

2023 Hamilton Police Service Corporate Asset Management Plan



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Hamilton

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

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SUMMARY AND QUICK FACTS

SERVICE PROFILE



Hamilton Police Service (HPS) serves and protects residents and properties in the City of Hamilton in partnership with the community and in accordance with the Community Safety and Policing Act, 2019 as well as the Adequacy Regulation O.Reg. 3/99 to deliver an adequate and effective police force.

ASSET SUMMARY



Replacement Value

- **\$351.9M**
- FAIR CONDITION
- Average Age of 25 years or 43% of the average remaining



Level of Service Summary Customer

- Customers feel HPS has performed **AVERAGE** overall in the last 24 months in all service areas.
- Customers feel HPS has performed **AVERAGE** in providing good value for money when providing infrastructure and services.
- Customers feel HPS **MEETS NEEDS** with regards to facilities level of comfort, safety and cleanliness.

Technical

- Officers dispatch in 1:08 minutes for emergencies where injuries are imminent.
- HPS used 99.4% of their operating budget last year.
- HPS will require 13 additional staff and 3 additional frontline vehicles a year to maintain current levels of service.

Asset Highlights

ASSETS	QUANTITY	REPLACEMENT COST	AVERAGE CONDITION	STEWARDSHIP MEASURES
Central Station	1	\$135.5M	Poor	Building Condition Assessments are completed every 5 years.
Frontline Vehicles	107	\$7.0M	Good	Vehicles are replaced at 5 years or 150,000 km.

DATA CONFIDENCE



VERY GOOD

FAIR

VERY LOW

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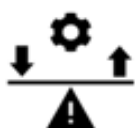
DEMAND DRIVERS



Population change – Hamilton's population will continue to grow to 2051. Ontario Police Services determine their officer requirements using a ratio often referred to as the "cop to pop" ratio which allocates how many officers are required per the population.

Technological changes - The Canadian Radio-television and Telecommunications Commission (CRTC) has mandated that all municipalities replace Canada's aging E911 emergency services network and cutover to the new Next Generation-911 (NG-911) platform by March 4, 2025.

RISK



- Critical Assets are identified as the 911 Communication equipment, Frontline Vehicles and Facility Generators.

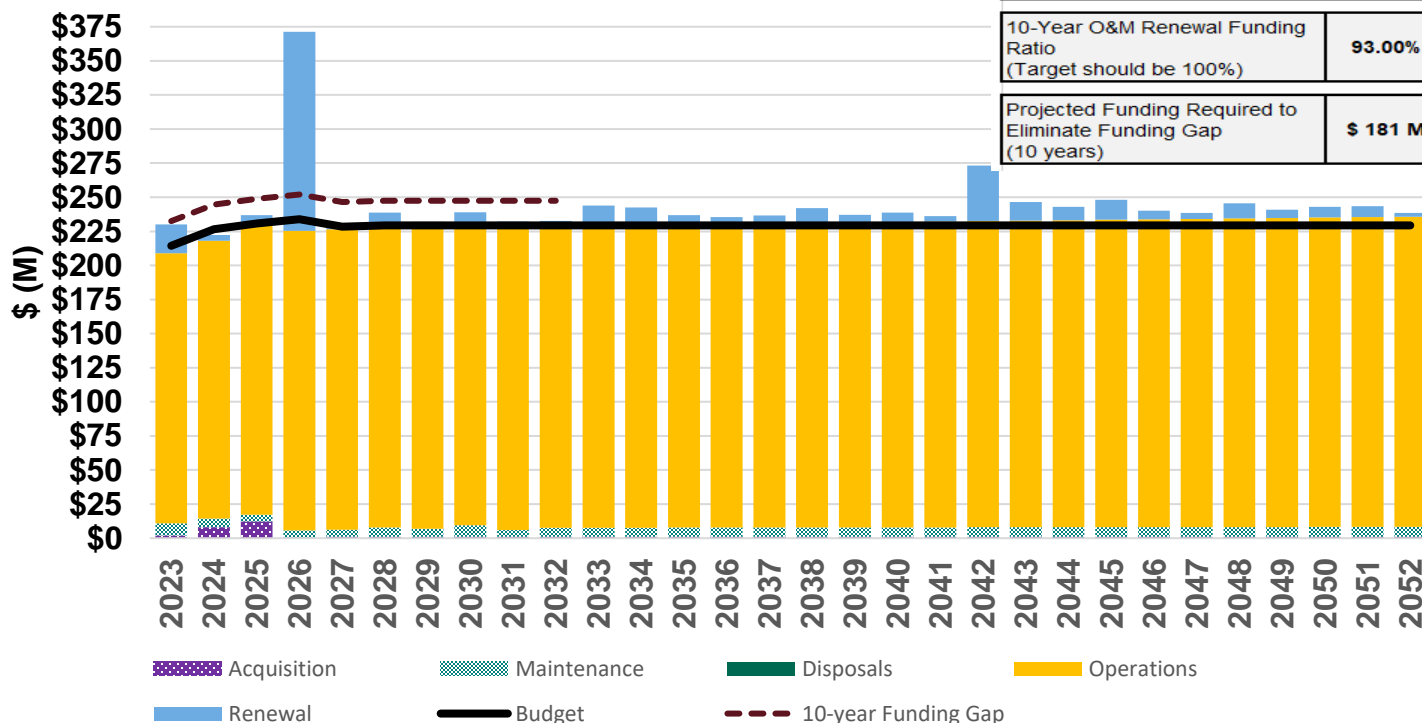
CLIMATE CHANGE MITIGATION



- Proposed Waterdown Station specifications call for Net Zero design
- Nine (9) Frontline Hybrid Vehicles, 3 acquired in 2021 and 6 acquired in 2022

LIFECYCLE SUMMARY

Lifecycle Summary



1. INTRODUCTION

Hamilton Police Service (HPS) is a people led service which serves and protects residents and properties in the City of Hamilton in partnership with the community. The purpose of this Asset Management (AM) Plan is to ensure that HPS has fulfilled the Asset Management Planning requirements outlined in O.Reg 588/17 for current and proposed levels of service as well as ensuring HPS has the required assets to deliver an adequate and effective police service in accordance with the Community Safety and Policing Act, 2019 and the Adequacy Regulation O.Reg. 3/99.

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 the HPS service area by providing background on the service, outlining legislative requirements, defining the asset hierarchy used throughout the report, and providing a detailed summary and analysis of existing inventory information as of December 2022, 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 plan.

2.1 SERVICE PROFILE

The service profile consists of four (4) main aspects of the service:

- Service History;
- Service Function;
- Users of the Service; and,
- Unique Service Challenges.

2.1.1 SERVICE HISTORY

The first Hamilton police force was created in 1833 in response to the new concept of policing which originated in London, England in 1829. At the time, Hamilton was simply the Town of Hamilton without the other five (5) communities currently associated with the City of Hamilton. Dundas created their own agency in 1848, Ancaster in 1855, Saltfleet in 1940, and Stoney Creek in 1949. Other smaller area police departments (e.g., Flamborough, Glanbrook, etc.) appear to have also been established during this period, but over time, the smaller area police departments were taken over by the Ontario Provincial Police (OPP) or joined with the other municipal agencies.

In the 1960s, the provincial government removed policing from direct municipal control by establishing independent Police Commissions, meaning that policing was no longer considered a department of City Hall. In 1974, the Hamilton, Stoney Creek, Ancaster, Dundas, and Saltfleet police forces merged into the Hamilton-Wentworth Regional Police Force under its own Board of Commissioners of Police. In 1986, the Hamilton Harbour Police was disbanded, and its function taken over by the Hamilton Wentworth Regional Police Force.

On January 1, 2001, the communities of Ancaster, Dundas, Flamborough, Glanbrook, Stoney Creek and Hamilton merged to become the 'new' City of Hamilton. At the same time, the Hamilton Wentworth Regional Police merged to become the Hamilton Police Service (HPS), which is governed by the Hamilton Police Service Board.¹

¹ <https://hamiltonpolice.on.ca/about/hps-history>

The City of Hamilton Police Service Board is responsible for ensuring the provision of policing services under the 2019 Community Safety and Policing Act and the Adequacy Regulation O.Reg. 3/99 within the City by working with citizens and organizations to ensure the appropriate policies are in place. After consultation with the Chief of Police, the Board will determine objectives and priorities for the police service. The Board is responsible for the police budget, for overseeing the actions of the Chief of Police, and is the employer for the police service.

2.1.2 SERVICE FUNCTION

According to the Community Safety and Policing Act, 2019² and the Adequacy Regulation O.Reg. 3/99³ the purpose of the police service is to provide adequate and effective policing in the area where policing responsibility has been granted, while considering the needs and diversity of the area's population. Adequate and effective policing means all the following functions are provided in accordance with the standards set out in both the Act and Regulation:

1. Crime prevention;
2. Law enforcement;
3. Maintaining the public peace;
4. Emergency response;
5. Assistance to victims of crime; and
6. Any other prescribed policing functions.

HPS provides all of these requirements to the community. HPS also provides other services including but not limited to online reporting, paid duty, public outreach, and road safety.

Hamilton Police are responsible for many things under the Community Safety and Policing Act, 2019 and the Adequacy Regulation O.Reg. 3/99, including maintaining the Public Safety Answering Point (PSAP). In 2021, call takers responded to 419,690 calls (911 and non-emergent calls), diverting them to the appropriate emergency response: police, fire, or ambulance.

As of 2021, the most frequent and time-consuming calls across all divisions were in response to domestic violence, disturbances, motor vehicle accidents, and ambulance assistance. Across the City, assault and family trouble were cited as the most frequent, time consuming calls.

² <https://www.ontario.ca/laws/statute/19c01>

³ <https://www.ontario.ca/laws/regulation/990003>

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Based on the 2022 community survey, the top five (5) areas customers expressed as priorities in the community were:

1. Traffic;
2. Drugs;
3. Homelessness;
4. Neighbourhood Safety; and,
5. Mental Health.

In order to deliver adequate and effective police services, the HPS requires assets. Some ways assets support the delivery of the service include:

- Reliable technology to ensure communication lines are always available to accept urgent and non-urgent calls and dispatch officers;
- Adequate facilities in each division to assist residents with urgent and non-urgent issues;
- Reliable vehicles and staff that will arrive at emergencies in a timely manner and be available for other non-emergency duties; and,
- Required officer equipment for officers to be able to assist in emergency situations and/or crime prevention.

2.1.3 USERS OF THE SERVICE

The City of Hamilton is comprised of a diverse population. Based on the 2021 Census results⁴, the average age of Hamilton's population is 41.5 years old, and the average household size is 2.5 people. The most common language spoken is English, but 24% of the population's mother tongue is neither English or French, and 27% of residents identify as a visible minority. There are differences in populations / priorities in areas (unique policing needs).

HPS service the entire Hamilton population of approximately 570,000 people. HPS breaks the City down into three (3) divisional boundaries which correspond to the three (3) Police Stations (Division 1: Central Station, Division 2: East End Station, and Division 3: Mountain Station), there is also a Community Policing Centre in Dundas which is leased by the City. The fourth division, Division 0, is used when an address isn't verified or for marine calls. In addition, there is a proposed new Waterdown Station which will be located along Hwy 6 and will be a substation of Division 3.

A table showing each division by number of police officers, population, land mass, and percentage of call time is shown below in **Table 1**. There are 855 sworn officers in HPS, which increase annually. A map of the division boundaries and police station locations are shown in **Figure 1** below. It is evident that Division 3 is significantly larger than Divisions 1 and 2 which can result in longer response times.

⁴ <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&GENDERlist=1&STATISTIClist=1&HEADERlist=0&DGUIDlist=2021A00033525&Se archText=Hamilton>

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Table 1: Division Summary

DIVISION	FRONTLINE POLICE OFFICERS ⁵	POPULATION ⁶	AREA (KM2)	% OF CALL TIME (2021)
Division 1: Central Station	182	106,900	27	35.5%
Division 2: East End Station	175	175,401	146	31.3%
Division 3: Mountain Station	179	301,662	953	33.2%

⁵ Police officers by Division include all Divisional Sworn members at all ranks

⁶ Population estimates derived from City of Hamilton Planning & Economic Development Non-Boundary Expansion Scenario mapped to HPS Division Boundaries

HAMILTON POLICE SERVICE STATION LOCATIONS & DIVISION BOUNDARIES



HAMILTON POLICE SERVICE

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2.1.4 UNIQUE SERVICE CHALLENGES

Given the geographical makeup of the City of Hamilton, the Service often faces variable distances within Divisions as shown in **Figure 1**, which impacts response times. Distances from stations to the outer edge of the City's borders could see an officer having a 20-minute drive or longer. Historically, HPS has recorded dispatch times which are referenced in Section 4.3.2 to determine performance, tracking data based on response times to better represent the service requirements and has been identified as a Continuous Improvement Item in **Table 34**.

With requirements for officers to quickly respond to emergency calls, HPS will need to ensure proper deployment of patrol officers within a given area, while also ensuring that minimum staffing numbers are met. These minimum numbers are not aligned with current population densities or calls for service and are instead based on data from the 1970's, which is before the creation of the HPS as it stands today.

The PSAP has requirements for answering calls within a specified amount of time, and therefore HPS must have the required capacity to answer calls. In addition, there are differences in being able to staff patrol areas (i.e., beats) in rural regions where demand is low, but travel time is high.

2.2 LEGISLATIVE REQUIREMENTS

The most significant legislative requirements that impact the delivery of the police service are outlined in **Table 2**. These requirements are considered throughout the report, and where relevant, are included in the levels of service measurements.

Table 2: Legislative Requirements

LEGISLATION OR REGULATION	REQUIREMENT
Community Safety and Policing Act, 2019	This regulation sets out the code of conduct for police officers and establishes clear expectations for officers, including when interacting with the public and other members of the police service.
Adequacy Standards, Police Services Act, O.Reg. 3/99	While HPS waits for the provincial government to enact regulations under the new Community Safety and Policing Act, the O. Reg 3/99 is still in effect outlining policing adequacy requirements.
Mental Health Act, R.S.O. 1990	In Ontario, the Mental Health Act permits police officers to apprehend individuals for the purpose of examination by a physician, if the officer has reasonable grounds to believe that a person is acting in a disorderly manner and is a threat or at risk of causing harm to themselves or others.

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LEGISLATION OR REGULATION	REQUIREMENT
Next Generation 911 (NG-911) modernization	The CRTC has mandated that all municipalities replace Canada's aging E911 emergency services network and cutover to the new NG9-11 platform by March 4, 2025. Failure to do so will result in disruption (failure) of 911 services provided by the City of Hamilton. NG-911 allows members of the public to communicate with municipal 911 call centres using more than just their voice. It allows for the transmission of GPS location coordinates, text messages, photos, and videos.

2.3 ALIGNMENT WITH POLICE BOARD PRIORITIES

The Board is comprised of seven (7) members and according to the Ontario Police Services Act, must consist of the head of the municipal council, two (2) members of council, three (3) people appointed by the Lieutenant Governor in Council, and one (1) person appointed by resolution of council. Although the Police Board has its own priorities, Council priorities are considered in the development of these priorities.

Table 3: Police Board Priorities

PRIORITY	DESCRIPTION	ALIGNMENT WITH AM PLAN
Community Safety	<p>Be Ready for the Future — identifying emerging crime trends, managing legislative/regulatory changes, and preparing for a growing and more diverse population.</p> <p>Share Information and Insight — maximizing communication with our community, helping people to both be and feel safe.</p>	AM Plan discusses demand and forecasts how growth and legislative/regulatory changes affect HPS.
Collaborative Engagement	<p>Bolster Two-Way Communication — enhancing timely, comprehensive, and transparent communication with our communities, promoting information sharing and strengthening mutual respect.</p> <p>Connect with the Community — building relationships and fostering genuine dialogue with our diverse population and furthering the goals of the city-wide Community Safety and Well-Being Plan.</p>	AM Plan conducts a survey to ask what customers value about the service, how customers feel about the service, and how HPS is technically performing in order to develop levels of service.

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PRIORITY	DESCRIPTION	ALIGNMENT WITH AM PLAN
Culture and Capacity	<p>Ensure Employee Well Being —deploying resources to effectively manage workload and continuing to implement employee wellness initiatives that focus on prevention, early intervention and a supportive return to work.</p> <p>Provide Quality Service — ensuring that our values and professionalism are consistently reflected in everything that we do: from decision-making to community interaction, to day-to-day activities.</p>	AM Plan assesses required resources to ensure that HPS continues to deliver agreed upon levels of service. AM Plan also assesses the quality of the service from a customer and technical perspective.
Core Assets	<p>Shape and Secure the Future — developing and implementing a long-term plan for technology, facilities, and fleet.</p> <p>Act on the Climate Emergency — creating a plan to help the Service adapt to, mitigate and reduce the impacts of climate change through fleet management, building design and retrofits, energy use and embracing emerging technology.</p> <p>Leverage Technology and Innovation — exploring and implementing digital solutions and new processes that improve service delivery, create internal and external efficiencies, and enhance organizational effectiveness.</p> <p>Use Data Strategically and Responsibly — gathering and sharing information to inform decision-making, enhancing safe and effective data management that respects privacy, and ensuring continuity of service.</p> <p>Remain Current — providing members with the required uniforms and equipment to effectively perform their duties and meet all legislated requirements.</p>	AM Plan assesses HPS assets to ensure we are acquiring, operating, maintaining, renewing and disposing of assets appropriately while considering effects of climate change.

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PRIORITY	DESCRIPTION	ALIGNMENT WITH AM PLAN
Trusting Change	<p>Earn Your Trust — establishing the basis for a new era of cooperation and collaboration that reflects collective aspirations for productive relationships and a safer community.</p> <p>Engage in Authentic Dialogue — listening genuinely to member and community views, understanding lived experiences/varied perspectives, openly communicating, and working together to find solutions.</p> <p>Deliver Value — demonstrating a real and vital return on community investment in the delivery of police services through effective stewardship, transparency and accountability.</p>	Through customer engagement, customers have an opportunity to give their opinions on the service and educating customers on the value HPS delivers to the public.

2.4 ASSET HIERARCHY

As previously mentioned, in order to deliver adequate and effective police services, HPS requires assets. The HPS Service Area has been broken down into four (4) asset classes for the purpose of this AM Plan: Facilities, Vehicles, Officer Equipment, and Technology.

- **Facilities:** refers to any City-owned facilities necessary to deliver police services;
- **Vehicles:** describes different types of vehicles (i.e., motor vehicle, bicycle, marine vehicle) which are used for either frontline, non-frontline or marine responses, and any required tools to maintain these assets;
- **Officer Equipment:** refers to all equipment an officer requires to protect the public as well as themselves; and,
- **Technology:** describes the different type of technology required to deliver the service including communications, IT, desktop, and mobile equipment.

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

The asset class hierarchy outlining assets included in this section is shown below in **Table 4**.

