Hamilton Paramedic Service Asset Management Plan 2024

Hamilton

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

TABLE OF CONTENTS

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Tables & Figures

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

SUMMARY AND QUICK FACTS

SERVICE PROFILE

Hamilton Paramedic Service (HPS) is the designated sole provider of paramedic services for the City of Hamilton. HPS provides pre-hospital advanced medical care, trauma care and the transport of patients from emergency incidents to health-care facilities. HPS also provides community paramedic programs, public education, health care and safety promotion, and risk prevention activities including the provision and maintenance of public access defibrillators across the City.

ASSET SUMMARY

Replacement Value
$62.7M
Average Age
27 Years or 43% of life

LEVEL OF SERVICE SUMMARY

Customer

- Phone survey respondents feel HPS has performed **VERY GOOD to EXCELLENT** in overall service delivery.
- For life-threatening emergencies, the majority of phone respondents feel that paramedics should arrive in **SEVEN MINUTES OR LESS**.
- Just over half of phone respondents thought HPS **HAD OR SOMEWHAT HAD** adequate resources to provide reliable, timely, quality care to residents.

Technical

- HPS 90th Percentile Response time to Code 4 (life-threatening emergency) calls is **12 minutes 34 seconds** and the target is **10 minutes.**
- HPS **acquired 7 additional ambulances in 2023** to support peak service demands.
- With growing demands on the service, HPS is **proposing to acquire 8 additional facilities** in the next 10 years to support peak service demands.

Major Asset Highlights

MAJOR ASSETS	QUANTITY	REPLACEMENT COST	AVERAGE CONDITION	STEWARDSHIP MEASURES
HPS Stations	18	$32.6M	FAIR	Building Condition Assessments are completed every 5 years.
Ambulances	53	$13.3M	GOOD	Ambulances are inspected every 10,000km.

DATA CONFIDENCE

VERY HIGH | MEDIUM | VERY LOW

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Key Demand Drivers

Demographic Shift: Hamilton's population is projected to increase to approximately 680,000 by 2031 with seniors being the fastest growing segment of the population. By 2031, almost 22% of Hamilton's population will be 65 years old or older. This forecasted increase in the senior population will significantly increase the demand for services provided by HPS over the next ten years and beyond.

Legislative Changes: Legislation shifts frequently for HPS, and often requires immediate compliance which can be costly. The most recent legislative change relates to Personal Protective Equipment (PPE), which is now a requirement for the City to maintain. In addition, the Ontario Building Code also requires all new HPS facilities to fulfil the OBC Post Disaster Seismic Requirement.

RISK

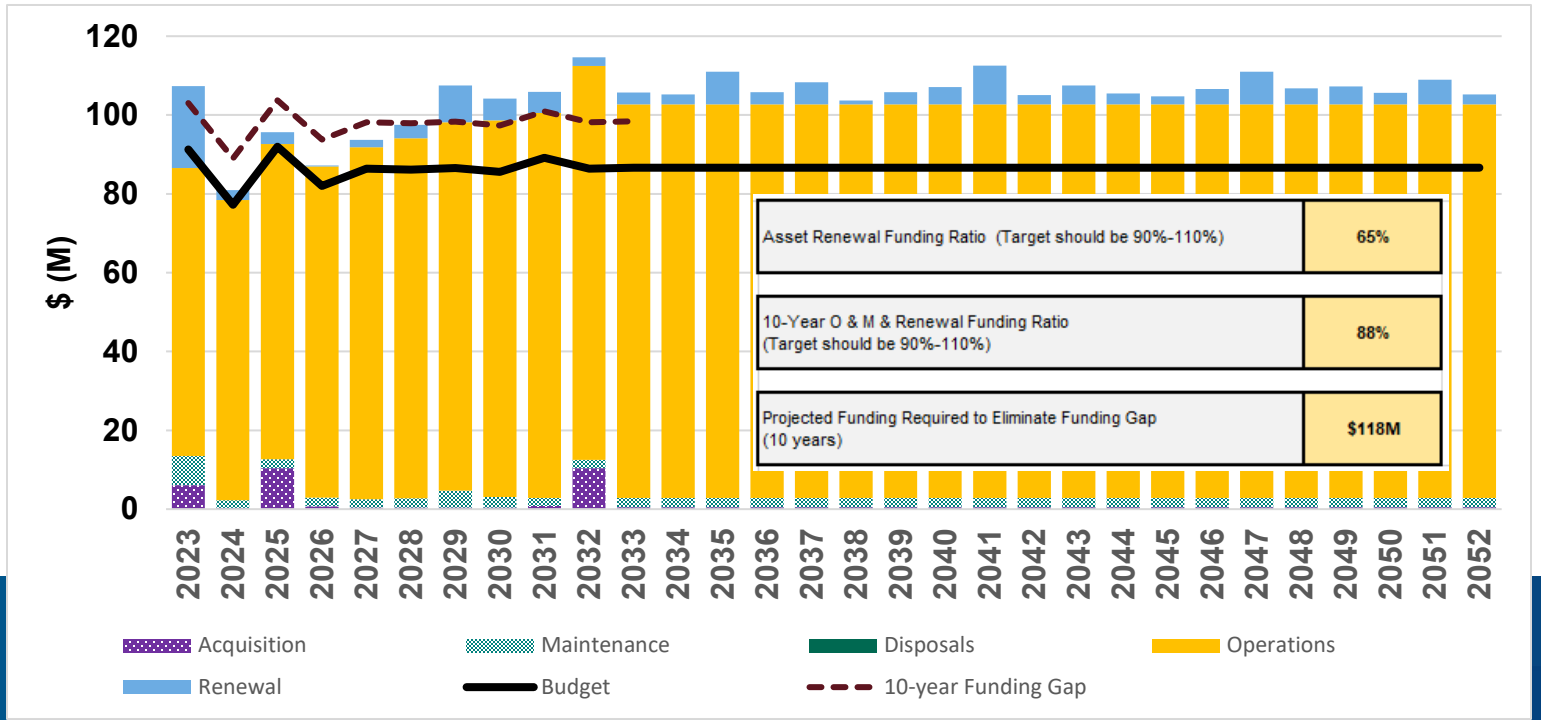
- Critical Assets are identified as the Ambulances, Facilities, Fuel System, 911 Communications and Medical Equipment.

CLIMATE CHANGE

Mitigation

- HPS currently has 2 hybrid ambulances which have been on trial use since 2018.
- All HPS vehicles have been equipped with anti-idling technology.

LIFECYCLE SUMMARY



HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

1. INTRODUCTION

Hamilton Paramedic Service (HPS) is the designated sole provider of paramedic services for the City of Hamilton. HPS provides pre-hospital advanced medical care, trauma care and the transport of patients from emergency incidents to healthcare facilities. HPS also provides community paramedic programs, public education, health care and safety promotion, and risk prevention activities including the provision and maintenance of public access defibrillators across the city. As well, with community partners, HPS responds to healthcare crises in the community such as the opioid crisis and the COVID-19 pandemic. The Purpose of this Asset Management Plan (AM Plan) is to ensure that HPS has the required assets to deliver safe and effective paramedic services to the City.

This AM Plan is intended to communicate the requirements for the sustainable delivery of services through the management of assets, compliance with regulatory requirements and required funding to provide the appropriate levels of service over the 2023-2052 planning period.

2. BACKGROUND

The information in this section is intended to give a snapshot in time of the current state of Hamilton Paramedics Service (HPS) service areas by providing background on the service, outlining legislative requirements, defining the asset hierarchy used throughout the report, and providing the detailed summary and analysis of the existing inventory information as of February 2023 including age profile, condition methodology, condition profile, and asset usage and performance for each of the asset classes. This section will provide the necessary background for the remainder of the AM Plan.

2.1 SERVICE PROFILE

Listed below are related documents reviewed in preparation of the Asset Management Plan:

- Asset Management Plan Overview Document; and,
- Hamilton Paramedic Service Master Plan 2022-2031.

Additional financial-related documents are identified in ***Section 10.1,*** Plan Improvement and Monitoring.

2.1.1 SERVICE HISTORY

Following the transfer of paramedic responsibility from the provincial government to local municipalities, in 2000, the Hamilton Paramedic Service (HPS) became the designated sole provider of paramedic services for the City of Hamilton. HPS provides emergency response pre-hospital advanced medical and trauma care, in addition to transporting patients to appropriate healthcare facilities. HPS also undertakes demand mitigation activities including community paramedic activities, public education, health care and safety promotion and risk prevention activities in neighbourhoods and public facilities including provision and maintenance of public access defibrillators across the City. As well, with community partners, HPS responds to healthcare crises in the community such as the opioid crisis and the COVID-19 pandemic.

2.1.2 SERVICE FUNCTION

As mandated by the Ambulance Act, R.S.O. 1990, c. A.19, and overseen by the Ministry of Health (MOH), the City of Hamilton is responsible for “ensuring the proper provision of land ambulance services in the municipality in accordance with the needs of persons in the municipality.” Specifically, the municipality is responsible to: a) select persons to provide land ambulance services in the municipality in accordance with the Act; b) entering into such agreements as are necessary to ensure the proper management, operation and use of land ambulance services by operators; and c) ensure the supply of vehicles, equipment, services, information, and any other thing necessary for the proper provision of land ambulance services in the municipality by this Act and the regulations

The Ambulance Act directs municipalities to either select persons pursuant to a request for proposals issued by the municipality; or provide land ambulance services itself directly. On January 1, 2000, the City of Hamilton assumed responsibility for the direct delivery of land ambulance services. Because this responsibility was transferred to the municipality, the

provincial government currently provides 50% funding from the previous year's approved budget to the City of Hamilton for paramedic services, while the remaining 50% comes from the local tax levy.

In addition, the Province (Ministry of Health and Ministry of Long-Term Care), and other partners including Ontario Health, provide 100% funding for non-mandated programs that HPS delivers such as Community Paramedicine (Mobile Integrated Health), High-Intensity Support, Social Navigator Program, dedicated offload nursing, and dedicated high acuity interfacility transport teams (neonatal and pediatric intensive care transfer units).

In order to deliver effective paramedic services, HPS requires a range of assets. Some ways assets support the delivery of the service include:

- Reliable vehicles and staff that will arrive at medical and other emergencies in a timely manner as well as at planned or scheduled appointments;
- Reliable technology to ensure communication lines are always available to accept calls for medical assistance, record patient information, and dispatch ambulances[1];
- Adequate facilities across the city (see map of Coverage Zones) to house and maintain vehicles and equipment in preparation to respond to medical calls; and,
- Required medical equipment for ambulances to provide adequate patient care according to standards of practice[2].

All radio and dispatching equipment, as well as dispatch staff, are provided by the Ontario Government and provided at no cost for use in accordance with the obligations of the Ministry of Health (Ambulance Act, ***Section 4***).

2.1.3 USERS OF THE SERVICE

HPS provides service to almost 570,000 Hamilton residents as well as visitors to Hamilton. Hamilton has a diverse population with a density of approximately 509.1 people per square kilometre. The following are the demographic attributes of more frequent users of HPS due to social determinants of health as identified in the Hamilton Paramedic Service Master Plan 2022-2031.

[1] All radio and dispatching equipment, as well as dispatch staff are provided by the Ontario Government and provided at no cost for use in accordance with the obligations of the Ministry of Health (Ambulance Act, Section 4).

[2] All required medical and other equipment as specified are in accordance with the Ontario Land Ambulance Equipment Standards issued pursuant to the Ambulance Act, Section 22.

- Age: Based on the 2021 Census results[3], the median age of Hamilton's population is 40.8 years. Hamilton's population is aging with just over 18% of residents, or about 104,000 people, aged 65 years or older. Seniors make up the highest percentage of HPS's total call volume and are the highest percentage of people who call multiple times in a year.

- Income & Social Status: Average total income of households in 2020 was $108,700. In impoverished neighbourhoods, the rates of emergency room visits and consequently ambulance calls are higher as compared to the wealthier neighbourhoods due to food and housing insecurity, childhood experiences, unemployment, lack of education, environmental pollutants, lack of social supports, unhealthy behaviours, and access to health services.

- Housing: In 2022, the median house price in Hamilton was $830,000 compared to $500,000 in 2017, and average rent continues to increase. As a result of social, economic and health inequities which escalated during the pandemic, there has been a rise in the establishment of encampments in Hamilton and an increase in calls for paramedics for medical response as well as outreach activities. In partnership with Hamilton Police Services, HPS provides supports to people living in encampments through the Social Navigator Program[4].

- Pre-existing Conditions: In 2016, rates of diabetes (7.2%), heart disease (3.7%) and cancer (1.2%) in residents of Hamilton aged 12 years and older were similar to the provincial rates. However, Hamilton had a higher rate of high blood pressure with just over 20% as compared to the province with approximately 18%. Residents with pre-existing conditions are more likely to access the service. In 2022 there were 885 calls for stroke and 156 calls for STEMI (heart attacks).

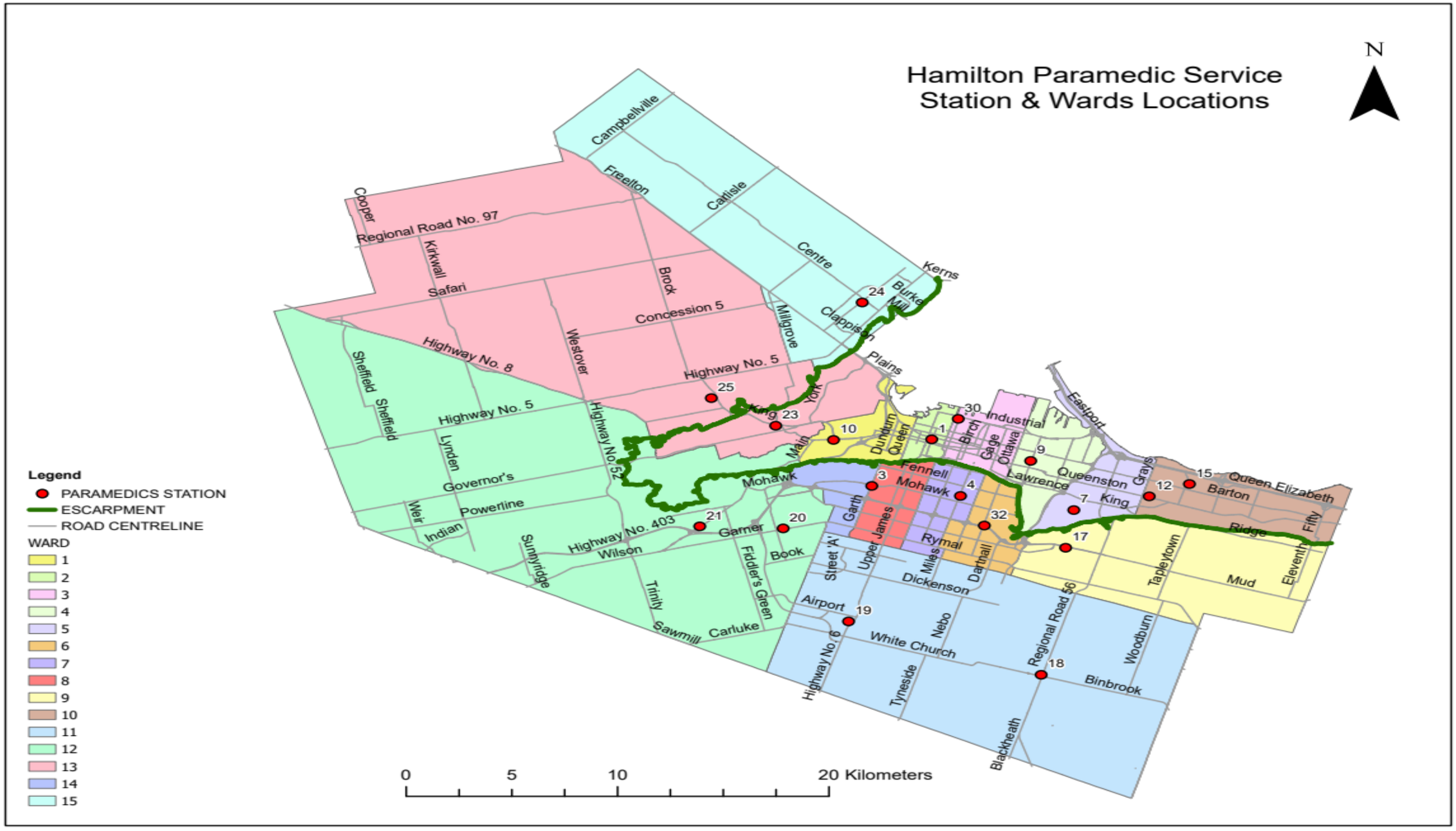
Additional social determinants of health are discussed in more detail in the Hamilton Paramedic Service Master Plan 2022-2031. HPS has a robust Mobile Integrated Health (MIH) program that provides services to vulnerable residents where they reside. The focus of these services is on chronic health and social determinants of health which may contribute to a resident needing to use 911 on multiple occasions.

HPS currently has 18 Stations which are located throughout the City as shown in ***Figure 1***. All but two of these Stations are Shared stations with the Hamilton Fire Department as discussed in ***Section 3.2.1***.

[3] https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&GENDERlist=1&STATISTIClist=1&HEADERlist=0&DGUIDlist=2021A00033525&SearchText=Hamilton

[4] https://creastats.crea.ca/mls/hami-median-price

Figure 1: Hamilton Paramedic Service Station & Ward Locations



2.1.4 UNIQUE SERVICE CHALLENGES

In recent years the call volume has increased substantially in Hamilton due to growth, an opioid crisis, and the COVID-19 pandemic. This change in call volume led to the following issues, which are discussed in more detail throughout the report, especially in ***Section 5***.

- **Code zero events** – Events where there is one or no ambulances available for response due to a combination of high call volume and offload delays.
    - In 2023, HPS received additional budget to add additional assets and staff to address the demand during peak hours including projected growth. This minimized the deficit from previous years, and code zero events have substantially been reduced in 2023[5]. The Hamilton Paramedic Service Master Plan 2022-2031 identifies a need to add each year through 2031, subject to annual council budget approvals, additional ambulances, and staff to deal with call volume growth, which have been included in the Lifecycle Management Acquisition Plan in ***Section 8.1***.

- **Facility Space** - HPS is the secondary user for the majority of the facilities they occupy with Hamilton Fire Department (HFD), and many of these facilities are aging. HFD has also indicated there is no additional space at any of their 26 stations (including those where HPS is currently co-located) for any additional HPS functions, and therefore HPS has been looking at other facility options to support their growing service. The Hamilton Paramedic Service Master Plan 2022-2031 also identifies the need for additional facilities which have been included in the Lifecycle Management Acquisition Plan in ***Section 8.1***

- **Vehicle Supply Chain** – Issues with the supply chain due to the COVID-19 pandemic persist, and HPS has had recent difficulty acquiring new ambulances in a timely manner. All ambulances used by the service must meet the certification requirements outlined in the Ministry of Health Land Ambulance and Emergency Response Vehicle Standards issued pursuant to the Ambulance Act ***Section 22***. There is little to no competition in the marketplace for provision of ambulances as there are currently only two ambulance manufacturers certified to provide ambulance vehicles for use in the Province of Ontario. Both manufacturers are subsidiaries of a single corporation. In the interim, HPS has been restoring ambulances which are beyond their service life to a useable condition, but this is not financially feasible over time.

[5] https://city-dashboard-spatialsolutions.hub.arcgis.com/pages/code-zeros

2.2 LEGISLATIVE REQUIREMENTS

The most significant legislative requirements that impact the delivery of HPS services are outlined in ***Table 1***. These requirements are considered throughout the report, and where relevant, are included in the levels of service measurements.

Table 1: Legislative Requirements

LEGISLATION OR REGULATION	REQUIREMENT
Ambulance Act R.S.O. 1990, Chapter A.19, last amended Oct 19, 2021	Outlines requirements around providing an ambulance service including definitions, provincial and municipal responsibilities for paramedic services, delivery agents, land and air ambulance services, certifications, and general information.
Coroner's Act, R.S.O. 1990, c. C.37	Outlines the process to treat deceased persons in the field, and legislative obligations to provide information to the coroner's office and their designate.
Mental Health Act, R.S.O. 1990, c. M.7	Details parameters for the transport of patients suffering a mental health crisis who can be voluntarily or involuntarily assessed by a healthcare professional.
Healthcare Consent Act, 1996	Outlines the process for informed consent, substitute decision makers for treatment without consent situations, and emergency situations.
Personal Health information Protection Act (PHIPA)	This Act outlines process for privacy health information and documentation, consent for collection and disclosure, correction rights, security safeguards, and mandatory reporting.
O. Reg. 332/12: Building Code	Any facilities considered "Post-disaster", like HPS facilities, must include additional provisions for seismic loading.

HPS also have many standards that must be followed to provide patient care, which are discussed below in ***Table 2.***

Table 2: HPS Standards

STANDARD	REQUIREMENT
Land Ambulance Certification Standard	Standards for the application to operate a land ambulance service, initial certification, recertification, the operational requirements, staffing and deployment plans, response time performance plans, base hospital interactions, Identification cards, communications services, patient care, continuing medical education, paramedic and EMS qualifications,

STANDARD	REQUIREMENT
	documentation, equipment and supplies, vehicles, and quality assurance
Basic Life Support Patient Care Standards (BLSPCS)	The BLSPCS outlines the standards that paramedics must follow in their conduct, response, assessment, care, reporting, and transportation of patients at the basic level (applicable to all paramedics). These standards also drive requirements for equipment and training
Advanced Life Support Patient Care Standards (ALSPCS)	The ALSPCS outlines the standards that paramedics must follow with respect to advanced care procedures which are acts in the practice of medicine that must be delegated to the paramedic by a physician in accordance with the College of Physicians and Surgeons delegation guidelines. These standards also drive requirements for equipment and training.
Ambulance Call Report Completion Manual	Outlines the full details of what must be recorded in the completed patient care report for each patient care contact including instances where patients are not transported and where they are transported. The requirements are extremely detailed.
Patient Care Transportation Standards	The PCTS outlines the requirements for ambulances and ERV's, designation of advanced care ambulances, continuing education completion, various certification and re-certification requirements, vehicle operation and conduct, patient restraint, infection control, communicable disease management and safety measures, compliance with the direction of the dispatcher, destination determination, and equipment restraint.
Patient Care Model Standards	The PCMS outlines the requirements for submission and approval of proposals that allow paramedics to transport patients to destinations other than a hospital (alternate destination, treat and refer, treat and release).
Ambulance Service Communicable Disease Standards	Requirements for vaccination against preventable diseases as outlined in the table (certificate, proof of contraindication)
Provincial Equipment Standards	This standard sets out the minimal requirements for(a) what equipment must be carried in an ambulance or an emergency response vehicle (ERV); and (b) the minimal criteria and specifications for every piece of equipment that is carried within an ambulance or an emergency response vehicle

STANDARD	REQUIREMENT
Land Ambulance and Emergency Response Vehicle Standard	This standard sets out the minimum standards for ambulance and emergency response vehicles including the materials for construction, exterior identification, construction and design details, heating, ventilation and air conditioning, electrical systems, emergency warning systems, radio systems, oxygen systems, suction apparatus, accommodation and storage, safety equipment, interior signage, chassis specification, Ministry model certification standards, and ambulance performance standards. No vehicle may be utilized as an ambulance or as an ERV that does not meet the standards outlined within the document.

2.3 ASSET HIERARCHY

To deliver reliable and timely paramedic services, HPS requires a wide range of assets. HPS Assets have been broken down into the following asset classes for the purpose of this AM Plan section:

- **Facilities:** refers to any structures required to deliver the service.
- **Vehicles:** describes different means of transportation required to deliver the service.
- **Equipment**: refers to any equipment required to deliver the service.
- **Technology:** refers to any computer hardware required to deliver the service.

The asset class hierarchy outlining assets included in this report is shown below in ***Table 3***.

Table 3: Asset Class Hierarchy

SERVICE AREA	HAMILTON PARAMEDIC SERVICE			
ASSET CLASS	**FACILITIES**	**VEHICLES**	**EQUIPMENT**	**TECHNOLOGY**
Asset	Paramedic Stations	Ambulances	Carbon Monoxide (CO) Detector	IT Equipment
	Administrative Facility	Emergency Response Vehicles	Fixed Assets (includes Stretchers, Loading Devices, Kits, Public Access Defibrillator, Emergency Shelter, Trailers, ATV)	
		Administrative Vehicles	Medical Equipment (includes Autopulse, Zoll Monitor, Portable Suction Unit)	

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

SERVICE AREA	HAMILTON PARAMEDIC SERVICE			
ASSET CLASS	FACILITIES	VEHICLES	EQUIPMENT	TECHNOLOGY
		Mobile Integrated Health (MIH) Vehicles	Other Equipment (includes MIH Assets, Training Equipment)	
		Bicycles	Oxygen Delivery Support (includes Flowmeter, Tank Regulators)	
			Toughbook	

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

3. SUMMARY OF ASSETS

Table 4 displays the detailed summary of assets for the HPS service area. The sources for this data are a combination of data sources included in the City's database information provided by the HPS, Facilities & Energy Management and Information Technology divisions. It is important to note that inventory information changes often, and that this is a snapshot of information available as of February 2023.

The City owns approximately **$63M** in HPS assets which are on average in Fair condition. Assets are a weighted average by replacement cost of **27 years** in age which indicates there is an average of **43%** remaining service life (RSL) for these assets. The majority of the weighting for these averages comes from the **Facilities** asset class. For most assets, this means that the City should be completing preventative, preservation and minor maintenance activities per the inspection reports as well as operating activities (e.g., inspection, cleaning) to prevent any premature failures.

Data confidence descriptions are outlined on ***Page 31*** of the AM Plan Overview. The replacement costs below are typically a Medium data confidence level overall. For Facilities, replacement costs are calculated using an internal Corporate Facilities and Energy Management tool which encompasses current market rates, building type and size and were escalated to include additional soft costs. Vehicle, Equipment and Technology replacement costs were gathered from the most recent purchase price for similar assets and are typically High confidence.

For the majority of assets, the age and condition of assets is recorded during regular operations conducted by HPS and maintained in a software called Operative IQ. The asset registry data confidence for Facilities and Vehicles is overall High for age and condition, but there is missing age information for some Equipment assets and missing condition information for Technology assets which should be tracked moving forward and has been identified as a continuous improvement item in ***Table 29***. More details can be found in ***Section 3.2.***

Although HPS maintains an asset registry, it was discovered during the development of this AM Plan that it was not always considered the best source of information, and data clean-up was required to accurately reflect the assets for this AM Plan. Therefore, a continuous improvement item identified in ***Table 29*** is ensuring the data in Operative IQ is accurate and includes key database fields as well as metadata and follows the newly developed City Data Standard.

