Districts/Divisions: 6 **Annual Budget ($M):** $390.8	• Spotlight • Quiet operation	members, as well as emergency medical services personnel
OTTAWA, ONTARIO[47 48 49 50 51]	**Police Officers:** 1,358 **Population:** 979,173 **Area (sq km):** 2,778 **Districts/Divisions:** 6 **Annual Budget ($M):** $289.2	**Equipment:** "Surveillance Plane" and Unmanned Aerial Systems (UAS) i.e. a drone **Lease/Purchase:** Purchase **Features:** • 3D image mapping • Digital and infrared camera	**Responses by Aircrafts:** Information is not publicly available for the Ottawa Police Service aircrafts or the drones. **Call Types by Aircraft:** • Forensic identification – providing an aerial view of a crime scenes • Fire spotting • Search and rescue **Call Types by UAS** • Fatal traffic collisions • Missing persons
RCMP, BRITISH COLUMBIA [52 53]	**Police Officers:** Not applicable **Population:** Not applicable **Area (sq km):** 17 Lower mainland municipalities **Districts/Divisions:** Not applicable **Annual Budget ($M):** No public information identified.	**Equipment:** Two (2) helicopters: Air 1 and Air 2 – No model specified. **Lease/Purchase:** Purchase **Features:** • Infrared cameras • Spotlight	**Responses by Helicopter:** In 2006, Air 1 contributed to 1,300 arrests **Call Types:** • Criminal investigations • Traffic safety • Amber alerts • Search and rescue • Border incidents
YORK REGION, ONTARIO[54 55 56 57]	**Police Officers:** 1,610 **Population:** 1,206,543 **Area (sq km):** 1,756	**Equipment:** Eurocopter EC120B **Lease/Purchase:** Information not available **Features:** • Maximum cruising speed of 200 km and a range of 635 km	**Responses by Helicopter:** More than 1,000 calls for services responded to in 2017. **Call Types:** • Supports criminal apprehensions • Vehicle pursuits • Searches for missing persons • Traffic enforcement

	Districts/Divisions: 5 **Annual Budget ($M):** $310.7	• High-definition colour camera and thermal imaging	• Identify indoor marihuana grow operations
WINNNIPEG POLICE SERVICE[8 22]	**Police Officers:** 1,383 **Population:** 749, 534 **Area (sq km):** 475.2 **Districts/Divisions:** 4 **Annual Budget ($M):** $284, 005, 661	**Equipment:** H120 **Lease/Purchase:** Purchase **Features:** • Infrared camera • Spotlight	**Responses by Helicopter:** In 2017, the Flight Operations Unit responded to 1,964 calls for service. **Call Types:** The FOU responded to 63 distinct call types with the top five being: • Wellbeing • Traffic Stop • Break and Enter (All Types) • Domestic Disturbance • Gun (All Types)

United States

POLICE SERVICE	POLICE SERVICE DETAILS	HELICOPTER / EQUIPMENT DETAILS	RESPONSES AND TYPES OF CALLS
GWINNETT COUNTY, GEORGIA[58 59 60 61]	**Police Officers:** 813 **Population:** 938,799 **Area (sq km):** 1129 **Precincts:** 5 **Annual Budget ($M):** $117.2	**Equipment:** Two (2) – MD500E helicopters **Lease/Purchase:** No public information available. **Features:** No public information available.	**Responses by Helicopter:** 2013: 2,156 calls Logging 563.4 flight hours. **Call Types:** • Searches for missing person(s) • Vehicle pursuits, burglar alarms, and crimes in progress. • Supports Fire and Emergency Services, Department of Water Resources, District Attorney's Office, and the Communications Division.
FORT WORTH, TEXAS[62 63 64]	**Police Officers:** 1,756 **Population:** 854,311 **Area (sq km):** 914	**Equipment:** Two (2) – Bell Helicopters (no public information about model type). **Lease/Purchase:** Purchase **Features:** • No public information available.	**Responses by Helicopter:** No public information available. **Call Types:** • No public information available.