Table 4 : Asset Class Hierarchy

SERVICE AREA	HAMILTON POLICE SERVICE			
ASSET CLASS	FACILITIES	VEHICLES	OFFICER EQUIPMENT	INFORMATION TECHNOLOGY
	<ul style="list-style-type: none"> Police Stations Investigative Services Division (ISD) Building Marine Unit 	<ul style="list-style-type: none"> Patrol Vehicles Ground Vehicles Marine Vehicles Tools 	<ul style="list-style-type: none"> Body Armour Officer Outfit Personal Issue Equipment Miscellaneous Uniform Equipment 	<ul style="list-style-type: none"> Service Wide Technology Site Specific Technology Desktop & Mobile Technology Security Technology

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3. SUMMARY OF ASSETS

Table 5 displays the detailed summary of assets for the HPS service area. The sources for this data are a combination of data included in the City's database information. It is important to note that inventory information does change often, and that this is a snapshot of information available as of December 2022.

The City owns approximately **\$350M** in Police assets which are on average in **Fair** condition. Assets are a weighted average of **twenty-five (25) years** in age which is **43%** of the average remaining service life (RSL) with the majority of the weight coming from Facilities assets. 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 associated with this information is also presented in Table 5

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. It is also important to note that AM Plans only include asset information related to assets that the City owns. Facilities leased from other bodies are incorporated into operational costs but are not incorporated into the total replacement cost for the service. Finally, the assets included below are assets that are assumed and in service at the time of writing.

Data confidence associated with asset information is also presented in Table 5. Data confidence descriptions are outlined on page 31, in the AM Plan Overview. The replacement costs below are typically a Medium data confidence level overall. For Facilities, these replacement costs are calculated using an internal tool which encompasses current market rates, building type and size. Vehicle and Officer Equipment replacement costs were gathered from the most recent purchase price for similar assets and are typically High confidence. Technology assets are taken from the most recent purchase price for similar assets as well, but since some of these assets aren't replaced as frequently, this was given a Medium data confidence.

All assets have an itemized inventory with varying degrees of attribute information. A continuous improvement item identified in **Table 34** is to implement an asset registry for all HPS assets which includes key database fields and follows the newly developed City Data Standard.

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Table 5 : Detailed Summary of Assets
***Weighted Average based on Replacement Costs**

FACILITIES				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
Central Station	1	\$135.5M	46 years (8%)	4-POOR
Data Confidence	Very High	Medium	Very High	Medium
East End Station	1	\$37.6M	30 years (40%)	2-GOOD
Data Confidence	Very High	Medium	Very High	High
Mountain Station	1	\$37.6M	19 years (62%)	2-GOOD
Data Confidence	Very High	Medium	Very High	High
Investigative Services Division (ISD) Building	1	\$64.4M	2 years (96%)	2-GOOD
Data Confidence	Very High	Medium	Very High	High
Temporary Marine Unit Trailer	1	\$5.1M*	3 year (40%)	2-GOOD
Data Confidence	Very High	Very High	Very High	Very High
Administrative Facilities (MATA)	2	\$20.4M	12 years (76%)	2-GOOD
Data Confidence	Very High	Medium	Very High	Very High
SUBTOTAL	\$300.9M		28 YEARS* (43%)	3-FAIR*
DATA CONFIDENCE	MEDIUM		VERY HIGH	HIGH

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VEHICLES				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
Frontline Vehicles	107	\$7.0M	4 years (24%)	2-GOOD
Data Confidence	High	High	High	Medium
Non-Frontline Vehicles	188	\$8.6M	7 years (29%)	2-GOOD
Data Confidence	High	High	High	Medium
Bicycles	30	\$52.2K	4 years	3-FAIR
Data Confidence	High	High	High	Low
Marine Vehicles	4	\$999.4K	6 years (51%)	2-GOOD
Data Confidence	High	Medium	Very High	Low
Tools	24	\$74.7K	1 year (88%)	N/A
Data Confidence	High	Medium	Low	
SUBTOTAL	\$16.9M		6 years* (28%)	2-GOOD*
DATA CONFIDENCE	HIGH		HIGH	MEDIUM

OFFICER EQUIPMENT				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
Body Armour	2,660	\$1.61M	5 years (38%)	2-GOOD
Data Confidence	High	High	High	Low
All Officer Issued Uniform & Equipment (not including personal radios)		\$5.97M	N/A	
Data Confidence		High		
SUBTOTAL	\$7.9M		5 YEARS* (38%)	2-GOOD*
DATA CONFIDENCE	HIGH		HIGH	LOW

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TECHNOLOGY				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
Personal Issue Equipment (including portable radios)	1346	\$10.5M	9 years (7%)	4-POOR
Data Confidence	High	Medium	Medium	Low
Service-Wide Technology (including Servers, Storage, Network)	167	\$6.9M	4 years (47%)	4-POOR
Data Confidence	High	Medium	Medium	Low
Tech Crime Unit	48	\$4.5M	8 years (0%)	3-FAIR
Data Confidence	High	Medium	Medium	High
Desktop & Mobile Technology (including Computers, Phones, Modems, Vehicle Mobile Inventory)	2327	\$4.3M	5 years (32%)	3-FAIR
Data Confidence	High	Medium	Medium	Low
Site Specific Technology (including CCTV Cameras)	199	\$0.2M	6 years (40%)	3-FAIR
Data Confidence	High	Medium	Medium	Low
Security Equipment (including APs, Firewalls, Fortinet, Forcepoint)	40	\$0.1M	3 years (57%)	3-FAIR
Data Confidence	High	Medium	Medium	Low
SUBTOTAL	\$26.5M	6 years* (23%)		3-FAIR*
DATA CONFIDENCE	Medium	Medium		Low
TOTAL	\$351.9M	25 years* (43%)		3-FAIR*
DATA CONFIDENCE	MEDIUM	HIGH		MEDIUM

3.1 ASSET CONDITION GRADING

Condition refers to the physical state assets are in, 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 6** 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.

Table 6: Equivalent Condition Conversion Table

Equivalent Condition Grading Category	Condition Description	% Remaining Service Life	Facilities Condition Index (FCI)	Patrol & Ground Vehicles / Body Armour	Tech Crime Technology
1 Very Good	The asset is new, recently rehabilitated, or very well maintained. Preventative maintenance required only.	>79.5%	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.	69.5% – 79.4%	< 5%	79.4% - 0% RSL	Good
3 Fair	The asset is sound but has minor defects. Deterioration has some impact on asset's usage. Minor to significant maintenance is required.	39.5% - 69.4%	>= 5% to < 10%	N/A	Fair
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.	19.5% - 39.4%	>= 10% to <30%	0% RSL	Poor
5 Very Poor	Asset has serious defects and deterioration. Asset is not fit for use. Urgent rehabilitation or closure required.	<19.4%	>= 30%	N/A	N/A

The following conversion assumptions were made:

- For assets where a condition assessment was not completed, but age information was known, the condition was based on the % of remaining service life;
- Facilities Condition Index was based on ranges provided by the consultant who completed the Building Condition Assessment (BCA); and,
- Vehicles/Armour was based on the age and subject expert opinion based on the condition descriptions above.

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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 assets typically have an estimated service life (ESL) where the asset can be expected to be in service before the condition has degraded and requires 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 ten (10) year forecast to predict degradation.
- As previously mentioned, 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 therefore performance issues may arise which must be noted and prioritized.

3.2.1 FACILITIES PROFILE

3.2.1.1 AGE PROFILE

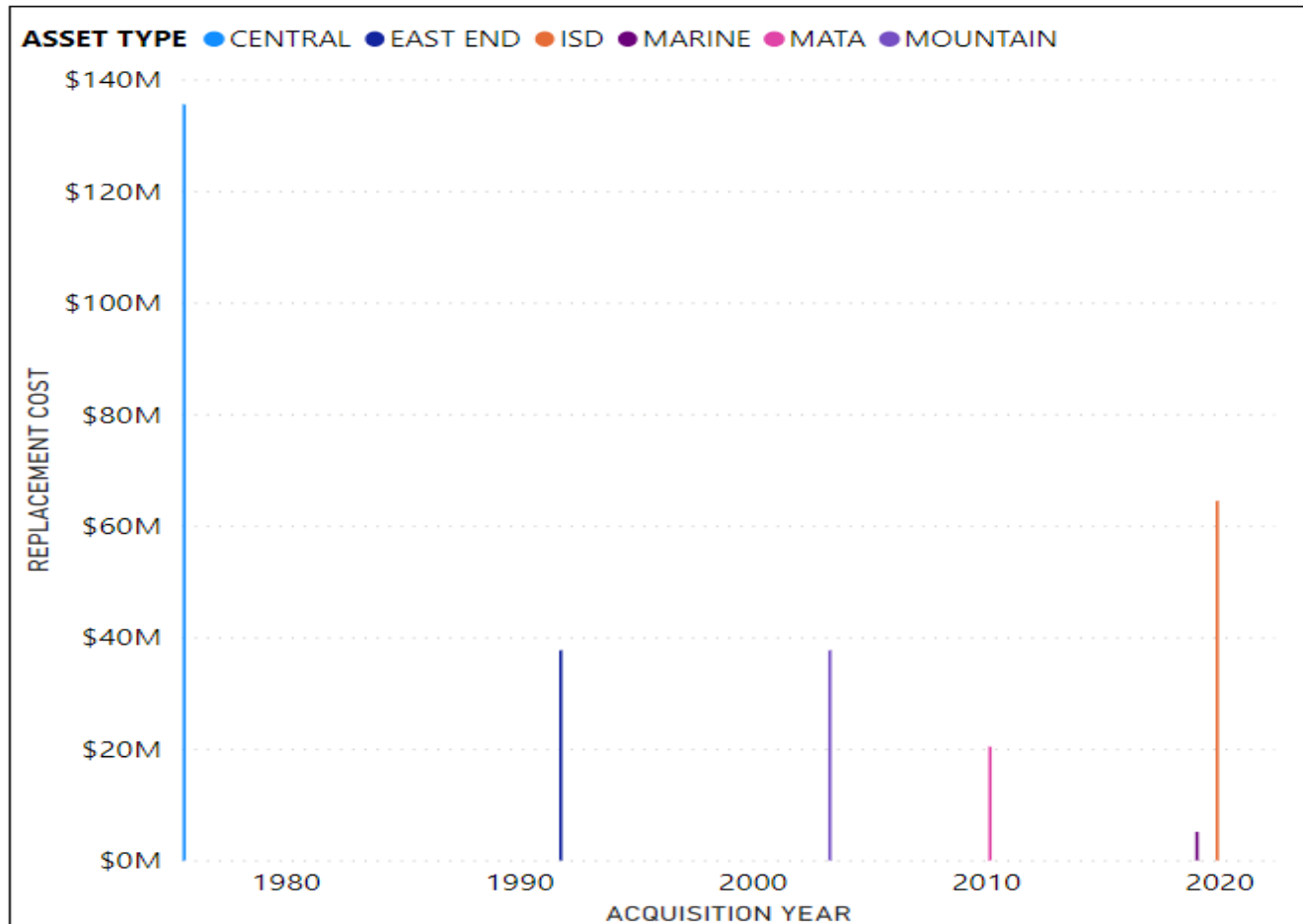
The age profile for HPS assets is shown in **Figure 2**. For HPS Facility assets, the data confidence for age is typically "Very High", because this information was recorded during the construction of the facilities.

Per **Figure 2** below, it is evident that the Investigative Services Division (ISD) and Temporary Marine Unit are both new facilities having been constructed in the last five (5) years. However, the Temporary Marine Unit is a temporary facility, which was put in place due to the Harbour front re-development which required the previous marine facility to be demolished and will be replaced in 2026 as shown in the Renewal forecast in **Section 8.3**.

The three (3) Police Stations are an average of thirty-two (32) years of age meaning that there is an average of 34% of the fifty (50) year estimated service life remaining for these assets. The oldest Police Station is the Central Police Station which is a \$135M constructed in 1976 and is approaching its fifty (50) year service life in 2026 as shown in the Renewal Forecast in **Section 8.3**.

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

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 Police facilities every five (5) years and output a score called a Facility Condition Index (FCI) which is typically considered to be a high confidence level source in the AM Plans. The FCI 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 Asset Management is shown in **Table 6**.

Table 7 : Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Police Stations & ISD	Every 5 years	2021	Facility Condition Index (0% - 100%)
Administration Facilities (MATA)			

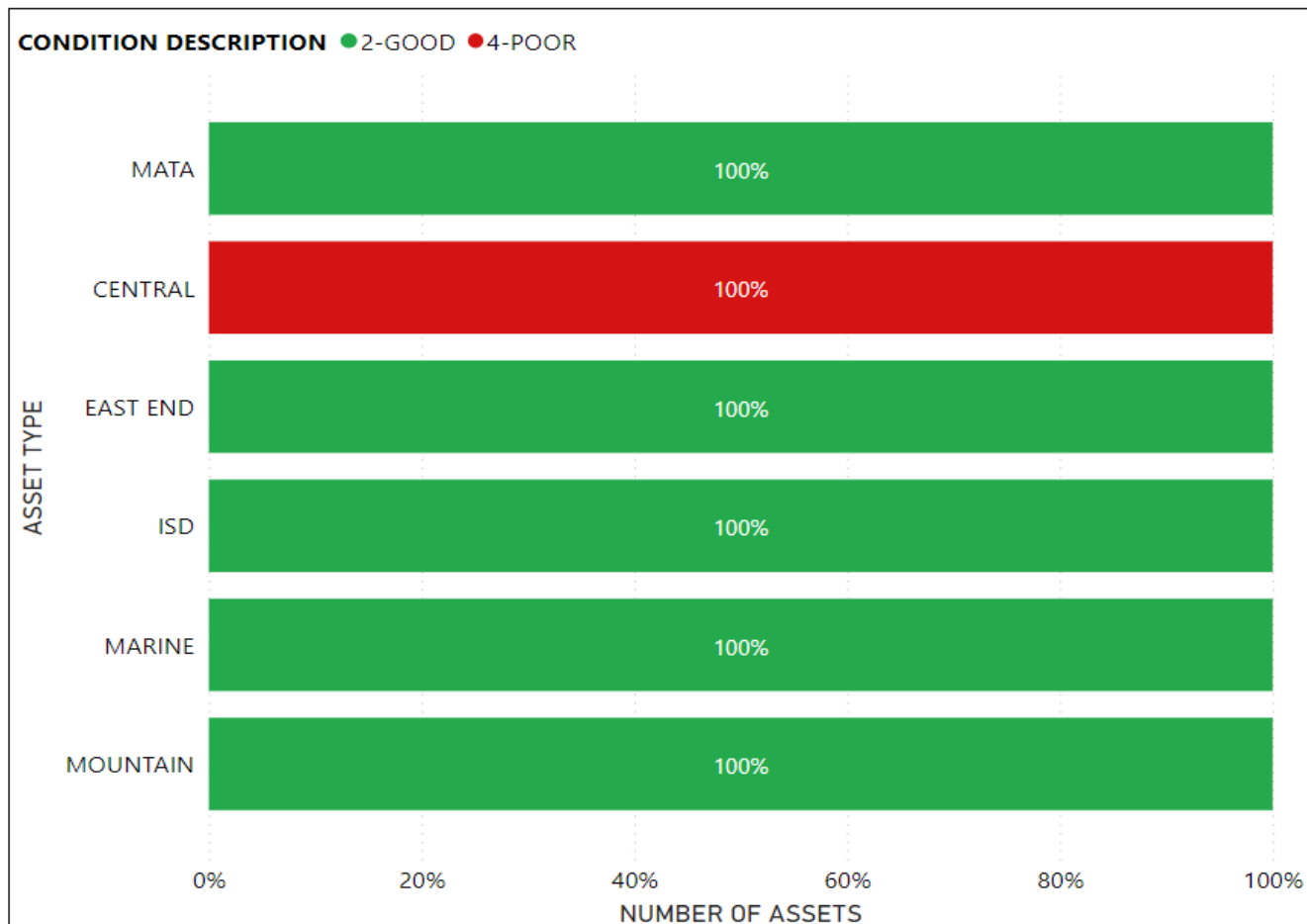
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Per the BCA, all facilities were shown to be in Good condition. However, the BCA is a visual, surface level inspection which is typically a high confidence indicator of condition in the AM Plans, but does not involve detailed analysis such as cutting into walls or removing mechanical panels, and therefore occasionally additional findings arise during detailed analysis which can result in modifications to the condition score.

After the BCA, HPS investigated renovating the Central and East End Stations to improve the building flow due to the relocation of staff to the ISD building as well as to account for the requirements due to the legislated NG-911 upgrades. During the detailed site investigation for that project, the consultant identified an additional \$11.3M required in mechanical upgrades due to poor condition components and the consultant did not recommend that the renovations be completed without these upgrades.

As a result of this high, unexpected cost estimate, HPS did not move forward with these renovations, and this additional upgrade amount was incorporated into the FCI calculation. The revised FCI calculation showed the Central Station having an FCI reflecting a Poor condition. This is also consistent with Central Station approaching its 50-year service life. The condition profile of the City's assets is shown below in **Figure 3**.

Figure 3: Facilities Asset Condition Distribution



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There is currently capital budget allocated to replace the roof for Central Station which may be delayed while HPS determines the best approach moving forward. In addition, if Central Station had been in better condition, it would have been used as the primary location of the proposed NG-911 communications centre due to its geographic location, but in the interim it is being used as the secondary location, and the NG-911 communications primary location will temporarily be incorporated into the MATA facilities.

3.2.1.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with Facilities involve poor condition of asset components. The known service performance deficiencies in **Table 8** are identified using information from the 2022 Building Condition Assessment (BCA) and the results of the Mechanical Design Brief on Central Station outlining the aforementioned mechanical upgrades.

Table 8 : Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Facility	Central Station	Mechanical Upgrades required	Upon inspection, most of the equipment and components are well beyond their serviceable life. It was found that the mechanical infrastructure of the building requires major upgrades to maintain operational reliability.
		Roof in poor condition	It was reported that multiple areas of the building have been experiencing water leakage from the roof.
		Groundwater & Sanitary Lift Pumps in poor condition	Upon inspection, the pumps appeared to be in poor condition with visible rusting and deterioration.
		Chain Link fencing in poor condition	Upon inspection, the fencing appeared to be in poor condition with visible rusting and deterioration.
		Painted and tile ceilings in poor condition	Upon inspection, the tiles appeared to be in poor condition with many areas of visible/water damage.

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ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
	East End Station	Boiler system in poor condition	Upon inspection, the boilers appeared to be in poor condition with reported leaking issues.
		Parking Lot in poor condition	Upon inspection, the paving appeared to be in poor condition with extensive surface crack in multiple areas.
		Ceiling tiles in poor condition	Upon inspection, the tiles appeared to be in poor condition with areas of damage/water damage caused by the previous roof leaks.
		Concrete floors in poor condition	Upon inspection, the paint appeared to be in poor condition with visible paint chipping and deterioration.
	Mountain Station	Humidifiers in poor condition	Upon inspection, the humidifiers were found to be in poor condition overall due to the non-functioning units.