The Corporate Asset Management (CAM) Office acknowledges that some works and projects are being completed on an ongoing basis and that some of the noted deficiencies may already be completed at the time of publication. In addition, the assets included below are assets that are assumed and in service at the time of writing.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Table 4: Detailed Summary of Assets
****Weighted Average based on Replacement Cost***

FACILITIES				
ASSET CATEGORY	**NUMBER OF ASSETS**	**REPLACEMENT VALUE**	**AVERAGE AGE (% RSL)**	**AVERAGE EQUIVALENT CONDITION**
HPS Stations	2	$14.4M	56 years (25%)	3-FAIR
Data Confidence	Very High	Medium	Very High	High
Shared Fire Station	16	$18.2M[6]	32 years (57%)	3-FAIR
Data Confidence	Very High	Medium	Very High	High
Administrative Facility (MATC)	1	$5.0M[6]	8 years (89%)	2-GOOD
Data Confidence	Very High	Medium	Very High	High
SUBTOTAL	**$37.6M**		**42 years* (44%)**	**3-FAIR***
DATA CONFIDENCE	Medium		High	High

[6] This represents the replacement value for the area of the shared facilities currently occupied by HPS, and would be the amount the City would pay if they were to build a new facility with this amount of area.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

VEHICLES				
ASSET CATEGORY	**NUMBER OF ASSETS**	**REPLACEMENT VALUE**	**AVERAGE AGE (% RSL)**	**AVERAGE EQUIVALENT CONDITION**
Ambulance	53	$13.3M	5 years (17%)	2-GOOD
Data Confidence	High	High	High	High
Emergency Response Vehicle (ERV)	17	$1.9M	6 years (2%)	3-FAIR
Data Confidence	High	High	High	High
Administrative Vehicles	9	$0.8M	10 years (0%)	3-FAIR
Data Confidence	High	High	High	High
Mobile Integrated Health Vehicles	6	$0.2M	2 years (73%)	2-GOOD
Data Confidence	High	High	High	High
Bicycle Unit	6	$5.9K	2 years (78%)	2-GOOD
Data Confidence	High	High	High	High
SUBTOTAL	**$16.1M**		**5 years* (15%)**	**2-GOOD***
DATA CONFIDENCE	**High**		**High**	**High**

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

EQUIPMENT				
ASSET CATEGORY	**NUMBER OF ASSETS**	**REPLACEMENT VALUE**	**AVERAGE AGE (% RSL)**	**AVERAGE EQUIVALENT CONDITION**
Fixed Assets	1958	$4.8M	7 years (23%)	3-FAIR
Data Confidence	High	High	High	Medium
Medical Equipment	266	$3.1M	3 years (61%)	2-GOOD
Data Confidence	High	High	High	High
Toughbook	124	$0.6M	5 years (0%)	3-FAIR
Data Confidence	High	High	High	High
Other Equipment	15	$0.2M	7 years (0%)	3-FAIR
Data Confidence	High	High	High	High
Oxygen Delivery Support	380	$0.1M	N/A	2-GOOD
Data Confidence	High	High		High
Carbon Monoxide Detector	77	$0.04M	6 years (14%)	3-FAIR
Data Confidence	High	High	High	High
SUBTOTAL	**$8.8M**		**4 years* (54%)**	**2-GOOD***
DATA CONFIDENCE	**High**		**High**	**High**

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

TECHNOLOGY[7]				
ASSET CATEGORY	**NUMBER OF ASSETS**	**REPLACEMENT VALUE**	**AVERAGE AGE (% RSL)**	**AVERAGE EQUIVALENT CONDITION**
IT Equipment (e.g. laptops, desktops)	182	$0.02M	7 years (0%)	4-POOR
Data Confidence	High	High	High	Low
	SUBTOTAL	**$0.02M**	**7 years* (0%)**	**4-POOR***
	DATA CONFIDENCE	**High**	**High**	**Low**
	TOTAL	**$62.7M**	**27 years* (43%)**	**3-FAIR***
	Data Confidence	**Medium**	**High**	**High**

[7] Currently Automatic Vehicle Locator (AVL) equipment is not included in the HPS inventory, and asset owner responsibility is being investigated. This has been identified as a Continuous Improvement Item in Table 29.

3.1 ASSET CONDITION GRADING

Condition refers to the physical state of assets and is a measure of the physical integrity of these assets or components and is the preferred measurement for planning lifecycle activities to ensure assets reach their expected useful life. Since condition scores are reported using different scales and ranges depending on the asset, ***Table 5*** below shows how each rating was converted to a standardized 5-point condition category so that the condition could be reported consistently across the AM Plan. A continuous improvement item identified in ***Table 29,*** is to review existing internal condition assessments and ensure they are revised to report on the same 5-point scale with equivalent descriptions.

Table 5: Equivalent Condition Conversion Table

EQUIVALENT CONDITION GRADING CATEGORY	CONDITION DESCRIPTION	INTERNAL CONDITION SCORE	IT TECHNOLOGY	FACILITIES CONDITION INDEX (FCI)
1 Very Good	The asset is new, recently rehabilitated, or very well maintained. Preventative maintenance required only.	N/A	>79.5% RSL	N/A
2 Good	The asset is adequate and has slight defects and shows signs of some deterioration that has no significant impact on asset's usage. Minor/preventative maintenance may be required.	GOOD	69.5% – 79.4% RSL	< 5%
3 Fair	The asset is sound but has minor defects. Deterioration has some impact on asset's usage. Minor to significant maintenance is required.	FAIR	39.5% - 69.4% RSL	>= 5% to < 10%
4 Poor	Asset has significant defects and deterioration. Deterioration has an impact on asset's usage. Rehabilitation or major maintenance required in the next year.	POOR	19.5% -39.4% RSL	>= 10% to <30%
5 Very Poor	Asset has serious defects and deterioration. Asset is not fit for use. Urgent rehabilitation or closure required.	N/A	<19.4% RSL	>= 30%

The following conversion assumptions were made:

- HPS assesses their assets on a 3-Point condition scale, and therefore these assets will not be able to attain a score of 1 or 5 in this report.
- Facilities Condition Index was based on ranges provided by the consultant who completed the Building Condition Assessment (BCA) which corresponds to a 4-Point scale; therefore, facilities will not be able to attain a score of 1;
- Facilities Condition Index was reviewed and updated by the City's Corporate Facilities and Energy Management (CFEM) division in January 2024; and
- For Technology assets, the condition was based on the % of remaining service life.

3.2 ASSET CLASS PROFILE ANALYSIS

This section outlines the Age Profile, Condition Methodology, Condition Profile, and Performance Issues for each of the asset classes.

- The age of an asset is an important consideration in the asset management process as it can be used for planning purposes as typically assets have an estimated service life (ESL) where they can be planned for replacement. Some lower cost or lower criticality assets can be planned for renewal based on age as a proxy for condition or until other condition methodologies are established. It should be noted that if an asset's condition is based on age, it is typically considered to be of a low confidence level. Although typically, age is used when projecting replacements beyond the 10-year forecast to predict degradation.

- Condition refers to the physical state of assets and is a measure of the physical integrity of assets or components and is the preferred measurement for planning lifecycle activities to ensure assets reach their expected useful life. Assets are inspected/ assessed at different frequencies and using different methodologies to determine their condition which are noted in this section.

- Finally, there are often insufficient resources to address all known asset deficiencies, and so performance issues may arise which are noted and prioritized in this AM Plan.

3.2.1 FACILITIES PROFILE

Hamilton Fire Department share the majority of their current stations and their administrative facility with HPS as secondary users, however there are two stations where HPS occupies all or most of the space (Stations 30 and 32).

For the purposes of this report, Facilities where HPS occupies most of the space, have been considered Hamilton Paramedics Service (HPS) stations, and facilities where HPS is the secondary user were considered Shared Fire Stations. The replacement values for these Facilities have been allocated based on the portion of the building that paramedics are currently occupying. Since this square footage allocation changes regularly, a continuous improvement item identified in ***Table 29*** is to implement a process to keep up to date on facilities and square footage for HPS.

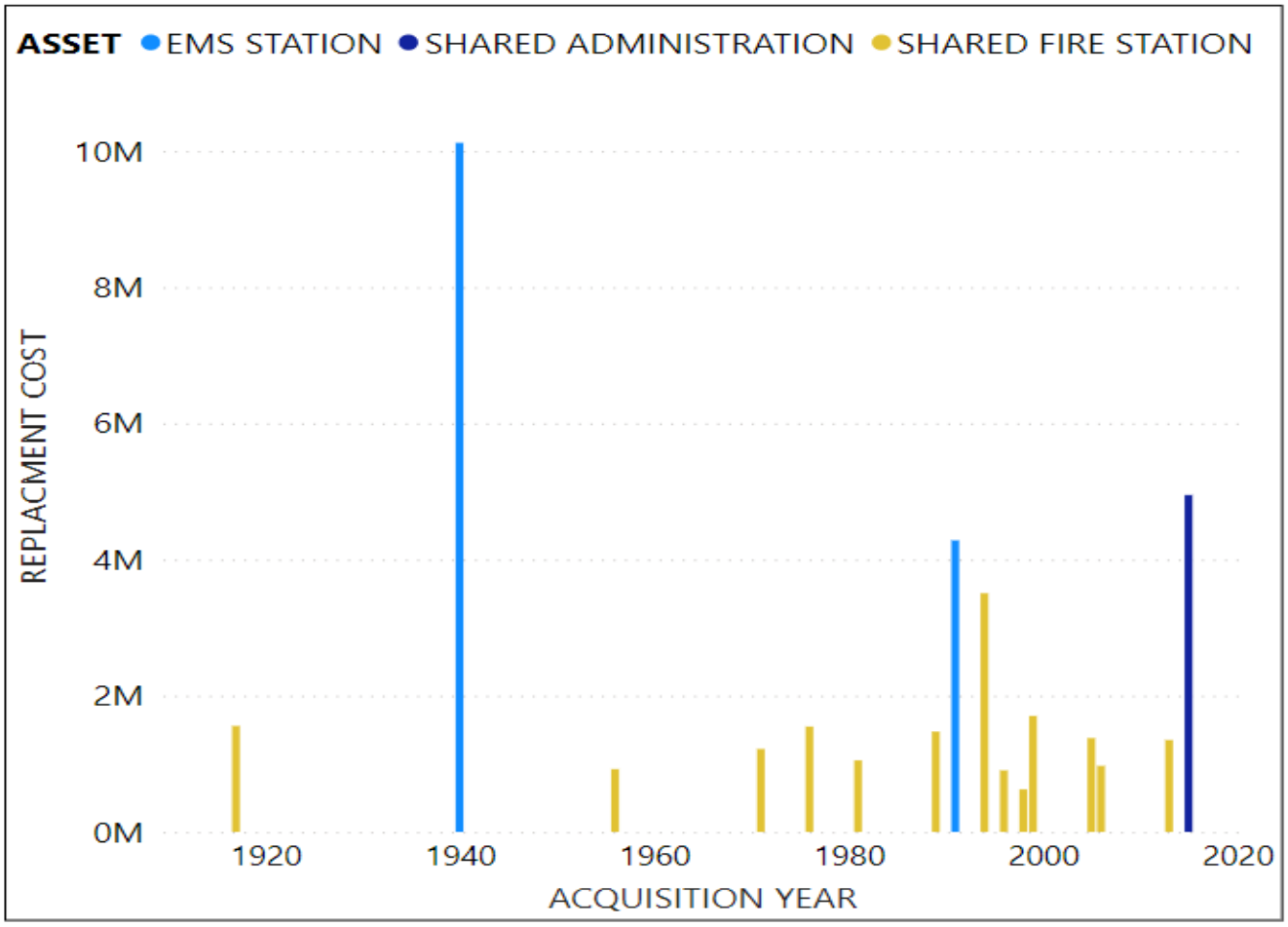
With the anticipated growth in number of responses discussed in ***Section 5***, HPS is beginning to run out of space in these shared facilities and is investigating adding additional facilities.

3.2.1.1 AGE PROFILE

The age profile for HPS Facilities assets is shown in ***Figure 2***. For Facility assets, the data confidence for age is typically “Very High”, because this information was recorded during the construction of the facilities.

The majority of HPS occupied stations were built between 1988 and 2000. The oldest shared station is Fire Station 1 built in 1917 and located on John Street North, which had a major renovation in 2003, and is not currently planned for renewal. The large spike in 1940 represents Station 30 which is the largest occupancy HPS Station and was previously repurposed from a private truck repair and maintenance facility in the 1940s, acquired by the City in 1988, and transferred for HPS usage in 2000. It is beyond its ESL and will appear in the backlog in ***Section 8.3.***

Figure 2 : Facilities Age Profile



3.2.1.2 CONDITION METHODOLOGY & PROFILE

Condition for HPS facilities is determined based on the results of a Building Condition Assessment (BCA). BCAs are completed on HPS facilities every five years and output a score called a Facility Condition Index (FCI) which is considered to be a high confidence level source. The FCI is a financial indicator of condition and is calculated based on a ratio of the cost of work required on the facility to the total replacement cost of the facility. The condition conversion from FCI to the standardized 5-point scale used in this AM Plan is shown in ***Table 6.***

Table 6: Inspection and Condition Information

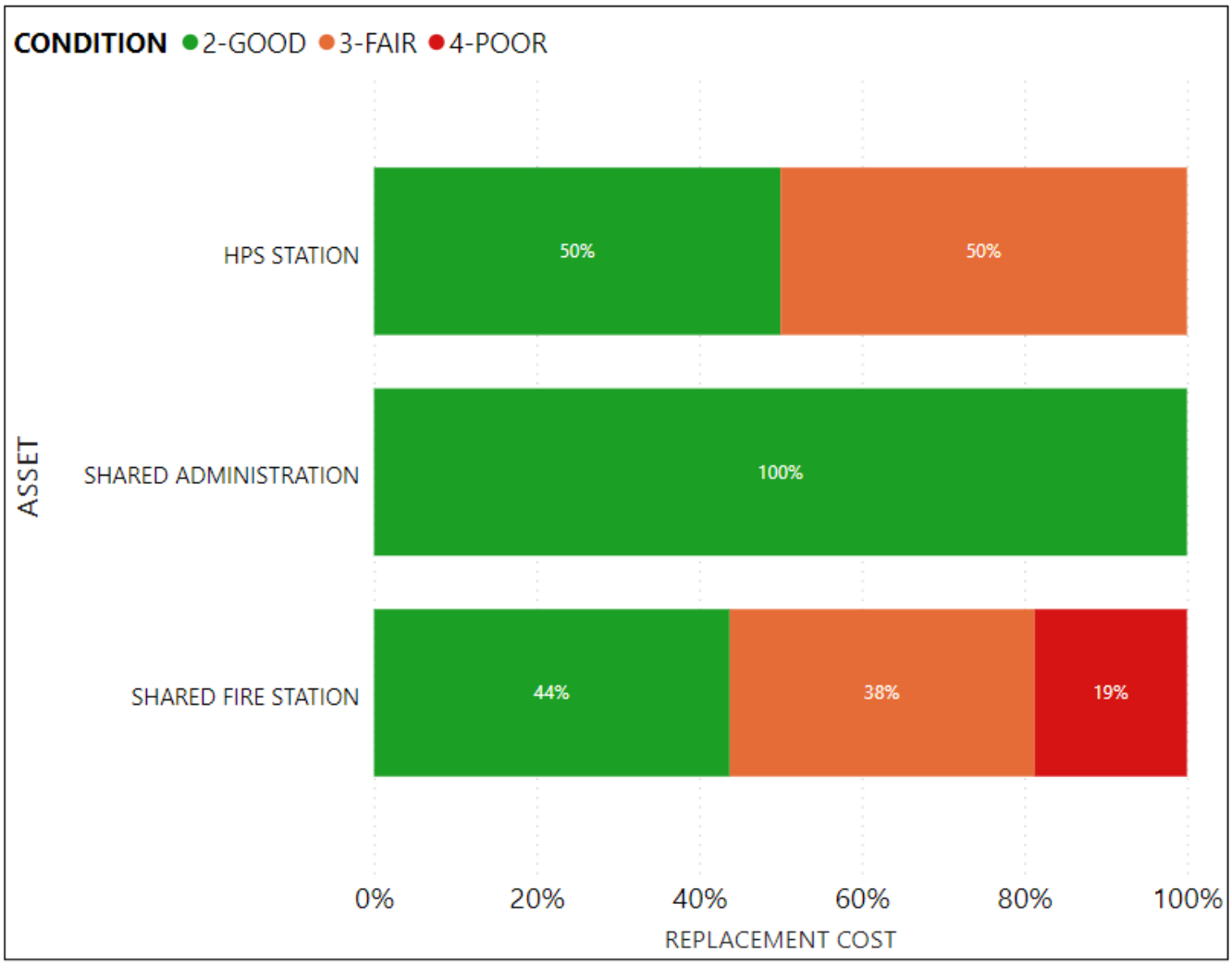
ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
All Facilities	5 years	2019	Facilities Condition Index

The condition profile for HPS Facilities assets is shown below in ***Figure 3.*** It is evident that many of the stations that HPS occupy (HPS Stations and Shared Facilities) are indicated to be in fair or worse condition based on the results of the BCA. It is important to note that the BCA's were completed in 2019, and while the forecasted works have been updated in the CFEM database, a future BCA will be completed in 2024 and therefore these condition ratings may change in the next year.

Per the BCA results, Station 30 has been identified as being in Fair condition but is currently beyond its service life of 75 years and is anticipated to require a lot of major maintenance work in the next 10 years. Since the FCI is a financial indicator of condition, if this work is not completed, it could result in the facility reaching a poor FCI as early as 2028. Similarly, Station 32 is considered to be in good condition per the BCA, but if work on this facility is not prioritized, the FCI could drop to poor as early as 2025. Many of the identified needs are due to components being at the end of their service life as explained under specific performance deficiencies in ***Table 7.***

Since HPS are the secondary users of the shared facilities, most of these facilities will be discussed in more detail in the Hamilton Fire Department AM Plan.

Figure 3: Facilities Condition Distribution



3.2.1.3 ASSET USAGE AND PERFORMANCE

As previously mentioned, HPS are the secondary user for the shared facilities (i.e., Shared Station and Shared Administration). As a result, the deficiencies below will be focused on the two HPS Stations and performance issues with the Shared Fire Stations & Administration Facility will be discussed in the Hamilton Fire Department Asset Management Plan.

The largest performance issues with HPS Stations involve components at the end of their service life or being in poor condition. The significant service performance deficiencies for Facilities in ***Table 7*** were identified using information from the BCA considering cost and consequences of failure. At this time, many of these deficiencies have not yet been incorporated into the capital budget and are an outstanding need.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Table 7: Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
FACILITY	**Station 32**	Roof approaching the end of service life	It is recommended to replace the roof as it is approaching the end of its service life.
	Station 30	Parking Lot in Poor Condition	It is recommended to replace the asphalt parking lot as it is in poor condition.
	Station 30	Generator Upgrade required	The generator has likely not been upgraded since the original construction. Replacement of the Generator and ATS is recommended at the conclusion of their expected useful life to ensure a standby power supply to the building in the event of a power failure. Replacement can be anticipated within the next 3 to 5 years.
	Stations 30 and 32	Overhead Doors at end of service life	It is recommended to replace the overhead doors as required, at the end of their life cycle.
		Interior Lighting	Existing interior lighting appears to be original to construction and past expected life. LED fixtures are recommended to improve energy saving.
		Electrical Service at end of service life	The electrical service equipment likely has not been upgraded since the original construction. Given the expected life of 30 years for the service equipment. Replacement can be anticipated within the next 3 to 5 years.
		Industrial Air Filtration Units at end of service life	It is recommended to replace the air filtration units at the end of their life expectancy to maintain proper ventilation.

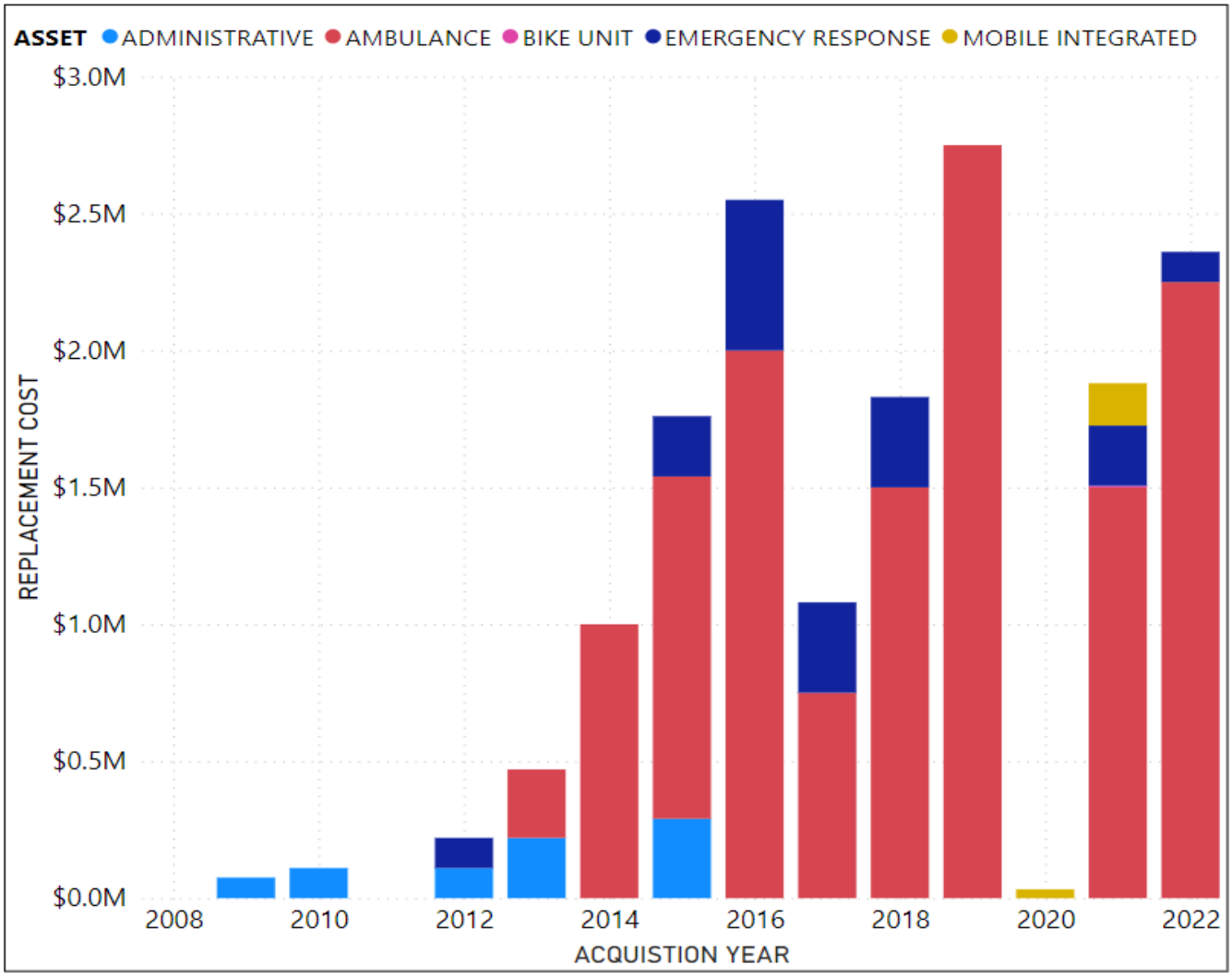
3.2.2 VEHICLES PROFILE

3.2.2.1 AGE PROFILE

The age profile for HPS Vehicles assets is shown in ***Figure 4***. For Vehicle assets, the data confidence for age is typically High because this information is formally recorded, and vehicle models typically include the year of manufacture. Ambulances are replaced on a 6-year cycle, and therefore any ambulances purchased before 2016 in the figure below are past their estimated service life.

Due to supply chain issues exacerbated by the COVID-19 pandemic, HPS has been working to restore end-of-life ambulances' condition to extend the service life. However, this is a costly endeavor costing 20% of the ambulance replacement cost, and typically only extends the life by two years. These supply chain issues are still in effect and may continue to result in increased maintenance costs and an increased backlog for vehicle replacement needs in the coming years.

Figure 4: Vehicle Age Profile



3.2.2.2 CONDITION METHODOLOGY & PROFILE

Since Ambulances are a critical asset for the HPS service, it is essential that these assets are kept in an acceptable state of repair to deliver reliable service. HPS inspects all vehicles per the inspection frequency outlined below and uses these inspections to output a 3-point condition scale as shown below in ***Table 8.*** This 3-point scale has been converted to the 5-point AM Condition Scale for consistency as discussed in ***Section 3.1.***

A continuous improvement item identified in ***Table 29*** is to modify the 3-point condition scale into a 5-point scale for future consistency.

Table 8: Inspection and Condition Profile

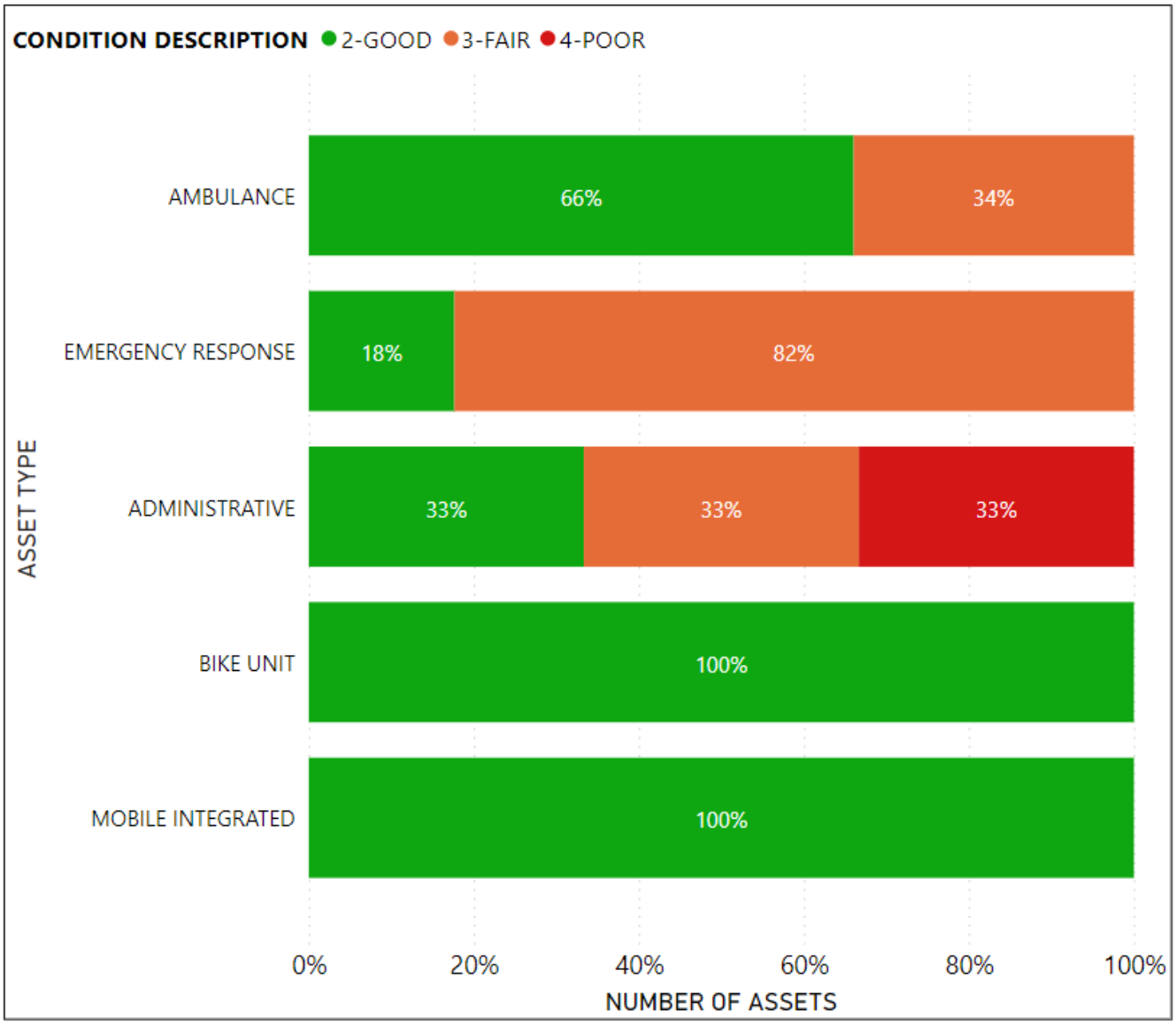
ASSET	INSPECTION TYPE	DESCRIPTION	FREQUENCY	CONDITION SCORE OUTPUT
Ambulance, Emergency Response Vehicle, Administration Vehicle, MIH Vehicle	All vehicles have a complete assessment every 90 days by the HPS logistics team	Vehicles are reset to Standardized templates / inspected/sent for Preventative Vehicle Maintenance on schedules	Based on Mileage or Time passed whichever comes first	3-Point Scale (Good, Fair, Poor)
Bike Unit	Yearly PM Cycles	Sent for spring reconditioning and tune-ups	Yearly or as needed	3-Point Scale (Good, Fair, Poor)

The condition profile for HPS Vehicle assets is shown below in ***Figure 5.***

It is evident that the majority of HPS assets are in Good to Fair condition. Assets in Poor condition are generally lower criticality vehicles such as vehicles used by administrators but should be planned for replacement.

As mentioned in ***Section 3.1***, the original condition grades were converted to a standardized condition category for report consistency.

Figure 5: Vehicles Condition Profile



3.2.2.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with Vehicle assets involve Poor-condition assets. The known service performance deficiencies in ***Table 9*** were identified using the Condition Scores discussed above.

Table 9: Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Administrative Vehicles	**Various**	Poor Condition	The asset has been identified to be in Poor condition and requires replacement. The process to replace has started but has been delayed due to supply chain issues.