POLICE SERVICE	POLICE SERVICE DETAILS	HELICOPTER / EQUIPMENT DETAILS	RESPONSES AND TYPES OF CALLS
	Districts/Divisions: 6 **Annual Budget ($M):** $253.9		
BALTIMORE, COUNTY[65] [66]	**Police Officers:** 1,906 **Population:** 831,200 **Area (sq km):** 1,585 **Districts/Divisions:** 12 **Annual Budget ($M):** $201.8	**Equipment:** Three (3) – Airbus AS350B3 **Lease/Purchase:** No public information available. **Features:** • Moving street map • Flight terrain and obstacle avoidance system • Electronically stabilized binoculars • Video camera and infrared thermal imager • Weather radar • LOJACK stolen auto signal receiver • Spotlight • Microwave video downlink system	**Responses by Helicopter:** In 2016, the unit responded to more than 5,000 calls for service. **Call Types:** • Crimes in progress • Barricaded suspects • Suspects fleeing on foot or in a vehicle Searches for missing person(s)
KANSAS, MISSOURI[67] [68] [69]	**Police Officers:** 1,282 **Population:** 477,146 **Area (sq km):** 826 **Districts:** 6 **Annual Budget ($M):** $214.1	**Equipment:** Three (3) – MD 500E **Lease/Purchase:** Purchased **Features:** • Spotlight • Infrared camera	**Responses by Helicopter:** No publicly available information available. **Call Types:** • Aerial surveillance and photo flights • Public demonstrations • Armed robberies and burglaries • Suspicious persons and vehicles • Prowlers • Shots fired • Missing persons • Vehicle and pedestrian pursuits • Chemical and hazardous spills • Structure fires

POLICE SERVICE	POLICE SERVICE DETAILS	HELICOPTER / EQUIPMENT DETAILS	RESPONSES AND TYPES OF CALLS
			• Hit-and-run vehicular crashes • Checking roof tops • Outside disturbances
FRESNO, CALIFORNIA[70] [71] [72] [73]	**Police Officers:** 829 **Population:** 525,832 **Area (sq km):** 297.1 **Districts/Divisions:** 5 **Annual Budget ($M):** $157.7	**Equipment:** Two (2) – Airbus 120 **Lease/Purchase:** Purchase **Features:** • Video and infrared camera • Spotlight • MDS computer • Aerocomputer Moving Map • ProNet and LoJack receivers	**Responses by Helicopter:** No information available. **Call Types:** • Aerial support to field operations • Pursuit management tool
SACRAMENTO, CALIFORNIA[74] [75] [76]	**Police Officers**: 751 **Population:** 485,683 **Area (sq km):** 253.6 **Districts/Divisions:** 4 **Annual Budget ($M):** $132.2	**Equipment:** Two (2) Bell OH-58 helicopters– one for training. One Bell 505 Jet Ranger X helicopter. One Cessna 172 XP airplane. **Lease/Purchase:** Purchase **Features:** • Helicopter Downlink • Electronic GPS tracking • High skid gear • Forward/aft hard points for mounting equipment • 15-inch monitor with moving map system • Loudhailer • MX-10IR Sensor • Trakka Beam Spotlight	**Responses by Helicopter:** No information available. **Call Types:** No information available.
COLUMBUS, OHIO [77] [78]	**Police Officers:** 1,848 **Population:** 861,141	**Equipment:** Five (5) – MD 530FF **Lease/Purchase:** Purchased	**Responses by Helicopter:** In 2017 the unit received 11,060 total calls for service **Call Types:** • Support of ground patrol officers in the execution of

POLICE SERVICE	POLICE SERVICE DETAILS	HELICOPTER / EQUIPMENT DETAILS	RESPONSES AND TYPES OF CALLS
	Area (sq km): 647.5 **Districts/Divisions:** 5 **Annual Budget ($M):** $318.6	**Features:** • Advanced electronic equipment • Tactical mapping computer • Spotlight • Infrared camera	suspect searches and apprehensions • Vehicular pursuits • Delivering aid to other law enforcement agencies throughout Central Ohio

Australia

POLICE SERVICE	POLICE SERVICE DETAILS	HELICOPTER / EQUIPMENT DETAILS	RESPONSES AND TYPES OF CALLS
QUEENSLAND[79] [80] [81] [82]	**Staff:** 15,163 full-time staff members (sworn officers and civilian) **Population:** 5, 012, 200 **Area (sq km):** Includes 5 regions **Police Stations:** 335 **Annual Budget ($M):** $2,351,975,000	**Equipment:** One – BO 105 VH-PVK One – BO 105 CBS-5 **Lease/Purchase:** No publicly available information. **Features:** • State-of-the art avionics • InfraRed camera • Tracking spotlight • Loudspeaker – can be heard from 2,000 ft • Video downlink capability	**Responses by Helicopter:** 1,564 proactive tasks (planned) 1,694 reactive tasks (in response to Police Communication Centre requests). **Call Types:** • Searching for offenders and missing persons • Counter terrorism and covert surveillance operations • Proactively identify dangerous/criminal traffic-related issues • Assistance to other agencies for search and rescue, high-risk offender searches, and pursuits.

APPENDIX E – REFERENCES

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