3.2.2 VEHICLES PROFILE

3.2.2.1 AGE PROFILE

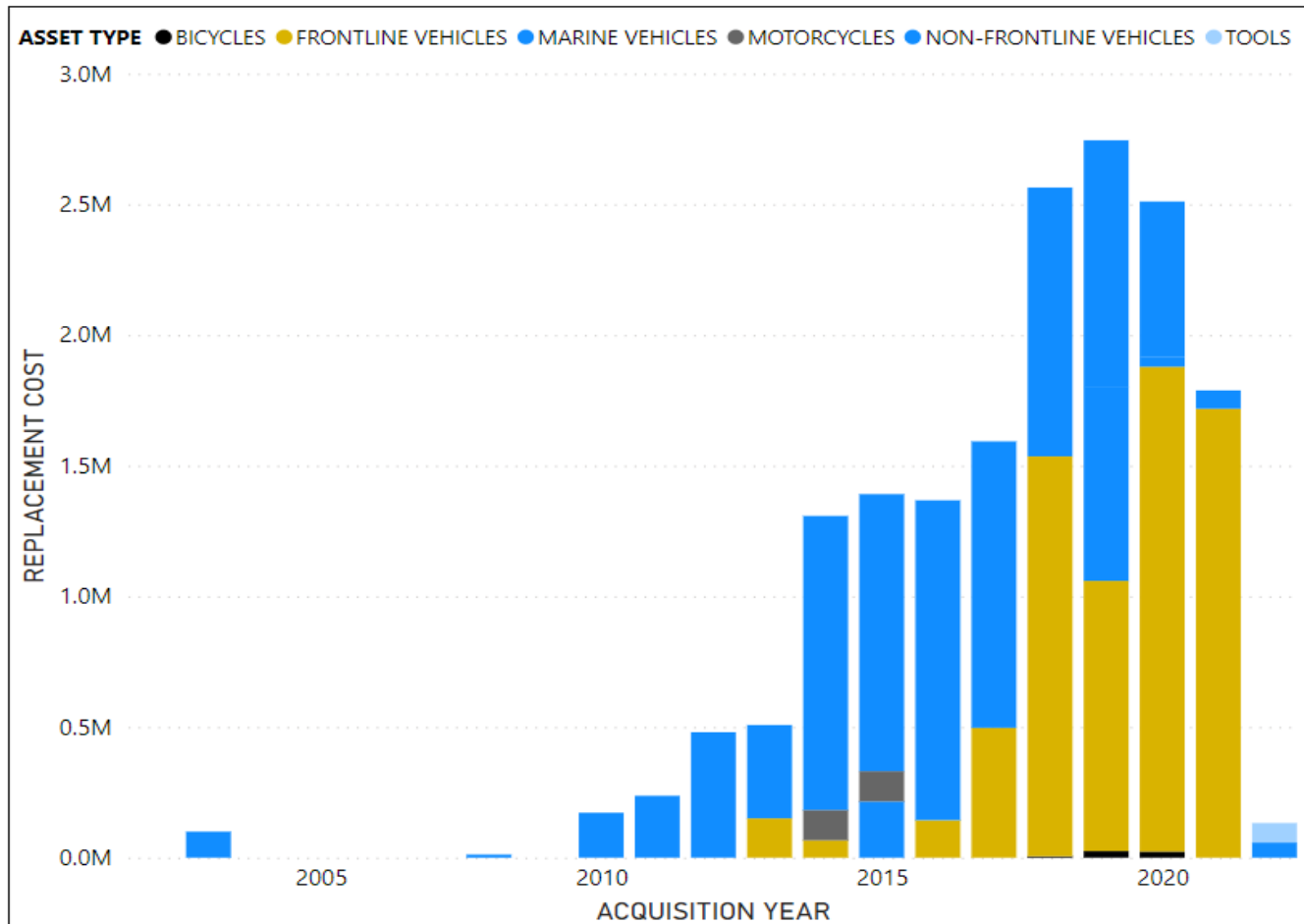
The age profile of the HPS Vehicle assets is shown in **Figure 4**. For Vehicle assets, the data confidence for age is typically High because asset's ages are formally tracked, and many assets are replaced based on age.

Frontline vehicles are replaced at five (5) years or 150,000 km, and non-frontline are replaced at 10-years or 150,000 kms. The age profile below shows replacement timelines have mostly been adhered to, however, with complications from COVID-19 and associated supply chain issues, many assets are being used for longer durations than anticipated. Since these assets have relatively short ESLs, they will repeat throughout the renewal forecast shown in Section 8.3.

In addition, marine vehicles are generally replaced at ten (10) to fifteen (15) years or as required, and bicycles are also replaced as required based on inspection or user complaints.

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Figure 4: Vehicles Age Profile



3.2.2.2 CONDITION METHODOLOGY & PROFILE

Vehicles are inspected and maintenance activities are conducted at specific intervals throughout the asset's lifecycle as shown in **Table 9**, however, no formal condition rating is assigned to each vehicle. Since frontline vehicles assets are expected to be maintained in good working condition and vehicles are replaced so frequently, the ESL of the vehicle is not necessarily representative of the actual condition of the asset (i.e., a 6-year old vehicle at 100,000 kms could still be considered in good condition for most uses, but would be auctioned and replaced, or converted to a non-frontline vehicle because frontline vehicles are held to a higher standard).

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

Table 9: Vehicle Inspection and Maintenance Activities

ASSET	INSPECTION TYPE	DESCRIPTION	FREQUENCY	CONDITION SCORE OUTPUT
FRONTLINE & NON-FRONTLINE VEHICLES	A	Lube, oil, and filter change including a fluid level check. Check all major systems. Report any body damage. Road test vehicle.	5,000 kms	None
FRONTLINE & NON-FRONTLINE VEHICLES	B	Includes An inspection as well as: rotate tires, record brake measurement	15,000 kms	None
FRONTLINE	C	Includes An inspection as well as replace fuel filter, and fluid change.	30,000 kms	None
NON-FRONTLINE VEHICLES			45,000 kms	
FRONTLINE	D	Includes An inspection as well as replace spark plugs and transaxle service	60,000 kms	None
NON-FRONTLINE VEHICLES			75,000 kms	
MARINE	N/A	General inspection, top up oil	50 hours	None
BICYCLE	N/A	Officer does self-inspection	As required	None

Since there is no formal condition rating based on inspection, the condition was estimated based on the assumptions outlined in the condition conversion table in **Table 6**. For frontline and non-frontline vehicles that were within the first 20% of their service life, they were considered to be in very good condition. if they are within their service life, they were considered to be in good condition. Any vehicles past their service life or mileage were in poor condition since they are considered deficient. As stated, the reason these vehicles are beyond their service life or mileage is due to COVID-19 supply chain issues, but all vehicles in service are in good working condition but may result in additional operations and maintenance costs as the situation continues.

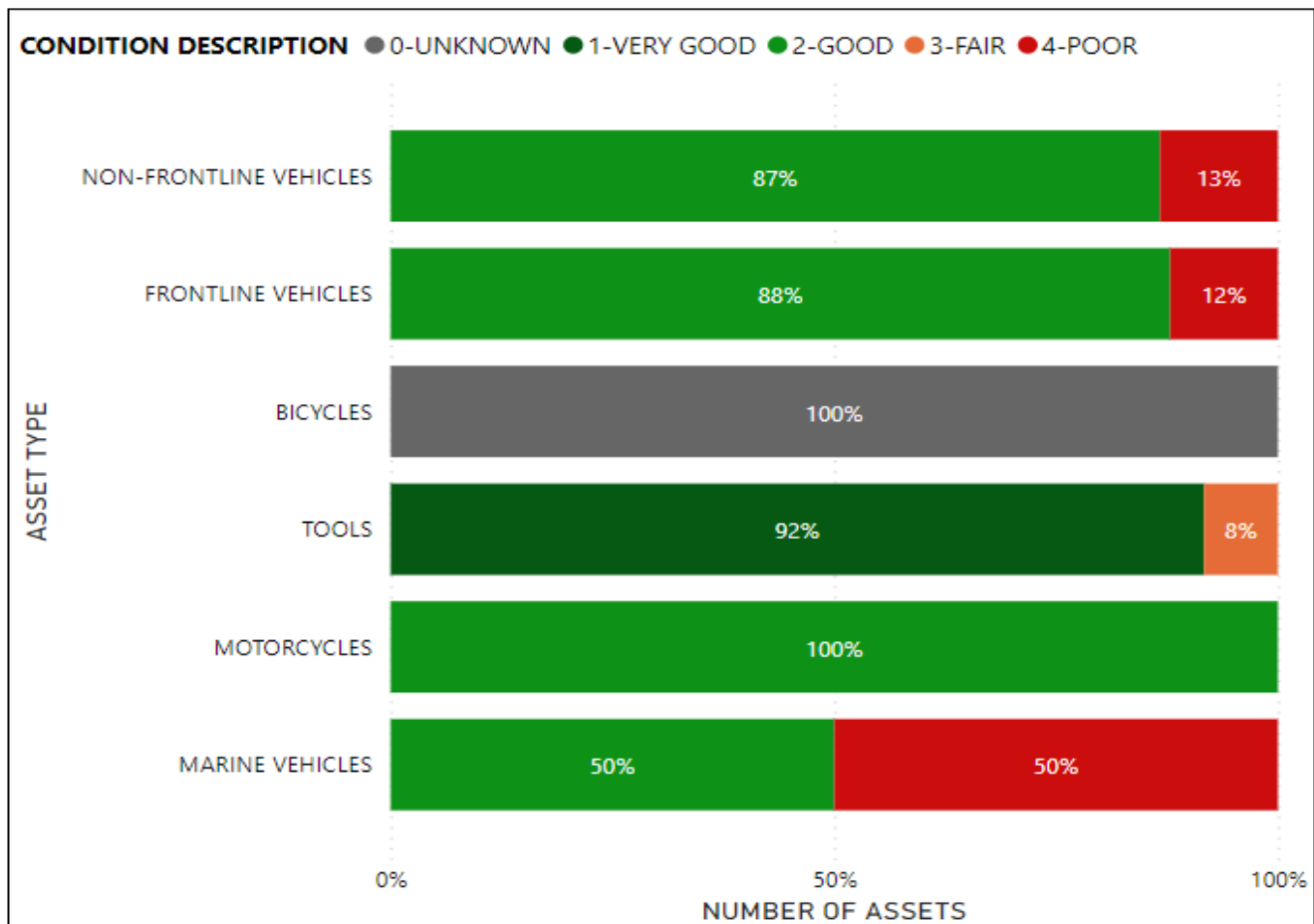
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Marine asset conditions were based on remaining service life assuming ESLs of ten (10) to fifteen (15) years and bicycles are replaced as required and were considered to be in unknown condition.

A continuous improvement item identified in **Table 34** is to incorporate a condition rating during regular vehicle inspection/maintenance activities. Although vehicles are considered to be in good working condition while they are in service, there are often indicators during these inspections that can predict the remaining useful life of the asset which will assist HPS with capital forecasting for all vehicles and provide information to make decisions about which frontline vehicles will likely be converted to non-frontline vehicles and which will be disposed of. In addition, collecting this data will allow HPS to confirm or revisit the vehicle replacement frequency as there is typically a point in a vehicle's lifecycle where it is more costly to operate and maintain the asset than it is to renew.

The condition profile of HPS' vehicle assets is shown in **Figure 5**. At this time the average condition of frontline and non-frontline vehicle assets is considered to be Good. Due to the condition methodology, marine vehicles have a significant amount of assets showing poor condition because they are beyond their Estimated Service Life (ESL).

Figure 5: Vehicles Asset Condition Distribution



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3.2.2.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with Police vehicles involve assets exceeding their ESL or mileage allotments. The known service performance deficiencies in **Table 10** were identified using staff input.

Table 10 : Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Patrol Vehicles	Various	Frontline Vehicles past service life/ mileage recommendations	Microchip shortage caused by pandemic causing difficulty in replacing assets at desired frequency.
Non-Patrol Vehicles	Various	Non-Frontline Vehicles past service life/ mileage recommendations	Microchip shortage caused by pandemic causing difficulty in replacing assets at desired frequency.

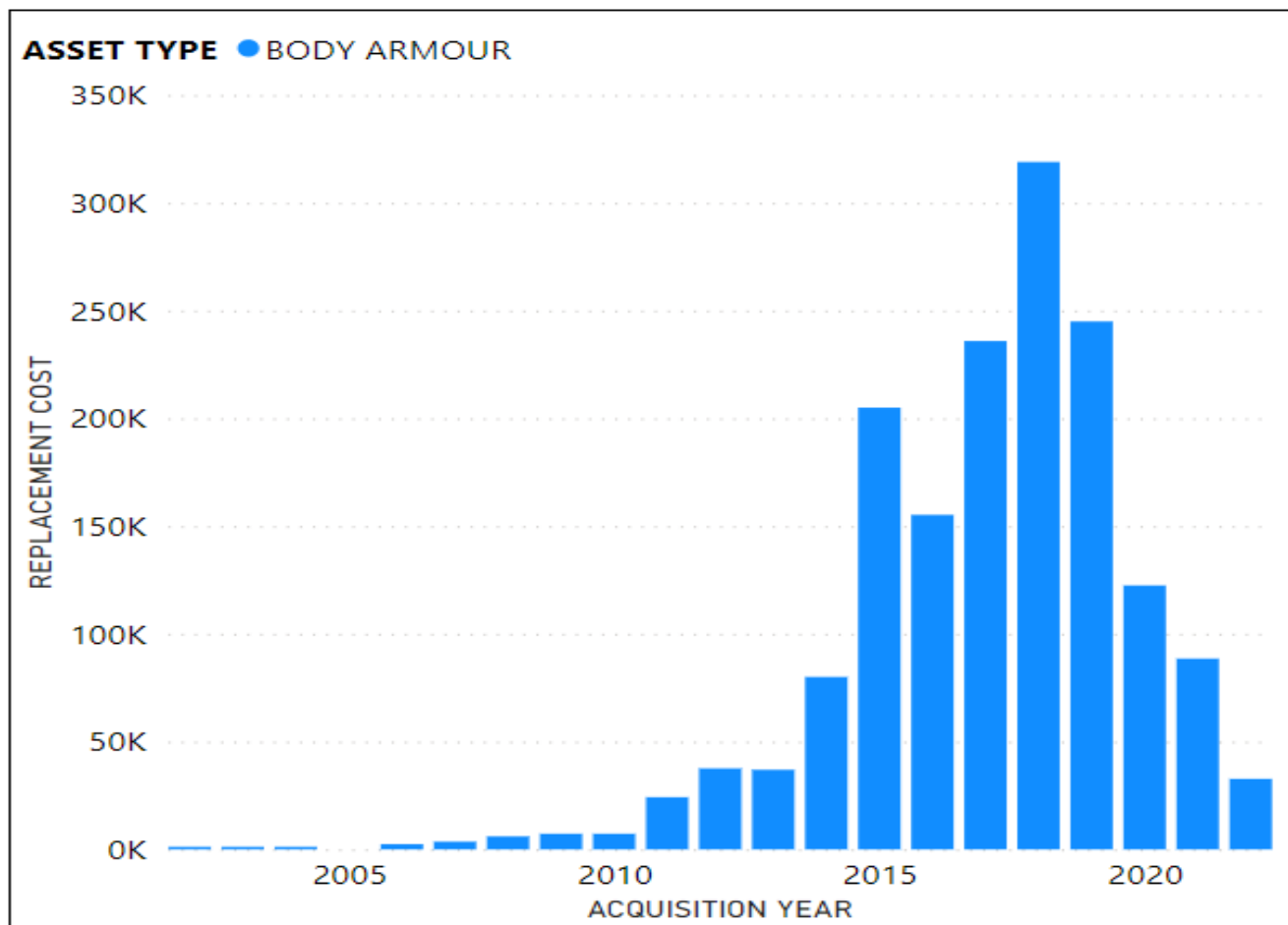
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3.2.3 OFFICER EQUIPMENT PROFILE

3.2.3.1 AGE PROFILE

The age profile of Officer Equipment assets is shown in Figure 6. Age is currently only tracked for the body armour asset, which is at a data confidence level of High since this information is formally documented. Since Body Armour has an estimated service life of 8 years, any assets acquired before 2015 in the profile below are past their service life. Since Body Armour is a critical asset for an officer, expired body armour has been recorded as a technical metric in Section 4.3.2.

Figure 6: Officer Equipment Age Profile



3.2.3.2 CONDITION METHODOLOGY & PROFILE

At this time, the majority of officer equipment does not have a formal inspection. For Body Armour, officers are expected to complete their own inspections annually and certify their equipment is acceptable per the table below.

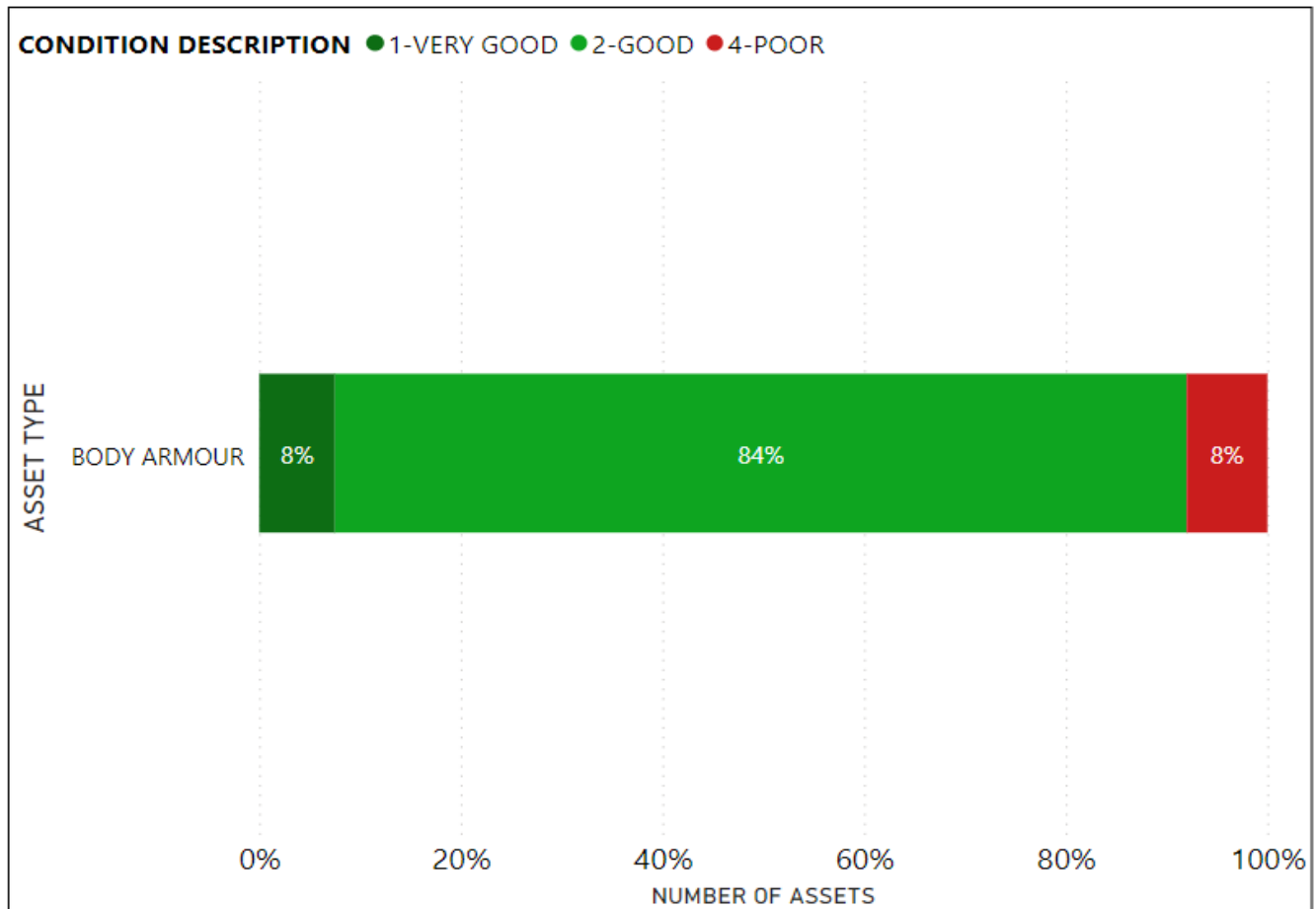
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Table 11 : Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Body Armour	Annual	2022	None – officer certifies their equipment is acceptable

The condition profile of the City's assets is shown in **Figure 7**. As mentioned in **Table 6**, the original condition grades were converted to a standardized condition category for report consistency. Since age and condition are not formally tracked for most officer equipment, the only asset shown below is body armour which is considered to be in good condition on average based on age.