3.2.3 EQUIPMENT PROFILE

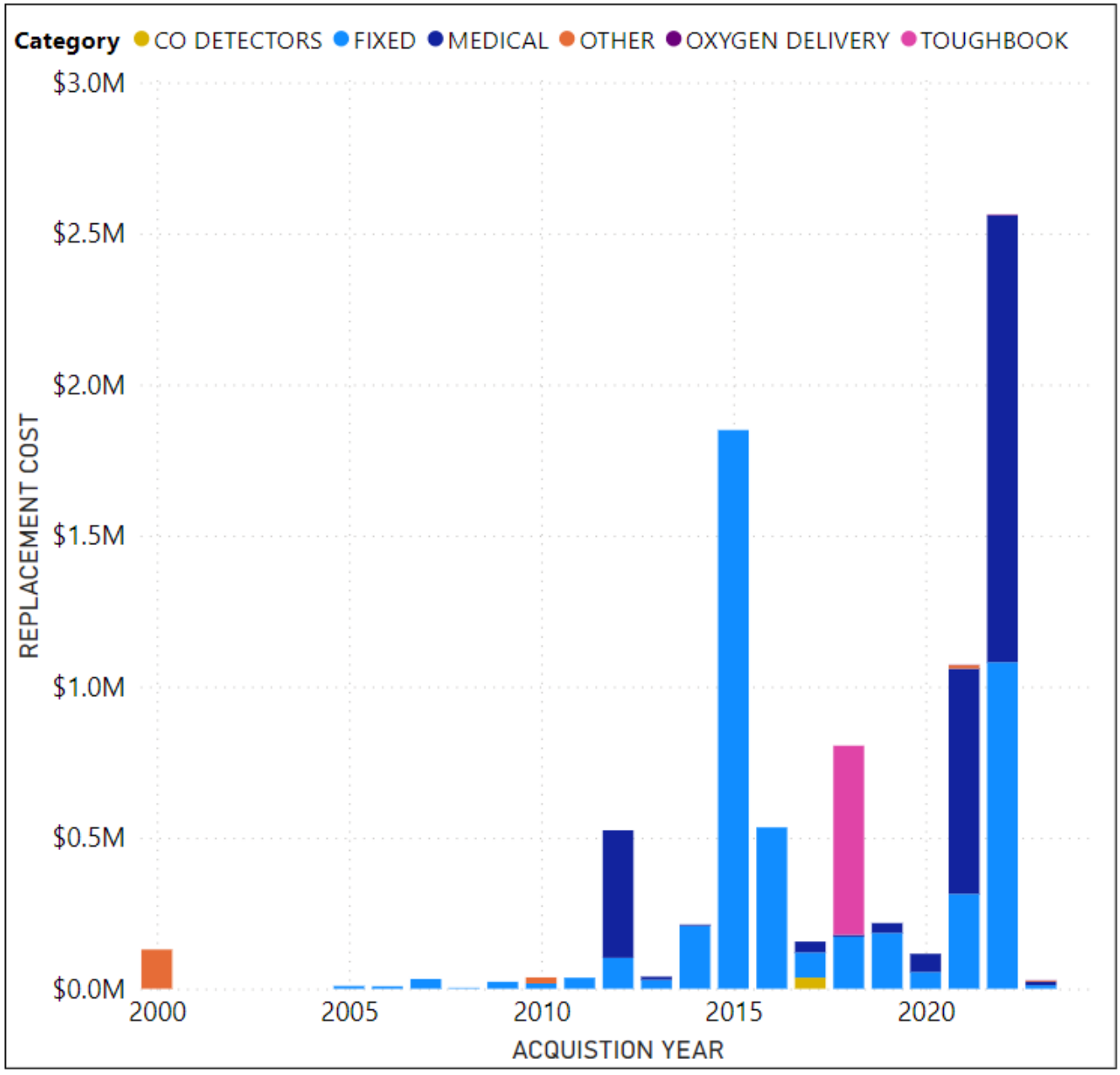
3.2.3.1 AGE PROFILE

The age profile for HPS Equipment assets is shown in ***Figure 6***. Overall, the majority of HPS equipment is within its estimated service life (ESL). However, any assets in the age profile below purchased in or before 2015 are likely past their ESL and will appear in the renewal backlog in **Section 8.3**. It is evident there was a spike in purchases in 2015 for Fixed Assets which were due to a bulk purchase of Power Load Devices and Stretchers both of which have ESLs of 7 years and so these assets will appear in the renewal backlog in ***Section 8.3*** since they were due for replacement in 2022.

In addition, there was another spike in purchases in 2022 for Fixed Assets consisting of Stretchers and Medical Equipment consisting of Zoll Monitors, therefore with an ESL of 7 and 9 years respectively, there will be spikes in the renewal forecast in ***Section 8.3*** in 2029 and 2031.

The oldest equipment was purchased in 2000 and refers to Training Equipment which has been identified to be in Poor condition and should be replaced.

Figure 6: Equipment Age Profile



3.2.3.2 CONDITION METHODOLOGY & PROFILE

Since the majority of HPS equipment is critical to their service delivery, these assets are inspected during regular operations, and given a condition score on a 3-point scale. HPS inspects equipment assets per the inspection frequency outlined below and uses these inspections to output a 3-point condition scale as shown below in ***Table 10.***

This 3-point scale has been converted to the 5-point AM Condition Scale for consistency as discussed in ***Section 3.1.*** A continuous improvement item identified in ***Table 29*** is to modify the 3-point condition scale into a 5-point scale for future consistency.

Table 10: Inspection and Condition Information

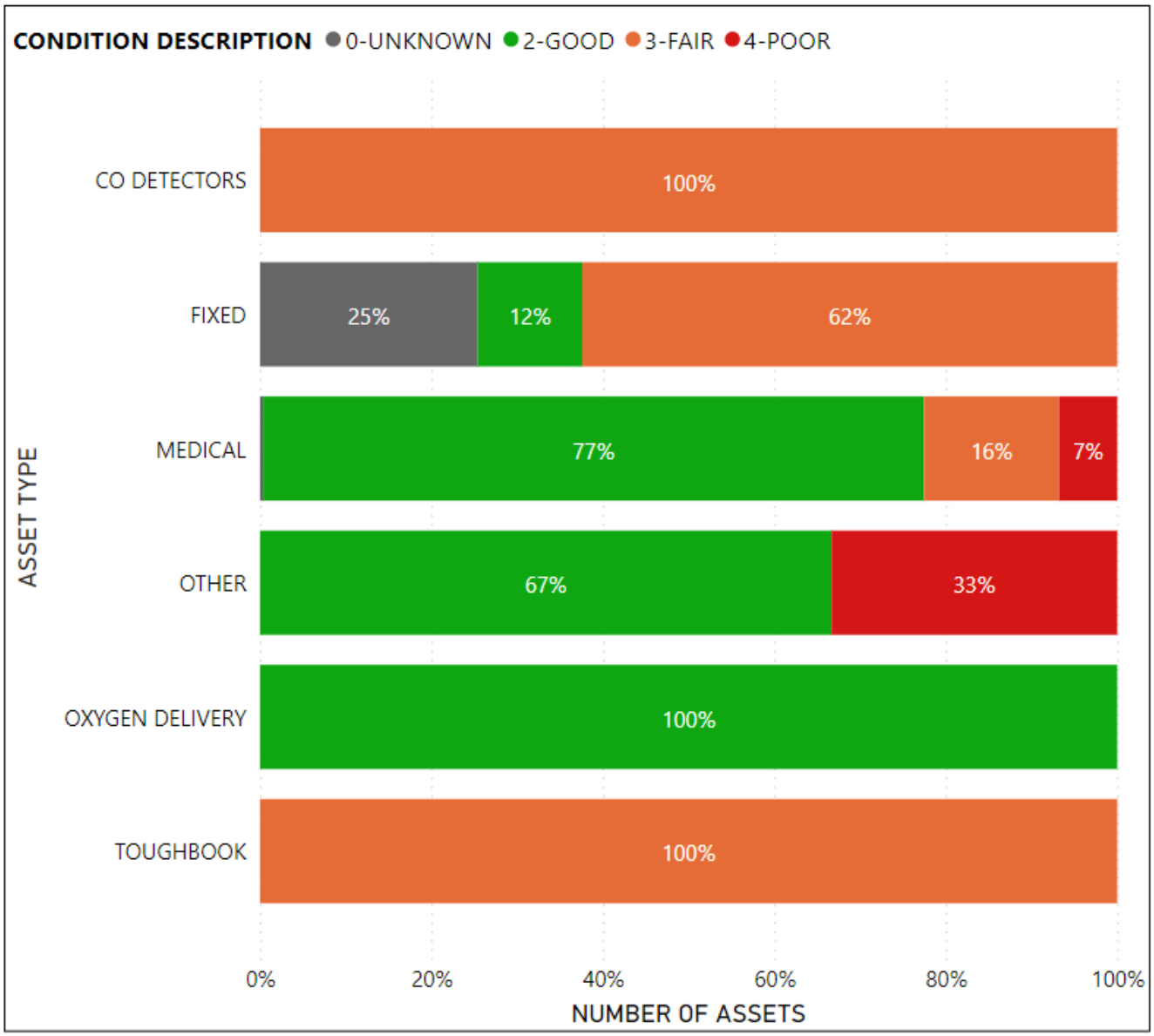
ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
CO Detectors	All assets are inspected and have preventative maintenance completed on a 90-day cycle	Last 90 days	Three Point Scale
Fixed Assets			
Medical Equipment			
Other Equipment			
Oxygen Delivery Equipment			
Toughbook	Annual	2022	Three Point Scale

The condition profile for HPS Equipment assets is shown below in ***Figure 7.***

It is evident that the majority of HPS assets are in Good to Fair condition. Assets in Poor condition are generally lower criticality equipment such as training equipment (under Other Equipment) or portable suction units (under Medical Equipment) but should be planned for replacement. Unknown conditions refer to the Public Access Defibrillator program which are assets that are inspected monthly and are replaced immediately if they do not function properly and can be assumed to be in working condition.

As mentioned in ***Section 3.1***, the original condition grades were converted to a standardized condition category for report consistency.

Figure 7: Equipment Condition Distribution



3.2.3.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with Equipment assets involve Poor condition assets. The known service performance deficiencies in ***Table 11*** were identified using the Condition Scores discussed above.

Table 11: Known Service Performance Deficiencies

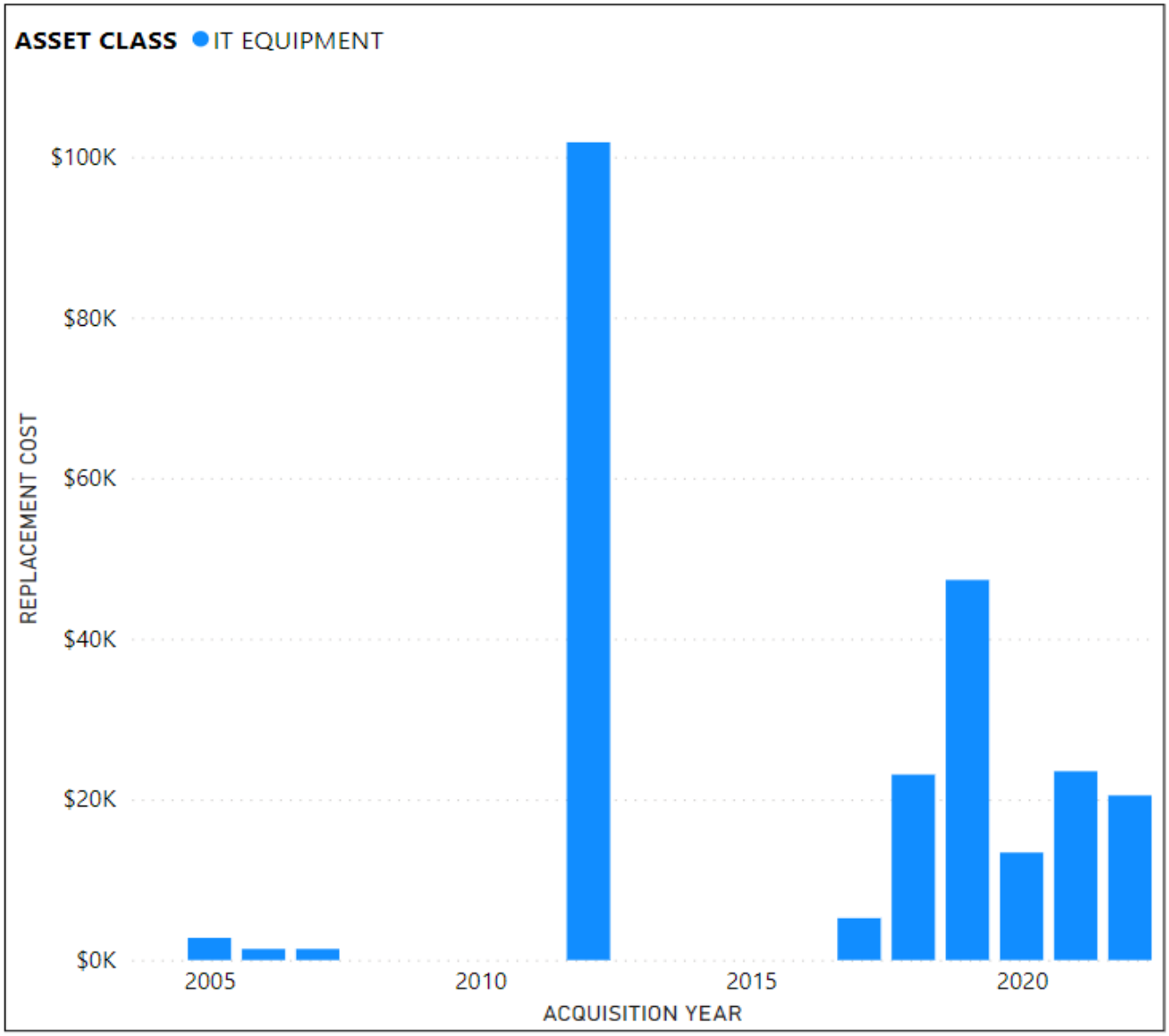
ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Training Equipment (under Other Equipment)	**Various**	Poor Condition	Assets have been identified to be in Poor condition per inspection and should be planned for replacement.
Portable Suction Units (under Medical Equipment)	**Various**		

3.2.1 TECHNOLOGY PROFILE

3.2.1.1 AGE PROFILE

The age profile for HPS Technology assets is shown in ***Figure 8.*** IT Equipment on average has an estimated service life (ESL) of 5 years, meaning any equipment purchased before 2018 is beyond its estimated service life, indicating that most of the IT Equipment is beyond its ESL. Since IT Equipment does not have a regular inspection program, the condition has been estimated based on the age of the asset, and therefore IT Equipment will show as Very Poor in the condition profile.

Figure 8: Technology Age Profile



3.2.1.2 CONDITION METHODOLOGY & PROFILE

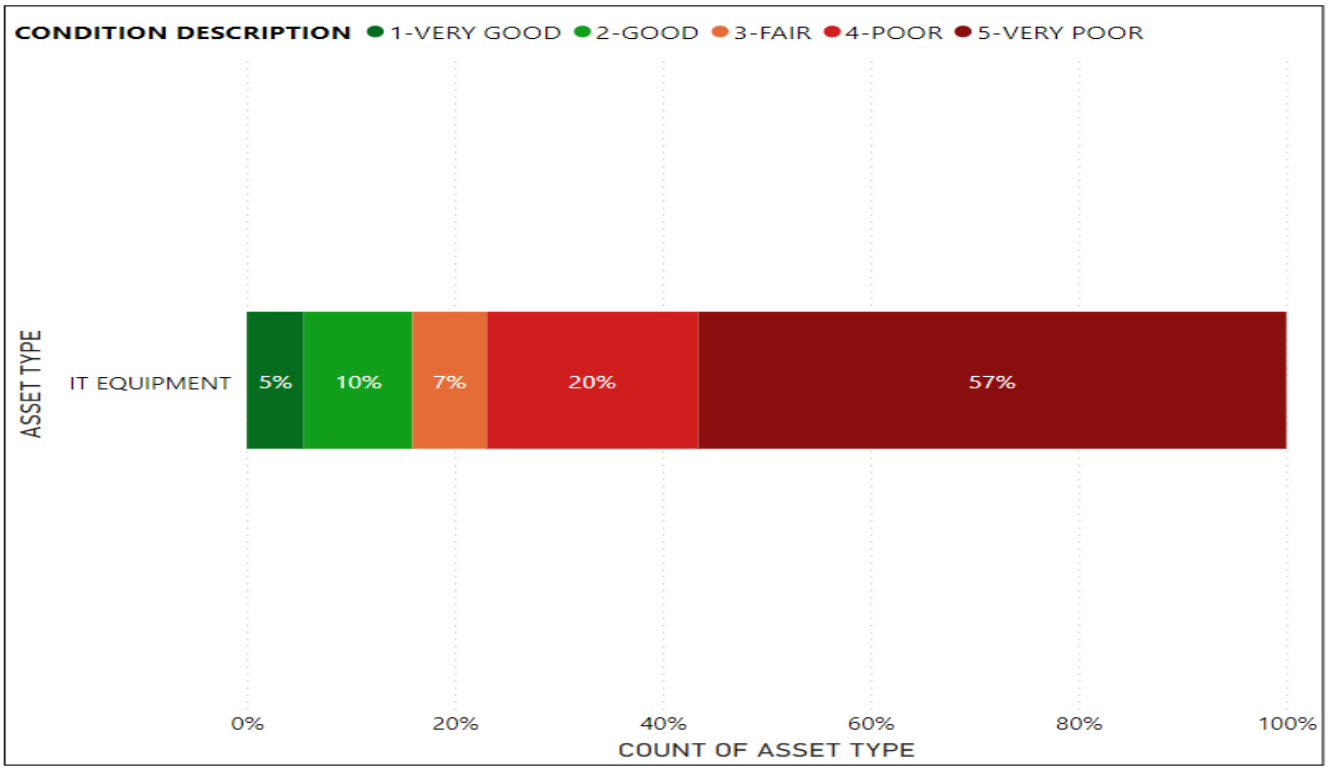
As discussed above, currently, HPS does not determine condition on Technology assets, therefore IT Equipment condition has been estimated based on age for this AM Plan. It is important to note that since the condition is based on age, there is low confidence in the condition for this asset group.

Table 12: Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	CONDITION SCORE OUTPUT
IT Equipment	None	None - Based on Age

Most of IT Equipment is in Poor or Very Poor condition this is because as mentioned IT Equipment has a short ESLs of four years, and as previously mentioned, the condition profile is based on age.

Figure 9: Technology Condition Distribution



3.2.1.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with IT Equipment assets involve assets beyond their estimated service life. The known service performance deficiencies in ***Table 13*** were identified using the Age information discussed above.

Table 13: Known Service Performance Deficiencies

ASSET	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
IT EQUIPMENT	Various purchased before 2018	Beyond Service Life

4. MUNICIPALLY DEFINED LEVELS OF SERVICE

Levels of service are measures of what the City provides to its customers, residents, and visitors, and are best described as the link between providing the outcomes the community desires, and the way that the City provides those services.

O.Reg 588/17 does not define levels of service for HPS assets and therefore the City has developed municipally defined levels of service. Levels of service are defined in three ways, customer values, customer levels of service and technical levels of service which are outlined in this section. An explanation for how these were developed is provided in **Section 7.5** of the **AM Plan Overview**.

4.1 SURVEY METHODOLOGY

To develop customer values and customer levels of service, a Customer Engagement Survey entitled Hamilton Paramedic Service (HPS) Resident Survey 2023 was conducted from March 1, 2023, to March 31, 2023. This survey did not use the standard CAM questions and therefore this section may look different from other AM Plans. The survey results can be found in Appendix "A".

Residents of Hamilton were contacted by telephone and also had the option of completing the survey online on the City's Engage Hamilton website. The telephone survey was conducted by a third-party vendor who randomly selected Hamilton-based land and cellular phone lines proportionate to the City's population by ward to ensure statistical significance. The vendor collected 550 completed telephone responses with a confidence level of 95% with a margin of error of +/- 4.2%, which corresponds to a Very High confidence per ***Table 14***. An identical online survey was also released which supplemented the telephone survey. The online survey was advertised via social media on the day it launched and garnered 200 responses. For the purposes of presenting the results in this AM Plan, the phone survey results were used as they more accurately represent Hamilton's population.

The survey sought feedback from residents on whether or not they had used paramedic services, in an effort to better understand what services are important to them and their level of satisfaction with current HPS service delivery. The future intent is to release this survey on a regular basis to monitor the trends in customer value and satisfaction related to the provision of paramedic services.

In addition, since the majority of HPS Resident Survey 2023 survey respondents had not used the Mobile Integrated Health program, the 2019 Community Paramedic Clinic Survey was also used to determine the performance of the Mobile Integrated Health program in the sections below. Since there were only 24 responses to this survey, and the sample size of the program could not be determined, there is Unknown confidence in this data.

Table 14: Data Confidence Levels

Grade	Data Consistency (Standard Deviation)	Confidence Level (Margin of Error at 95% Confidence in Sample Size)
Very High	0 to 0.5 – results are tightly grouped with little to no variance in response	0% to 5% - minimal to no error in results, can generally be interpreted as is
High	0.5 to 1.0 – results are tightly grouped but with slightly more variance in response	5% to 10% - error has becoming noticeable, but results are still trustworthy
Medium	1.0 to 1.5 – results are moderately grouped together, but most respondents are generally in agreeance	10% to 20% - error is a significant amount and will cause uncertainty in results
Low	1.5 to 2.0 – results show a high variance with a fair amount of disparity in responses	20% to 30% - error has reached a detrimental level and results are difficult to trust
Very Low	2.0+ - results are highly variant with little to no grouping	30%+ - significant error in results, hard to interpret data in a meaningful way

4.2 CUSTOMER VALUES

Customer values are what the customer can expect from their tax dollar in “customer speak” which outline what is important to the customer, whether they see value in the service, and the expected trend based on the 10-year budget. These values are used to develop the level of service statements.

Customer Values indicate:

- What aspects of the service is important to the customer;
- Whether they see value in what is currently provided; and,
- The likely trend over time based on the current budget provision.

As previously mentioned, the customer values below were determined using the results from the Hamilton Paramedic Service (HPS) Resident Survey 2023 and the 2019 Community Paramedic Clinic Survey and are shown in ***Table 15*** on the next page.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Table 15: Customer Values

SERVICE OBJECTIVE			
CUSTOMER VALUES	**CUSTOMER SATISFACTION MEASURE**	**CURRENT FEEDBACK**	**EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)**
Updated equipment and technology and sufficient number of staffed ambulances are more important than reducing the carbon footprint and improving ride comfort.	2023 Resident Engagement Survey	Significantly more phone survey respondents feel it is very important for the City to allocate tax dollars to update technology and medical equipment to optimize service delivery (81%) and to increase the number of ambulances (73%) than to improve comfort of the ride in ambulances for patients (32%) or reduce HPS's environmental footprint (28%).	Maintain
HPS levels of service should not be reduced.		Almost all phone survey respondents (97%) reported that HPS should not deliver fewer paramedics services even if it means a decrease in municipal taxes.	Maintain
Providing outreach care to vulnerable residents is important.		A high proportion of phone survey respondents (88%) feel that it is very to moderately important for HPS to provide outreach care to vulnerable residents.	Maintain

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

SERVICE OBJECTIVE			
CUSTOMER VALUES	**CUSTOMER SATISFACTION MEASURE**	**CURRENT FEEDBACK**	**EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)**
Workforce diversity and considering cultural beliefs and values when providing care is very important.		The majority of phone survey respondents indicated it is moderately important or greater that the HPS workforce reflects the diversity of the residents they serve (73%), and the cultural beliefs and values of patients/clients should be considered when delivering paramedic care (78%).	Maintain
Providing information and education promoting health and safety of residents is more important than participating in community events.		A significantly higher proportion of phone survey respondents feel that it is very or moderately important for HPS to provide information and education to promote health and safety of residents (87%) compared to supporting the community by organizing/participating in charitable events, fundraisers, food, and toy drives (63%).	Maintain

4.3 CUSTOMER LEVELS OF SERVICE

Ultimately customer performance measures are the measures that the City will use to assess whether it is delivering the level of service the customers desire. Customer level of service measurements relate to how the customer feels about the service in terms of their quality, reliability, accessibility, responsiveness, sustainability and over course, their cost. The City will continue to measure these customer levels of service to ensure a clear understanding on how the customers feel about the services and the value for their tax dollars.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

The Customer Levels of Service are considered in terms of:

Condition	How good is the service? What is the condition or quality of the service?
Function	Is it suitable for its intended purpose? Is it the right service?
Capacity/Use	Is the service over or under used? Do we need more or less of these assets?

In ***Table 16*** under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the currentt allocation.

It is important to note that many of HPS' customers are internal customers (e.g., staff) as they are the main users of most of HPS assets (i.e., facilities, vehicles, equipment, & technology). For this first iteration of the AM Plan the focus was on external customers (i.e. the Public), and as a result there are some gaps within the alignment between customer and technical levels of service as discussed in **Section 4.5**.

Table 16: Customer Levels of Service

TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Quality/ Condition	Ensure paramedics provide a service that meets the needs of the municipality.	Hamilton Paramedic Service (HPS) Resident Survey 2023	Majority (65%) of phone survey respondent opinion on the overall service rating	Very Good to Excellent	Maintain
		Confidence level		Very High	
		2019 Community Paramedic Clinic Survey	A significantly high proportion (83%) of survey respondent opinion on the Community Paramedic Program	Excellent	Maintain
		Confidence levels		Unknown	

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Function	Provide reasonable response times which are in line with legislative requirements and the needs of the municipality. (O.Reg. 267/08 requirements. Council Approval Report HES12014)	Hamilton Paramedic Service (HPS) Resident Survey 2023	For life-threatening emergencies, the majority (66%) of phone respondents feel that paramedics should arrive in seven minutes or less.	Does not meet needs. (Currently achieving 12:34mins for Code 4 calls)	Maintain
		Confidence levels		Very High	
Capacity	Ensure paramedics have the resource capacity to reliably respond to emergencies in a timely manner.	Hamilton Paramedic Service (HPS) Resident Survey 2023	Just over half (54%) of respondents thought HPS had or somewhat had adequate resources to provide reliable, timely, quality care to residents, while a quarter (25%) of respondents thought that HPS did not have adequate resources.	Meets some needs.	Maintain
		Confidence levels		Very High	

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

4.4 TECHNICAL LEVELS OF SERVICE

Technical levels of service are operational or technical measures of performance, which measure how the City plans to achieve the desired customer outcomes and demonstrate effective performance, compliance and management. The metrics should demonstrate how the City delivers its services in alignment with its customer values; and should be viewed as possible levers to impact and influence the Customer Levels of Service. The City will measure specific lifecycle activities to demonstrate how the City is performing on delivering the desired level of service as well as to influence how customers perceive the services they receive from the assets.

Technical service measures are linked to the activities and annual budgets covering Acquisition, Operation, Maintenance, and Renewal. Asset owners and managers create, implement and control technical service levels to influence the service outcomes.[8]

Table 17 shows the activities expected to be provided under the current 10-year Planned Budget allocation and the Forecast activity requirements being recommended in this AM Plan.

Table 17 : Technical Levels of Service

LIFECYCLE ACTIVITY	LEVEL OF SERVICE	ACTIVITY MEASURE	CURRENT ACTUAL PERFORMANCE (2022)	CURRENT TARGET PERFORMANCE (2022)	PROPOSED 10-YEAR PERFORMANCE (2023 – 2032)
Acquisition	Ensure paramedics have the capacity to reliably respond to emergencies in a timely manner.	Number of new ambulances purchased due to growth/demand	7 (2023)	7 (2023)	15 ambulances
		Budget	**$1.3M**	**$1.3M**	**$3.8M**
		Number of new facilities required to meet 10-year growth and demand	0	0	1 operation hub 5 two-bay stations
		Budget	**$0**	**$0**	**$23.5M**
Operation	Provide reasonable response times which are in line with legislative requirements.	HPS 90th Percentile Response time to Code 4 (life threatening emergency) calls (minutes)	12:34	10:00	10:00

[8] IPWEA, 2015, IIMM, p 2|28.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

LIFECYCLE ACTIVITY	LEVEL OF SERVICE	ACTIVITY MEASURE	CURRENT ACTUAL PERFORMANCE (2022)	CURRENT TARGET PERFORMANCE (2022)	PROPOSED 10-YEAR PERFORMANCE (2023 – 2032)
	(O.Reg. 267/08 requirements. Council Approval Report HES12014)	Average number of Code Zero Events (weekly)	0.6 (2023)	0	0
		Budget	**$69.7M (2023 operating budget)**	**To Be Determined**	**To Be Determined**
	Apply a Lifecycle Approach to ensure optimum costs are achieved over the whole life of the asset.	Actual supply/ maintenance expenditures vs planned budget.	101%	90-100%	90-100%
Maintenance	Ensure paramedics assets are maintained in acceptable condition.	All vehicle and patient care equipment maintenance items meet or exceed current MOH Land Ambulance Certification Standard	2022 Certification Criteria Met	Meet certification criteria	Meet certification criteria
		Budget	**$400K (2023)**	**$400K (2023)**	**$7.6M**
	Ensure paramedics have enough reliable assets to respond to emergencies.	Average number of days vehicles are out of service waiting for maintenance or repair	Not yet measured	Not yet measured	Not yet measured
		Budget	**Not yet measured**	**Not yet measured**	**Not yet measured**
	Ensure paramedics assets are maintained in acceptable condition	Number of times vehicles not receiving Preventative Maintenance as scheduled in the	Condition of SLA fulfilled	Condition of SLA fulfilled	Condition of SLA fulfilled

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

LIFECYCLE ACTIVITY	LEVEL OF SERVICE	ACTIVITY MEASURE	CURRENT ACTUAL PERFORMANCE (2022)	CURRENT TARGET PERFORMANCE (2022)	PROPOSED 10-YEAR PERFORMANCE (2023 – 2032)
		current Service Level Agreement			
		Budget	**Not yet measured**	**Not yet measured**	**Not yet measured**
Renewal	Ensure that paramedics assets are maintained in good condition.	% of in-service ambulances over replacement frequency target (6 years)	34%	0%	0%
	Ensure paramedics have enough reliable assets to respond to emergencies.	Number of times paramedics are on duty without an available vehicle to work due to equipment shortage	0	0	0
	Ensure that paramedics assets are maintained in good condition.	**Budget**	**$4.2M (2023)**	**$6.0M (2023)**	**$23.3M**
		Number of AEDs in the system that have not received the required check within the timeframe (timeframe TBD when Bill 141 activated)	0	0	0

4.5 PROPOSED LEVELS OF SERVICE DISCUSSION

It is evident per ***Table 17*** that HPS is often meeting technical standards with some exceptions. However, customer preferences and expectations do not always match internal technical targets. It has been assumed in the interim that the current levels of service will be the proposed levels of service moving forward past 2025 in accordance with O. Reg 588/17. The information below is intended to provide context to direct HPS to areas for further investigation before proposing any new levels of service which may not occur before 2025.

In addition, as previously mentioned, many of HPS's asset customers are internal customers (e.g., staff) as they are the main users of HPS assets. For this first iteration of the AM Plan the focus was on external customers (i.e., the Public), and as a result there are some gaps in the information below with respect to internal customers. This has been identified as a continuous improvement item in ***Table 29***.

CONDITION / QUALITY

Per ***Table 16***, the majority of phone survey respondents rated the overall service as Very Good to Excellent with a Very High confidence level. In addition, users of the Mobile Integrated Health (Community Paramedicine) Program in 2019 also indicated their opinion of the program was Excellent with an Unknown confidence level.

When comparing customer expectations to the technical levels of service measurements that correspond with the asset condition or quality of the service, HPS is currently meeting certification criteria per the Land Ambulance Certification Standard, AEDs are checked within the correct timeframe, and the Service Level Agreement with Hamilton Fire Department is being fulfilled. Currently, 34% of ambulances are over their replacement target, but as previously mentioned this is due to supply chain issues discussed in **Section 6** and these ambulances are considered to be in Fair condition and roadworthy. Measurements with respect to amount of time vehicles are out of service is not currently being measured and will be measured in future iterations of the AM Plan which has been identified as a Continuous Improvement Item in ***Table 29***.

Therefore, at this time customer expectations align with technical performance for asset condition and quality of the service.

FUNCTION

Per ***Table 16***, with respect to function of the service, phone survey respondents expect HPS to arrive in seven minutes or less for life threatening emergencies with a Very High confidence level.

When comparing customer expectations to technical performance, currently HPS is not meeting customer expectations for life threatening emergency response. However, a 7-minute response time is significantly lower than the industry standard of 8 minutes and 59 seconds 90% of the

time, and HPS is currently working to achieve a 10-minute response time 90% of the time. Per the Hamilton Paramedic Service 2022 Annual Report and ***Table 17*** above, the 90th percentile response time to Code 4 or life-threatening calls is 12 minutes and 34 seconds, and the target performance is 10 minutes. This amount of time represents the period from when dispatch assigns the call to paramedics until paramedics arrive on scene, and 90th percentile means that 90% of calls will meet or be lower than that response time. It is important to note that in some areas of the City, HPS is achieving industry standard, but there are challenges in lower density and lower demand areas in the City.

Therefore, there is currently a mismatch between customer expectations and technical performance with respect to the function of the service. Currently, HPS is proposing to add more resources as discussed in ***Section 5*** to meet current targets.

When investigating proposing new levels of service, improving response times would be an area to explore. Currently, HPS continues to evaluate how to improve response times in the Hamilton Paramedic Service Master Plan 2022-2031.

CAPACITY

Per ***Table 16***, just over half of phone survey respondents felt that HPS had or somewhat had adequate resources, whereas 25% felt that HPS did not with a Very High confidence indicating that some needs were being met.

When comparing this to technical performance, it is evident that HPS is proposing to add additional resources (e.g., facilities, ambulances, and staff) to meet the expected demand to maintain current levels of service, but that currently there is no equipment shortage.

Therefore, customer expectations and HPS technical performance currently match with respect to service capacity.

5. FUTURE DEMAND

Demand is defined as the desire customers have for assets or services and that they are willing to pay for. These desires are for either new assets/services or current assets.

The ability for the City to be able to predict future demand for services enables the City to plan ahead and identify the best way of meeting the current demand while being responsive to inevitable changes in demand. Demand will inevitably change over time and will impact the needs and desires of the community in terms of the quantity of services and types of service required.

5.1 DEMAND DRIVERS

For the HPS service area, the key drivers are:

- Population Growth and Demographic Shift: Hamilton's population is projected to increase to approximately 680,000 by 2031 with seniors being the fastest growing segment of the population. By 2031, almost 22% of Hamilton's population will be 65 years old or older. Hamilton's population is forecasted to grow to approximately 820,000 by 2051. This forecasted increase in the senior population will significantly increase the demand on services provided by HPS over the next ten years and beyond.
- Social Determinants of Health: Different social demographics may use HPS services more frequently, and these demographics may continue to shift. This is discussed in more detail in ***Section 2.1.3.***
- Legislative Changes: Legislation shifts frequently for HPS, and often requires immediate compliance which can be costly. The most recent legislative change relates to Personal Protective Equipment (PPE), which is now a requirement for the City to maintain. In addition, the Ontario Building Code also requires all new HPS facilities to fulfill the OBC Post Disaster Seismic Requirement.

5.2 DEMAND FORECASTS

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented in ***Table 18.*** Growth projections have been shown on ***Page 45 in the AM Plan Overview document.***

Where costs are known, these additional demands as well as anticipated operations and maintenance costs have been encompassed in the Lifecycle Management Plans in ***Section 8.***

5.3 DEMAND IMPACT AND DEMAND MANAGEMENT PLAN

The impact of demand drivers that may affect future service delivery and use of assets are shown in ***Table 18***. Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks, and managing failures.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Opportunities identified to date for demand management are shown in ***Table 18***. Climate change demands are included in ***Section 7.***

Table 18: Demand Management Plan

DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Population Growth	565,000	680,000	Increased in call demand by 4.1% each year increased vehicles, equipment, medics, and support staff and training increased inspections, cleaning, stocking of vehicles, equipment enhanced inventory management	Additional 1 ambulance/year and 10FTE/ambulance plus equipment (growth demand), 2 spare ambulances (2026 and 2031), addition of 7 ambulances at peak demand periods plus 34 FTE (current demand), addition of 4 + logistic technicians, and addition of 3 supervisors
Age Demographic Shift	97,591 response volume	146,082 response volume		
Population Growth	18 stations	23 stations + 2 Fleet centres	Increased capital costs increased resources increased demand on logistics staff	Addition of 5 2-bay stations Addition of 2 larger Fleet Centres (which are currently in the 2024 capital budget but have not been captured in this AM Plan) Addition of logistics staff.
Social Determinants of Health	**Per Hamilton Spectator Code Red Series**		Increased demand on emergency response and Mobile Integrated Health programs	Addition of growth demand vehicles (1/year) Advocate for provincial funding for sustaining and expanding MIH programs

DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Legislative/ Regulatory Changes	HPS manages own PPE stock	HPS managing core stock of PPE levels for multiple service areas (i.e. Hamilton Police, Hamilton Fire, Public Health, Lodges, and HPS) as per Bill 106 Emergency Management Act	Potential for HPS to manage centralized emergency medical supplies increased resources facility space and infrastructure	Addition of logistics staff additional space required.
Legislative/ Regulatory Changes	Current Facilities are Normal Construction	Any new or newly occupied HPS Facilities required to fulfill Ontario Building Code Post Disaster Seismic Requirement	Any new builds or new leases must fulfill this seismic requirement, which is costly, and may limit HPS' ability to easily acquire additional space.	Consider this additional cost in future facility cost estimates. Complete cost benefit analysis when comparing new builds versus new leases.

5.4 ASSET PROGRAMS TO MEET DEMAND

The new assets required to meet demand may be acquired, donated or constructed. For HPS, typically assets are acquired or constructed.

At this time there are approximately **$30.2M** in anticipated assets acquired over the next 10 years. Acquiring new assets will commit HPS to ongoing operations, maintenance and renewal costs for the amount of time that the service is required. These future costs have been estimated at a high level in the Lifecycle Management Plans in ***Section 8,*** but should be quantified further for future iterations of the report for consideration in developing higher confidence forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan.

6. RISK MANAGEMENT

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[9].

The City is developing and implementing a formalized risk assessment process to identify risks associated with service delivery and to implement proactive strategies to mitigate risk to tolerable levels. The risk assessment process identifies credible risks associated with service delivery and will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

The risk assessment process identifies credible risks, the likelihood of those risks occurring, and the consequences should the event occur. The City utilizes two risk assessment methods to determine risk along with subject matter expert opinion to inform the prioritization. Hamilton is further developing its risk assessment maturity with the inclusion of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable in the next iteration of the plan.

6.1 CRITICAL ASSETS

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarized in ***Table 19.*** Failure modes may include physical failure, collapse or essential service interruption.

Table 19: Critical Assets

CRITICAL ASSET	FAILURE MODE	IMPACT
Fuel System	Essential service interruption, Physical Failure to Fuel System	Inability to provide service, have 24 hours before running out of fuel in ambulances.
911 Communications	Essential service interruption, IT malfunction, phone system failure	Cannot receive the call from dispatch for information related to incident and address. Increase in morbidity, mortality, and patient suffering

[9] ISO 31000:2009, p 2

CRITICAL ASSET	FAILURE MODE	IMPACT
Facilities	Overcrowded facilities	Failure to meet Ministry standard - vehicles to be stored in climate-controlled area; facilities in which to clean and maintain vehicle and equipment
Ambulance	Essential Service Interruption, funding, vehicle shortage, vehicle failure	Reduction in Operable vehicles available to meet call demand and call growth. Increase in morbidity, mortality, and patient suffering
Medical Equipment (conveyance, defibrillator)	Funding, equipment shortage, equipment failure	Failure to meet Ministry standard - equipment to be available and operable on every truck. Increase in morbidity, mortality, and patient suffering

By identifying critical assets and failure modes an organization can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

6.2 RISK ASSESSMENT

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences.

Critical risks are those assessed with ‘Very High’ (requiring immediate corrective action) and ‘High’ (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in ***Table 20***. It is essential that these risks and costs are reported to management.

Table 20: Risks and Treatment Plans

SERVICE OR ASSET AT RISK	WHAT COULD HAPPEN	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK	TREATMENT COSTS
Ambulance	Supply Chain Issue	High	Extend Service Life of Ambulance by doing major maintenance	Low	$360K
Fuel System	Equipment Failure	Medium	Plan to have ARI Cards in Vehicles	Low	$1.2K
Facilities	Overcrowding	High	Add more facilities	Low	$23.5M
Facilities	Power Outage	Medium	Confirm back-up power capability at each station and regular testing program.	Low	Within existing capacity.

6.3 INFRASTRUCTURE RESILIENCE APPROACH

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions the City needs to understand its capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

Resilience covers the capacity of the City to withstand any service disruptions, act appropriately and effectively in a crisis, absorb shocks and disturbances as well as adapting to ever changing conditions. Resilience is built on aspects such as response and recovery planning, financial capacity, climate change risk, assessment and crisis leadership.

A major service delivery resiliency issue within HPS is narrowed ambulance resources including code zero events as a result of hospital offload delays and peak demand periods. Code zero events refer to times where there are no ambulances available to respond to an emergency, and offload delays refer to the amount of time an ambulance spends at the hospital waiting to offload a patient. However, with the additional ambulances and staff approved in 2023, and the increased Ministry of Health funding for dedicated offload nurse programs at hospitals, the trends have improved substantially, and HPS has become more resilient. The table below outlines the current resilience approach for HPS.

THREAT / HAZARD	ASSESSMENT METHOD	CURRENT RESILIENCE APPROACH
Code Zero Events	Average 0.6 Code Zero Events Weekly as of April 30 2023	Trend is improving
Offload Delays	Average 565 Hours weekly as of April 30 2023	Trend is improving

6.4 SERVICE AND RISK TRADE-OFFS

The decisions made in AM Plans are based on the objective to achieve the optimum benefits from the available resources.

The following table outlines what activities HPS cannot afford to do over the next 10 years with their existing budget and provides the associated service and risk tradeoffs.

Table 21: Service and Risk Trade-offs

WHAT WE CANNOT DO (What can we not afford over next 10 years?)	SERVICE TRADE-OFF (How will not completing this affect our service?)	RISK TRADE-OFF (What risk consequences are we undertaking?)
5-2 bay stations	Continue to see less than optimal response times. Lack of space for staff.	Health and Safety Risks, Reputational Risks, Increased maintenance costs.

7. CLIMATE CHANGE AND MITIGATION

Cities have a vital role to play in reducing the emission of greenhouse gases (mitigation), as well as preparing assets for the accelerating changes we've already begun to experience (adaptation). At a minimum the City must consider how to manage our existing assets given potential climate change impacts for our region.

Changes to Hamilton's climate will impact City assets in the following ways:

- Affect the asset lifecycle;
- Affect the levels of service that can be provided and the cost to maintain;
- Increase or change the demand on some of our systems; and
- Increase or change the risks involved in delivering service.

To quantify the above asset/service impacts due to climate change in the Asset Management Plan, climate change is considered as both a future demand and a risk for both mitigation and adaptation efforts. These demands and risks should be quantified and incorporated into the lifecycle models as well as levels of service targets.

If climate change mitigation/adaptation projects have already been budgeted, these costs have been incorporated into the lifecycle models. However, many asset owners have not yet quantified the effects of the proposed demand management and risk adaptation plans described in this section, and so associated levels of service and costs will be addressed in future revisions of the plan. This has been identified as a Continuous Improvement item in ***Table 29.***

7.1 CLIMATE CHANGE MITIGATION

Climate Mitigation refers to human intervention to reduce GHG emissions or enhance GHG removals (e.g. building transportation infrastructure that can support cycling and public transit and reduces need for car travel). The City of Hamilton's Community Energy + Emissions Plan (CEEP includes five (5) Low-carbon Transformations necessary to achieve the City's target of net-zero GHG emissions by 2050:

- Innovating our industry;
- Transforming our buildings;
- Changing how we move;
- Revolutionizing renewables; and,
- Growing Green.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Mitigation Demand Analysis

These transformations were incorporated into the climate mitigation demand analysis for this service area by:

- Identifying the City's modelled targets for the low carbon transformations that applied to the service/asset;
- Discussing the impact, the targets would have on the service/asset; and
- Proposing a preliminary demand management plan for how this modelled target will be achieved by 2050 as shown in ***Table 22*** below.

As previously mentioned, due to the high level of uncertainty with the demand management plans, the cost of the demand impacts below have not been included in the lifecycle models or levels of service at this time. The demand management plans discussed in this section should be explored by asset owners in more detail following the AM Plan, and new projects should incorporate GHG emissions reductions methods, and changes which will be incorporated into future iterations of the AM Plan. This has been identified as a continuous improvement item in ***Table 29.***

Moving forward, the Climate Lens tool discussed in the AMP Overview will assess projects based on these targets and will assist with the prioritization of climate mitigation projects.

Mitigation Demand Analysis

Table 22: Climate Change Mitigation Transformation:

CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	IMPACT TO SERVICE OR ASSET	DEMAND MANAGEMENT PLAN
Changing how we move	100% of new municipal small and light-duty vehicles are electric by 2040. 100% of new municipal heavy-duty vehicles switch to clean hydrogen by 2040.	Required to purchase hybrid vehicles leading to increased capital costs increased retrofit costs (update infrastructure) increased demand on logistics staff, additional training reduced fuel costs	Acquire hybrid or electric vehicles charging infrastructure at each station (22). Rapid charging stations within facilities addition of logistics staff

CURRENT MITIGATION PROJECTS

Mitigation projects which HPS already pursued are outlined below in ***Table 23.***

Table 23: Asset Climate Mitigation Projects

PROJECT	CLIMATE CHANGE MITIGATION TRANSFORMATION	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
Anti-Idling Technology	Changing How We Move	All vehicles have been equipped with anti-idling technology.	Greenhouse Gas emissions reduction.
Hybrid Vehicles	Changing How We Move	Two hybrid ambulances were on trial use since 2018. This trial has ended as previously reported to Council as the two ambulances had to be removed from service due to suppliers going out of business. The two ambulances were converted back to normal drive train. However, HPS is not abandoning the possibility of future hybrid or electric ambulances, but these are currently not feasible. Four OEM hybrid ERVs were recently acquired in 2023.	Greenhouse Gas emissions reduction.

7.2 CLIMATE CHANGE ADAPTATION

Climate Adaptation refers to the process of adjusting to actual or expected climate and its effects (e.g. building facilities that can handle new climate loads).

The impacts of climate change may have a significant impact on the assets we manage and the services they provide. Climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which those impacts are responded to and managed.[10]

In 2021, the City of Hamilton completed a Vulnerability and Risk Assessment Report guided by ICLEI's Building Adaptive and Resilient Communities (BARC) Framework as part of the Climate

[10] IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

Change Impact Adaptation Plan (CCIAP) (ICLEI, 2021). The BARC Framework identified thirteen high impact areas.

Adaptation Demand Analysis

Climate adaptation demands for HPS are shown below in ***Table 24***.

Table 24: Managing the Demand of Climate Change on Assets and Services

ADAPTATION IMPACT STATEMENT	BASELINE	AVERAGE PROJECTED CHANGE	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
Dryer, hotter and longer summers may affect the health and safety of local vulnerable populations.	71.6 days average length of hot season	102 days average length of hot season	Increased call volume	Addition of 1 ambulance/year to address call growth
More frequent and intense heatwaves will increase instances of heat-related health and safety issues, particularly for households without access to reliable air-conditioning and the homeless	2.1 average annual heat waves	4.7 average annual heat waves	Increased call volume	Addition of 1 ambulance/year to address call growth
Increased intensity and frequency of ice storms leading to increased hazardous roads, pathways, and sidewalk conditions.	187 mm average total winter precipitation	204 mm average total winter precipitation	Increased call volume Potential delay in response time	Addition of 1 ambulance/year to address call growth
Increased temperatures and changes in precipitation increasing incidences of infectious diseases and vector borne diseases as result of longer transmission periods or changes in geographic distribution of disease vectors.	52.2 number of ice days (temperature below 0 degrees Celsius)	35.7 number of ice days (temperature below 0 degrees Celsius) extending breeding season of mosquitos/ticks.	Increased call volume	Addition of 1 ambulance/year to address call growth

ADAPTATION IMPACT STATEMENT	BASELINE	AVERAGE PROJECTED CHANGE	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
Prolonged power outages during winter months due to an increase in ice storms resulting in public safety concerns	187 mm average total winter precipitation	204 mm average total winter precipitation	Increased call volume Lack of power at facilities	Addition of 1 ambulance/year to address call growth Generators at facilities Installation of generators at all facilities

ADAPTATION RISK ANALYSIS

Additionally, the City should consider the risks for the asset or service as a result of climate change and consider ways to adapt to reduce the risk. Adaptation can have the following benefits:

- Assets will withstand the impacts of climate change;
- Services can be sustained; and,
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint.

Similarly, to the exercise above and using the risk process in ***Section 6***, asset owners:

- Reviewed the likelihood scores in the Vulnerability and Risk Assessment Report for the adaptation impact occurring;
- Identified the consequence to the asset/service if the event did happen to develop a risk rating; and,
- If the risk was identified as high, the asset owner produced a preliminary risk adaptation plan shown below in ***Table 25.***

It is important to note that due to the high level of uncertainty with the climate change risk adaptation plans, the cost of the mitigating the risks below have not been included in the lifecycle and financial plans at this time. The adaptation plans discussed in this section should be explored by asset owners in more detail following the AM Plan, and new projects should consider these risks during the planning and design processes. Future changes which will be incorporated into future iterations of the AM Plan. Moving forward, the Climate Lens tool will assess projects based on these targets and will assist with the prioritization of climate adaptation projects.

Table 25: Adapting to Climate Change

ADAPTATION IMPACT STATEMENT	SERVICE OR ASSET AT RISK DUE TO IMPACT	WHAT COULD HAPPEN	RISK RATING	RISK ADAPTATION PLAN
Prolonged power outages during winter months due to an increase in ice storms resulting in public safety concerns	**Facilities**	Prolonged power outages due to increase in ice storms	High	Work with Facilities and Fire to review condition of and/or install generators
Reduced capacity of flood protection measures and water storage caused by an increase in rainfall intensity leading to flooding.	**Facilities**	Increase in rainfall intensity leading to flooding	High	Facilities requirements for new buildings to include stricter storm water management

CURRENT ADAPTATION PROJECTS

HPS is not currently completing any climate change adaptation specific projects. The impact of climate change on assets and how the City will adapt is a new and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

CLIMATE ADAPTATION DISCUSSION

There are many projections related to increased temperature which include heat waves, rising temperatures, increase in average temperatures, and longer summers. One demand result of hot weather is an increase in emergency response. As stated in ***Table 24***, one of the Adaptation Impact Statements shows that hot weather affects health and safety for households without access to reliable air-conditioning and unhoused individuals. During these events, this would lead to an increase in calls for emergency services. HPS and other emergency services should investigate this correlation to ensure appropriate staff and assets are available as the climate continues to shift.

8. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the City plans to manage these assets at the agreed levels of service and at the accepted lifecycle costs while excluding inflationary values. The costs included in the lifecycle management plan includes costs from both the Capital and Operating budget. Asset management focuses on how taxpayer or ratepayer dollars are invested by lifecycle activities and not by budget allocation. Since both budgets contain various lifecycle activities, they have been consolidated together and separated by lifecycle activity in this section.

As a result of this new process, there may be some areas where the budget was not able to be broken down perfectly by lifecycle activity. Future AM Plans will focus on improving the understanding of Whole Life Costs and funding options. However, at this time the plan is limited on those aspects. Expenditure on new assets and services will be accommodated in the long-term financial plan but only to the extent that there is available funding.

8.1 ACQUISITION PLAN

Acquisition reflects new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its current capacity. They may result from growth, demand, legal obligations or social or environmental needs. Assets can either be donated through development agreements with the City or through the construction of new assets which are mostly related to population growth.

CURRENT PROJECT DRIVERS – 10 YEAR PLANNING HORIZON

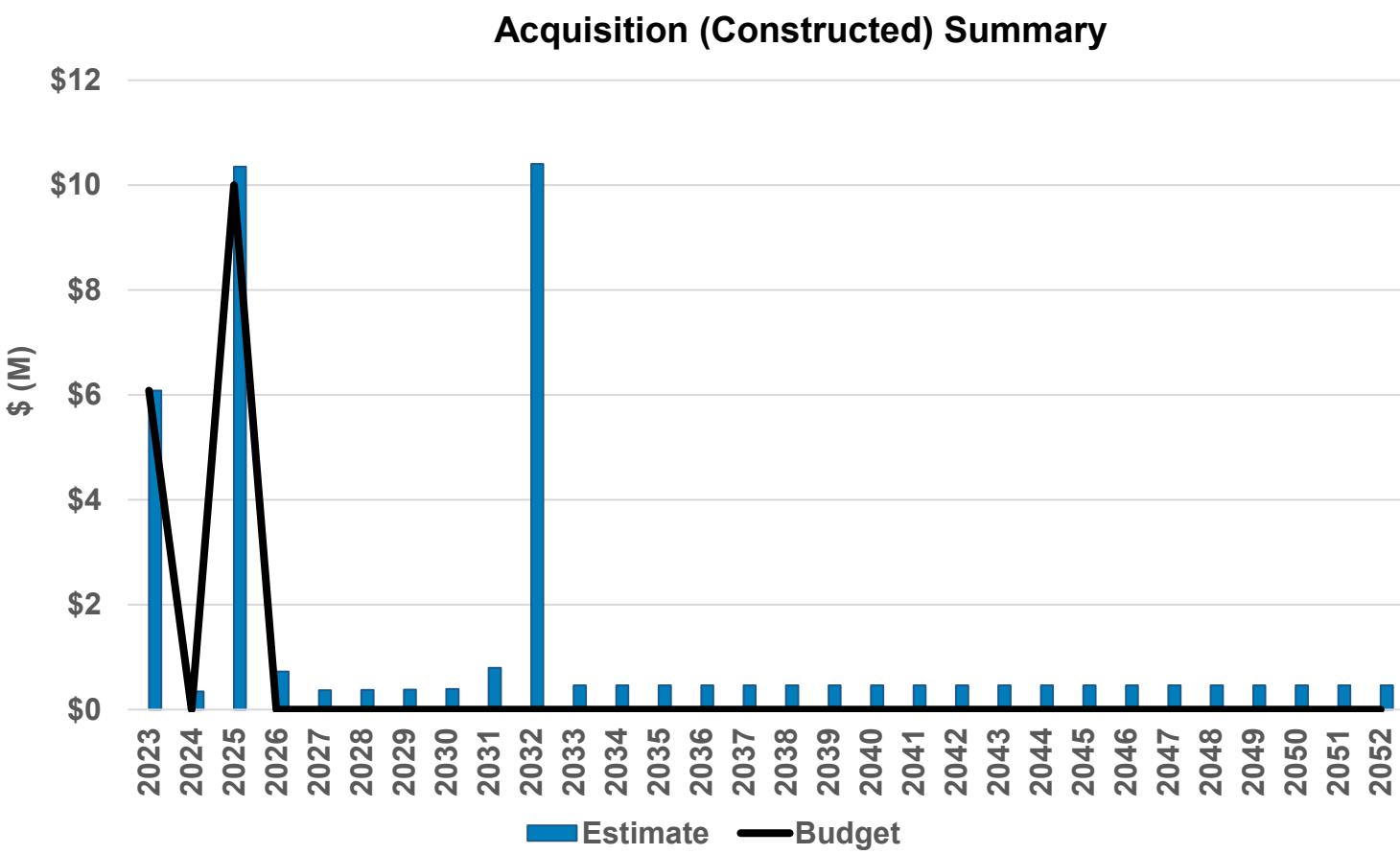
The City prioritizes capital projects based on various drivers to help determine ranking for project priorities and investment decisions. As part of future AM Plans, the City will be continuing to develop its understanding of how projects are prioritized and ensures that multiple factors are being considered to drive investment decisions in the next iteration of the AM Plan. These drivers will include legal compliance, risk mitigation, O&M impacts, growth impacts, health and safety, reputation, and others. These drivers should be reviewed during each iteration of the AM Plan to ensure they are appropriate and effective in informing decision making.

Typically, HPS determines acquisitions and renewals based on the level of risk to the community and makes Council requests for funding as these findings occur.

CONSTRUCTED OR PURCHASED ACQUISITIONS

For HPS, assets are typically acquired through the purchase or construction of new assets which are mostly related to population growth, demographic shifts, social determinants of health or technological changes as discussed in the Demand section. Over the next 10-year planning period, HPS will acquire approximately **$30.2M** of purchased or constructed assets as shown below in ***Figure 10*** and explained further below. Hamilton will continue to monitor its constructed and purchased assets annually and update the AM Plan when new information becomes available.