Figure 7: Body Armour Asset Condition Distribution



3.2.3.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with officer equipment involves expired equipment. The known service performance deficiencies in **Table 12** were identified using database information.

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Table 12 : Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Name	Various	Expired Body Armour	Body Armour should be replaced every 8 years.

3.2.1 TECHNOLOGY PROFILE

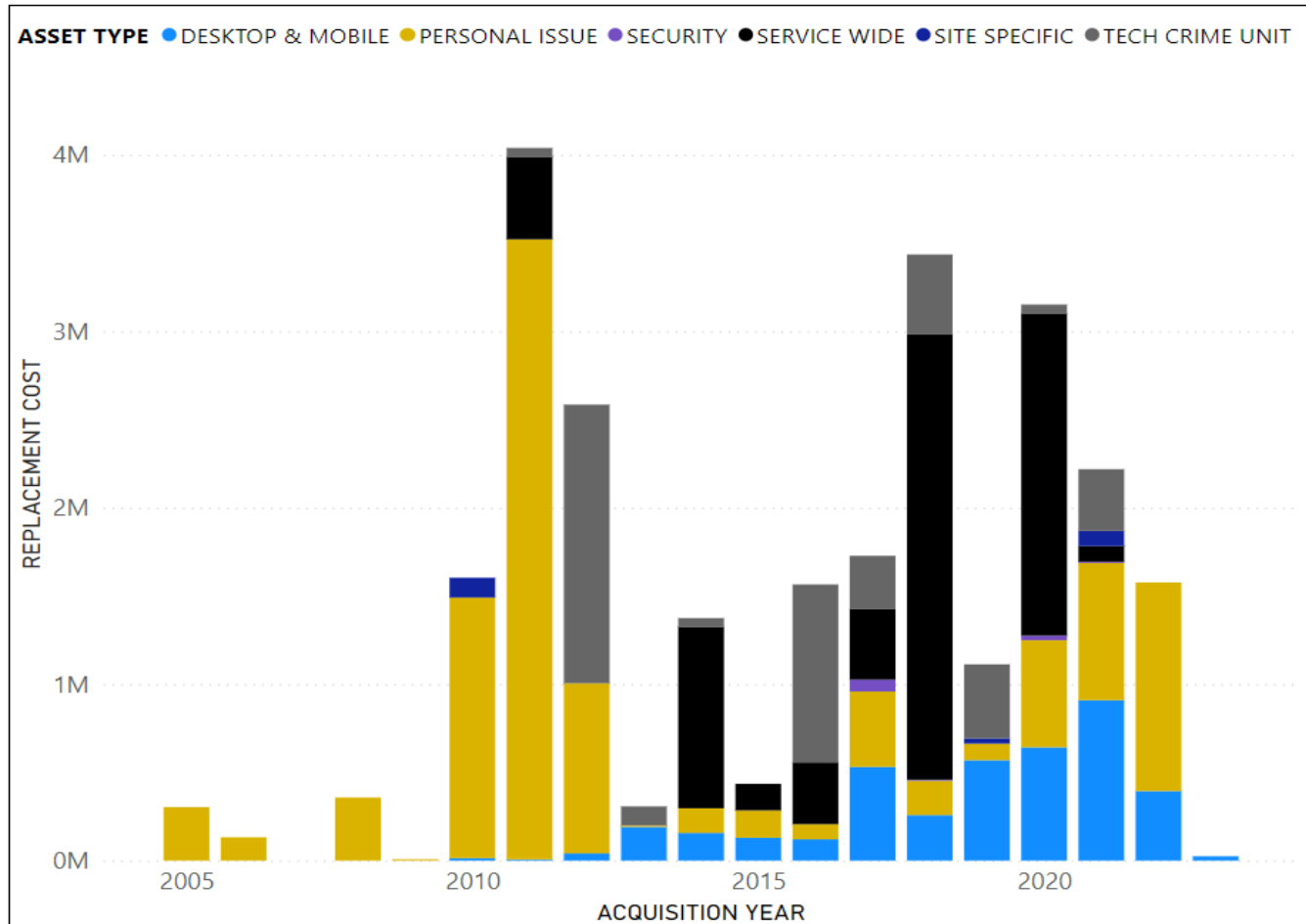
3.2.1.1 AGE PROFILE

The age profile for Technology assets is shown in **Figure 8**. For many Technology assets, age is not formally recorded which has been identified as a continuous improvement item in **Table 34**. Many of the ages below were based on subject matter expert opinion with the exception of the Tech Crime Unit assets, and therefore typically the age information has a medium data confidence.

Many technology assets have estimated service lives of five (5) to ten (10) years. Since these assets have relatively short ESLs, they will repeat throughout the renewal forecast shown in **Section 8.3**. There are typically large costs associated with these assets and therefore it is recommended that the ESLs be reviewed for these assets to ensure the renewal forecast is accurate.

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Figure 8: Technology Age Profile



3.2.1.2 CONDITION METHODOLOGY & PROFILE

The majority of technology assets do not have a formal inspection program which has been identified as a continuous improvement item in **Table 34**. The Tech Crime Unit does assign condition scores to their assets on a 3-point scale per the table below. It is recommended for asset management best practice that these condition scores be modified to align with the AM 5-point scale which has been identified as a continuous improvement item in **Table 34**.

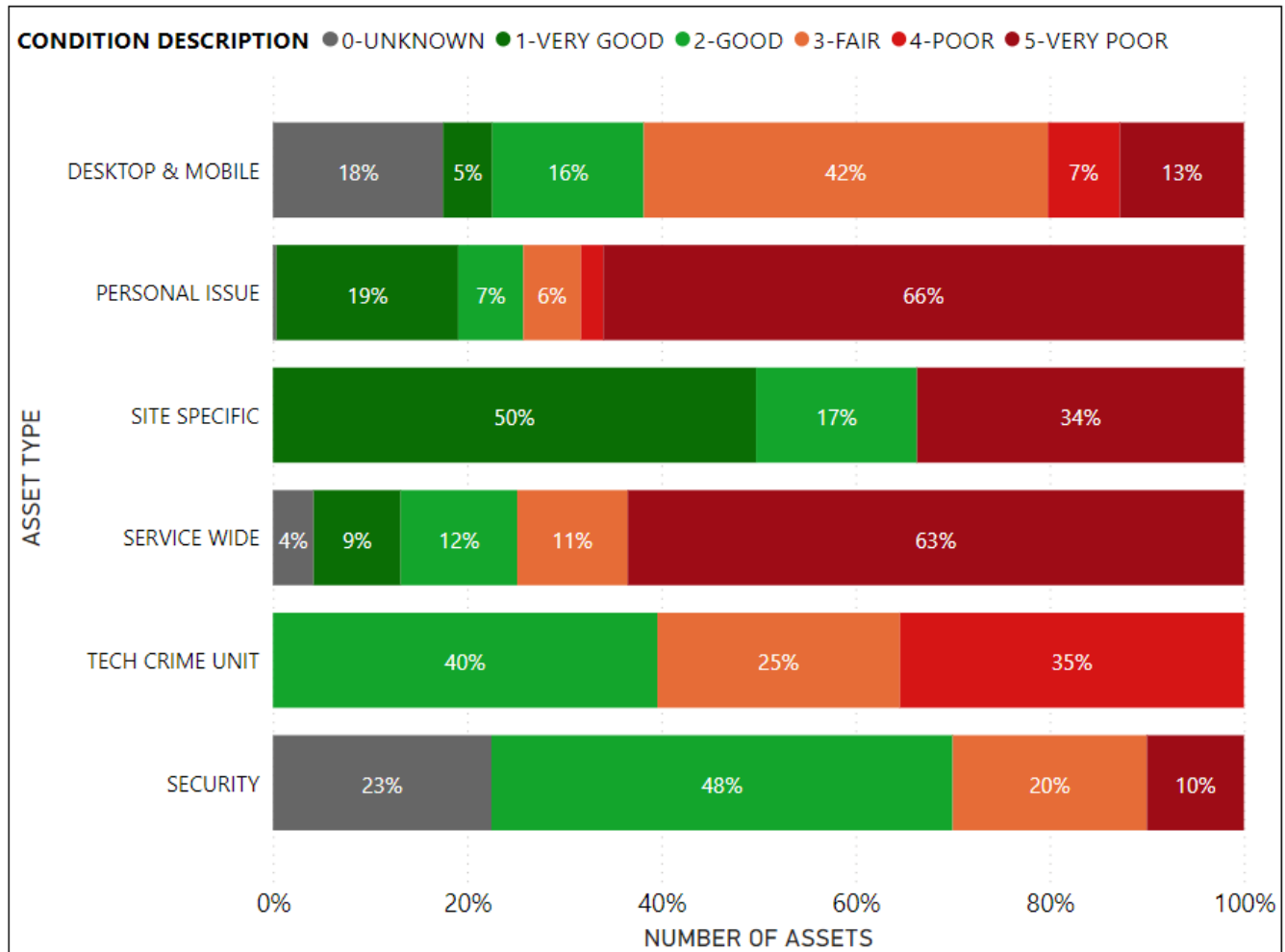
Table 13 : Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Tech Crime Unit	6 months	March 2023	Three Point Scale
All Other Technology	None	None	None

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The condition profile of the City's assets is shown in **Figure 9**. At this time the average condition of technology is considered to be Fair. Due to the condition methodology, many assets have a significant amount of assets showing poor or very poor condition because they are approaching or beyond their Estimated Service Life (ESL).

Figure 9: Technology Asset Condition Distribution



3.2.1.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with Technology involve inability to upgrade. The known service performance deficiencies in **Table 14** were identified using staff input.

Table 14: Known Service Performance Deficiencies

ASSET	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
911 PHONE SYSTEM	Requires replacement	Inability to upgrade to remain supported.

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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 service 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 6.5** of the AM Plan Overview.

4.1 SURVEY METHODOLOGY

To develop customer values and customer levels of service, a Customer Engagement Survey entitled *Let's Connect, Hamilton – City Services & Assets Review: Hamilton Police Service* was released on February 13, 2023, on the Engage Hamilton platform and closed on March 20, 2023. The survey results can be found in Appendix "A".

The survey received submissions from 258 respondents and contained fourteen (14) questions related to the Hamilton Police Service delivery of service. For the purposes of this report, data has been evaluated from a confidence level perspective (margin of error at 95% confidence in sample size) and a data consistency (standard deviation) perspective per **Table 15** below.

Table 15: 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 agreement	10% to 20% - error is a significant amount and will cause uncertainty in final 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

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Based on an approximate population size of 570,000 and the table above, a sample size of 258 correlates to a 6.1% margin of error at 95% confidence, and therefore these survey results correspond with an overall high confidence level. It is important to note that respondents were allowed to opt out of questions, and as such, different questions may have different confidence levels depending on the opt out rate for that question, and therefore the confidence level grades presented differ throughout this section.

Although the sample size correlates to a high confidence level, the data consistency also differed between questions. A high data consistency means that more often respondents came to the same conclusion for a question, whereas a low data consistency means that there is a split in respondent's opinions. Therefore, while CAM may be able to improve survey confidence levels over time by increasing the survey sample size, it may not be possible to improve data consistency over time as this depends on the opinions of the respondents and may require additional insight on why respondent's opinions are split. A low consistency of data does not mean the data is "bad", but it does mean that it is difficult to make decisions using that information.

While these surveys were used to establish customer values and customer performance measures, it is important to note that there were also limitations to the survey methodology which may also reduce the confidence level in the survey data. The survey was only released using an online platform and did not include telephone surveys and consequently there is no way to confirm the identity information provided in the survey. In addition, the survey did not control for IP addresses, and therefore it is possible that respondents could complete the survey more than once and skew the survey results. When reviewing the demographic responses for the survey, there was no clear evidence that the survey results had been skewed. When comparing the age and postal code demographics from the survey to the age and postal code demographics for the City, there does not appear to be a significant over-representation of any age or postal code demographic within the survey. In addition, the responses were distributed across the City with responses from most communities as well as from a variety of self-identifications. Even when assessing the spikes in respondents per day, the results were distributed across different ages, postal codes, and self-identifiers. Therefore, although there are limitations to the survey methodology, it does appear that these results can be used to provide some context about the feelings of customers on the services HPS provides, but decisions should not be made based on this survey alone.

The future intent is to release this survey on a regular basis to measure the trends in customer satisfaction and ensure that the City is providing the agreed level of service as well as to improve the marketing strategy by both incorporating telephone surveys and IP controls to improve confidence levels in the survey responses. This has been noted in **Table 34** in the continuous improvement section.

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4.2 CUSTOMER VALUES

Customer values are what the customer can expect from their tax dollar in “customer speak” which outlines 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 *Let's Connect, Hamilton – City Services & Assets Review: Hamilton Police Service* survey.

Table 16: Customer Values

SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Emergency Medical Calls and Investigative Services are very important services.	2023 HPS City Services & Assets Review Survey	Based on survey responses, on average, these are considered very important services for HPS to be responsible for providing with high data consistency.	Maintain
Non-Emergency Calls, Road Safety, Online Reporting and Victim Services are important services.		Based on survey responses, on average, these are considered important services for HPS to be responsible for providing with high to medium data consistency.	Maintain
Emergency Mental Health Calls are important services, but customers are divided.		Based on survey responses, on average it is important for HPS to be responsible for providing mental health services, but the data consistency was low and therefore respondents were divided.	Maintain

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Crime Prevention / Public Outreach Services and Vulnerable Sector Clearance is a fairly important service.	2023 HPS City Services & Assets Review Survey	Based on survey responses, it is fairly important for HPS to be responsible for providing these services, with a medium data consistency.	Maintain
HPS Facilities should be maintained in good condition and be welcoming and accessible, but facility renewals and public parking are not priorities.		Based on survey responses with a high data consistency, HPS buildings should be accessible, safe, equitable, inclusive, clean, in good repair, comfortable, energy efficient, and inviting. However, facility renewals and increased public parking at stations were not that important to survey respondents with a medium data consistency.	Decrease
Body cameras should be considered as a future need.		Based on survey responses, these are considered an important future need for HPS to consider implementing with a medium data consistency.	N/A
Increasing the number of police officers is a divided subject.		Based on survey responses, there are differing opinions on if HPS should increase the number of police officers with a low data consistency.	Maintain
Rate Level Increases should be minimized.		HPS should minimize rate level increases and maintain service levels based on a medium data consistency.	Maintain

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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 City's Police 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.

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 17** 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 budget 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 (e.g. the Public), and as a result there are some gaps within the alignment between customer and technical levels of service as discussed in **Section 4.3.3**.

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Table 17 : Customer Levels of Service

TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Quality/ Condition	Provide effective and adequate core policing services.	2023 HPS City Services & Assets Review Survey	Average survey respondent opinion on how HPS has performed overall in the last 24 months in all service areas	Average Performance	Maintain
		Confidence level		Medium	
		Data Consistency		Medium	
	Ensure that police assets are maintained in good condition.	2023 HPS City Services & Assets Review Survey	Average survey respondent opinion on if HPS facilities met comfort, safety and cleanliness needs over the last 24 months	Meets Needs	Decrease
		Confidence levels		Very Low	
		Data Consistency		Medium	
	Be fiscally responsible when delivering services.	2023 HPS City Services & Assets Review Survey	Average survey respondent opinion on if HPS is providing good value for money when providing infrastructure and services.	Average Performance	Maintain
		Confidence levels		Low	
		Data Consistency		Medium	
Function	Provide effective and adequate core policing services.	2023 HPS City Services & Assets Review Survey	Average survey respondent opinion on if HPS is meeting service needs overall	Meets Some Needs	Maintain

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TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
		Confidence levels		Medium	
		Data Consistency		Medium	
		2023 HPS City Services & Assets Review Survey	Average survey respondent opinion on if HPS dispatch times are meeting service needs overall	Meets Some Needs	Maintain
		Confidence levels		Medium	
		Data Consistency		Medium	
Capacity	Ensure HPS services are accessible to the public when required.	2023 HPS City Services & Assets Review Survey	Average survey respondent opinion on if HPS services are satisfied with their ability to be accessed overall	Neither satisfied nor dissatisfied	Maintain
		Confidence levels		Low	
		Data Consistency		Medium	

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4.3.1 CUSTOMER INDICES

The three (3) indices calculated to assess how customer expectations are aligning with the perceived performance for HPS are listed below in **Table 18**. These indices are explained and analyzed in detail in the sections below and will eventually be included for all assets (when available) in the overall measures in the AM Plan Overview.

Table 18 : Customer Indices

Customer Indices	Average Result
Service Importance Versus Performance Net Differential	-20
Net Promoter Score (%)	-17.58%
Service Rates Versus Value for Money Net Differential	-2

It is important to note that since the HPS survey results appear to overall be divided on many issues, it is difficult to make any conclusive decisions based on this survey alone. Therefore, the information below is intended to provide context around the survey results to assist HPS with areas to further investigate before proposing any new levels of service.

SERVICE IMPORTANCE VERSUS PERFORMANCE INDICE

The Service Importance versus Performance indices is used to determine if a service's importance correlates with the perceived performance. Service areas where the average importance rating exceeds the average performance rating by twenty (20) points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale.

Per **Figure 10** below, the net differential exceeds twenty (20) points for Investigative Services, Emergency Criminal Calls, Non-Emergency Calls, and Road Safety. This indicates that although customers generally consider these services to be between Very Important to Important on the Likert scale, they also perceive that HPS only performed Average for these services over the last twenty-four (24) months. The data consistency on both questions showed an overall medium consistency.

To reduce the net differential, HPS would have to increase their performance to between Good and Very Good, which they would accomplish by altering their Technical Levels of Service explained in **Section 4.3.2**, and if HPS were looking for service areas to improve, these would be the key services to investigate further. However, whether the customer is willing to pay for this increase in service is determined by the Service Rates Versus Value for Money Net Differential which is explained in detail in the section below.