Figure 10: Acquisition (Constructed) Summary
All Figure Values Are Shown In 2022 Dollars. x

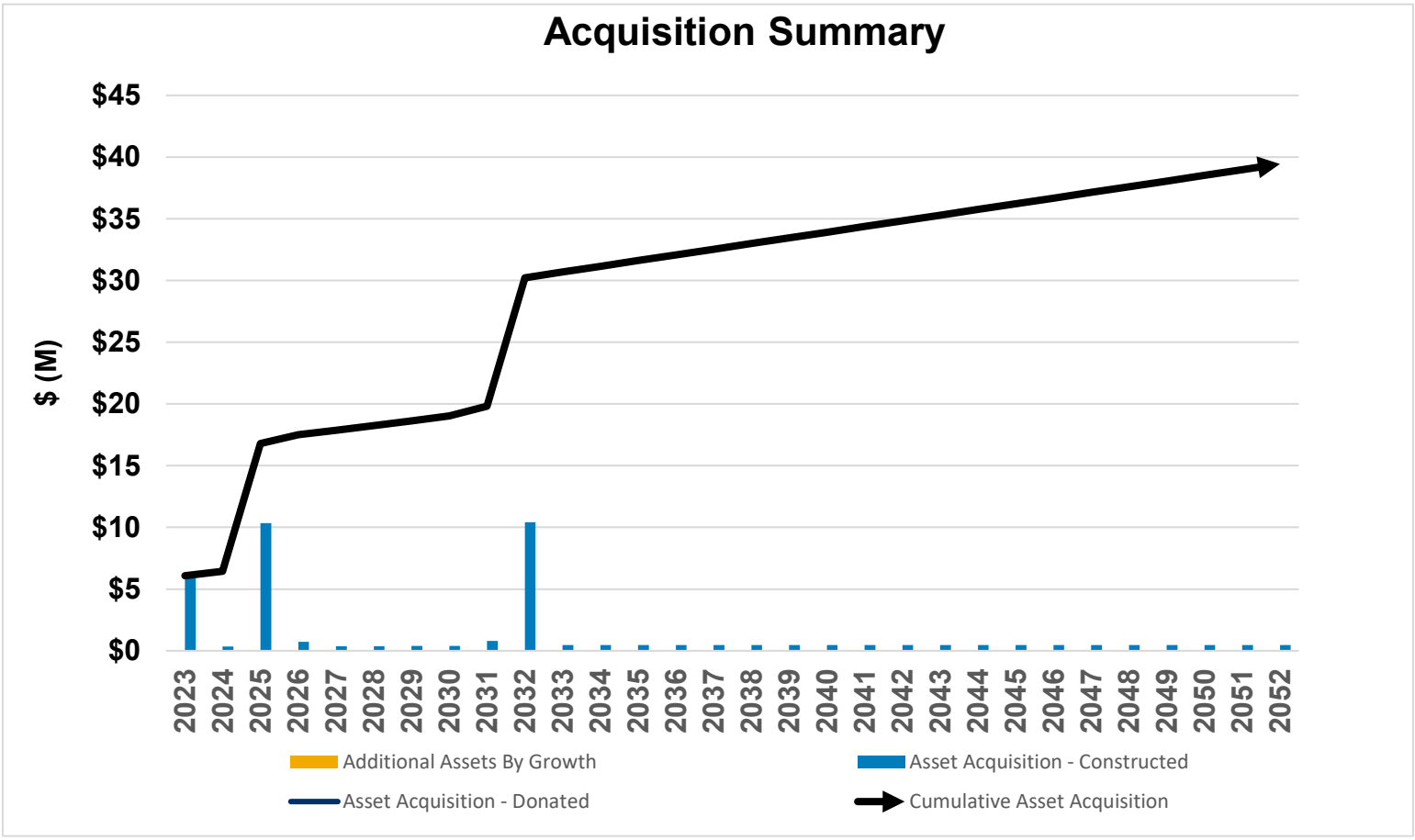


ACQUISITIONS SUMMARY

When Hamilton commits to constructing new assets, the municipality must be prepared to fund future operations, maintenance, and renewal costs. Hamilton must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in ***Figure 10*** above.

Future AM Plans will focus on improving the understanding of Whole Life Costs and funding options. However, at this time the plan is limited on those aspects. Expenditure on new assets and services will be accommodated in the long-term financial plan but only to the extent that there is available funding.

Figure 11: **Acquisition Summary**
All Figure Values Are Shown In 2022 Dollars.



Per ***Figure 11***, major acquisition expenditures over the next ten years include:

- **$2.4 Million for seven new ambulances and equipment in 2023** to meet existing service demands during peak demand periods;
- **$4.1 Million for additional vehicles from 2024-2032** to meet anticipated service demands, which are not yet budgeted;
- **$10.0 Million for New Facility in 2025** which will be an operational hub that includes a response station, logistics capabilities and a warehouse space for the centralization of medical supplies for the City of Hamilton divisions providing health care, $3.5 Million has also been allocated in 2023 for pre-engineering;
- **$10 Million for five 2-bay stations in 2032** to address the needs of a growing service and ensure optimal performance in the future as the City's urban boundary is expanded.

It is important to note that the cost estimates for the new facilities identified above are expected to substantially increase due to the increased construction costs associated with the COVID-19

pandemic as well as the new Ontario Building Code Post Disaster Seismic requirement which is required on any HPS new builds.

HPS mostly has sufficient budget for its planned constructed acquisitions at this time, with the exception of the 5-2 bay stations in 2023 which have not yet been Council endorsed. Although the additional vehicles are shown to be unbudgeted, these assets have been included in the Hamilton Paramedic Service Master Plan 2022-2031 which was received by Council.

At the time of writing, a new ATV is currently in the process of being acquired and converted which is estimated to be approximately $100K in total but was not integrated into these figures.

With competing needs for resources across the entire city there will be a need to investigate trade-offs and design options to further optimize asset decisions and ensure intergenerational equity can be achieved. Hamilton will continue to monitor its constructed assets annually and update the AM Plan when new information becomes available.

8.2 OPERATIONS AND MAINTENANCE PLAN

Operations include all regular activities to provide services. Daily, weekly, seasonal and annual activities are undertaken by staff to ensure the assets perform within acceptable parameters and to monitor the condition of the assets for safety and regulatory reasons.

- **$61.0 Million** in employee related costs allocated for employee related costs in 2023 (i.e., salaries, wages, benefits, etc.);
- **$2.5 Million** in material & supply (i.e., medical supplies, uniforms and clothing, prescribed medication supply etc.); and
- **$1.2 Million** in vehicle expenses (i.e., fuel, services call's etc.)

Maintenance should be viewed as the ongoing management of deterioration. The purpose of planned maintenance is to ensure that the correct interventions are applied to assets in a proactive manner and to ensure it reaches its intended useful life. Maintenance does not significantly extend the useful life of the asset but allows assets to reach their intended useful life by returning the assets to a desired condition.

Examples of typical maintenance activities include equipment repairs and component replacements along with appropriate staffing and material resources required to perform these activities.

Proactively planning maintenance significantly reduces the occurrence of reactive maintenance which is always linked to a higher risk to human safety and higher financial costs. The City needs to plan and properly fund its maintenance to ensure HPS can achieve the desired level of service.

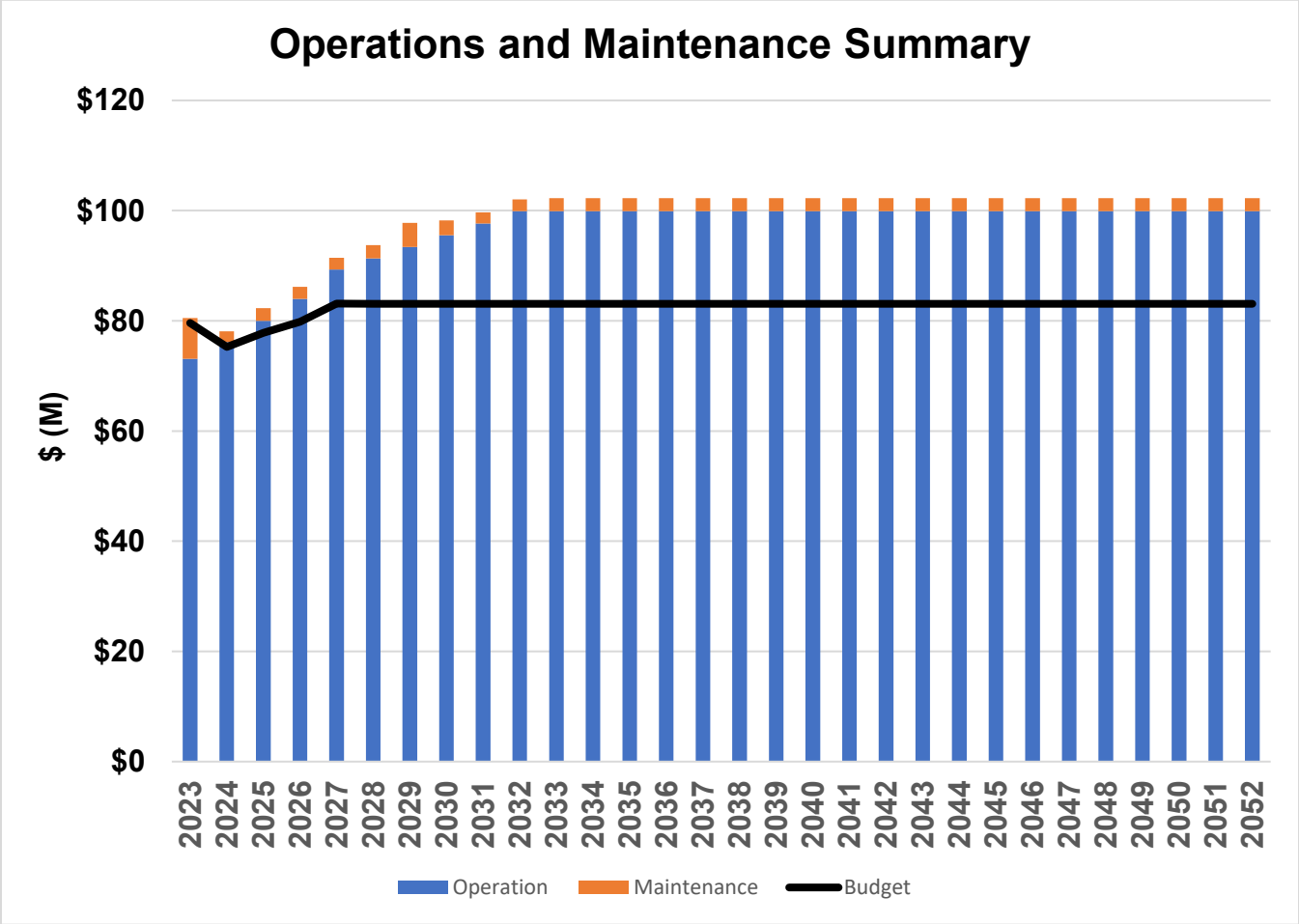
Major maintenance projects the City plans to complete over the next 10 years include:

- **$3.5 Million** allocated in 2023 for Station 30 Design;
- **$0.9 Million** allocated in 2023 for Station 30 Roof Replacement; and,
- **$1.4 Million** allocated in 2023 for Station 30 Renovations and Upgrades.

These investments for maintenance are intended to allow these assts to reach their estimated service life and minimize reactive maintenance costs. It should be acknowledged that these forecasted costs do not yet fully include the recommended works that need to be undertaken to ensure the entire inventory of assets will achieve their desired service lives and level of service.

Deferred maintenance (i.e. works that are identified for maintenance activities but unable to be completed due to available resources) will be included in the infrastructure risk management plan in future iterations once those works have been identified and prioritized.

Figure 12: Operations and Maintenance Summary
All Figure Values Are Shown In 2022 Dollars.



Per ***Figure 12*** above, it is evident that operations and maintenance requirements are growing for HPS over the next 10 years due to anticipated demands within the City as explained in **Section 5**, and if budget increases are not approved to keep up with this demand, it may result in a decrease in levels of service over time. Since currently needs have only been projected for the next 10 years, and it is unclear if current trends will continue at the same rate past 2032, the figure above has assumed a constant need past 2032, but it is anticipated that the need for HPS services will continue to grow over time.

The additional operations and maintenance shown above were based on the estimates in the Hamilton Paramedic Service Master Plan 2022-2031. Additional estimates were included for the energy and water costs for the proposed 5-2 bay stations based on the anticipated energy and water usages for these sites based on proposed building footprint as well utility costs but does not yet include all anticipated costs associated with the operations and maintenance of these facilities.

8.3 RENEWAL PLAN

Renewal is major works which does not increase the assets design capacity but restores, rehabilitates, replaces, or renews an existing asset to its original service potential. Works over and above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs

Asset renewals are typically undertaken to either ensure the assets reliability or quality will meet the service requirements set out by the City. Renewal projects are often triggered by service quality failure and can often be prioritized by those that have the highest consequence of failure, have high usage, have high operational and maintenance costs and other deciding factors.

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in ***Table 26*** and are based on estimated design life for this iteration. Future iterations of the plan will focus on the Lifecycle approach to ESL which can vary greatly from design life. Asset useful lives were last reviewed in 2022 however they will be reviewed annually until their accuracy reflects the City's current practices.

Table 26: Useful Lives of Assets

ASSET SUBCATEGORY	ESTIMATED SERVICE LIFE (YEARS)
All Facilities	75
Administrative Vehicles	8
Ambulance	6
Bicycle Unit	9
CO Detectors	7
Emergency Response Vehicle	6
Fixed Assets	9
IT Equipment	5
Medical Equipment	9
MIH Vehicles	8
Oxygen Delivery Support	6
Other Equipment	7
Toughbook	5

The estimates for renewals in this AM Plan were based on the register method which utilizes the data from the City's asset registry to analyse all available lifecycle information and then determine the optimal timing for renewals based on the ESL.

RENEWAL RANKING CRITERIA

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g., Facilities can process required volumes); or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g., Vehicles are reliable).[11]

Future methodologies may be developed to optimize and prioritize renewals by identifying assets or asset groups that:

- Have a high consequence of failure;
- Have high use and subsequent impact on users would be significant;
- Have higher than expected operational or maintenance costs; and,
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.[12]

SUMMARY OF FUTURE RENEWAL COST

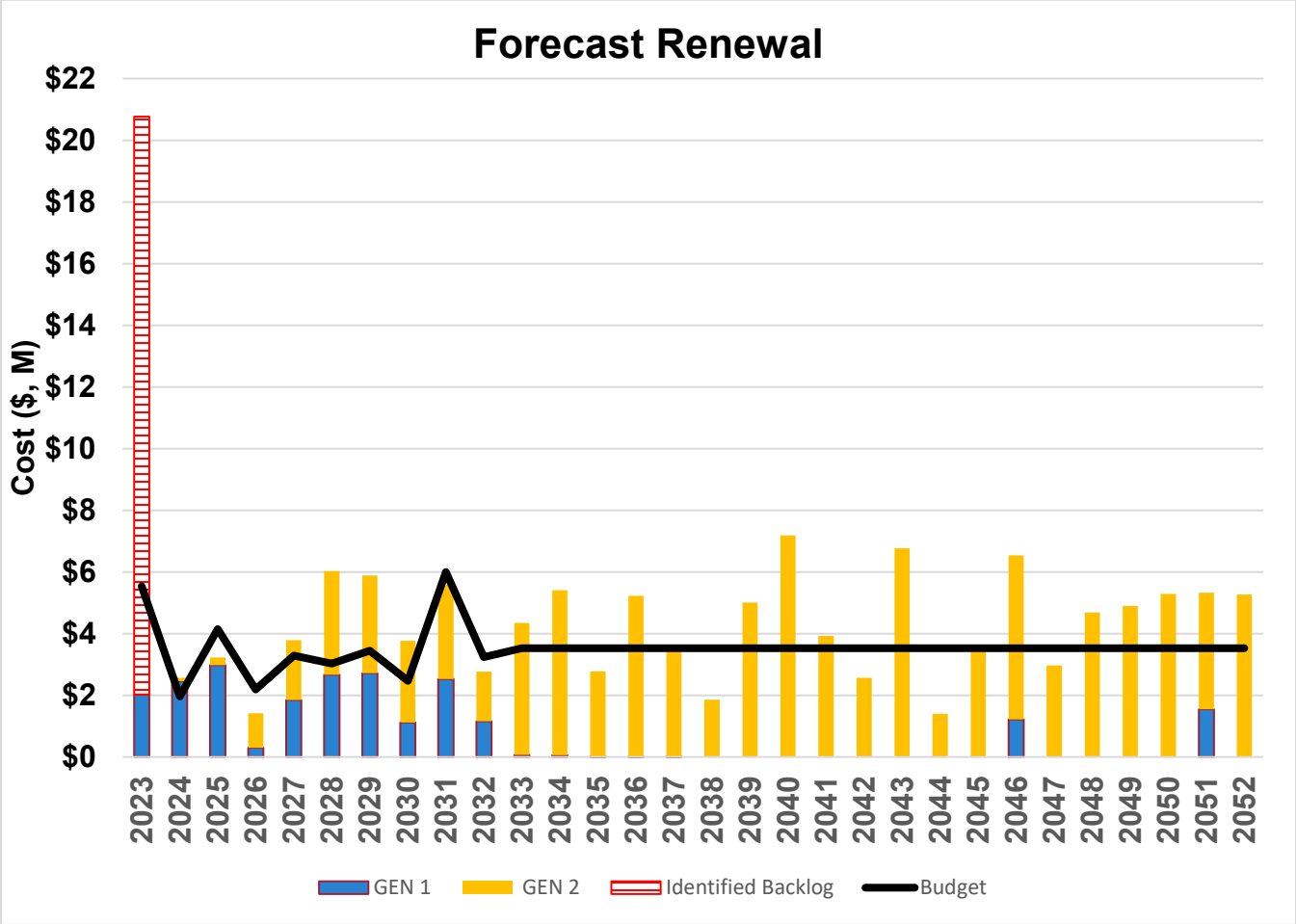
Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in ***Figure 13.***

In the figure below, Generation 1 (Gen 1) costs refer to renewals that occur for the first time in the model based on the estimated service life and Generation 2+ (Gen 2+) costs refer to renewals that have occurred twice or more based on the estimated service life.

[11] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.
[12] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Figure 13: Forecast Renewal Costs
All figure values are shown in 2022 dollars.



Currently, HPS has a backlog amount of approximately $18.7 Million. The major backlog items include:

- $10 Million for Station 30 Renewal which is in Poor condition and beyond 75-year ESL. This estimate is currently low confidence and will likely increase substantially due to inflation and seismic requirements per ***Table 18.***
- $4.5 Million for ambulances beyond their six-year ESL
- $1.9 Million for Power Load Device and Stretchers beyond seven-year ESL
- $1.5 Million for Emergency Response Vehicle and Admin Vehicles beyond six-to-seven-year ESL

HPS maintains an inventory of assets with condition categories and estimated service lives which are adhered to and forecasted within their capital budget. Per ***Figure 13*** above, there are years where the budget exceeds the need, and years where the need exceeds the budget, but these discrepancies typically balance out over the forecast apart from the backlog amount.

Renewals associated with anticipated vehicle acquisitions from 2024-2032 were excluded from this forecast because the funding for these acquisitions is not currently secured.

HPS's approach to maintaining facilities is to work with Hamilton Fire Department and Corporate Facilities & Energy Management divisions to complete the major maintenance activities to improve the condition rating over time per the Operations and Maintenance Plan in ***Section 8.2***. Only Station 30 which is under the purview of HPS is included above in the renewal backlog as it is not meeting the needs of HPS and is anticipated to require a large amount of maintenance in the next 10 years.

The planned renewal works over the 10-year planning horizon include**:**

- Replacement of vehicles as they reach the end of useful life; and,
- Replacement of equipment and technology as they reach the end of useful life.

A continuous improvement item identified in ***Table 29*** is to determine the appropriate spare vehicle ratio for operational needs and contingencies.

Since properly funded and timely renewals ensures the assets perform as expected, HPS is performing satisfactorily by replacing assets at the suggested interval with an appropriate budget. Deferring renewals create risks of higher financial costs, decreased availability, and decreased satisfaction with asset performance. It is recommended to continue to analyze asset renewals based on criticality and availability of funds for future AM Plans.

8.4 DISPOSAL PLAN

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, possible closure of service, decommissioning, disposal of asset materials, or relocation. Disposals will occur when an asset reaches the end of its useful life. The end of its useful life can be determined by factors such as excessive operation and maintenance costs, regulatory changes, obsolescence, or demand for the asset has fallen.

There are no disposals currently identified at this time.

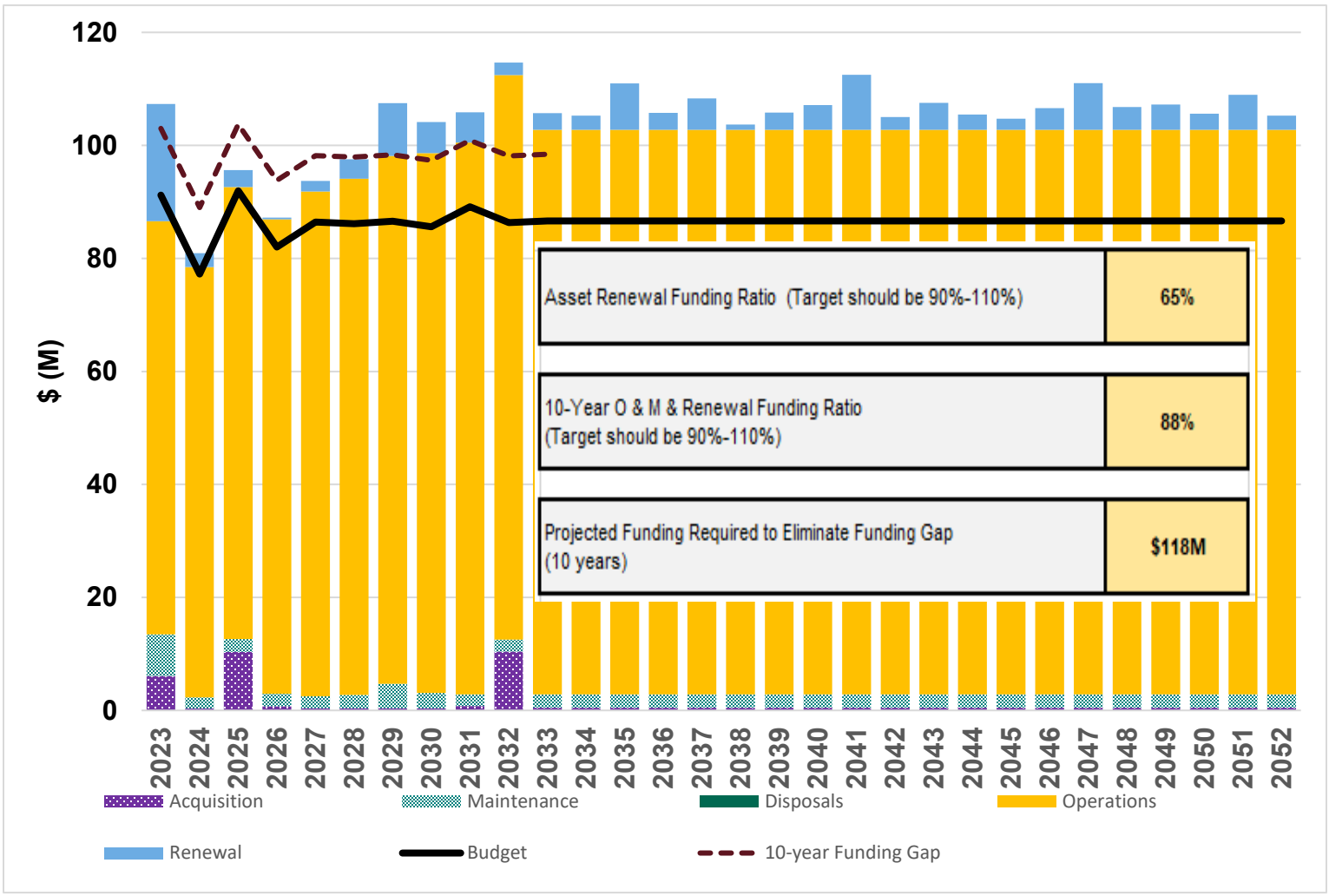
HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

8.5 LIFECYCLE COST SUMMARY

The financial projections from this asset plan are shown in ***Figure 14***. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimize the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 14: Lifecycle Summary
All Figure Values Are Shown In 2022 Dollars



The figure above indicates that there is insufficient budget to address the planned lifecycle activities for the 2023-2032 planning period. However, this is mostly due to the forecasted need for operations funds for additional staff and supplies to support the anticipated 10-year demands on the service, including the new operational hub facility proposed in 2025. Although HPS has not yet requested the budget for these additional staff, HPS has identified these needs in their Hamilton Paramedic Service Master Plan 2022-2031 which was received by Council.

Therefore, if the City continues to endorse the requested HPS budget on an annual basis, it is predicted that there will likely be sufficient operating budget to deliver the service at the current service level.

Conversely, there is a renewal backlog amount in 2023 mostly associated with the replacement of Station 30 and vehicles beyond their ESL. These needs have not been identified in other reports and are anticipated to be unfunded at this time.

The City will continue to improve its lifecycle data, and this will allow for informed choices as how best to mitigate impacts and how to address the funding gap itself. This gap in funding for future plans will be refined over the next three years to improve the confidence and accuracy of the forecasts.

9. FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of this AM Plan. Effective asset and financial management will enable the City to ensure its services are providing the appropriate level of service for the City to achieve its goals and objectives. Reporting to stakeholders on service and financial performance ensures the City is transparently fulfilling its stewardship accountabilities.

Long-Term financial planning (LTFP) is critical for the City to ensure the networks lifecycle activities such as renewals, operations, maintenance, and acquisitions can happen at the optimal time. The City is under increasing pressure to meet the wants and needs of its customers while keeping costs at an affordable level and maintaining its financial sustainability.

Without funding asset activities properly for its services; the City will have difficult choices to make in the future which will include options such as higher costs reactive maintenance and operational costs, reduction of service and potential reputational damage.

Aligning the LTFP with the AM Plan is critical to ensure all HPS needs will be met while the City is finalizing a clear financial strategy with measurable financial targets. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

9.1 SUSTAINABILITY OF SERVICE DELIVERY

There are two key indicators of sustainable service delivery that are considered within the AM Plan for this service area. The two indicators are the:

- Asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years); and,
- Medium term forecast costs/proposed budget (over 10 years of the planning period).

ASSET RENEWAL FUNDING RATIO

Asset Renewal Funding Ratio[13] **65.1%**

The Asset Renewal Funding Ratio is used to determine if the City is accommodating asset renewals in an **optimal** and **cost effective** manner from a timing perspective and relative to financial constraints, the risk the City is prepared to accept and targeted service levels it wishes to maintain. The target renewal funding ratio should be ideally between **90% - 110%** over the entire planning period. A high indicator result generally indicates that service levels are achievable, however the expenditures are below this level in some service areas predominantly due to underinvestment, including a lack of permanent infrastructure funding from senior levels of government, as well as large spikes of growth throughout the years.

[13] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

It is important to note that this ratio is heavily influenced by the need for a Station 30 replacement. If Station 30 were fully funded, the ARFR would be closer to 80%.

If assets are not renewed in the appropriate timing, it will inevitably require difficult trade off choices that could include:

- A reduction of the level of service and availability of assets;
- Increased complaints and reduced customer satisfaction;
- Increased reactive maintenance and renewal costs; and,
- Damage to the City's reputation and risk of fines or legal costs

The lack of renewal resources will be addressed in future AM Plans while aligning the plan to the LTFP. This will allow staff to develop options and long-term strategies to address the renewal rate. The City will review its renewal allocations once the entire inventory has been confirmed and amalgamated.

MEDIUM TERM – 10 YEAR FINANCIAL PLANNING PERIOD

10-Year Lifecycle Financial Ratio 88%

Although this AM Plan includes forecast projections to 30-years, the higher confidence numbers are typically within the first 10 years of the lifecycle forecast. The 10-year Lifecycle Financial Ratio compares the Planned Budget with the Lifecycle Forecast for the optimal operation, maintenance, and renewal of assets to provide an agreed level of service over the next 10-year period. Similarly, to the AARF, the optimal ratio is also between **90-110%**. A low ratio would indicate that assets are not being funded at the rate that would meet the organization' risk and service level commitments.

The forecast operations, maintenance and renewal costs over the 10-year planning period is anticipated to be **$96.4 Million** on average per year. Over time as improved information becomes available, it is anticipated this number will change. The proposed (budget) operations, maintenance and renewal funding is **$84.7 Million** on average per year (including the 50% of funding provided by the Province) giving a 10-year funding shortfall of **$11.8 Million** per year or **$118 Million** over the 10-year planning period. This indicates that **88%** of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget, which is just outside of the 90-110% range.

It is important to note that a large portion of this funding gap is due to a need for increased staff due to anticipated demands as explained in **Section 5** which have currently been assumed to be unfunded because these budget amounts have not yet been requested. If budget increases requested by HPS are continued to be supported, this gap will shrink over time. Therefore, it can be concluded that HPS is funding their service at an acceptable rate. Note, these calculations exclude acquired assets.

Funding an annual funding shortfall or funding 'gap' should not be addressed immediately. The overall gap in funding city-wide will require vetting, planning and resources to begin to incorporate gap management into the future budgets for all City services. This gap will need to be managed over time to reduce it in a sustainable manner and limit financial shock to customers. Options for managing the gap include;

- Financing strategies – increased funding, block funding for specific lifecycle activities, long term debt utilization;
- Adjustments to lifecycle activities – increase/decrease maintenance or operations, increase/decrease frequency of renewals, limit acquisitions or dispose of underutilized assets; and,
- Influence level of service expectations or demand drivers.

These options and others will allow Hamilton to ensure the gap is managed appropriately and ensure the level of service outcomes the customers desire.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to eventually achieve a financial indicator of **90-110%** for the first years of the AM Plan and ideally over the 10-year life of the Long-Term Financial Plan.

9.2 FORECAST COSTS (OUTLAYS) FOR THE LONG-TERM FINANCIAL PLAN

Table 27 shows the forecast costs (outlays) required for consideration in the 30 year long-term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the operational and capital budget. The City will begin developing its long-term financial plan (LTFP) to incorporate both the operational and capital budget information and help align the LTFP to the AM Plan which is critical for effective asset management planning.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AM Plan (including possibly revising the long-term financial plan).

The City will manage the 'gap' by continuing to develop this AM Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community. Options to manage the gap include reduction and closure of low use assets, increased funding allocations, reduce the expected level of service, utilize debt-based funding over the long term, adjustments to lifecycle activities, improved renewals and multiple other options or combinations of options.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Table 27: Forecast Costs (Outlays) For the Long-Term Financial Plan
Forecast Costs Are Shown In 2022 Dollar Values.

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2023	$6,082,500	$73,128,448	$7,361,541	$20,757,248	$-
2024	$347,500	$76,146,808	$1,960,965	$2,456,279	$-
2025	$10,354,300	$80,019,232	$2,270,660	$2,972,604	$-
2026	$722,800	$83,983,552	$2,218,171	$299,449	$-
2027	$368,600	$89,304,016	$2,148,260	$1,876,132	$-
2028	$375,900	$91,356,640	$2,381,962	$3,418,830	$-
2029	$383,300	$93,433,200	$4,334,620	$9,345,259	$-
2030	$390,800	$95,534,008	$2,687,931	$5,533,507	$-
2031	$796,800	$97,687,736	$2,028,880	$5,350,797	$-
2032	$10,406,100	$99,924,400	$2,098,157	$2,224,794	$-
2033	$460,678	$99,919,320	$2,361,250	$2,967,897	$-
2034	$460,678	$99,919,320	$2,361,250	$2,517,337	$-
2035	$460,678	$99,919,320	$2,361,250	$8,228,127	$-
2036	$460,678	$99,919,320	$2,361,250	$3,035,635	$-
2037	$460,678	$99,919,320	$2,361,250	$5,589,926	$-
2038	$460,678	$99,919,320	$2,361,250	$950,318	$-
2039	$460,678	$99,919,320	$2,361,250	$3,056,369	$-
2040	$460,678	$99,919,320	$2,361,250	$4,384,336	$-
2041	$460,678	$99,919,320	$2,361,250	$9,758,171	$-
2042	$460,678	$99,919,320	$2,361,250	$2,284,615	$-
2043	$460,678	$99,919,320	$2,361,250	$4,790,218	$-
2044	$460,678	$99,919,320	$2,361,250	$2,735,288	$-
2045	$460,678	$99,919,320	$2,361,250	$1,985,631	$-

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2046	$460,678	$99,919,320	$2,361,250	$3,863,781	$-
2047	$460,678	$99,919,320	$2,361,250	$8,253,369	$-
2048	$460,678	$99,919,320	$2,361,250	$4,044,206	$-
2049	$460,678	$99,919,320	$2,361,250	$4,502,673	$-
2050	$460,678	$99,919,320	$2,361,250	$2,867,470	$-
2051	$460,678	$99,919,320	$2,361,250	$6,205,840	$-
2052	$460,678	$99,919,320	$2,361,250	$2,500,469	$-

9.3 FUNDING STRATEGY

The proposed funding for assets is outlined in the City's operational budget and 10-year capital budget.

These operational and capital budgets determines how funding will be provided, whereas the AM Plan typically communicates how and when this will be spent, along with the service and risk consequences. Future iterations of the AM plan will provide service delivery options and alternatives to optimize limited financial resources.

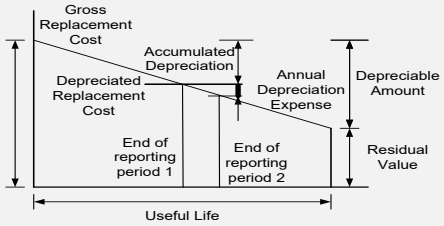
9.4 VALUATION FORECASTS

Asset values are forecast to increase as additional assets are added into service. As projections improve and can be validated with market pricing, the net valuations will likely increase significantly despite some assets being programmed for disposal that will be removed from the register over the 30-year planning horizon.

Additional assets will add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts. Any disposals of assets would decrease the operations and maintenance needs in the longer term and removes the high costs renewal obligations. At this time, it is not possible to separate the disposal costs from the renewal or maintenance costs however this will be improved for the next iteration of the plan.

9.5 ASSET VALUATION

Replacement Cost (Current/Gross)	**62,736,648**
Depreciable Amount	**62,736,648**
Depreciated Replacement Cost[14]	**31,412,106**
Depreciation	**4,345,642**



9.6 KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS

In compiling this AM Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this AM Plan are:

- Operational forecasts are based on current budget allocations and are the basis for the projections for the 30-year horizon. These forecasts encompass anticipated needs where known, but do not address other operational needs not yet identified;
- Maintenance forecasts are based on current budget allocations and forecasted needs and encompass anticipated needs where known; and,
- Replacement costs were based on historical costing. They were also made without determining what the asset would be replaced with in the future (e.g., hydrogen vehicles were not encompassed in replacement costs).

9.7 FORECAST RELIABILITY AND CONFIDENCE

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is defined in the AMP Overview.

The estimated confidence level for and reliability of data used in this AM Plan is considered to be a **Medium-High** confidence level.

[14] Also reported as Written Down Value, Carrying or Net Book Value.

Table 28: Data Confidence Assessment for Data Used in AM Plan

DATA	CONFIDENCE ASSESSMENT	COMMENT
Demand Drivers	High	These costs were based on the estimates in the Hamilton Paramedic Service Master Plan 2022-2031.
Growth Projections	High	These costs were based on the estimates in the Hamilton Paramedic Service Master Plan 2022-2031.
Acquisition Forecast	High	These costs were based on the estimates in the Hamilton Paramedic Service Master Plan 2022-2031. Estimates do not yet contain the additional vehicle and equipment requirements to support the 5-2 bay stations.
Operation Forecast	Medium	These costs were based on the estimates in the Hamilton Paramedic Service Master Plan 2022-2031. Projected future energy and water & sewer pricing for proposed 5-2 bay stations based on square footage, but do not yet have additional staffing requirements.
Maintenance Forecast	Medium	Maintenance forecast in this AM Plan are typically based on the results of the Building Condition Assessment which have been updated by the Corporate Facilities and Energy Management division, are assumed to be a medium confidence. Maintenance needs for new facilities have not yet been included. It was also assumed for this analysis that the "EMS Facility Upgrade" amount in the CFEM Capital Budget was used for HPS Stations only and not Shared Stations or Shared Administrative Facilities.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

DATA	CONFIDENCE ASSESSMENT	COMMENT
Renewal Forecast. **- Asset values**	Medium	Renewal market pricing was used which has high confidence, and estimated service lives are typically adhered to for vehicle assets. In addition, renewals for newly acquired assets were excluded from this analysis. Facilities renewal costs were lower confidence which lowered the confidence.
- Asset Useful Lives	High	Estimated service lives are typically adhered to for vehicle, equipment, and technology assets, but facilities ESLs were less confident.
- Condition Modelling	High	Condition was included based on internal condition scoring, which was complete.
Disposal Forecast	Very Low	No disposals were integrated into the forecast.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

10. PLAN IMPROVEMENT AND MONITORING

10.1 STATUS OF ASSET MANAGEMENT PRACTICES[15]

ACCOUNTING AND FINANCIAL DATA SOURCES

This AM Plan utilizes accounting and financial data. The sources of the data are:

- Hamilton Paramedic Service Master Plan 2022-2031;
- 2023 Approved HPS Operating Budget;
- 2024-2027 Multi-Year HPS Operating Forecast;
- 2023 Approved HPS Capital Budget;
- 2023 Corporate Facilities and Energy Management Capital Budget;
- 2024 Corporate Facilities and Energy Management Capital Budget;
- 2023-2032 Equipment Renewal Forecast Schedule;
- 2023-2032 Vehicle Renewal Forecast Schedule;
- Building Condition Assessment Reports;
- Asset Management Data Collection Templates;
- Audited Financial Statements and Government Reporting (FIR, TCA etc.);
- Financial Exports from internal financial systems; and,
- Historical cost and estimates of budget allocation based on SME experience.

ASSET MANAGEMENT DATA SOURCES

This AM Plan also utilizes asset management data. The sources of the data are:

- Data extracts from various city applications and management software;
- Asset Management Data Collection Templates;
- Development Charges Collection Template;
- Condition assessments; and,
- Subject matter Expert Opinion and Anecdotal Information.

10.2 IMPROVEMENT PLAN

It is important that the City recognize areas of the AM Plan and planning processes that require future improvements to ensure both effective asset management and informed decision making. The tasks listed below are essential to improving the AM Plan and the City's ability to make evidence based and informed decisions. These improvements span from improved lifecycle activities, improved financial planning and to plans to physically improve the assets.

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

The Improvement plan ***Table 29*** below highlights proposed improvement items that will require further discussion and analysis to determine feasibility, resource requirements and alignment to current workplans. Future iterations of this AM Plan will provide updates on these improvement plans.

The costs and resources to complete each of these tasks has not been included in the Lifecycle Management Plans to data, and resource requirements would need to be reviewed for internal resource driven projects.

Table 29: Improvement Plan

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
1	Begin to track age information for Equipment Assets	Logistics Lead and Logistics Staff	Within existing capacity	Q4 2023
2	Ensuring the data in Operative IQ is accurate and includes key database fields as well as metadata and follows the newly developed City Data Standard	Logistics Lead and Logistics Staff	Within existing capacity	Q4 2023
3	Modify condition ratings for assets to align on a 5-point scale instead of a 3-point scale	Logistics Lead	Within existing capacity	Q4 2023
4	Implement a process to keep up to date on facilities and square footage for HPS	Logistics Lead with HFD and Corporate Facilities	Within existing capacity	Q2 2024
5	Quantify costs to propose levels of service for different response time options	Logistics Lead	Within existing capacity	Q1 2025
6	Gather technical levels of service measurements that are not currently being measured.	Logistics Lead	Within existing capacity	Q1 2025
7	Quantify costs of climate change demand management and risk adaptation plans.	Logistics Lead	Within existing capacity	Q1 2025
8	Investigate asset costs for future climate change mitigation targets to be presented during budget process	Logistics Lead with Corporate Climate Change Group	Within existing capacity	2024 - 2026
9	Staff survey for input regarding station quality, suitability	Logistic Lead, SPM	Within existing capacity	Q3-4 2023

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
10	Confirm back up power capability at each station and regular testing program	Logistics Lead with HFD and Corporate Facilities	Within existing capacity	Q1 2024
11	Back-up plan in case of fuel system disruption (ARI cards, manual system)	Logistics Lead with Corporate	Within existing capacity	Q3 2023
12	Determine the appropriate spare vehicle ratio for operational needs and contingencies	Logistics Lead	Within existing capacity	Q1 2024
13	Investigate AVL inventory and assign responsibility.	Logistics Lead	Within existing capacity	Q4 2024

10.3 MONITORING AND REVIEW PROCEDURES

This AM Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The AM Plan will be reviewed and updated on a regular basis to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget will be incorporated into the Long-Term Financial Plan once completed.

10.4 PERFORMANCE MEASURES

The effectiveness of this AM Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan;
- The degree to which the one to 10-year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan;
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans; and,
- The Asset Renewal Funding Ratio achieving the Organizational target (this target is often 90 – 110%).

HAMILTON PARAMEDIC SERVICE ASSET MANAGEMENT PLAN

Appendix A – Survey Analysis

Hamilton Paramedic Service (HPS) Resident Survey 2023

~ Summary Report

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

CONTENTS

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

SURVEY SUMMARY

Purpose and Background

In 2018, the Hamilton Paramedic Service (HPS) conducted its first resident survey to collect residents' expectations and satisfaction with services provided by HPS. The findings from the 2018 survey were used to inform the development of the Hamilton Paramedic Service Master Plan 2022-2031.

As part of HPS's continuous improvement work, a second iteration of the HPS Resident Survey was conducted in 2023. The 2023 survey incorporates some of the same questions from 2018 and also includes new questions to help inform current HPS initiatives. The 2023 survey collected information from residents about:

- rating of HPS overall
- response and service expectations
- priorities and ratings of HPS programs and services
- the HPS Public Access Defibrillator program
- cultural diversity at HPS

The HPS Resident Survey 2023 questions can be found in Appendix A.

Methods and Administration

A third-party vendor, Forum Research Inc. was contracted using a competitive procurement process to conduct the survey using Computer Assisted Telephone Interviews (CATI). Hamilton based residential and cellular phone lines were randomly called and people were invited to participate in the phone survey. To qualify for participation in the survey, the respondent had to be age 16 years or over residing in Hamilton. The phone surveys were conducted between March 1, 2023 and March 31, 2023.

To supplement the phone surveys and allow more residents to participate in the survey, an online version of the survey was made available on the Engage Hamilton website. The online survey was active between March 1, 2023 and March 31, 2023.

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Both the phone and online versions of the survey were available in English and French.

The phone and online survey was promoted on the Frontline which aired on March 16, 2023 on Cable 14. Social media (i.e. Instagram, Twitter) was used to raise awareness about the online survey and encourage participation from residents.

Survey Response

The phone survey conducted by Forum Research Inc. called 24,472 randomly selected Hamilton based phone numbers and collected 550 completed responses. The phone surveys were conducted to ensure all Wards in Hamilton were fairly represented by the survey sample. This was achieved by aligning the respondent sample proportions by Ward with the 2016 city of Hamilton population proportions by Ward.

The results of the 550 phone survey are accurate to +/-4.2%, 19 out of 20 times (95% confidence interval) for the 2021 population of city of Hamilton residents. Data for subgroups of the total respondent universe or by Ward would have larger margins of error. The larger margins of error means it would be difficult to draw accurate conclusions of the data at the Ward level or for some subgroups.

The online survey collected 200 surveys where a response was provided for at least one (1) survey question.

Report Notes

- This report primarily focuses on the findings from the statistically representative sample of the city of Hamilton population collected through the phone survey.
- The results of the online survey are provided as a supplementary source of information. While the online survey expanded the opportunity for residents to participate in the survey, this survey methodology may be subject to self-selection bias. Multiple survey responses may also be submitted online by the same respondent. Hence, the online surveys cannot be determined to be a statistically representative sample of the population. The results from the phone survey and the online survey should not be compared due to the differences in survey methodologies.

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

- For both the phone and online survey, respondents did not always provide a response to every question or may have responded “don’t know”. The universe of respondents (n) is provided.
- Data shown may not add up to 100% due to rounding. For some questions, respondents were allowed to select multiple responses in which case the totals would exceed 100%.

Key Summary of Phone Survey Results

- Over one in three respondents rated the Hamilton Paramedic Service (HPS) as excellent in 2023, which is a significant increase from the one in four respondents who rated HPS as excellent in 2018.
- For life-threatening emergencies, the majority of respondents feel that paramedics should arrive in less than five (5) minutes (33%) or between five to seven minutes (33%).
- For non-life threatening emergencies, the proportion of respondents who feel paramedics should arrive within five (5) minutes has significantly decreased from 8% in 2018 to 2% in 2023.
- An overwhelming 87% majority of respondents indicated it would be acceptable for paramedics to settle them in the emergency room and then leave to prepare to respond to another 911 emergency call.
- Over half (55%) of respondents have not heard of any of the services provided by the HPS Mobile Integrated Health Program. Only 3% of phone survey respondents have used at least one (1) service provided by the HPS Mobile Integrated Health Program.
- The majority of respondents feel it is very important to allocate tax dollars to increase the number of ambulances and paramedics for a more timely response (73%) and to update technology and medical equipment to optimize service delivery (81%).
- Just over half (51%) of respondents indicated the City should maintain municipal taxes to maintain current paramedic service levels while 46% feel the City should increase municipal taxes to improve or deliver more paramedic services.
- The majority of respondents (73%) indicated being aware of or having seen public Automatic External Defibrillators (AEDs).

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

- Over one in three respondents would not feel comfortable using a public AED to assist someone in cardiac arrest and the most common reason given was not having training or knowing how to use the device.

- The majority of respondents (78%) indicated that it is very or moderately important that the cultural beliefs and values of patients/clients are considered when delivering patient care and 73% indicated it is very or moderately important that the HPS workforce reflects the diversity of residents they serve.

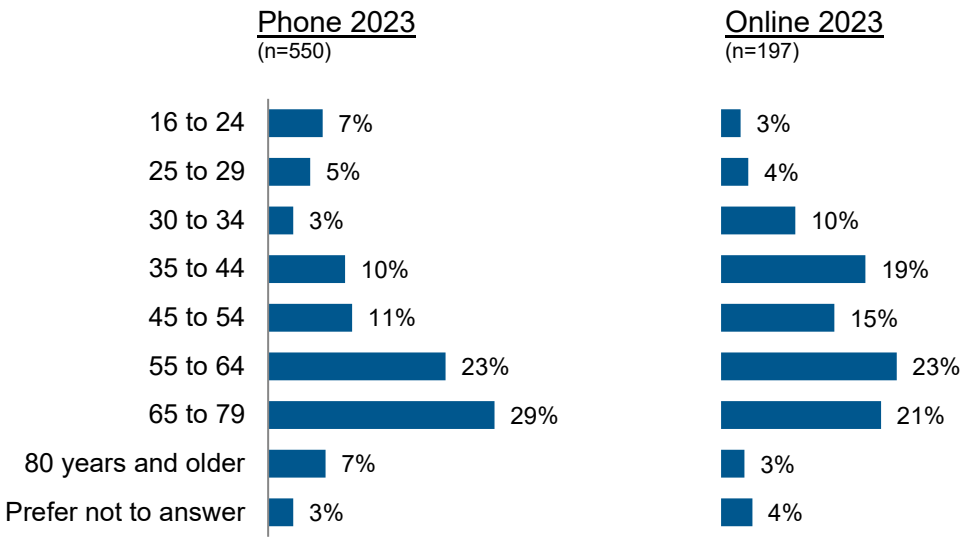
Detailed Survey Results

This section provides the detailed results of each survey question. The universe of respondents (n) is provided in brackets for each question.

The Respondents

The majority (59%) of phone survey respondents were age 55 or older.

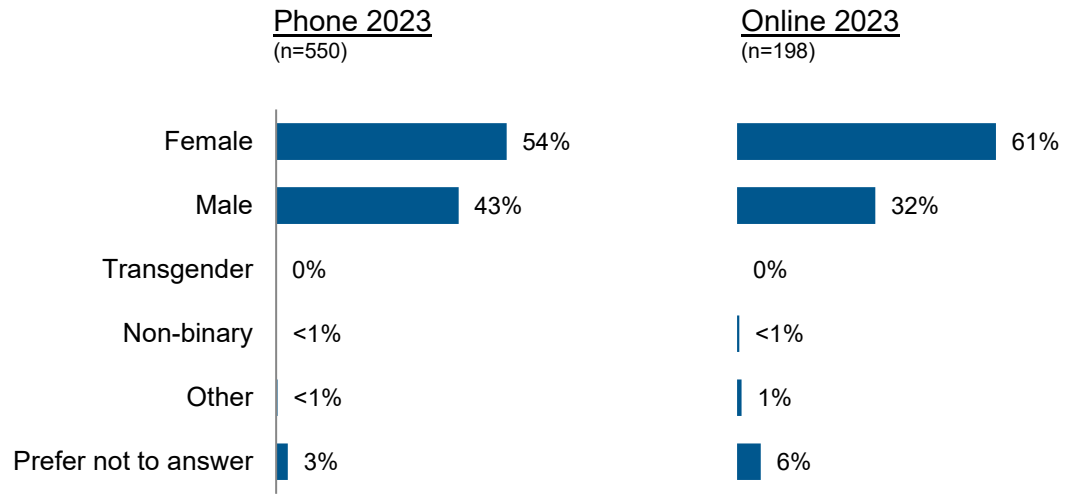
Age



Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

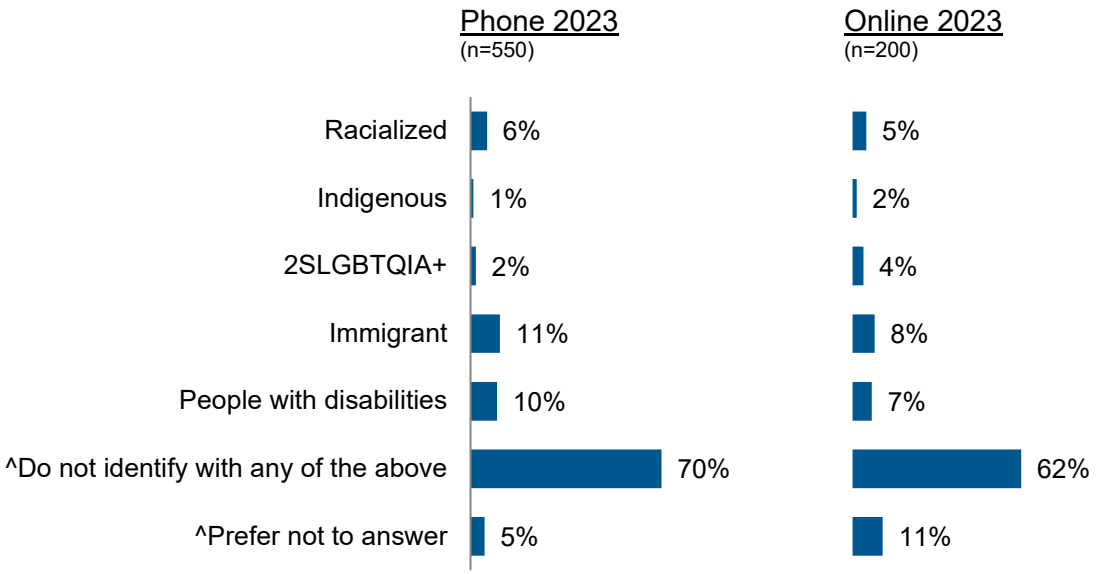
There were more female than male phone survey respondents.

Gender



The survey respondent sample included a range of different individuals that identify as either as racialized, Indigenous, 2SLGBTQIA+, immigrants or a person with disabilities.

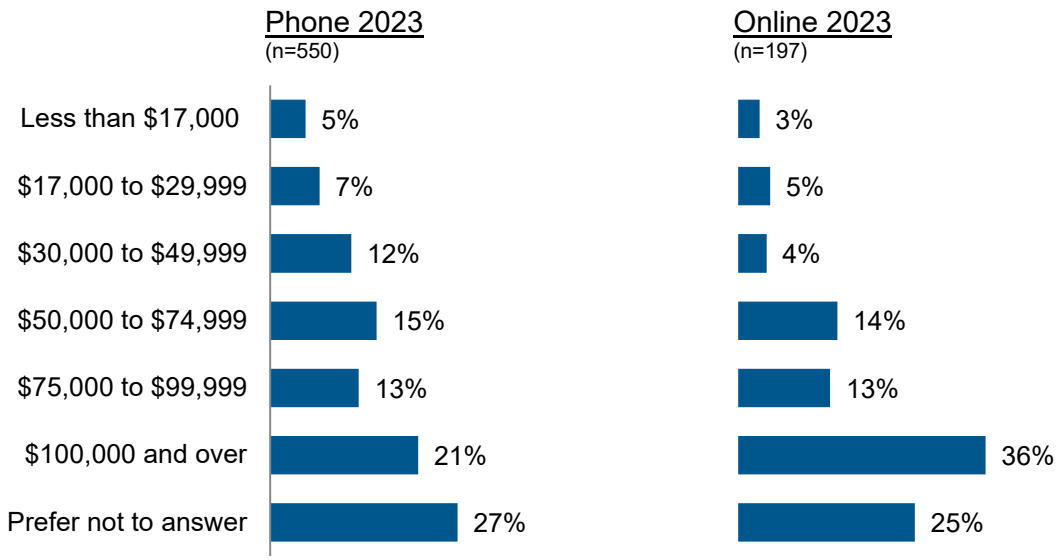
Groups



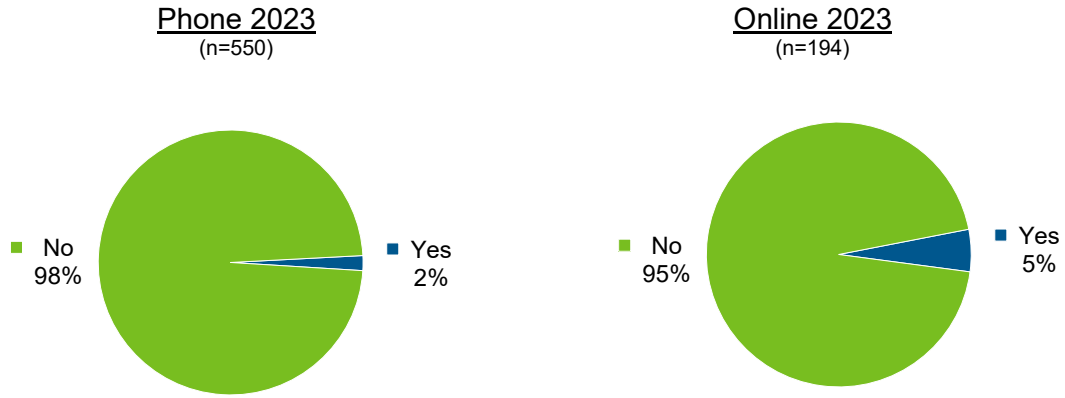
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

There were fewer survey respondents in the lower income groups than in the higher groups.

Household Income



Do you, or any member of your household, currently work for paramedic services?

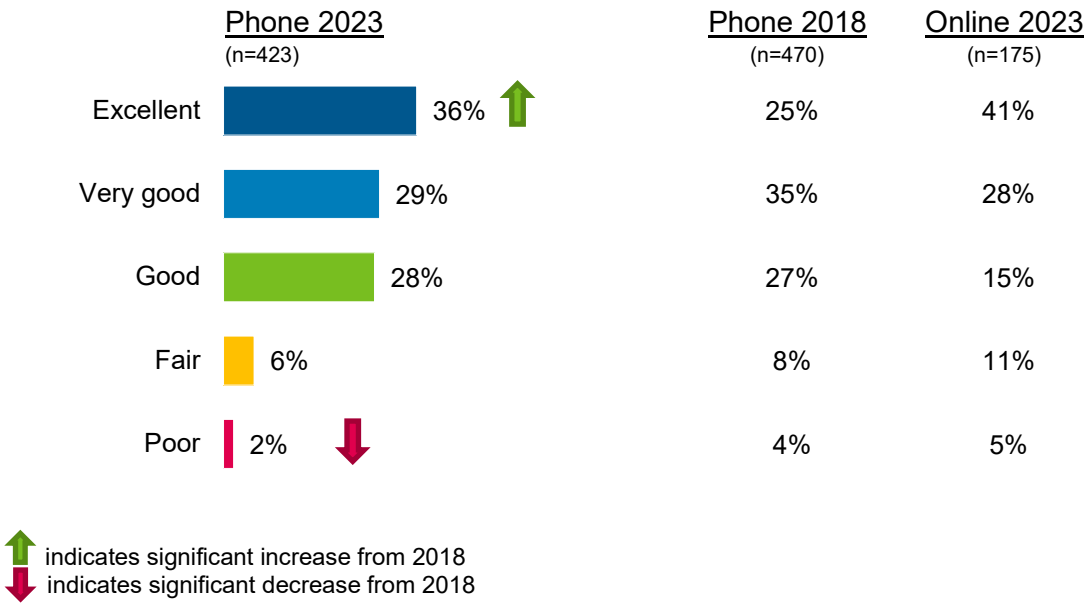


Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Overall Service Rating

Almost two-thirds (65%) of phone survey respondents rate the Hamilton Paramedic Service as excellent or very good. The proportion of respondents who rate services provided by HPS as excellent has significantly increased from 25% in 2018 to 36% in 2023.