It is important to note that the Q2-Importance question asked if these services were important as a responsibility for HPS, as such, it is unclear if some of these answers are regarding the importance of the service or the importance of HPS being responsible for that service. This could be the case for the Emergency Mental Health Calls where the data consistency was Low which may either indicate that respondents are divided on if these are important services for HPS to

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be responsible for, or it could indicate that there are differing opinions on whether the services are important to the customer overall. Future surveys will clarify verbiage to ensure the question is clear and this has been included as a Continuous Improvement Item in **Table 34**. However, it is also important to note that mental health services are required services that HPS must provide according to the Mental Health Act, R.S.O. 1990 and Community Safety and Policing Act, 2019 referenced in **Section 2.2**.

NET PROMOTER SCORE INDICE

The Net Promoter Score Indices outlines how likely an individual is to recommend a service to another person and measures customer loyalty. For municipal services, this score is difficult to interpret because often individuals do not have many alternatives for utilizing different services

Figure 10: Importance versus Performance Index Score

Service Area	Importance (index score)	Performance (index score)	Net Differential	Opt Out %
Average	78	58	-20	33.8
Investigative Services	92	64	-28	39.8
Emergency Criminal Calls	92	64	-27	32.8
Non-Emergency Calls	77	51	-26	25.2
Road Safety	80	57	-23	24.6
Online Reporting	76	57	-19	36.0
Emergency Mental Health Calls	73	57	-16	34.4
Victim Services	70	58	-11	41.6
Crime Prevention Programs/ Public Outreach	66	55	-11	36.1

and also there may be internal biases for certain service areas. However, this score does provide valuable information for determining whether customers would recommend using the service, seek alternatives, or avoid using the service altogether.

Respondents who selected a score less than four (4) are considered 'Detractors' meaning that they would not recommend the service. While scores of five (5) are considered 'Promoters' who would recommend the service. Scores of four (4) are considered 'Passive' which means they do not have strong feelings about the service and as such, they are not considered in the Net Promoter score calculation. In addition, respondents who opted out by not answering or selecting 'Can't Say' were removed from the sample. The Detractor and Promoter scores were then converted to a percentage, and the Net Promoter Score was calculated by subtracting (% Detractors) from (% Promoters). The Standard Deviation (σ) is also calculated in a percentage, the same units as the Net Promoter Score.

Per **Figure 11** below, generally most users of the service would not recommend HPS to another person. For the two (2) most important services (Emergency Criminal Calls and Investigative Services), the net promoter result is closer to zero (0) which may indicate that overall respondents are more neutral about recommending these services, whereas the higher negative promoter values (>20%) for Emergency Mental Health Calls, Crime Prevention Programs/Public Outreach, Victim Services, and Non-Emergency Calls services indicates that HPS may need to investigate the public perception for why customers would not recommend using these services.

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However, the standard deviation being greater than twenty (20) does indicate that survey respondents were divided on their opinion for these services.

Figure 11: Net Promoter Score

	σ	Net Promoter Score	Detractors	Passives	Promoters
All Service Areas	30.6	-17.58	848	273	552
Emergency Criminal Calls	30.6	-4.19	85	29	77
Investigative Services	28.9	-5.06	77	33	68
Vulnerable Sector Clearance	28.3	-5.68	73	40	63
Online Reporting	29.2	-15.05	89	36	61
Road Safety	29.4	-18.41	101	36	64
Non-Emergency Calls	30.2	-24.64	114	30	63
Victim Services	32.1	-24.85	94	23	52
Crime Prevention Programs/ Public Outreach	31.2	-25.43	96	25	52
Emergency Mental Health Calls	32.4	-34.90	119	21	52



















SERVICE RATES VERSUS VALUE FOR MONEY INDICE

The Service Rates versus Value for Money indices is used to determine if the rate an individual is paying for a service correlates with the perceived value for money. Service areas where rate level ratings exceed value for money ratings by twenty (20) points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale. Positive Net Differential values indicate that 'Value for Money' was greater than willingness for 'Rates'. Low index scores in 'Rates' indicate that respondents are not willing to pay increased rates for the service area. All values were calculated and then rounded to the nearest whole number.

Per **Figure 12** below, survey respondents generally perceived that they were getting Average value for money across all services and thought that HPS should minimize rate level increases and maintain service levels across all services as well. On average, since the net differential is under twenty (20) across all services, survey respondents thought the value for money was in alignment with the current rates. However, the data consistency was considered medium approaching low for both value for money and rate level as there are differing opinions on this issue. Therefore, based on these conclusions, HPS should consider only increasing rate levels to the minimum required to maintain the current levels of service.

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Figure 12: Rates versus Value for Money Index Score

Service Area	Rates (index score)		Value for Money (index score)		Net Differential	Opt Out %
Average		57		55	-2	21.5
Vulnerable Sector Clearance		53		63	10	28.0
Crime Prevention Programs/ Public Outreach		51		54	4	22.1
Victim Services		54		52	-2	27.9
Online Reporting		56		54	-2	22.7
Road Safety		59		56	-3	15.7
Emergency Criminal Calls		64		59	-5	17.1
Investigative Services		63		57	-6	24.6
Emergency Mental Health Calls		57		51	-6	20.3
Non-Emergency Calls		59		50	-9	15.5

4.3.2 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.⁷

Police specific calls are categorized into five (5) Priority Call Responses ranked by type and urgency of the call which are defined below in **Table 19**. Different priority call responses have different dispatch times which are shown in **Table 19**. As previously mentioned, a continuous improvement item identified in **Table 34**, is to investigate quantifying response times so that HPS can quantify changes in levels of service. With the addition of the Waterdown Station, response times will likely improve in rural areas which is a proposed level of service that cannot be quantified at this time.

⁷ IPWEA, 2015, IIMM, p 2|28.

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Table 19: Priority Call Types

PRIORITY CALL TYPE	DESCRIPTION
0	Emergencies where injuries are occurring or are imminent
1	People and property emergencies that do not involve personal injury
2	A crime has just occurred within the past 15 minutes
3	Do not involve crimes that are in progress or have just occurred
4	Non-urgent, low-risk calls involving non-emergency or incidental complaints

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 20 : Technical Levels of Service

LIFECYCLE ACTIVITY	LEVEL OF SERVICE	ACTIVITY MEASURE	CURRENT ACTUAL PERFORMANCE (2022)	CURRENT TARGET PERFORMANCE (2022)	PROPOSED 10-YEAR PERFORMANCE
Acquisition	Ensure police have the capacity to reliably respond to emergencies in a timely manner.	Number of new patrol vehicles purchased due to growth/demand	3	3	30
		Budget	\$0.3M	\$0.3M	\$2.6M
	Ensure HPS services are accessible to the public when required.	Number of new facilities acquired due to growth/demand	0	0	1
		Budget	\$0	\$0	\$8.0M
Operation	Provide effective and adequate core policing services.	Dispatch Time for Priority 0 (minutes)	1:08	0:30	0:30
		Dispatch Time for Priority 1 (minutes)	3:10	3	3
		Dispatch Time for Priority 2 (minutes)	13:28	15	15
		Dispatch Time for Priority 3 (minutes)	95	60	60
		Dispatch Time for Priority 4 (minutes)	108	180	180
		Budget	N/A	N/A	N/A

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LIFECYCLE ACTIVITY	LEVEL OF SERVICE	ACTIVITY MEASURE	CURRENT ACTUAL PERFORMANCE (2022)	CURRENT TARGET PERFORMANCE (2022)	PROPOSED 10-YEAR PERFORMANCE
	Be fiscally responsible when delivering services.	Actual Operating Expenditures vs Planned Budget	99.4%	90%-100%	90%-100%
	Ensure that police assets are maintained in good condition.	Average Facility Condition Index for Facilities	2.3%	<5%	<5%
Maintenance	Ensure police have the capacity to reliably respond to emergencies in a timely manner.	Average number of days frontline vehicle is out of service for maintenance	3.0	3.0	3.0
		Budget	\$0.6M	\$0.6M	\$1.0M
Renewal	Ensure that police assets are maintained in good condition.	% of in-service front-line vehicles over replacement frequency target (i.e., 5-years or 150,000 km)	12.1%	0%	0%
		Budget	\$0	\$0.8M	\$15.6M
		% of expired Body Armour	8%	0%	0%
		Budget	\$0	\$0.2M	\$1.8M

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It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

It is important to note that these metrics were created specifically for this 2023 AM Plan with available data. Many of these metrics should be improved to include a target to be in line with SMART objectives identified on page 43 of the AM Plan Overview. In addition, performance measure data should be both easy to extract and measured over time, and a data collection process may likely need to be created. HPS has recently completed a revised KPI framework and therefore it is anticipated that these performance measurements will improve for the next iteration of the plan. These have been identified as continuous improvement items in **Table 34**.

4.3.3 PROPOSED LEVELS OF SERVICE DISCUSSION

It is evident per **Table 20** that HPS is often meeting technical standards with some exceptions. However, customer preferences and expectations do not always match internal technical targets. Since the HPS survey results appear to be divided on many issues, it is difficult to make any conclusive decisions based on the initial survey. Due to the lack of data confidence in the current levels of service information, HPS will need to collect more data before proposing any new levels of service. 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. Therefore, the information below is intended to provide context to direct HPS to areas for further investigate before proposing any new levels of service.

As previously mentioned, many of HPS' 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 34**.

CONDITION / QUALITY

Based on **Table 20**, survey respondents thought that HPS was meeting needs in terms of HPS Facilities' comfort, safety, and cleanliness needs. At this time, based on the FCI, the average condition for HPS facilities is Good which would relate to the safety of the facility. As such, there is generally customer and technical levels of service alignment. However, Central Station is in Poor condition meaning it may not meet safety needs over time, but there is conflicting information since survey respondents also indicated that facility and parking lot renewals were not a priority for customers at this time. Therefore, it is difficult to make any conclusions on this item in this report. In future, the technical measures should also indicate facility operational measures (i.e., frequency of cleaning) to better align with the comfort and cleanliness measures. This has been identified as a continuous improvement item in **Table 34**.

In addition, per **Table 20**, survey respondents thought that HPS was performing average when providing good value for money for the service, with a medium data consistency. At this time, HPS is within the recommended target for actual operating expenditures versus planned budget.

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Therefore, proposed levels of service should consider, where possible, only increasing rate levels to the minimum required to maintain the current levels of service and any legislated requirements.

FUNCTION

Based on **Table 20**, survey respondents indicated that dispatch time targets met customer needs overall. At this time, HPS is meeting their dispatch time targets for Priority 2 and 4 calls, however HPS is not meeting dispatch time targets for Priority 0, 1 or 3 calls. Since customers indicated that the technical target times would meet needs, HPS should investigate opportunities to improve dispatch times to meet internal targets. This must be communicated clearly to the public since there are concerns with increasing rate levels.

In addition, as previously mentioned, dispatch times are not the best measurement for response. This has been indicated as a continuous improvement item in **Table 34**. As previously mentioned, with the addition of the Waterdown Station, response times will likely improve in rural areas which is a proposed level of service change that cannot be fully quantified at this time.

CAPACITY

Based on **Table 20**, survey respondents were neither satisfied nor unsatisfied with their ability to access HPS services. Per **Table 21**, HPS is currently adding an additional station, Waterdown Station, to ensure better access to the service. Since customers do not have a strong opinion on this addition, adding this asset would be up to the discretion of HPS in terms of operational needs.

Customer values also indicated that body cameras would be something to consider adding for proposed levels of service. Based on survey responses, there are differing opinions on if HPS should increase the number of police officers. HPS is currently only increasing their number of officers and assets in accordance with the "cop to pop" ratio mentioned in **Section 5.1** which is the amount required to maintain current levels of service which is in line with the customer value of minimizing rate level increases.

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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 and identify the best way of meeting the current demand while also 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 (assumption of assets due to development growth) and types of service required (e.g., NG911, body cameras).

5.1 DEMAND DRIVERS

For the HPS service area, the key drivers are population change, and technological changes.

- Population change – Per page 45 in the AM Plan Overview, it is evident that Hamilton's population will continue to grow to 2051. Ontario Police Services determine their officer requirements using a ratio often referred to as the "cop to pop" ratio which allocates how many officers are required per the population.
- Technological changes - At this time, since the Canadian Radio-television and Telecommunications Commission (CRTC) has mandated that all municipalities replace Canada's aging E911 emergency services network and cutover to the new Next Generation-911 (NG-911) platform by March 4, 2025, this is a large change that HPS as well as Hamilton Fire and Hamilton Paramedics Services have been preparing for.

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 21**. Growth projections have been shown on page 45 in the AM Plan Overview document, however, the growth projections for the "cop to pop" ratio projections were completed by HPS staff for the development charges by-law study.

Where costs are known, these additional demands as well as anticipated operations and maintenance costs have been encompassed in the Lifecycle Models 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 21**. 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.

Opportunities identified to date for demand management are shown in **Table 21**. Climate change adaptation is included in **Table 25**.

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Table 21 : Demand Management Plan

DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Population Growth	"Cop to Pop ratio" 146 officers per 100,000 population, 3 stations	"Cop to Pop ratio" 13 officers per year over 10 years, 23 additional staff to meet service standards, 4 stations.	Increase to uniform and equipment, increase to # of frontline vehicles, parking spaces, facility space, desks, lockers, IT equipment. Require new station in Waterdown which will increase operations and maintenance costs.	Increase budget to maintain level of service for new officers. Add new Waterdown Station. Complete Master Plan for HPS.
Technological Change: Connected Officer	270 mobile phones deployed	All officers supplied with mobile devices	Increase to number of mobile devices, IT support staff, software licensing	Increase budget to improve/enhance level of service. Budget will be requested in 2024.
Technological Change: Increase in digital evidence	AXON licenses for 625 Basic and 250 Pro users, which provides for 13,750 GB storage	To Be Determined. Will result in increase in network bandwidth and cloud storage costs	Increase in storage costs, network bandwidth, etc.	Increase budget to increase network & storage capacity to improve/enhance level of service. Costs to be determined.
Legislative Technological Change: Next Generation - 911 (NG-911)	NG-911 System is being implemented	The HPS will require two NG-911 sites starting March 2025, i.e., primary and back-up	Increased budgetary requirements for maintaining NG-911 sites and replacement of equipment at end of life cycle, i.e., call-handing, CAD, radio dispatch, data centres, etc.	Increase budget to replace all necessary equipment related to NG-911 estimated at \$7.8M as well as upgrade facilities estimated currently at \$5.7M but is expected to increase as this project is ongoing. Estimated annual cost of operating technology at \$1.05M per year

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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 \$27.0M in assets acquired over the next five (5)-years, and an anticipated \$51.6M over the 30-year planning period. 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 Models 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.

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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’⁸.

The City has released 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 also identifies the likelihood of those risks occurring, and the consequences should the event occur which calculates a risk rating. Risk options are then evaluated, and a risk treatment plan is created which will be initiated after the release of this plan and has been identified as a continuous improvement item in **Table 34**.

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 22**. Failure modes may include physical failure, collapse or essential service interruption.

Table 22 : Critical Assets

CRITICAL ASSET(S)	FAILURE MODE	IMPACT
911 Communications Equipment (including critical radio, network, server and storage infrastructure)	Physical Failure	Loss of essential communications service
Frontline Vehicle	Essential service interruption	Inability to respond due to not enough vehicles.
Generator	Physical Failure	Power outage to facilities without a back-up system

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.

⁸ ISO 31000:2009, p 2

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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 23**. It is essential that these critical risks and costs are reported to management.

Table 23 : Risks and Treatment Plans

Note * The Residual Risk Is the Risk Remaining After the Selected Risk Treatment Plan Is Implemented

SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
Core network data centre	Major water leak due to poor condition mechanical equipment.	High	Create Off Site Back-up. Renew Central Station.	Low	TBD

HPS did not identify many risks that were not already controlled during this first iteration of the AM Plan, and the treatment costs for the risks outlined in **Table 23** are unknown and have not yet been incorporated into the lifecycle model. This has been identified as a Continuous Improvement item in **Table 34**.

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.

We do not currently measure our resilience in service delivery and this will be included in the next iteration of the AM Plan.

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6.4 SERVICE AND RISK TRADE-OFFS

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

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

Table 24: Service and Risk Tradeoffs

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?)
Central Station Upgrades/Reconstruction	Flow of building is currently not optimal leading to inefficiencies in service delivery. There will not be enough space over time for expected new officers.	Reactive maintenance cost on mechanical infrastructure will likely increase. Service disruption could occur due to risk of mechanical failure in IT back-up centre.
Lifecycle Replacement for Network assets due to lack of resources	Network will likely slow down for staff.	Ongoing support cost (operational) increase. Response times may increase.

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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. 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 34**.

7.1 CLIMATE CHANGE MITIGATION

Climate Mitigation refers to human intervention to reduce GHG emissions or enhance GHG removals (e.g. electric vehicles, net-zero buildings). 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.

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, that 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.

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As previously mentioned, due to the high level of uncertainty with the demand management plans for climate change, the cost of the demand impacts below may not have been included in the lifecycle models or levels of service at this time unless they were previously identified. 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 34**.

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

Since HPS possesses Facilities and Vehicles, the transformations that relate to *transforming our buildings, changing how we move, and growing green* are the key modelled targets that HPS will have to accommodate as shown in **Table 25** below.

Table 25: Climate Change Mitigation Transformation

CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
Transforming our buildings	By 2050, all new municipal buildings achieve net-zero emissions.	Any new builds must be designed to Net Zero standards which is an increased cost to HPS. Proposed Station 40 specifications call for Net Zero design.	Gather Class D estimates on Station 40 to quantify cost to present to Council and the Police Board.
Transforming our buildings	By 2050, all municipal buildings are retrofitted to achieve 50% energy efficiency relative to 2016.	Any renewals of HVAC material will be with energy efficient equipment. Lighting renewals will be to LED lighting. ISD building constructed in 2020 was designed with District Energy for heating and cooling solution.	Use Building Condition Assessments to plan for renewals and budget accordingly. Investigate grants for energy efficient conversions. Gather Class D estimates & savings for these conversions to present to Council and the Police Board.
Transforming our buildings	Post-retrofits, switch buildings to heat pumps for space and water heating by 2050.		
Changing how we move	100% of new municipal small	Currently, there is no clean fuel option that	Continue to investigate alternatives to gas

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CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
	and light-duty vehicles are electric by 2040. 100% of new municipal heavy-duty vehicles switch to clean hydrogen by 2040.	would be adequate for Police uses which is a challenge for future planning purposes. It is anticipated there will be additional acquisition costs for these vehicles. Recently received conditional approval from NRCan to install Electric Vehicle Charging Stations.	powered vehicles. Continue to prepare for conversion to electric vehicles for light duty vehicles by investigating grant funding and installing charging stations.
Growing Green	Planting 50,000 trees a year through 2020	Trees will be incorporated in new build landscapes, without comprising security.	Analysis of facility risk will be required to ensure the safety of staff and the public.

MITIGATION RISK ANALYSIS

Since the risk of not completing climate change mitigation projects was modelled in the Climate Science Report for the City of Hamilton completed by ICLEI Canada, a risk analysis has not been completed in this AM Plan for climate mitigation projects (ICLEI Canada, 2021).

CURRENT MITIGATION PROJECTS

Mitigation projects HPS is currently pursuing are outlined below in **Table 26**. These projects may already be included in the budget and may be quantified in the lifecycle models.

Table 26 : Asset Climate Mitigation Projects

PROJECT	CLIMATE CHANGE MITIGATION TRANSFORMATION	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
EV Chargers Installation	Changing how we move	Recently received conditional approval from NRCan to install Electric Vehicle Charging Stations.	Reduce emissions associated with Police vehicles.
Hybrid Vehicles	Changing how we move	9 New frontline vehicles, 3 in 2021 and 6 in 2022	Reduce emissions associated with Police vehicles.

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PROJECT	CLIMATE CHANGE MITIGATION TRANSFORMATION	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
New Station 40 Construction	Transforming our buildings	Proposed Station 40 specifications call for Net Zero design.	Reduce emissions associated with facility operation.

CLIMATE MITIGATION DISCUSSION

At this time, HPS has already made progress toward some of the modelled target transformations as discussed below.

Transforming our Buildings & Growing Green

HPS is beginning to move toward the *Transforming our Buildings* targets. The Investigative Services Division (ISD) building constructed in 2020 was designed using Leadership in Energy and Environmental Design (LEED) guidelines. LEED provides a framework for the construction of green buildings by addressing carbon, energy, water, waste, transportation, materials, health and indoor environmental quality (USGBC, 2023).

Due to the cost associated with achieving LEED Certification, the ISD building did not achieve enough points to be considered a LEED Certified building. However, there were still many elements that moved HPS toward our modelled targets which include: a district energy heating and cooling system, and optimization of energy performance.

As shown in **Table 26**, the proposed Station 40 in Waterdown is currently being designed to Net Zero standards which is in line with the City facility's net-zero 2050 target, but at this time the costing associated with this is unknown and will be subject to Council approval.

Finally, the Growing Green transformation, which will involve planting trees, will eventually be incorporated as part of the Facilities' initiatives as discussed in **Table 24**, but there are security concerns with ensuing adequate sight lines and visibility for staff and the public at facilities. As such, this will continue to be investigated.

Changing How We Move

At this time, this modelled target is a challenge for HPS because of the specific requirements for HPS vehicles. As discussed in **Table 25**, there are currently no reliable clean fuel options for frontline vehicles, resulting in a lot of unknowns for what infrastructure will be required for these vehicles and the potential lifecycle cost. It is anticipated that over the next decade with provincial mitigation targets, that more information will become available to assist with planning purposes, but at this time replacement costs for vehicles in the lifecycle models are based on the existing 2022 cost for gas and existing hybrid powered vehicles.

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As shown in **Table 25**, HPS has currently applied for grant funding from NRCan to install charging stations for future electric vehicles which will bring HPS closer to the 2040 light-duty vehicle goal, but currently no electric vehicles have been purchased for the HPS fleet.

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.⁹

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

Adaptation Demand Analysis

The impact areas were incorporated into the climate change adaptation analysis for this service area by:

- Identifying the asset specific adaptation impact statements that affected the service areas;
- Discussing the potential impacts on the asset/service using the projected change in climate using the RCP4.5 Scenario; and,
- Proposing preliminary demand management plans to adapt to these impacts.

It is important to note that 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 and financial models 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 consider these adaptation impacts during the planning and design processes. Once the demand management plans are finalized, the information will be incorporated into future iterations of the AM Plan. This has been identified as a continuous improvement item in **Table 34**.

Moving forward, a Climate Lens tool is currently being developed which will assess projects based on these targets and will assist with the prioritization of climate adaptation projects.

The adaptation impact statements identified by HPS staff which will have a potential impact on assets and services include temperature increases, and ice storms as shown in **Table 27** below.

⁹ IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

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Table 27 : Managing the Demand of Climate Change on Assets and Services

ADAPTATION IMPACT STATEMENT	BASELINE** (1976 - 2005)	AVERAGE PROJECTED** CHANGE IN 2021-2050 (ASSUMING RCP4.5* SCENARIO)	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
Rising summer temperatures and extreme heat will increase energy demand for air conditioning, causing a financial burden for low-income households.	25.9 ° Celsius average summer seasonal temperature	27 ° degrees average summer seasonal temperature	Increase demands on HVAC systems and costs.	Continue healthy preventative maintenance programs to ensure systems are prepared for extra load. Plan for equipment replacements at end of service life to ensure good condition
			Increase in temperature could lead to thermal stress of server/network equipment in network closets (small rooms, not good air flow, etc.)	
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	Extreme heat can lead to more violent crime which may lead to an increase in emergency response.	Investigate correlation between heat and crime and adjust future projections for "cop to pop" ratios for future planning.
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		

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ADAPTATION IMPACT STATEMENT	BASELINE** (1976 - 2005)	AVERAGE PROJECTED** CHANGE IN 2021-2050 (ASSUMING RCP4.5* SCENARIO)	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
Increase in average annual temperatures (especially in the summer) leading to increased food insecurity in the region (i.e., decrease in local crop yields, food cost fluctuations, etc.)	13.1° Celsius average annual temperature	15.1° Celsius average annual temperature		
Prolonged power outages during winter months due to an increase in ice storms resulting in public safety concerns.	187mm average total winter precipitation	204mm average total winter precipitation	Emergency response increasing. Accidents, traffic signal outages, fallen poles require police presence etc.	Investigate correlation between power outages and emergency response and adjust future projections for police to population ratios for future planning.

*RCP4.5 Scenario: Moderate projected GHG concentrations, resulting from substantial climate change mitigation measures. It represents an increase of 4.5 W/m² in radiative forcing to the climate system. RCP 4.5 is associated with 580-720ppm of CO₂ and would more than likely lead to 3°C of warming by the end of the 21st century.

**Baseline and Projected numbers based on [2021 Climate Science Report](#).

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,

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- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint.

Similar 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 came up with a preliminary risk adaptation plan shown below in **Table 28**.

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 models 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 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 28 : Adapting to Climate Change

Adaptation Impact Statement	Service or Asset at Risk due to Impact	What Can Happen	Risk Rating	Risk Adaptation Plan
Prolonged power outages during winter months due to an increase in ice storms resulting in public safety concerns.	Police Stations	Potential of loss of essential services (i.e., 911 services) due to power outage.	High	Investigate redundancy locations for critical communications equipment. Ensure proper maintenance of backup power system.
Increased intensity and frequency of ice storms leading to increased hazardous roads, pathways and sidewalk conditions.	Vehicles	Increase in motor vehicle collisions to police vehicles, inability for members to get to work	High	Ensure contracts are in place to repair damaged vehicles promptly. Plan to ensure spare vehicles and staff are available. Ensure snow clearing contracts in place to clear parking lots, pathways, and sidewalks. Plan for work from home options when applicable.

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CURRENT ADAPTATION PROJECTS

Currently, HPS does not have any current or past climate change adaptation specific projects identified. 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

Currently, HPS has focused their climate change efforts on mitigation efforts and not yet onto adaptation methods. This is because climate effects are more difficult to assess on HPS services and assets and need to be investigated further which has been identified as a continuous improvement item in **Table 34**.

Increased Temperature

There are many projections related to increased temperature with 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 28**, one of the Adaptation Impact Statements shows that hot weather affects health and safety for households without access to reliable air-conditioning and the homeless. 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.

There is also a growing correlation between interpersonal violent crime and hot weather. "A growing body of research suggests that rising temperature increases some violent crimes, such as intentional homicides, sex offences, and assaults. In a retrospective study in seven US cities, every 5°C rise in daily mean temperature between 2007 and 2017 was associated with a 4% to 5% increase in sex offences in the following zero (0) to eight (8) days. A nationwide analysis in Japan between 2012 and 2015 found that ambulance transports due to assault increased linearly with the rise in daily temperatures. Violent incidents also showed a seasonal distribution by which most crimes happened in the summer or hot seasons than in winter." (Mahendran et al, 2021). HPS should also investigate this correlation to ensure that appropriate staff and assets are available as this problem becomes more prevalent over time.

Finally, from an asset specific lens, increased temperature will increase the demand on Facilities assets' HVAC systems. This is not unique to the HPS service, but is a demand that should be planned for, for all City facilities.

Increase in Ice Storms

An increase in ice storms can lead to increased motor vehicle collisions and power outages throughout the City which can lead to more emergency response calls. Ice storms could also increase motor vehicle collisions for HPS Vehicle assets and availability of staff. HPS should investigate this correlation to ensure that appropriate staff and assets are available as climate change continues to affect the service.

In addition to more emergency response calls, ice storms can also cause power outages at the stations themselves. Police Stations have back-up generators and redundant power in case of

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emergency to not interrupt 911 communications. Although the likelihood of this event is rare, the consequences would be catastrophic. Therefore, investigating back-up locations for 911 communications assets would reduce the risk to low.

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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 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. A continuous improvement item included in **Table 34** is to modify the budget sheets to incorporate lifecycle stages so that the results can be more accurate in the next iteration of the plan.

At the time of writing, HPS creates a Capital forecast for ten (10) years into the future, but the forecast only currently includes costs to 2029, with higher confidence values in the first four (4) years. The remainder of the forecast was assumed based on predicted demands and averages. A continuous improvement item identified in **Table 34** is to continue to complete a ten (10) year Capital forecast. The Operating budget is created annually, but there is an additional estimated three (3) year projection which was used to estimate the operational budget increase for the first three (3) years for HPS. The projections were not continued throughout the thirty (30) year forecast as the three (3) year projection included collective agreement wage increases and staffing enhancements which may not continue over thirty (30) years.

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.

CURRENT PROJECT DRIVERS – TEN (10) YEAR PLANNING HORIZON

HPS currently has a newly developed prioritization matrix which they will use to plan and prioritize both acquisition and renewal projects. The weightings are shown below in **Table 29**.

Table 29 : Priority Ranking Criteria

CRITERIA	WEIGHTING
Financial Benefit	25
Strategic Alignment	25
Organizational Efficiencies	25

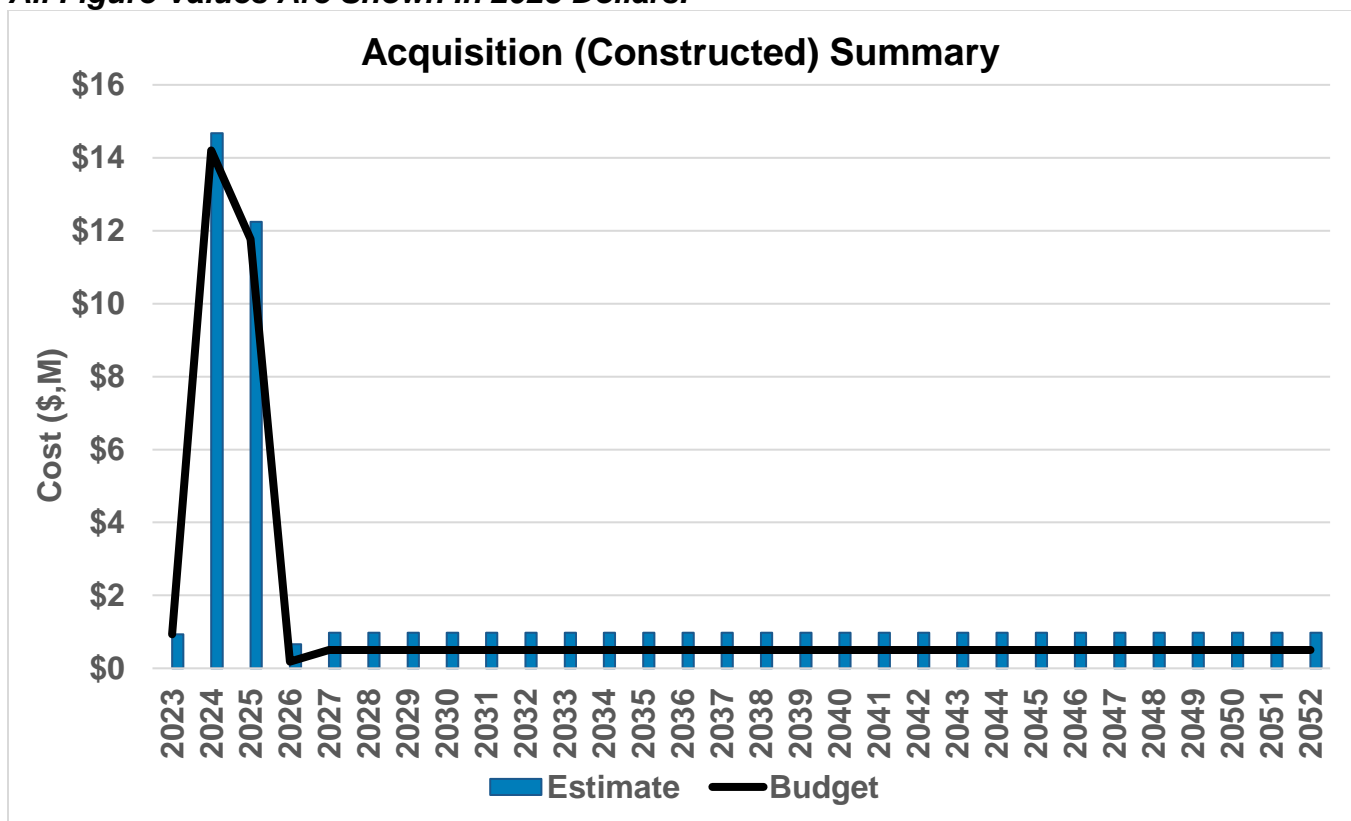
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CRITERIA	WEIGHTING
Risk Mitigation	25
Financial Availability	25
Project Complexity	25
Human Resource Capacity	25
Project Experience	25
Total	200

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 or technological changes as discussed in the Demand section. Over the next five (5) year planning period, HPS will acquire approximately \$27.0M of purchased or constructed assets as shown below in **Figure 13**. Hamilton will continue to monitor its constructed and purchased assets annually and update the AM Plan when new information becomes available.

Figure 13: Acquisition (Constructed) Summary
All Figure Values Are Shown In 2023 Dollars.



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The major acquisition expenditures over the next ten (10) years include:

- **\$11.5 million** in 2025 for proposed Waterdown Shared Station, which may increase as this is an ongoing project;
- **\$7.8 million** in 2024 for NG911 technological changes (*this is included as a multi-year budget item from 2021-2023 Information Technology budget, but has been included in the HPS AM Plan because HPS is considered the asset owner and the project must be implemented by March 2025*);
- **\$6.0 million** in 2024 for NG911 Facility Upgrades (*this is included as a multi-year budget item from 2021-2023 Information Technology budget, but has been included in the HPS AM Plan because HPS is considered the asset owner and the project must be implemented by March 2025*);
- **\$750 thousand** in 2023 for eTickets/Notes pilot project;
- **\$732 thousand** from 2022-2026 for 9mm ammunition conversion from .40 calibre magazine;
- **\$542 thousand** for Hardware Server/Storage Acquisition in 2024; and,
- **\$474 thousand** annually for asset acquisitions due to new officers including vehicles, equipment and technology.

Since the capital forecast only contains four (4) years of acquisitions, the remainder of the capital forecast is based on the four (4) year average (excluding the NG911 and Facility acquisitions) and the estimated number of assets required to support the “cop to pop” ratio. HPS must increase their acquisition budget for the vehicle and equipment assets required to support the new officers. It is recommended that these items be added into the budget forecast based on the “cop to pop” ratio as discussed in Section 5.1. With competing needs for resources across the entire city there will be a need to investigate tradeoffs and design options to further optimize asset decisions and ensure intergenerational equity can be achieved.

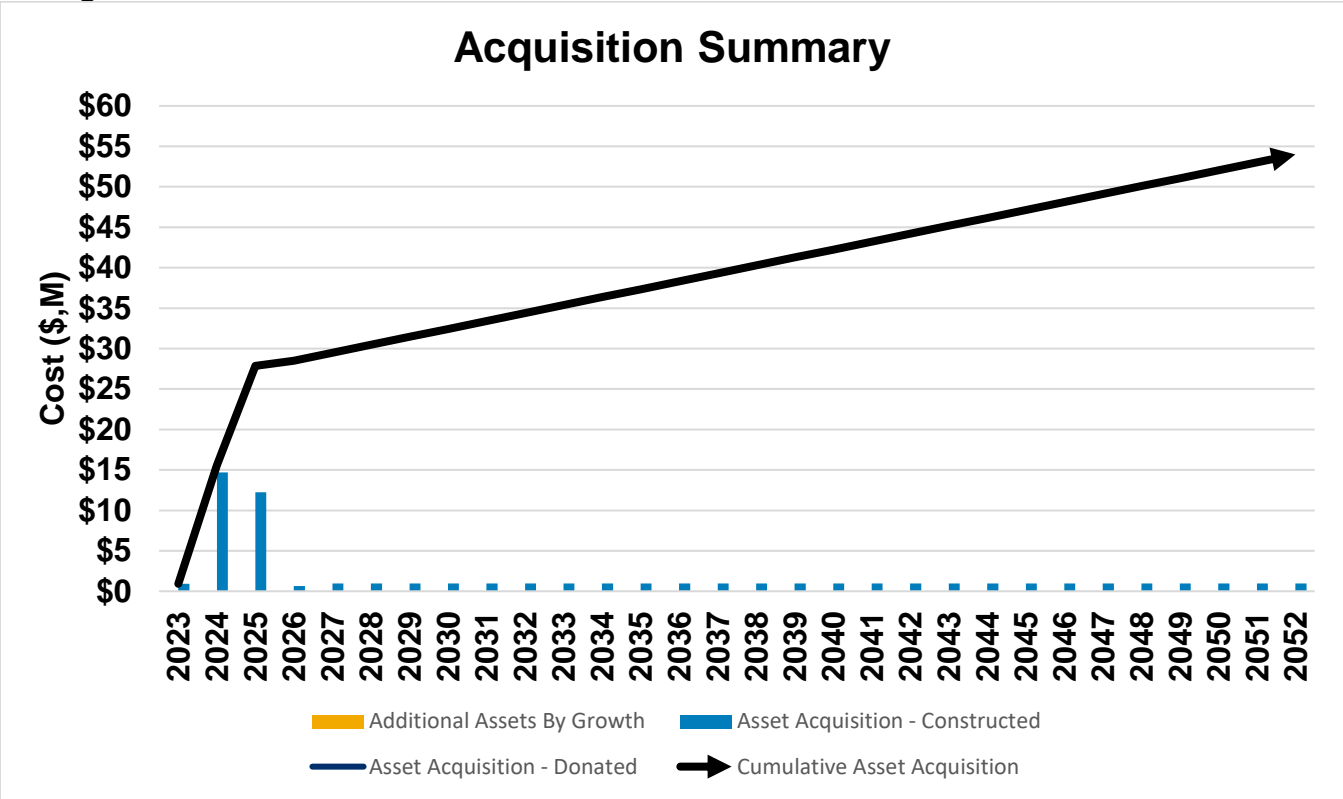
In addition, as AM knowledge, practices and abilities mature within the City, it is likely that there will be significant projects with equally significant costs that will appear within the later years of the thirty (30) year planning horizon.