Based on your experience or knowledge, overall, how would you rate the services provided by the Hamilton Paramedic Service?



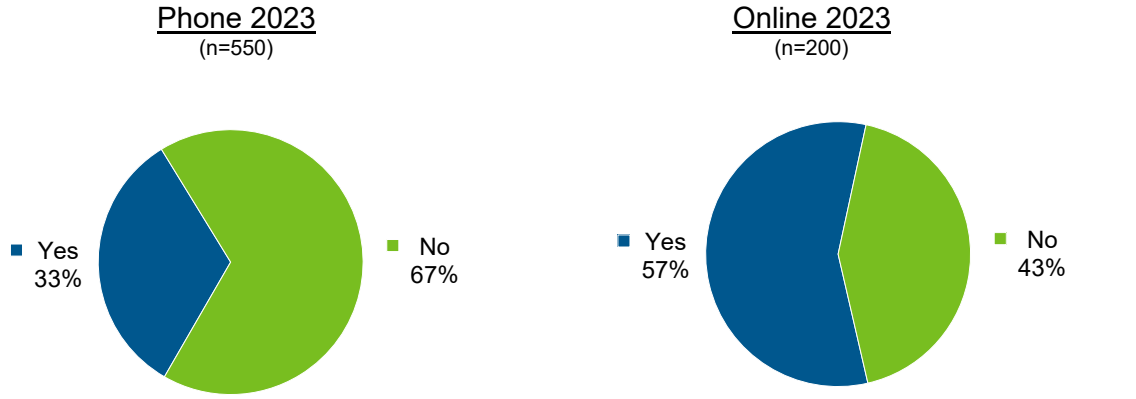
Respondents who rated the Hamilton Paramedic Service as poor were asked to explain their rating. The most common reasons for a poor rating given by respondents from both the phone and online survey were related to incidences or experiences respondents had with HPS and references to slow response times.

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Response Expectations

Approximately one in three phone survey respondents indicated having called 911 for an ambulance in the past 2 years either for themselves or someone they know.

Have you called 911 for an ambulance in the past 2 years, either for yourself or someone you know?

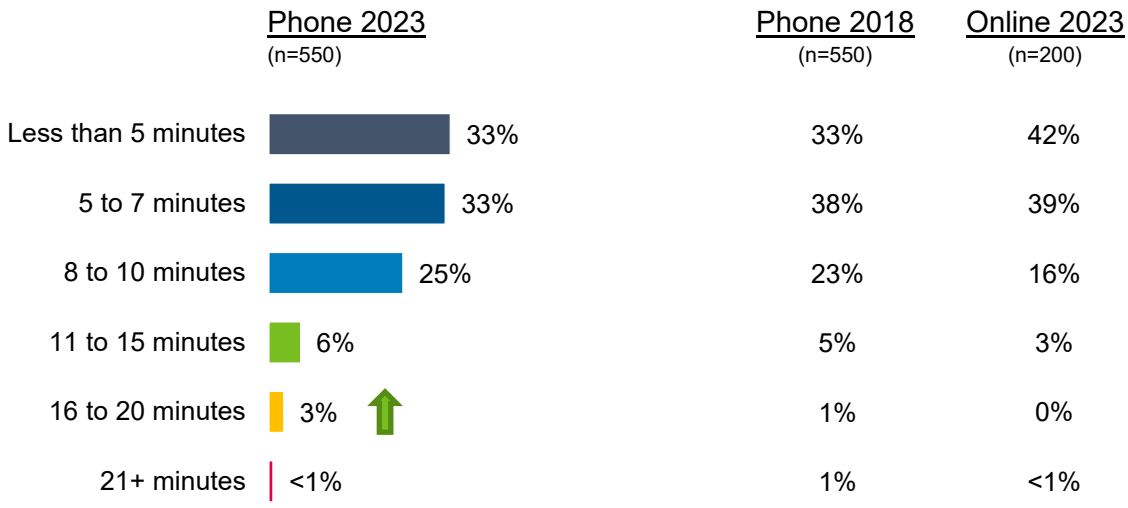


For life-threatening emergencies, the majority of phone survey respondents feel that paramedics should arrive in less than 5 minutes (33%) or between 5 to 7 minutes (33%).

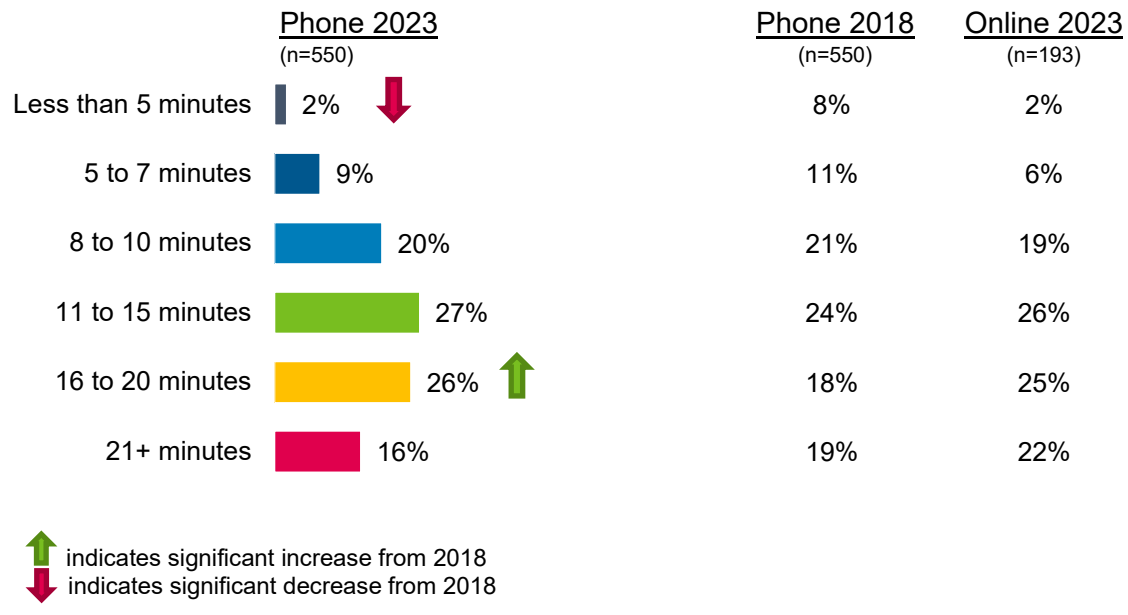
For non-life-threatening emergencies the majority of phone survey respondents feel that paramedics should arrive between 11 to 15 minutes (27%) or between 16 to 20 minutes (26%). The proportion of respondents who feel paramedics should arrive within 5 minutes has significantly decreased from 8% in 2018 to 2% in 2023.

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Considering driving time and traffic, how many minutes do you think is acceptable for paramedics to arrive for a life-threatening emergency?



Considering driving time and traffic, how many minutes do you think is acceptable for paramedics to arrive for a non-life-threatening emergency?

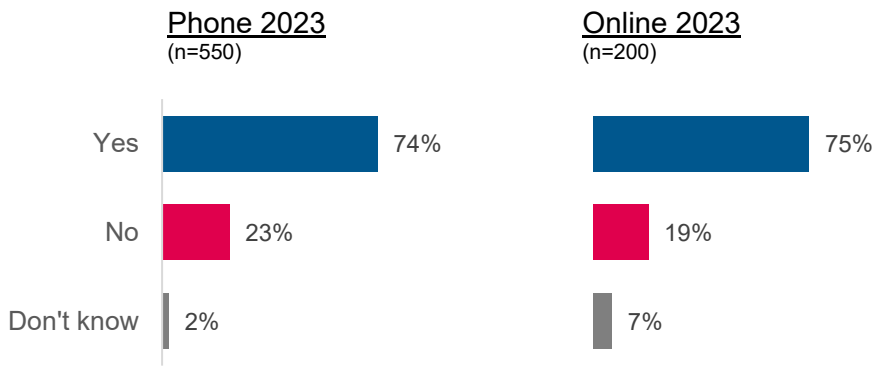


Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

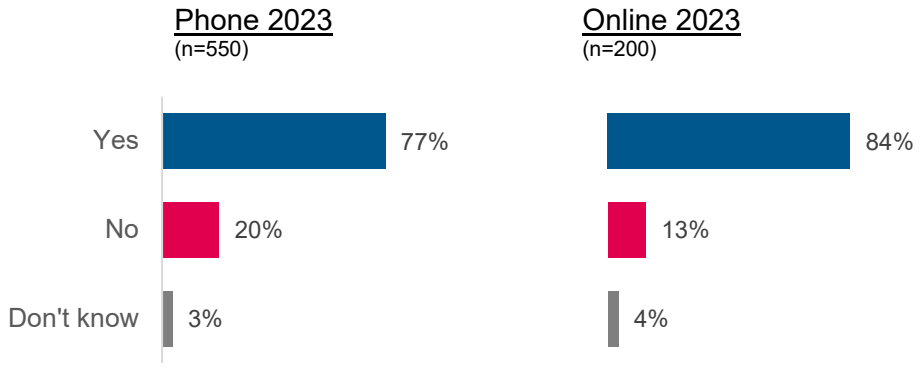
In a scenario where they have called an ambulance for a minor injury or illness, the majority of respondents feel it is acceptable:

- to receive care instructions over the phone from the paramedic dispatcher, including referrals to a medical professional to assist them, rather than sending an ambulance.
- for the paramedics who arrive on scene to provide treatment, then refer them to another medical professional, rather than taking them to the hospital.
- for the paramedics to settle them in the emergency waiting room and then leave so they can prepare to respond to another 911 emergency call.

Do you feel it is acceptable to receive care instructions over the phone from the paramedic dispatcher, including referrals to a medical professional to assist you, rather than sending an ambulance?

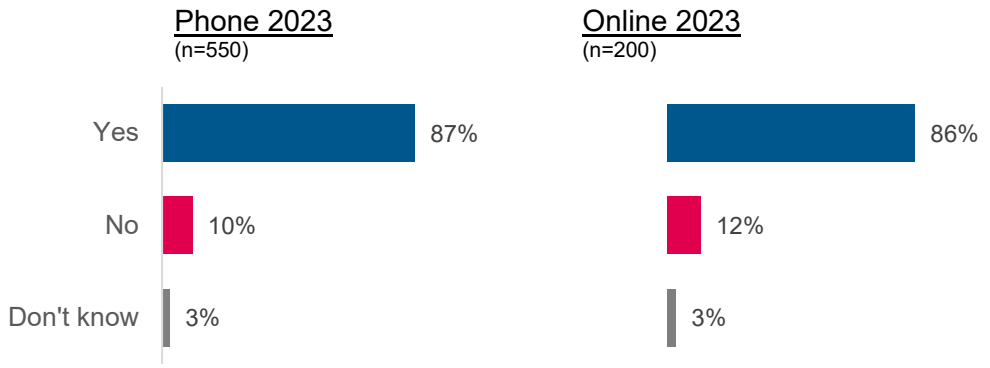


Do you feel it is acceptable for the paramedics who arrive on scene to provide treatment, then refer you to another medical professional, rather than taking you to the hospital?



Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

If you are taken to the hospital, do you feel it is acceptable for the paramedics to settle you in the emergency waiting room and then leave so they can prepare to respond to another 911 emergency call?



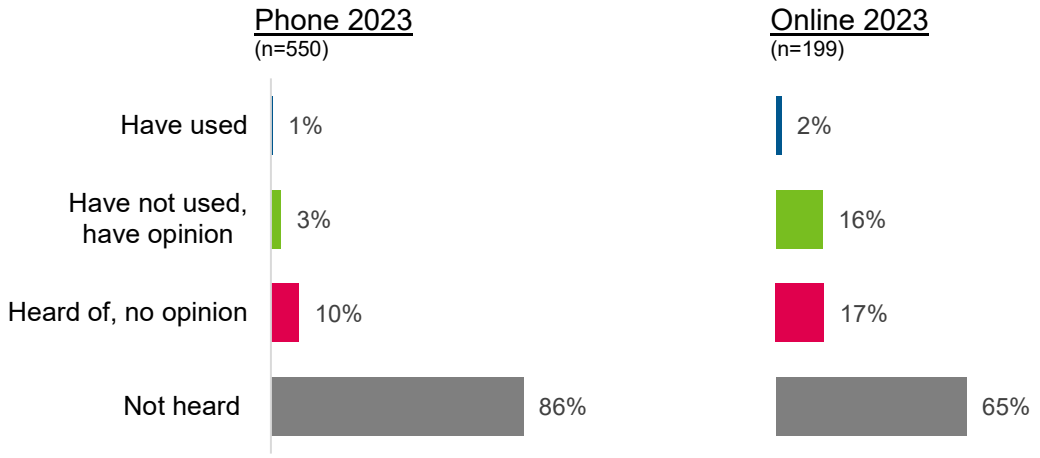
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

HPS Mobile Integrated Health Program

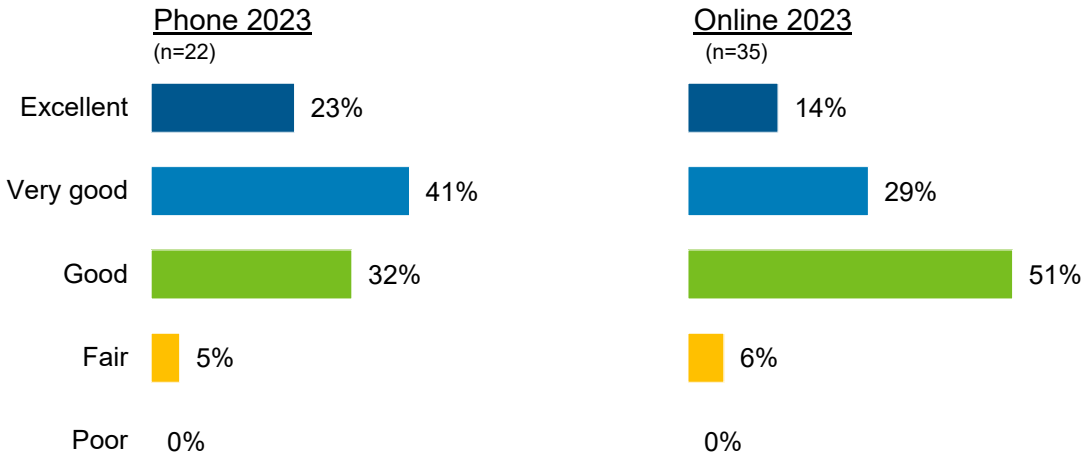
Overall, very few phone survey respondents have used or have an opinion about the services provided by the HPS Mobile Integrated Health Program.

Less than 1% of respondents have used the Community Paramedic @ Clinic Seniors Program. For respondents who have used or have an opinion about the Community Paramedic @ Clinic Seniors Program, the majority (64%) felt the program was excellent or very good.

Community Paramedic @ Clinic Seniors Program – familiarity with service



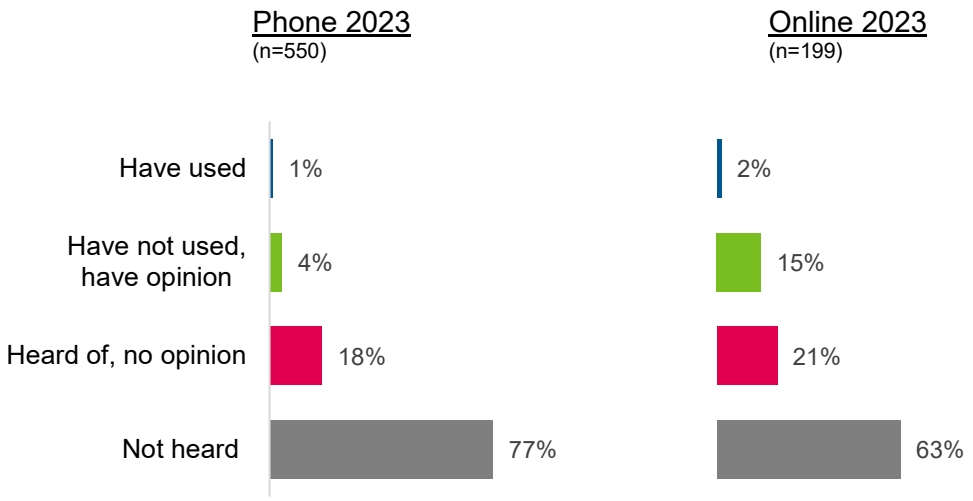
Community Paramedic @ Clinic Seniors Program - rating of service



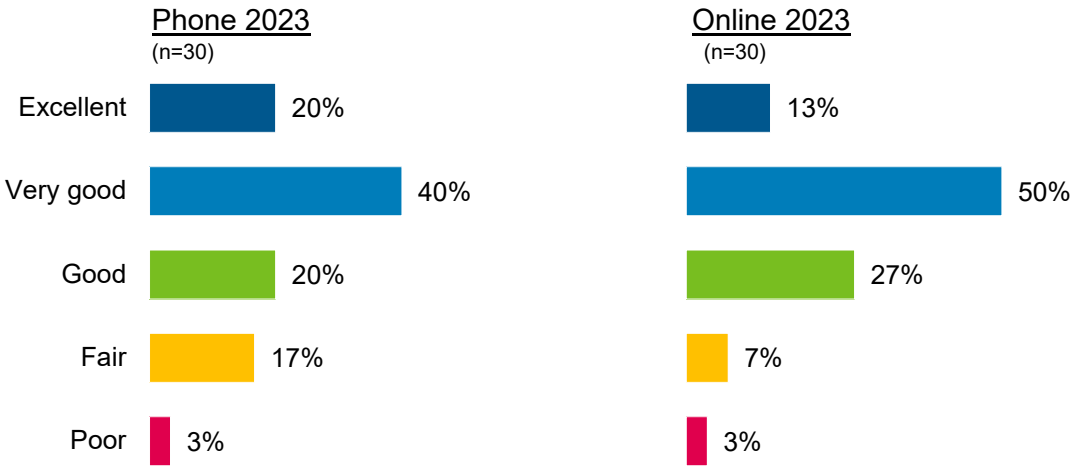
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Less than 1% of respondents have used the Remote Patient Monitoring service. For respondents who have used or have an opinion about the Remote Patient Monitoring service, the majority (60%) felt the program was excellent or very good.

Remote Patient Monitoring - familiarity with service



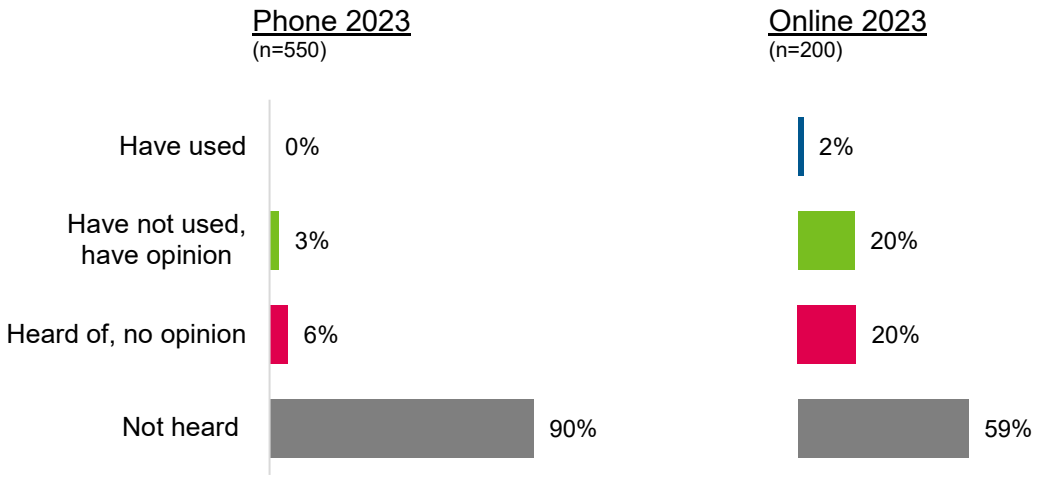
Remote Patient Monitoring - rating of service



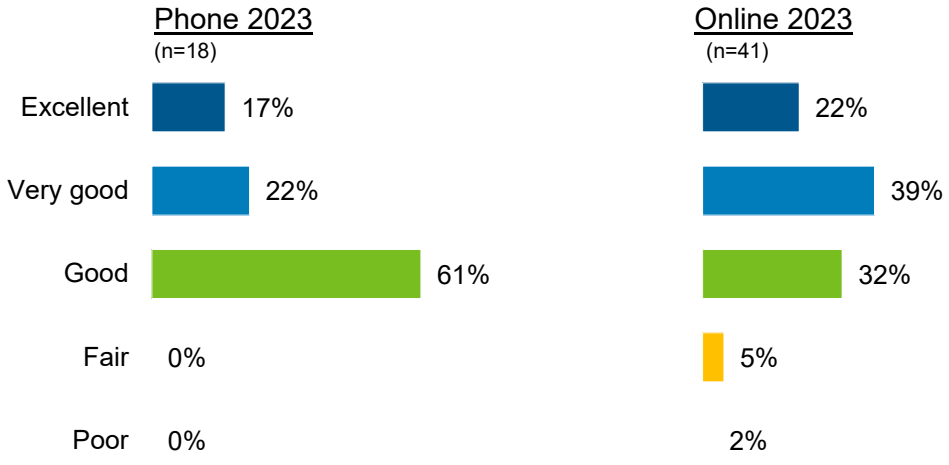
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

No phone survey respondents indicated having used the Social Navigator Program. For respondents who have not used but have an opinion about the Social Navigator Program, the majority (61%) felt the program was good.

Social Navigator Program - familiarity with service



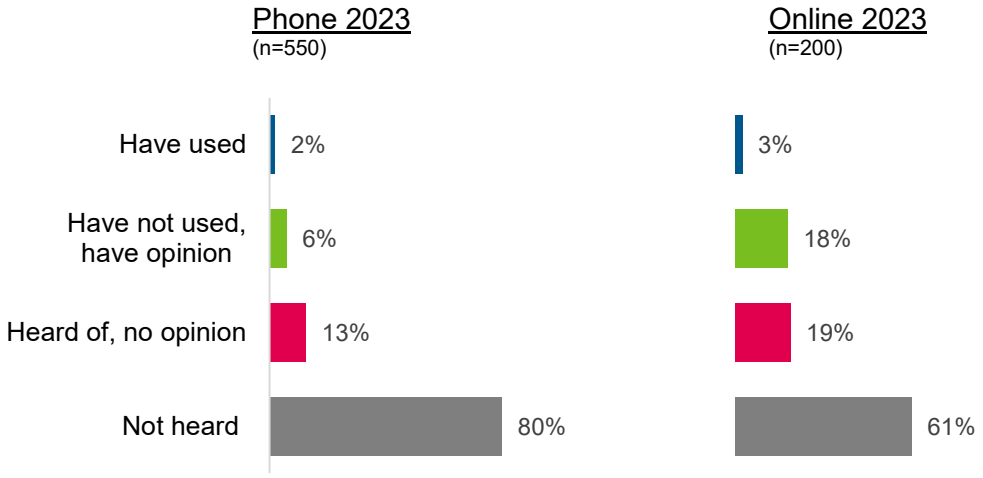
Social Navigator Program - rating of service



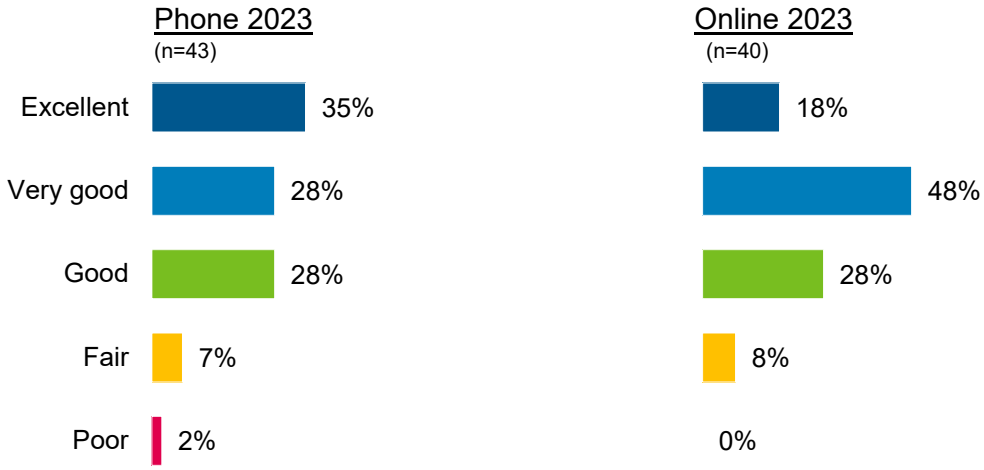
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Approximately 2% of phone survey respondents have used the Community Paramedic @ Home Visiting Program. For respondents who have used or have an opinion about the Community Paramedic @ Home Visiting Program, the majority (63%) felt the program was excellent or very good.

Community Paramedic @ Home Visiting Program – familiarity with service



Community Paramedic @ Home Visiting Program - rating of service

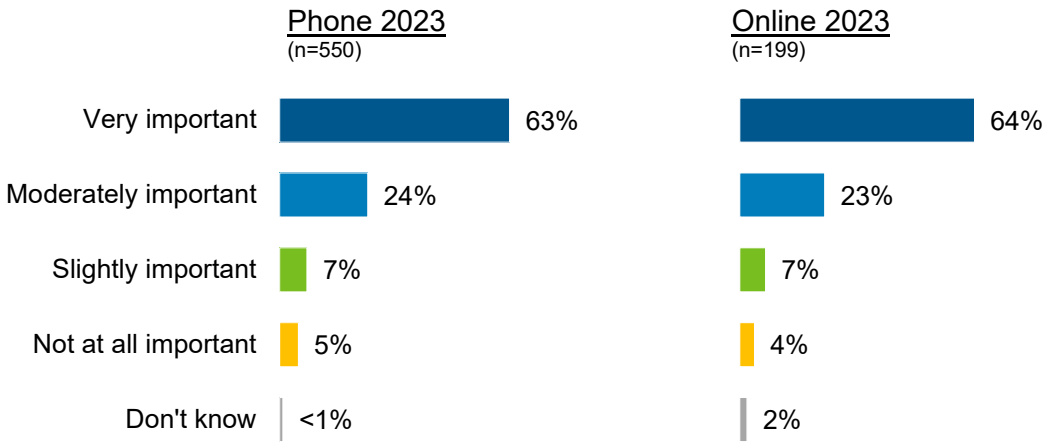


Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

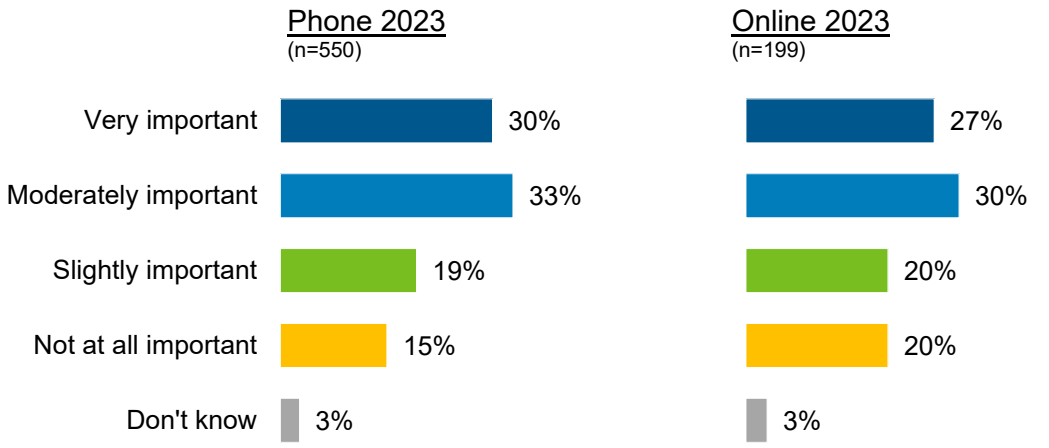
HPS Services

A significantly higher proportion of phone survey respondents feel that it is very or moderately important for HPS to provide information and education to promote health and safety of residents (87%) and provide outreach care to vulnerable residents (88%) compared to supporting the community by organizing/participating in charitable events, fundraisers, food and toy drives (63%).

How important is it for the Hamilton Paramedic Service to provide information and education to promote health and safety of residents e.g., stroke awareness campaign (Face Arm Speech Time), opioid overdose prevention education, tips and advice on social media?

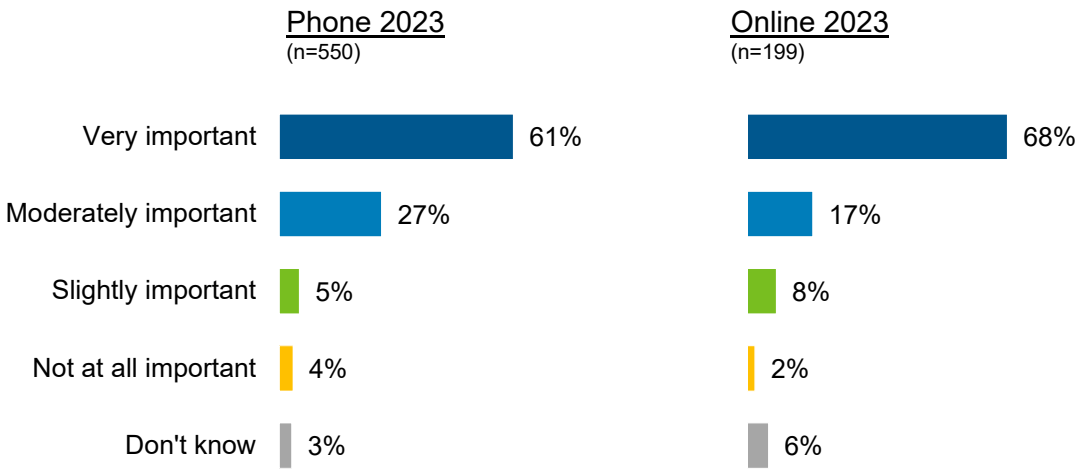


How important is it for the Hamilton Paramedic Service to support the community by organizing/participating in charitable events, fundraisers, food and toy drives



Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

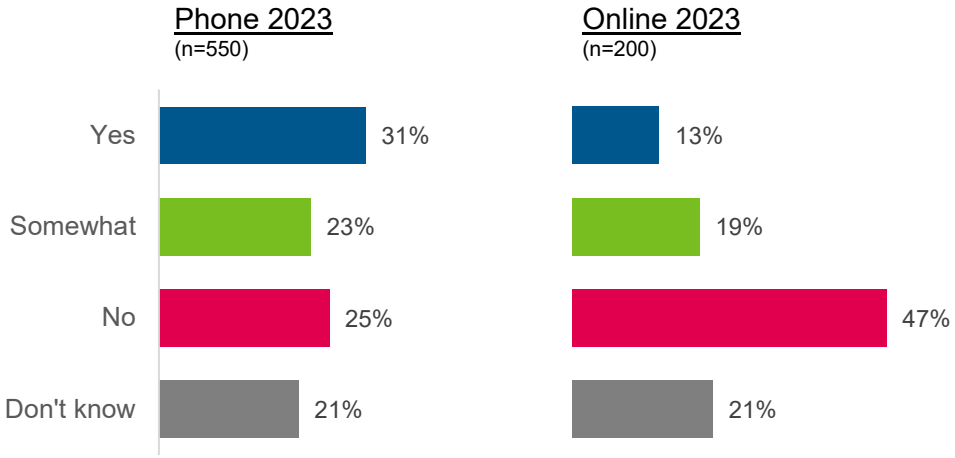
How important is it for the Hamilton Paramedic Service to provide outreach care to vulnerable residents?



Service Quality

One in four phone survey respondents (25%) do not feel that HPS has adequate resources to provide reliable, timely, quality care to residents.

Do you think the Hamilton Paramedic Service has adequate resources (vehicles, equipment, trained staff, etc.) to provide reliable, timely, quality care to residents?



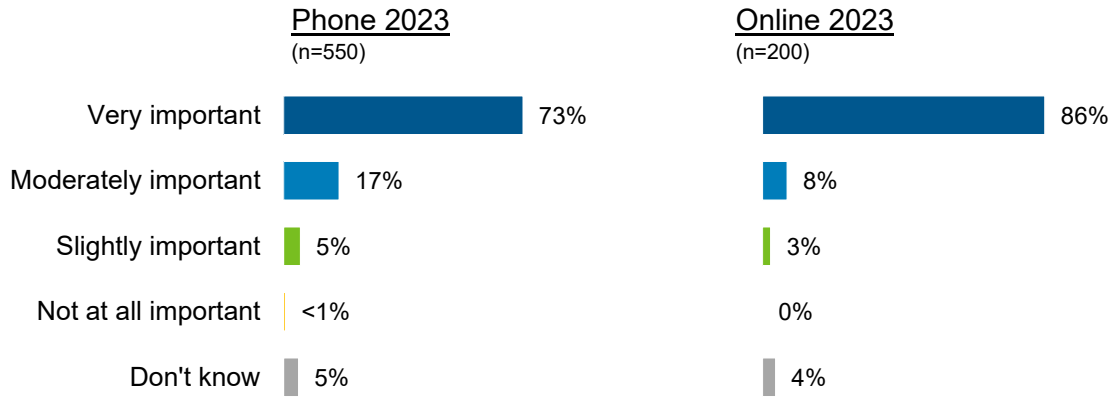
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Respondents who felt HPS somewhat has or does not have adequate resources to provide reliable, timely, quality care to residents were asked to explain their response. The most common responses provided included references to offload delays, issues with response times, lack of funding and incidences of code zero.

Willingness to Pay

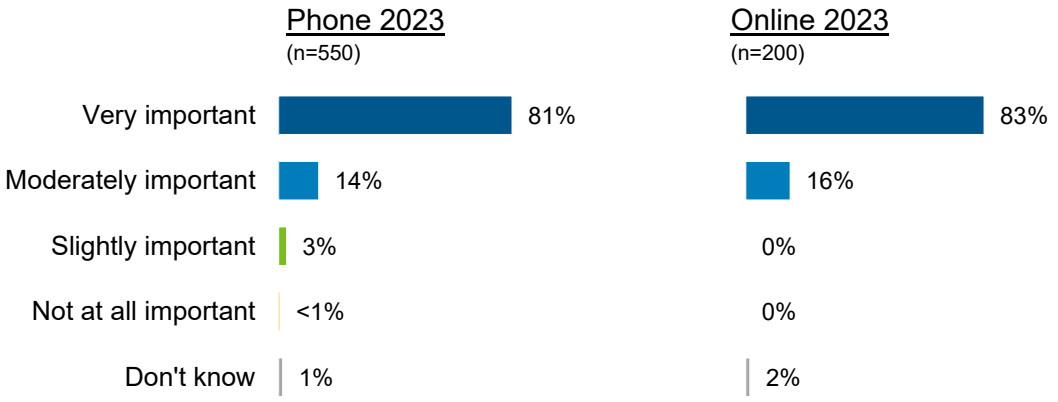
Significantly more phone survey respondents feel it is very important for the City to allocate tax dollars to update technology and medical equipment to optimize service delivery (81%) or to increase the number of ambulances (73%) than to improve comfort of the ride in ambulances for patients (32%) or reduce HPS's environmental footprint (28%)

How important do you feel it is for the City to allocate tax dollars to increase the number of ambulances and paramedics for a more timely response?

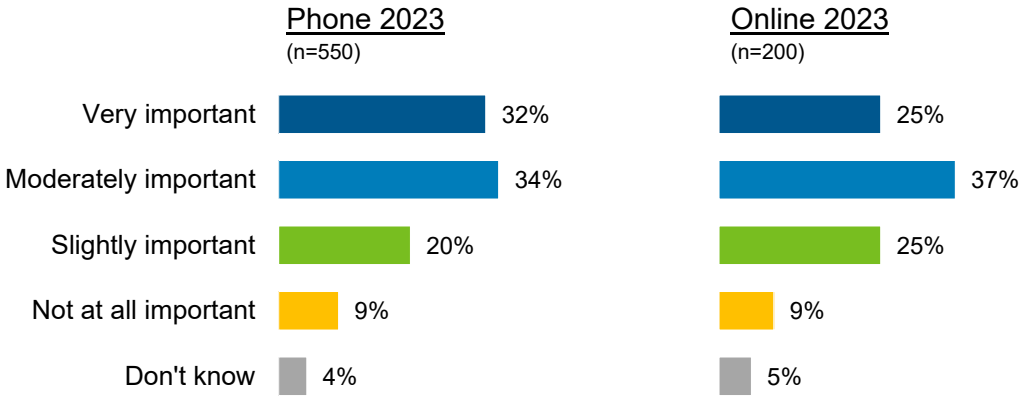


Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

How important do you feel it is for the City to allocate tax dollars to update technology and medical equipment to optimize service delivery?

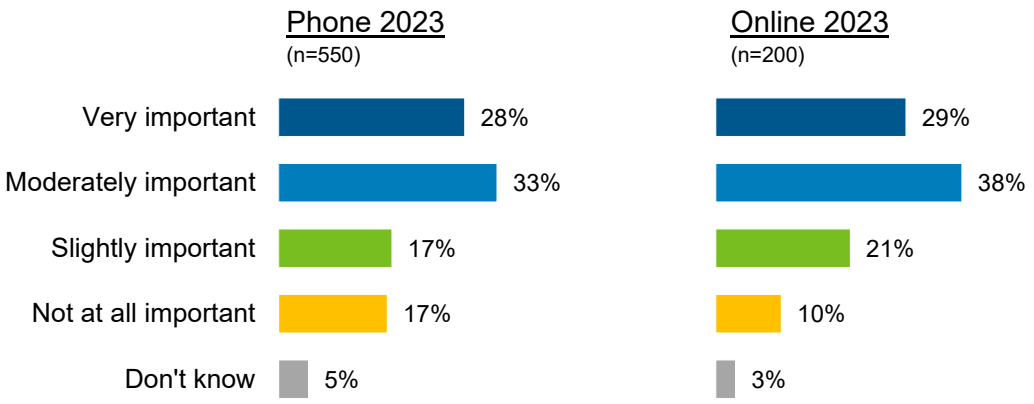


How important do you feel it is for the City to allocate tax dollars to improve the comfort of the ride in an ambulance for patients?



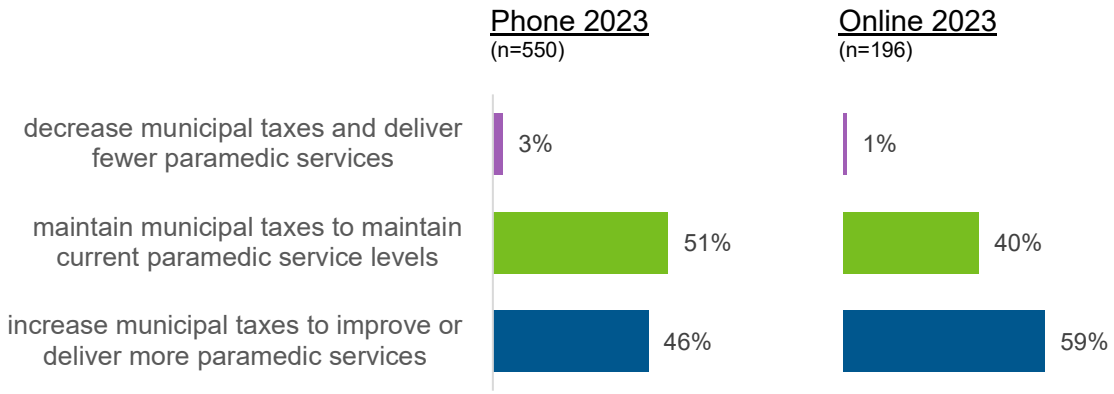
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

How important do you feel it is for the City to allocate tax dollars reduce Hamilton Paramedic Service's environmental footprint?



Just over half (51%) of phone survey respondents indicated the City should maintain municipal taxes to maintain current paramedic service levels while 46% feel the City should increase municipal taxes to improve or deliver more paramedic services.

Which of the following 3 options comes closest to your opinion. The City should…



Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

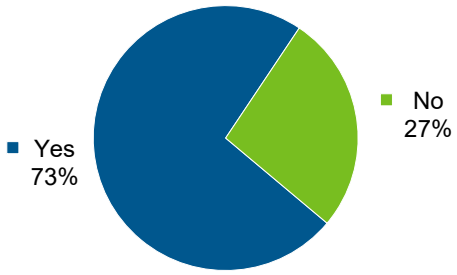
Automatic External Defibrillators (AEDs)

Approximately 73% of phone survey respondents indicated being aware of or having seen public AEDs and 65% would feel comfortable using a public AED to assist someone in cardiac arrest.

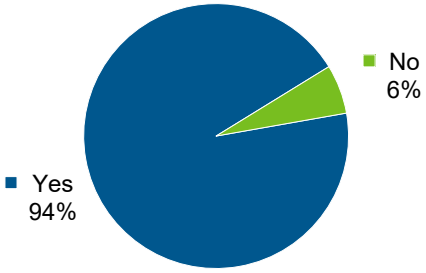
Automatic External Defibrillators (AEDs) are medical devices that help people experiencing sudden cardiac arrest. The Hamilton Paramedic Service Public Access Defibrillator program provides AEDs for public use in places such as shopping malls, recreation centres, senior centres, schools and libraries.

Before this moment, were you aware of or have you seen public AEDs?

Phone 2023
(n=550)

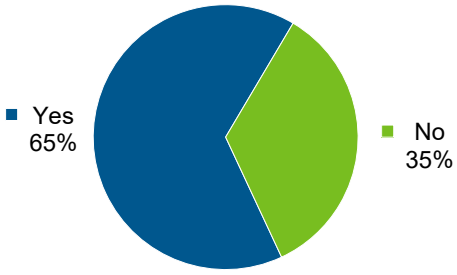


Online 2023
(n=200)

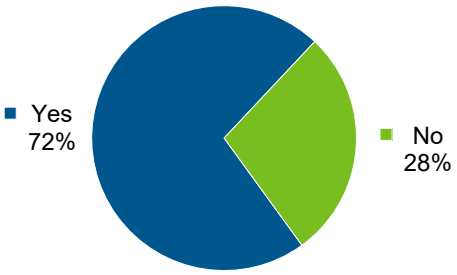


Would you feel comfortable using a public AED to assist someone in cardiac arrest?

Phone 2023
(n=550)



Online 2023
(n=200)



Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

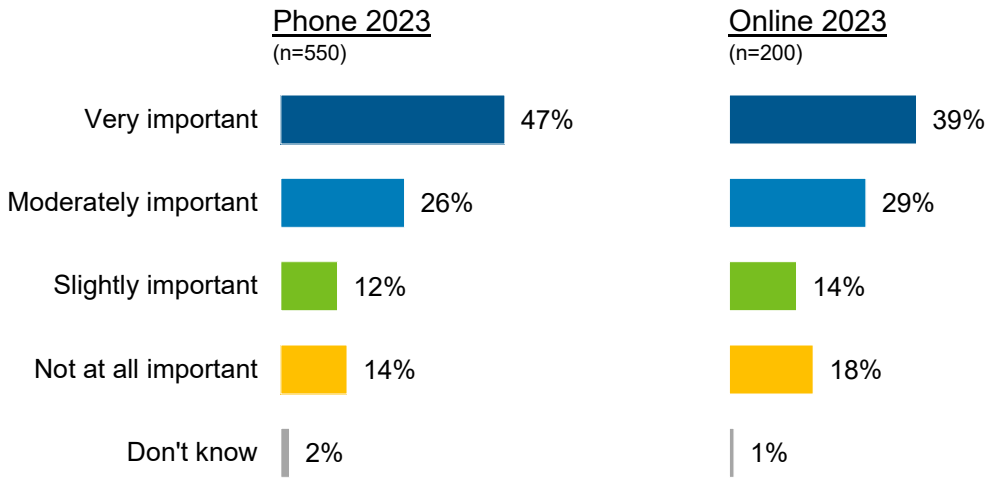
The most common reasons respondents provided for not feeling comfortable using a public AED to assist someone in cardiac arrest include:

- not being trained or not knowing how to use, never used
- concerns of making a mistake, causing harm

Cultural Diversity

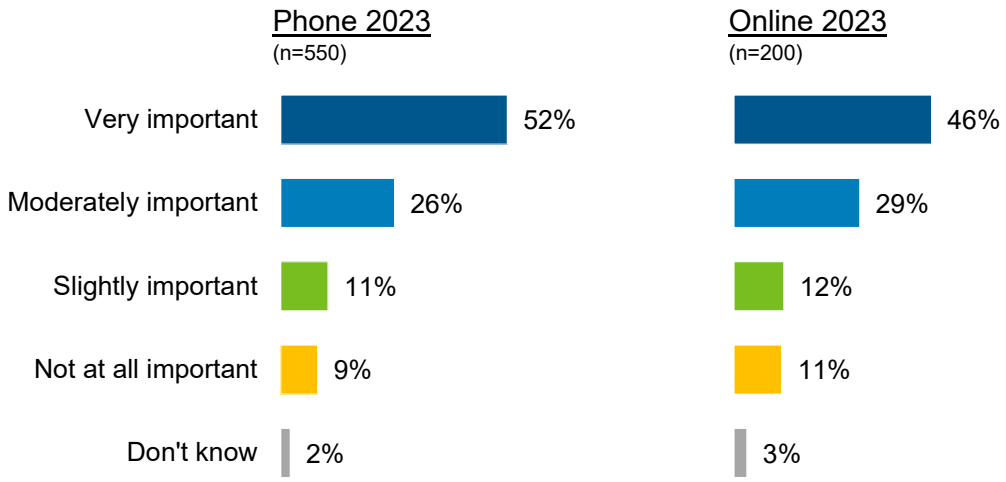
The majority of phone survey respondents indicated it is very or moderately important that the HPS workforce reflects the diversity of the residents they serve (73%) and the cultural beliefs and values of patients/clients should be considered when delivering paramedic care (78%).

How important is it that the Hamilton Paramedic Service workforce reflects the diversity of the residents they serve?



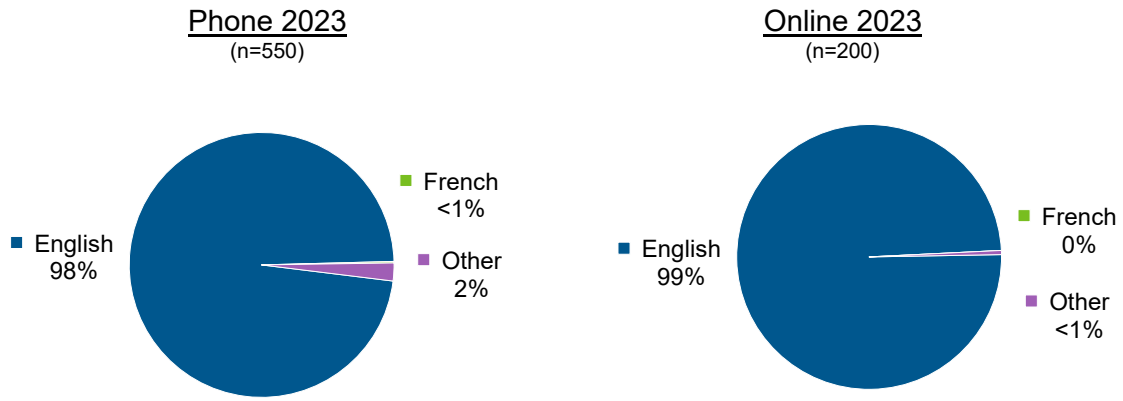
Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

How important is it that the cultural beliefs and values of patients/clients are considered when delivering paramedic care?



Almost all respondents indicated preferring or feeling most comfortable using English to communicate needs and concerns to paramedics.

What language would you prefer or feel most comfortable using to communicate your needs and concerns to paramedics?



Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

APPENDIX A: SURVEY TOOL

Hamilton Paramedic Service Resident Survey 2023

OVERALL SERVICE RATING

Q01 Based on your experience or knowledge, overall, how would you rate the services provided by the Hamilton Paramedic Service?

- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent
- ○ Don't Know

➤ If response = poor proceed to Q2, otherwise, skip to Q3

Q02 Please explain why you rated the services as "poor".

RESPONSE EXPECTATIONS

Q03 Have you called 911 for an ambulance in the past 2 years, either for yourself or someone you know?

- ○ Yes
- ○ No

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Considering driving time and traffic, how many minutes do you think is acceptable for paramedics to arrive for …

Q04 a **life-threatening** emergency such as cardiac arrest or seizures?

- ○ Less than 5 minutes
- ○ 5 to 7 minutes
- ○ 8 to 10 minutes
- ○ 11 to 15 minutes
- ○ 16 to 20 minutes
- ○ 21+ minutes

Q05 a **non-life-threatening** emergency such as a broken bone?

- ○ Less than 5 minutes
- ○ 5 to 7 minutes
- ○ 8 to 10 minutes
- ○ 11 to 15 minutes
- ○ 16 to 20 minutes
- ○ 21+ minutes

Consider the scenario where you have called for an ambulance for a minor injury or illness.

Q06 Do you feel it is acceptable to receive care instructions over the phone from the paramedic dispatcher including referrals to a medical professional to assist you, rather than sending an ambulance?

- ○ Yes
- ○ No
- ○ Don't Know

Q07 Do you feel it is acceptable for the paramedics who arrive on scene to provide treatment then refer you to another medical professional rather than taking you to the hospital?

- ○ Yes
- ○ No
- ○ Don't Know

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q08 If you are taken to the hospital, do you feel it is acceptable for the paramedics to settle you in the emergency waiting room and then leave so they can prepare to respond to another 911 emergency call?

- O Yes
- O No
- O Don't Know

HPS PROGRAMS AND SERVICES

Please indicate your familiarity with each of the following services provided by the Hamilton Paramedic Service's Mobile Integrated Health program.

Q09a Community Paramedic@ Clinic Seniors Program

- O Have used the program
- O Have not used but know enough about it to have an opinion
- O Have heard of program but do not know enough about it to have an opinion
- O Have not heard of program

➤ If response = "have used the program" OR "have not used but know enough about it to have an opinion", include Q10a

Q09b Remote Patient Monitoring

- O Have used the program
- O Have not used but know enough about it to have an opinion
- O Have heard of program but do not know enough about it to have an opinion
- O Have not heard of program

➤ If response = "have used the program" OR "have not used but know enough about it to have an opinion", include Q10b

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q09c Social Navigator Program

- ○ Have used the program
- ○ Have not used but know enough about it to have an opinion
- ○ Have heard of program but do not know enough about it to have an opinion
- ○ Have not heard of program

➤ If response = "have used the program" OR "have not used but know enough about it to have an opinion", include Q10c

Q09d Community Paramedic @ Home Visiting Program

- ○ Have used the program
- ○ Have not used but know enough about it to have an opinion
- ○ Have heard of program but do not know enough about it to have an opinion
- ○ Have not heard of program

➤ If response = "have used the program" OR "have not used but know enough about it to have an opinion", include Q10d

Q10a How would you rate Community Paramedic @ Clinic Seniors Program?

- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q10b How would you rate Remote Patient Monitoring ?

- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent

Q10c How would you rate the Social Navigator Program?

- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent

Q10d How would you rate the Community Paramedic @ Home Visiting Program

- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent

How important is it for the Hamilton Paramedic Service to ...

Q11 provide information and education to promote health and safety of residents e.g., stroke awareness campaign (Face Arm Speech Time), opioid overdose prevention education, tips and advice on social media

- ○ Very important
- ○ Moderately important
- ○ Slightly important
- ○ Not at all important

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q12 support the community by organizing/participating in charitable events, fundraisers, food and toy drives

- ○ Very important
- ○ Moderately important
- ○ Slightly important
- ○ Not at all important

Q13 provide outreach care to vulnerable residents

- ○ Very important
- ○ Moderately important
- ○ Slightly important
- ○ Not at all important

SERVICE QUALITY

Q14 Do you think the Hamilton Paramedic Service has adequate resources (vehicles, equipment, trained staff, etc.) to provide reliable, timely, quality care to residents?

- ○ Yes
- ○ Somewhat
- ○ No

➤ If response = "Somewhat" or "No" proceed to Q15, otherwise, skip to Q16

Q15 Please explain why you believe the Hamilton Paramedic Service does not have adequate resources to provide reliable, timely, quality care to residents.

Hamilton Paramedic Service Resident Survey 2023

WILLINGNESS TO PAY

In delivering paramedic services to you and the community, the City typically pays for resources through both provincial and municipal taxes.

How important do you feel it is for the City to allocate tax dollars to...

Q16 increase the number of ambulances and paramedics for a more timely response

- O Very important
- O Moderately important
- O Slightly important
- O Not at all important

Q17 update technology and medical equipment to optimize service delivery

- O Very important
- O Moderately important
- O Slightly important
- O Not at all important

Q18 improve the comfort of the ride in an ambulance for patients

- O Very important
- O Moderately important
- O Slightly important
- O Not at all important

Q19 implement green technologies to reduce Hamilton Paramedic Service's environmental footprint

- O Very important
- O Moderately important
- O Slightly important
- O Not at all important

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q20 Do you think the City should:

- ○ decrease municipal taxes and deliver fewer paramedic services
- ○ maintain municipal taxes to maintain current paramedic service levels
- ○ increase municipal taxes to improve or deliver more paramedic services

Automatic External Defibrillators (AEDs)

Automatic External Defibrillators (AEDs) are medical devices that help people experiencing sudden cardiac arrest. The Hamilton Paramedic Service Public Access Defibrillator program provides Automatic External Defibrillators (AEDs) for public use in places such as shopping malls, recreation centres, senior centres, schools and libraries.

Q21 Are you aware of or have you seen public AEDs?

- ○ Yes
- ○ No

Q22 Would you feel comfortable using a public AED to assist someone in cardiac arrest?

- ○ Yes
- ○ No

➤ If response = "No" go to question Q23
= "Yes" skip to Q24

Q23 Please explain why you would not feel comfortable using a public AED to assist someone in cardiac arrest

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

CULTURAL DIVERSITY

Hamilton is a very diverse city with residents from many ethnic and cultural groups.

Q24 How important is it that the Hamilton Paramedic Service workforce reflects the diversity of the residents they serve?

- O Very important
- O Moderately important
- O Neutral
- O Slightly important
- O Not at all important

Q25 How important is it that the cultural beliefs and values of patients/clients are considered when delivering paramedic care?

- O Very important
- O Moderately important
- O Neutral
- O Slightly important
- O Not at all important

Q26 What language would you prefer or feel most comfortable using to communicate your needs and concerns to paramedics?

RESPONDENT DESCRIPTORS

If you're comfortable, please tell us a little about you and your household.

Q27 What is your postal code? _____

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q28 How would you describe yourself?

- ○ Male
- ○ Female
- ○ Transgender
- ○ Nonbinary
- ○ Other
- ○ Prefer not to answer

Q29 Do you identify as a member of the following groups

Select all that apply

- ☐ Racialized (i.e., Black, people of colour)
- ☐ Indigenous
- ☐ 2SLGBTQIA+
- ☐ Immigrant
  - ➢ year arrived in Canada _____
- ☐ People with disabilities
- ☐ I do not identify with any of the above groups
- ☐ Prefer not to answer

Q30 What is your age?

- ○ 18 to 24
- ○ 25 to 29
- ○ 30 to 34
- ○ 35 to 44
- ○ 45 to 54
- ○ 55 to 64
- ○ 65 to 79
- ○ 80 years and older
- ○ Prefer not to answer

Hamilton Paramedic Service (HPS) Resident Survey 2023 ~ Summary Report

Hamilton Paramedic Service Resident Survey 2023

Q31 What is your household's total income before taxes?

- ○ Less than $17,000
- ○ $17,000 to $29,999
- ○ $30,000 to $49,999
- ○ $50,000 to $74,999
- ○ $75,000 to $99,999
- ○ $100,000 and over
- ○ Prefer not to answer