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ACQUISITIONS SUMMARY

Forecast acquisition asset costs are summarized in **Figure 14** and show the cumulative effect of asset assumptions over the next ten (10) year planning period.

Figure 14: Acquisition Summary
All Figure Values Are Shown In 2023 Dollars.



When Hamilton commits to constructing or purchasing 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 on by Hamilton. The cumulative value of all acquisition work, including assets that are constructed and contributed are shown in **Figure 14** above. Hamilton will need to address how to best fund these ongoing costs as well as the costs to construct the assets while seeking the highest level of service possible.

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. Examples of typical operational activities include operating assets, utility costs, inspections, and the necessary staffing resources to perform these activities.

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Since the Police Service is a largely people driven service, the majority of costs required to deliver the service are employee related costs. Some of the major operational investments over the next ten (10) years include:

- **\$173 million** allocated for employee related costs in 2023 (i.e., salaries, wages, benefits, contractual agreement etc.);
- **\$2.64 million** allocated annually starting in 2025 for NG-911 civilian staff operating cost; and,
- **\$1.05 million** allocated annually starting in 2024 for NG-911 technology operating cost.

Maintenance should be viewed as the ongoing management of asset 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 for HPS include building component replacements, and vehicle repairs along with appropriate staffing and material resources required to perform these activities.

Proactively planning maintenance significantly reduces the occurrence of reactive maintenance which is 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 assets are reliable and can achieve the desired level of service.

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

- **\$3.5 million** allocated for Central and Mountain station roof replacement from 2023-2026; and,
- **\$2.6 million** allocated for Central, East End and Mountain station parking lot replacement from 2023 - 2025

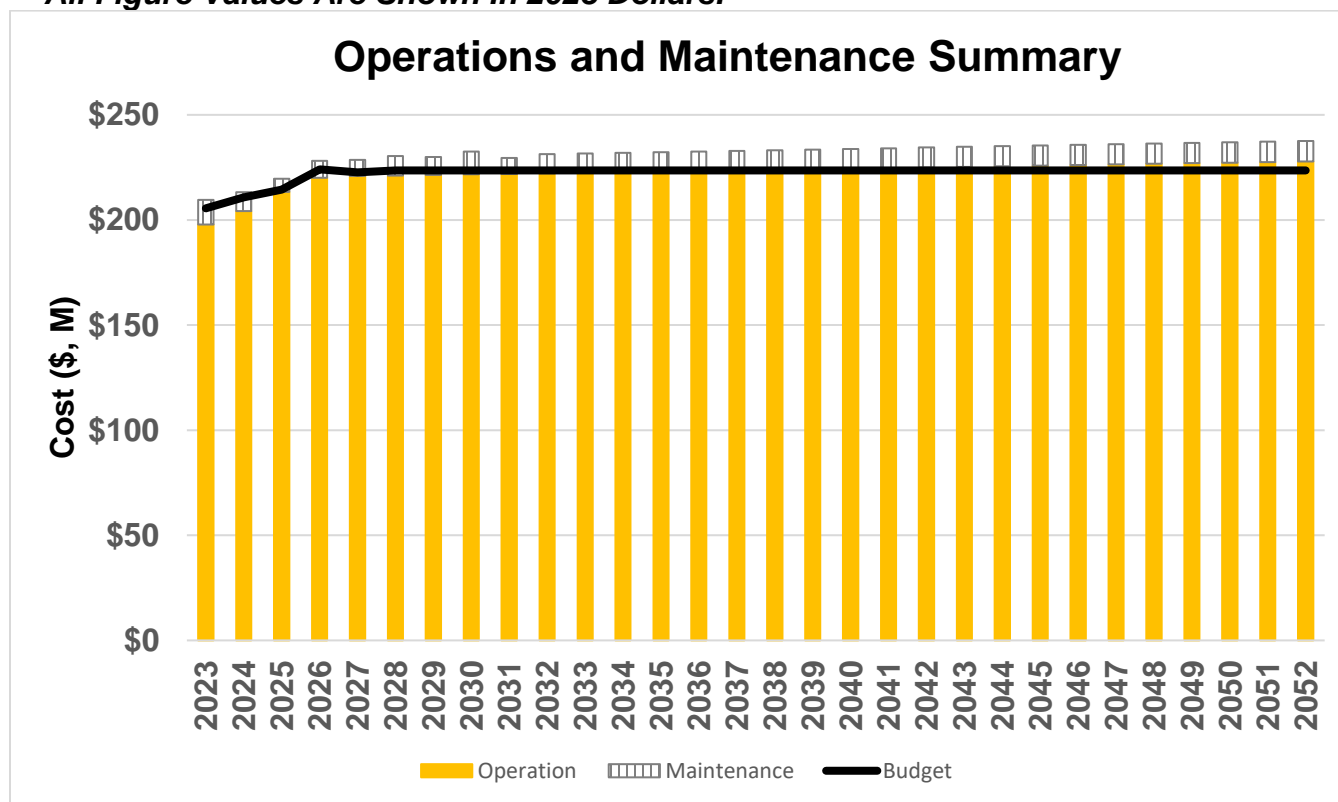
It is important to note that capital works allocated to Central Station may be on hold while HPS evaluates what next steps are required due to the finding of mechanical deficiencies explained in Section 3.2.1.2.

Forecast operations and maintenance costs vary in relation to the total value of the asset registry. When additional assets are acquired, the future operations and maintenance costs are forecast to increase. When assets are disposed of the forecast operation and maintenance costs are reduced. **Figure 15** shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

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Figure 15: Operations and Maintenance Summary

**** All Figure Values Are Shown In 2023 Dollars.**



The forecasted operations and maintenance needs will increase steadily over time with the addition of new officers, vehicles and equipment per the “cop to pop” ratio, new staff and technology due to the NG-911 technology change, as well as the additional operation and maintenance costs for the proposed Waterdown Station and permanent Marine Unit. All of these costs have been incorporated in this model with information available at the time of writing, but it has been identified as a continuous improvement item in **Table 34** to quantify additional operations and maintenance costs for facilities in a more detailed analysis.

As previously mentioned, HPS created a three (3) year multi-year operating budget which included operations, maintenance, and renewal items until 2026. This multi-year forecast was included in the figure above with the operations and maintenance portions of the Operating budget, and then these numbers were carried flat across the thirty (30) year forecast from 2027-2052. The reason these values were not escalated is because the three (3) year projection included collective agreement wage increases and staffing enhancements which may not continue over the thirty (30) year forecast and were difficult to separate out at this time. However, it is evident that HPS will need to continue increasing their operations and maintenance budgets annually to continue to deliver the current levels of service.

It is evident that HPS mostly has sufficient funding from the current year budget and multi-year forecast 2023-2026 to achieve the majority of operations and maintenance requirements to ensure that HPS will be able to continue delivering their current levels of service. However, it is anticipated that at the current budget levels, there will be a minor shortfall in funding to address all maintenance needs over the ten (10) year planning horizon. This minor shortfall is primarily

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due to unfunded repairs to police facilities based on the Building Condition Assessments. However, it is important to note that priority repairs are being completed on these facilities, and the facilities are in overall good condition with the exception of Central Station. This minor shortfall in maintenance funding may result in higher cost reactive maintenance over time.

As the City continues to develop condition profiles and necessary works are identified based on their condition, it is anticipated these operation and maintenance forecasts will change. Future iterations of this plan will provide a more thorough analysis of operations and maintenance costs including types of expenditures for training, mandatory certifications, insurance, staffing costs and requirements, equipment, and maintenance activities.

8.3 RENEWAL PLAN

Renewal is major work 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 30** and are based on estimated design life for this iteration of the AM Plan. 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.

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Table 30 : Useful Lives of Assets

ASSET (SUB)CATEGORY	ESTIMATED SERVICE LIFE (YEARS)
All Facilities	50
Frontline Vehicles	5
Non-Frontline Vehicle	10
Marine Vehicles	10-15
Vehicle Tools	15
Bicycle	2
Body Armour	8
All Officer Issued Uniform & Equipment	20
CCTV Camera	10
Vehicle Computer	5
Vehicle Radio	10
Servers & Storage	5
Desktop & Mobile	4-6
FSB Equipment	10
Personal Issue Equipment (Portable Radios)	10
BTC Phone	10
Cell Phone	5
Lab Equipment	10
Network	10
Tech Crime Unit	5-7
Security	5-10

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. The alternate method was also used to quantify renewals for future anticipated acquisitions.

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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., vehicles can respond to an emergency); or,
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g., body armour is in acceptable condition).¹⁰

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.¹¹

The ranking criteria used to determine priority of identified renewal proposals is detailed in **Table 29** in the Acquisition Section since HPS uses the same criteria for both Acquisitions and Renewals.

SUMMARY OF FUTURE RENEWAL COSTS

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 16**.

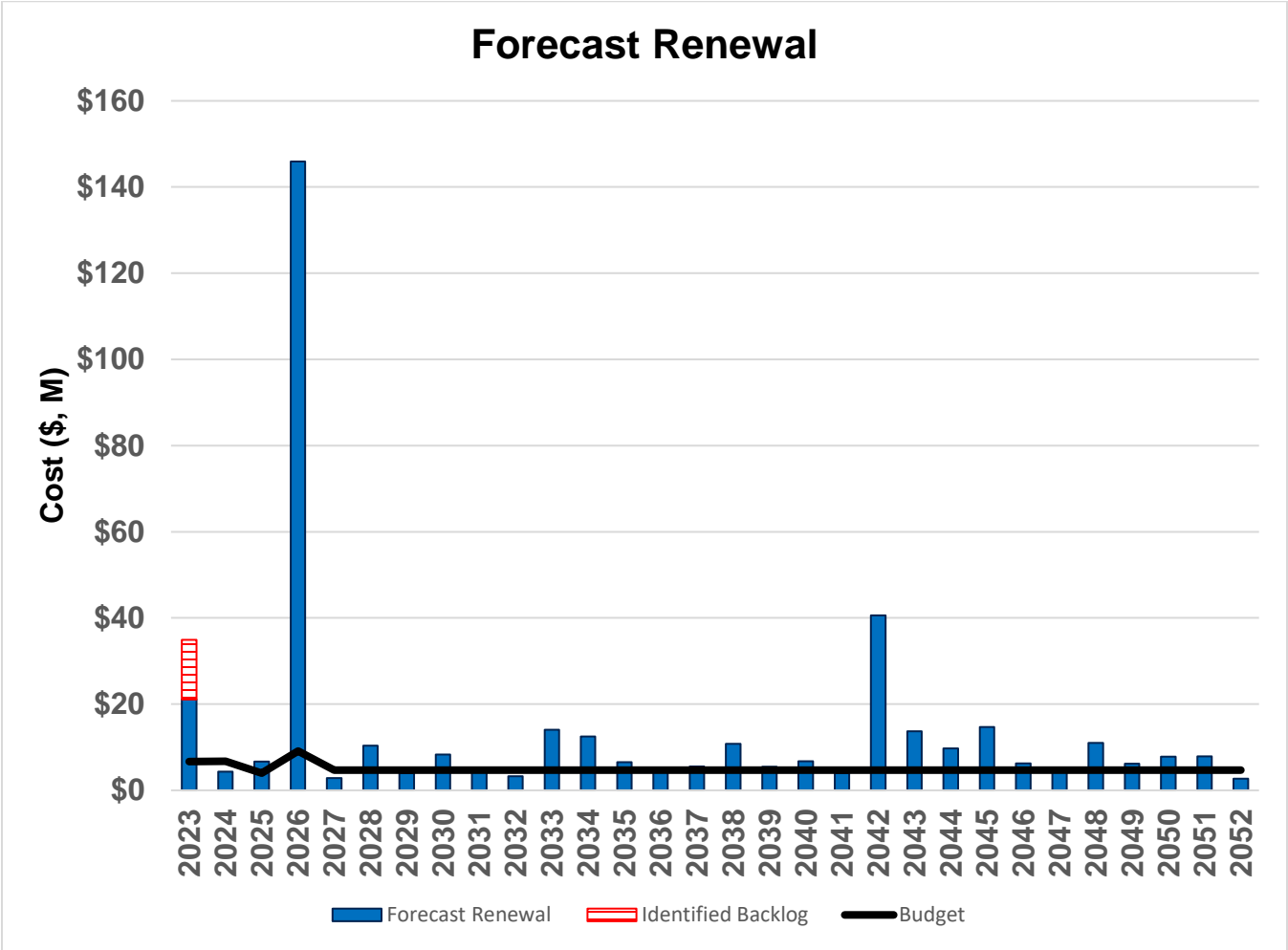
In the figure below, Generation 1 (Gen 1) costs refer to renewals that occur for the first time in the model based on the estimated service life and Generation 2+ (Gen 2+) costs refer to renewals that have occurred twice or more based on the estimated service life.

¹⁰ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

¹¹ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

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Figure 16: Forecast Renewal Costs
**** All Figure Values Are Shown In 2023 Dollars.**



The significant spike in 2026 is for the renewals for both the Marine Facility and Central Station. Central Station is at its end of life and is currently unfunded. This is an extremely large expenditure for HPS and significantly affects the Asset Renewal Funding Ratio in Section 9.1.

In addition, the other significant amount in the model above highlighted in red in 2023 represents the cumulative backlog of deferred work needed to be completed that has been identified through its current estimated service life per Table 30. This back log represents nearly \$14M of deferred works that have accumulated over the last decade and have created a significant backlog of necessary works.

Major backlog items include:

- **\$5.8 million** in personal issue equipment (this is lower confidence data);
- **\$2.0 million** in vehicles;
- **\$3.7 million** in servers and storage; and,
- **\$1.8 million** in vehicle radios.

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There is sufficient budget to support the planned renewals, but since the bulk of the backlog in 2023 is for vehicles and IT equipment which have short estimated service lives of five (5) and ten (10) years, and the model assumes the backlog has been addressed in 2023, there are repeating spikes every five (5) and ten (10) years throughout the thirty (30) year lifecycle.

The additional expected renewal works over the ten (10) year planning horizon include:

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

In addition, East End Station will be due for renewal in 2042, and HPS should begin to budget appropriately for this replacement in upcoming years while considering the net-zero requirements for Climate Mitigation discussed in Section 7.1.

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 structure has fallen.

Assets identified for possible decommissioning and disposal are shown in **Table 31**. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in **Table 31**. Any costs or revenue gained from asset disposals is included in future iterations of the plan and the long-term financial plan.

Table 31: Assets Identified for Disposal

ASSET	REASON FOR DISPOSAL	TIMING	DISPOSAL COSTS	OPERATIONS & MAINTENANCE ANNUAL SAVINGS
23 Vehicles	Past service life/mileage	Annual	N/A	\$0

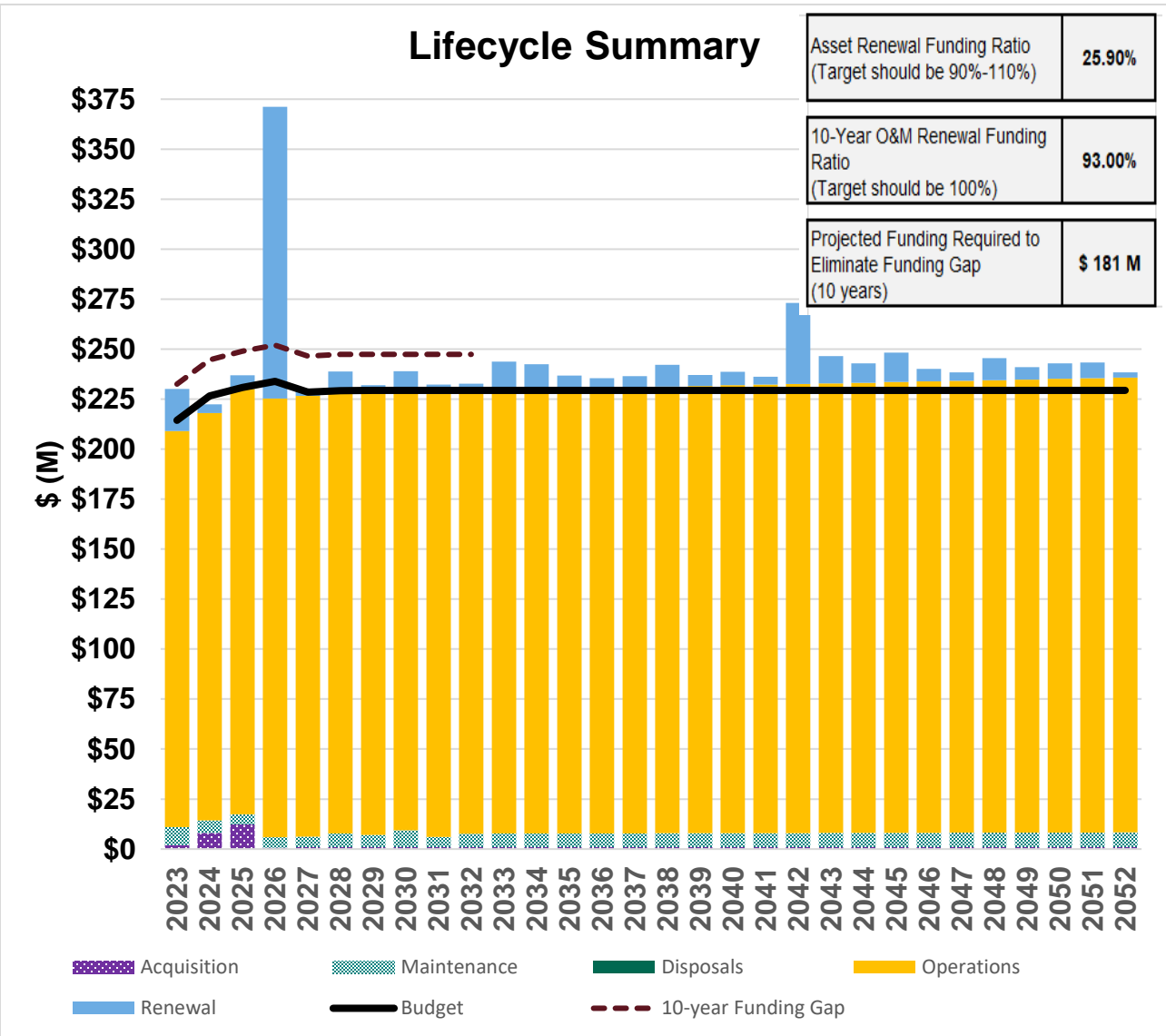
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8.5 LIFECYCLE COST SUMMARY

The financial projections from this asset plan are shown in **Figure 17**. 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 17: Lifecycle Summary
All Figure Values Are Shown in 2023 Dollars.



HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

However, HPS will need to continue to increase their budget annually from 2027 to 2052 to account for the additional staff time and assets to support the “cop to pop” ratio, the NG-911 technological changes, and the new Waterdown Station and Marine Unit, otherwise HPS will be unable to maintain their current levels of service. The 10-year funding gap is explained in **Section 9.1**.

There is typically sufficient budget to address the planned lifecycle activities for the 2023 to 2026 planning period, with the exception of the Central Station renewal in 2026. This large number of acquisitions in 2025 will also commit HPS to funding ongoing operations, maintenance, and renewal costs throughout the forecast.

As previously mentioned, due to the lack of data confidence in the current levels of service information, HPS will need to collect more data before proposing any new levels of service. It has been assumed in the interim that the current levels of service will be the proposed levels of service continuing forward past 2025 in accordance with O. Reg 588/17.

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 future plans will be refined over the next three (3) years to improve the confidence and accuracy of the forecasts.

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

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 HPS provides 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, the City will have difficult choices to make in the future which will include options such as higher cost reactive maintenance and operational costs, reduction of service and potential reputational damage.

Aligning the LTFP with the AM Plan is critical to ensure all of the network's 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 (2) 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 ten (10) years / forecast renewal costs for the next ten (10) years; and,
- Medium term forecast costs/proposed budget (over ten (10) years of the planning period).

ASSET RENEWAL FUNDING RATIO

Asset Renewal Funding Ratio¹² **25.9%**

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 low 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.

Over the next ten (10) years the City expects to have **25.9%** of the funds required for the optimal renewal of assets. While this number seems significantly low, the ratio is heavily influenced by

¹² AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

HAMILTON POLICE SERVICE

ASSET MANAGEMENT PLAN

the need for the renewal of Central Station in 2026. If this building were funded, the AARF would be closer to 70%. Although the 70% is still below the 90 to 110% ideal threshold, HPS would be considered to be well funded for renewals in comparison to many other City services.

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 93%

Although this AM Plan includes forecast projections to thirty (30) years, the higher confidence numbers are typically within the first ten (10) years of the lifecycle forecast. The ten (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 ten (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's risk and service level commitments.

The forecast operations, maintenance and renewal costs over the ten (10) year planning period is **\$244M** on average per year. Over time as improved information becomes available, it is anticipated to see this number change. The proposed (budget) operations, maintenance and renewal funding is **\$226M** on average per year giving a ten (10) year funding shortfall of **\$18.1M** per year or **\$181M** over the ten (10) year planning period. This indicates that **93%** of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget, which is within the 90-110% range. Therefore, it can be concluded that HPS is funding their assets 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;

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

- 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 to 110%** for the first years of the AM Plan and ideally over the ten-year life of the Long-Term Financial Plan.

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

Figure 18 shows the forecast costs (outlays) required for consideration in the ten (10) 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.

These options will be explored in the next AM Plan and the City will provide analysis and options for Council to consider going forward.

Table 32 : Forecast Costs (Outlays) For the Long-Term Financial Plan

**** Forecast Costs Are Shown In 2023 Dollar Values**

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2023	\$1,989,060	\$198,033,840	\$8,955,751	\$21,065,320	\$ -
2024	\$8,057,861	\$203,701,824	\$6,322,750	\$4,313,572	\$ -
2025	\$12,342,501	\$212,837,936	\$4,986,256	\$6,695,838	\$ -
2026	\$669,501	\$219,528,832	\$5,161,683	\$145,892,512	\$ -
2027	\$1,010,501	\$220,414,704	\$5,167,677	\$2,852,463	\$ -
2028	\$1,010,501	\$220,654,896	\$6,836,212	\$10,354,390	\$ -
2029	\$980,501	\$221,015,088	\$6,034,634	\$4,013,774	\$ -
2030	\$980,501	\$221,255,280	\$8,434,822	\$8,307,152	\$ -

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2031	\$980,501	\$221,495,488	\$5,107,598	\$4,691,421	\$ -
2032	\$980,501	\$221,735,680	\$6,712,203	\$3,253,916	\$ -
2033	\$980,501	\$221,975,872	\$6,743,611	\$14,090,624	\$ -
2034	\$980,501	\$222,263,424	\$6,775,018	\$12,481,528	\$ -
2035	\$980,501	\$222,550,960	\$6,806,425	\$6,514,679	\$ -
2036	\$980,501	\$222,838,496	\$6,837,832	\$4,830,425	\$ -
2037	\$980,501	\$223,126,032	\$6,869,240	\$5,548,754	\$ -
2038	\$980,501	\$223,413,568	\$6,900,647	\$10,821,391	\$ -
2039	\$980,501	\$223,701,120	\$6,932,054	\$5,434,903	\$ -
2040	\$980,501	\$223,988,656	\$6,963,461	\$6,749,888	\$ -
2041	\$980,501	\$224,276,192	\$6,994,869	\$4,005,449	\$ -
2042	\$980,501	\$224,563,728	\$7,026,276	\$40,593,168	\$ -
2043	\$980,501	\$224,851,264	\$7,057,683	\$13,690,689	\$ -
2044	\$980,501	\$225,138,816	\$7,089,090	\$9,720,525	\$ -
2045	\$980,501	\$225,426,352	\$7,120,498	\$14,702,613	\$ -
2046	\$980,501	\$225,713,888	\$7,151,905	\$6,239,473	\$ -
2047	\$980,501	\$226,001,424	\$7,183,312	\$4,288,050	\$ -
2048	\$980,501	\$226,288,976	\$7,214,720	\$11,037,001	\$ -
2049	\$980,501	\$226,576,512	\$7,246,127	\$6,148,507	\$ -
2050	\$980,501	\$226,864,048	\$7,277,534	\$7,812,747	\$ -
2051	\$980,501	\$227,151,584	\$7,308,941	\$7,899,328	\$ -
2052	\$980,501	\$227,439,136	\$7,340,349	\$2,694,192	\$ -

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

9.3 FUNDING STRATEGY

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

These operational and capital budgets determine 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 more detailed service delivery options and alternatives to optimize limited financial resources.

9.4 VALUATION FORECASTS

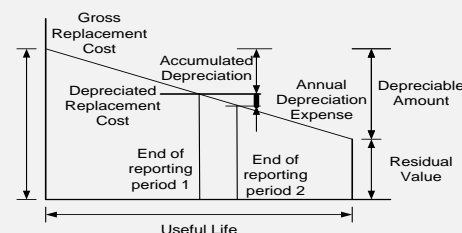
Asset values are forecast to increase as additional assets are added into service. As projections improve and can be validated with market pricing, the net valuations will increase significantly.

Additional assets will add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs for 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 would remove 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 VALUATIONS

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at estimated replacement costs:

Replacement Cost (Current/Gross)	\$351,957,702
Depreciable Amount	\$351,957,702
Depreciated Replacement Cost¹³	\$138,297,136
Depreciation	\$ 12,420,014



The current replacement cost is the most common valuation approach for specialized infrastructure assets. The methodology includes establishing a comprehensive asset registry, assessing replacement costs (based on market pricing for the modern equivalent assets) and useful lives, determining the appropriate depreciation method, testing for impairments, and determining remaining useful life.

As the City matures its asset data, it is highly likely that these valuations will fluctuate significantly over the next three (3) years, and they should increase over time based on improved market equivalent costs as well as anticipated cost changes due to climate change mitigation and adaptation strategies.

¹³ Also reported as Written Down Value, Carrying or Net Book Value.

HAMILTON POLICE SERVICE

ASSET MANAGEMENT PLAN

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 development charge by law staff projections and are the basis for the projections for the ten (10) year horizon and encompass additional operational needs where known and on anticipated budget proportions when unknown;
- Maintenance forecasts are based on current budget allocations and encompass anticipated needs where known and on anticipated budget proportions when unknown;
- Replacement costs were based on historical costing. They were also made without determining what the asset would be replaced with in the future.

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 on page 31 in the AM Plan Overview.

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

Table 33 : Data Confidence Assessment for Data Used in AM Plan

DATA	CONFIDENCE ASSESSMENT	COMMENT
Demand drivers	Medium	Based on a combination of Development Charges By-Law assumptions and NG-911 reports. Cell phones are a high-level estimate. All of which are subject to change as the situation develops.
Growth projections	Medium	Based on Development Charges By-Law assumptions, which is subject to change.
Acquisition forecast	Low	First 4 years are accurate, the remaining 26 are based on the 4-year average.
Operation forecast	Low	First 4 years are accurate, the remaining 26 are based on high level numbers. New facility numbers are very high level. There is uncertainty around future collective agreements and officer enhancements for model.

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

DATA	CONFIDENCE ASSESSMENT	COMMENT
Maintenance forecast	Low	First 4 years are accurate, the remaining 26 are based on high level numbers. Building Condition Assessment forecast numbers have low confidence. New facility numbers are very high level.
Renewal Forecast - Asset values	High	Most assets are based on recent market value.
- Asset useful lives	Medium	Officer Equipment and Technology assets are not always replaced per their renewal schedule, these may need to be reviewed in future.
- Condition modelling	Low	Many assets are replaced according to a renewal schedule, do not have conditions assigned and are often based on age.
Disposal forecast	Very Low	There is no clear disposal forecast, this has not been included.

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

10. PLAN IMPROVEMENT AND MONITORING

10.1 STATUS OF ASSET MANAGEMENT PRACTICES¹⁴

ACCOUNTING AND FINANCIAL DATA SOURCES

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

- 2023 Capital & Operating Budgets;
- 2024 – 2026 Multi-Year Operating Forecast;
- Building Condition Assessment reports;
- Various internal reports;
- Asset Management Data Collection Templates;
- 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 databases;
- 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 tasks span from improved lifecycle activities and improved financial planning to physically improving the assets.

The Improvement plan **Table 34** 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 models to data, and resource requirements would need to be reviewed for internal resource driven projects.

¹⁴ ISO 55000 Refers to this as the Asset Management System

HAMILTON POLICE SERVICE

ASSET MANAGEMENT PLAN

Table 34 : Improvement Plan (*p.a – per annum)

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
1.	Investigate incorporating a condition rating during regular vehicle inspection /maintenance activities per 5-point scale	HPS Fleet / HPS IT Operations	\$2,000 Internal Resources	2024-2026
2.	Release public engagement survey annually to ensure customer satisfaction and track customer trends	CAM / HPS	\$3,100 Internal Resources	2025
3.	Identify additional risks and trade-offs/shortfalls and develop detailed risk management plans with treatment costs	CAM / HPS	\$1540 Internal Resources	2024-2026
4.	Investigate designing report in management system to extract required technical performance data for Facilities (Archibus) and Fleet (PMExpert)	HPS	\$4000 Internal Resources	2024-2026
5.	When operationalizing the Strategic Plan, ensure SMART objectives are incorporated per page 43 of AM Plan Overview	HPS	\$4000 Internal Resources	2023-2026
6.	Continue to create 10-year capital budget	Finance / HPS	\$2000 Internal Resources	2024
7.	Further investigate climate mitigation and adaptation effects on assets and revise lifecycle model (e.g., when is fleet going to convert to green fuel before 2050?).	HPS / Climate Office	N/A	Ongoing
8.	Improve technical levels of service data by investigating measuring response time. This deliverable should also quantify the required budget to achieve response times.	HPS	\$2000 Internal Resources	2024-2025

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
9.	Investigate developing 10-year master plan to identify future demands on the service due to growth.	HPS	\$2000 Internal Resources	Ongoing 2023-2033
10.	Coordinate with Corporate Facilities & Energy Management to ensure HPS internal facilities work orders are accurately represented in Archibus.	HPS Facilities Operations	\$400 Internal Resources	Ongoing 2024-2025
11.	Investigate implementing asset registry for all assets and ensure it is following the defined City Data Standard.	CAM / HPS	\$1120 Internal Resources	Ongoing 2023 - 2024
12.	Review resourcing requirements with future project needs when planning budgets.	HPS	Might be solved with new project prioritization methodology	Ongoing 2023 - 2024
13.	Incorporate internal staff opinions into staff customer levels of service for assets where staff are also the customer.	CAM	\$6000 Internal Resources	Ongoing 2024-2025
14.	Deploy new computer inventory tools and processes to better track devices and determine investment needs across the lifecycle.	HPS IT Services	\$8000 Internal Resources	2023-2024
15.	Document IT Procurement process and communicate to staff to ensure asset information is tracked for all new assets.	HPS IT Services	\$500 Internal Resources	2023-2024
16.	Develop condition assessment program for significant technology assets and review estimated service lives.	HPS IT Services	\$2000 Internal Resources	2023-2024

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
17.	Modify Tech Crime Unit 3-point condition scale to a 5-point scale condition scale.	Tech Crime Unit	\$350 Internal Resources	2023-2024
18.	Improve survey process by incorporating telephone surveys or IP controls.	CAM	N/A	2025-2028
19.	Clarify verbiage regarding HPS responsibility for Q2-Importance question as well as Facility public experience for future survey.	CAM	\$300 Internal Resources	2023-2024
20.	Investigate modifying capital and operating budgets so that projects are categorized by lifecycle stage.	Finance / CAM	\$2400 Internal Resources	Ongoing
21.	Complete operations and maintenance projections for new or renewed facilities using internal data.	HPS	\$2000 Internal Resources	2023-2025

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.

HAMILTON POLICE SERVICE ASSET MANAGEMENT PLAN

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 (1) to ten (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 90 to 110%).

Appendix A Survey Analysis

Appendix A – Survey Analysis

LET'S CONNECT, HAMILTON **City Services & Assets Review**



Hamilton
Corporate Asset Management

Hamilton Police Service

Survey Period: February 13 - March 20, 2023

August 2023

258

108

5

Survey Response Demographics

24252

1490

Respondents

Survey Questions

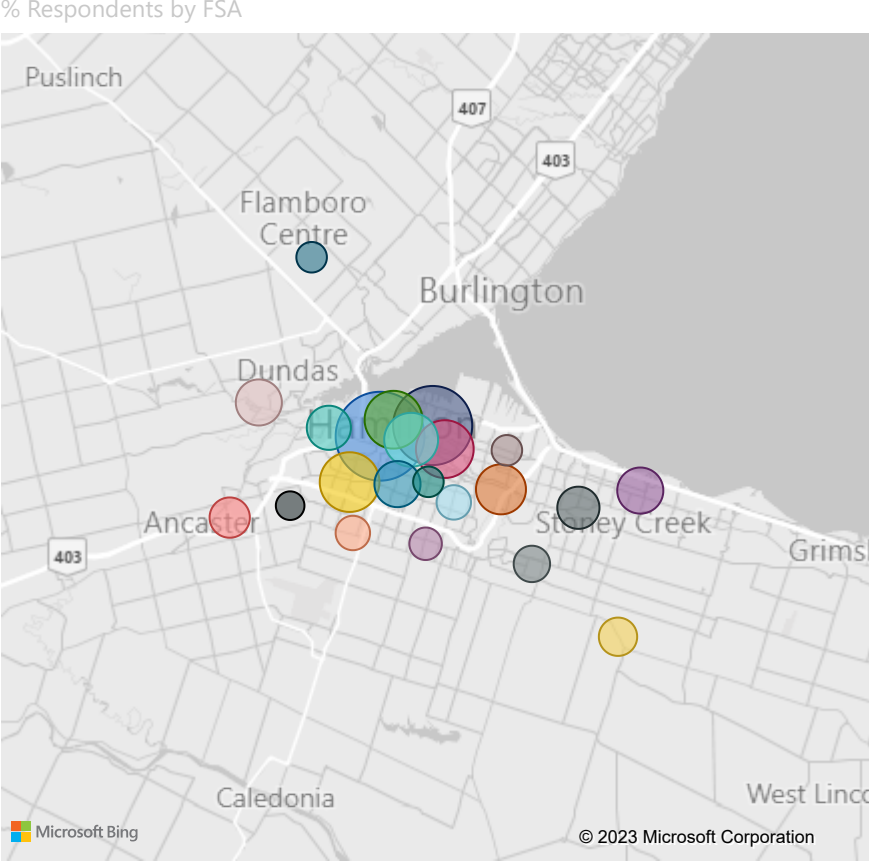
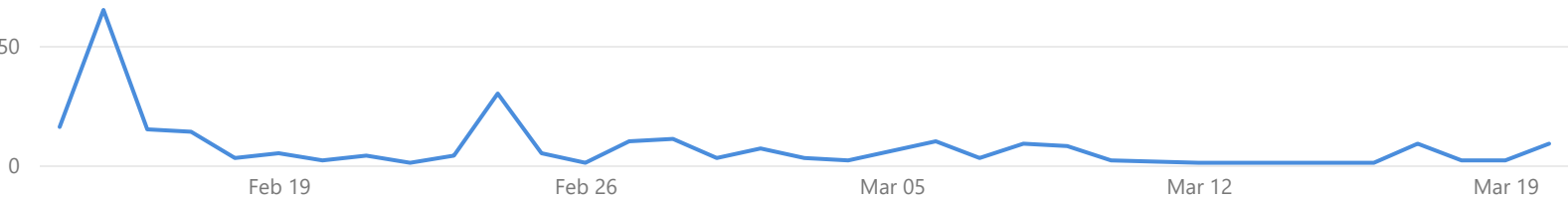
Demographic Questions

Survey Responses

Demographic Responses

Postal Code	Respondents	% Respondents	Population
L8P	33	13.75%	42,655
L8L	28	11.67%	50,110
L9C	18	7.50%	64,505
L8M	17	7.08%	22,530
L8R	17	7.08%	19,375
L8N	15	6.25%	26,220
L8K	13	5.42%	52,085
L8E	11	4.58%	64,835
L9A	11	4.58%	40,750
L9H	11	4.58%	50,480
L8S	10	4.17%	26,295
L8G	9	3.75%	36,075
L9G	8	3.33%	38,540
L0R	7	2.92%	123,805
L8J	6	2.50%	42,665
L8T	5	2.08%	31,140
L9B	5	2.08%	38,295
L8W	4	1.67%	39,195
L8B	3	1.25%	38,035
L8H	3	1.25%	41,715
L8V	3	1.25%	34,910
L9K	2	0.83%	23,485
L8A	1	0.42%	

Respondents by Day

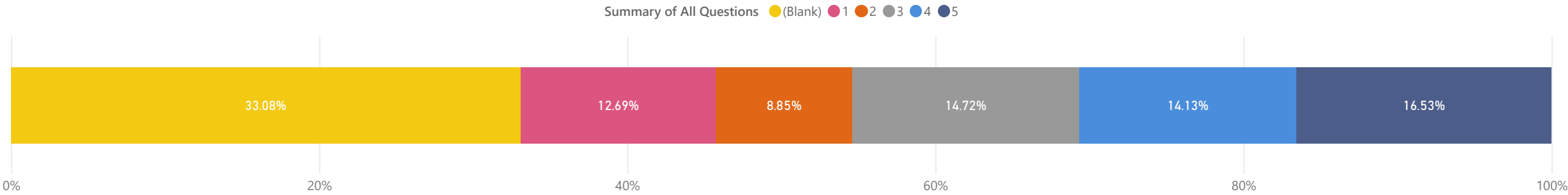


Age	% Pop. by Age	% Respondents	Respondents
18 to 24	6.8%	0.40%	1
25 to 34	15.3%	14.80%	37
35 to 44	13.8%	18.00%	45
45 to 54	13.2%	17.60%	44
55 to 64	14.7%	25.20%	63
65 to 79	14.3%	22.80%	57
80+	5.2%	1.20%	3

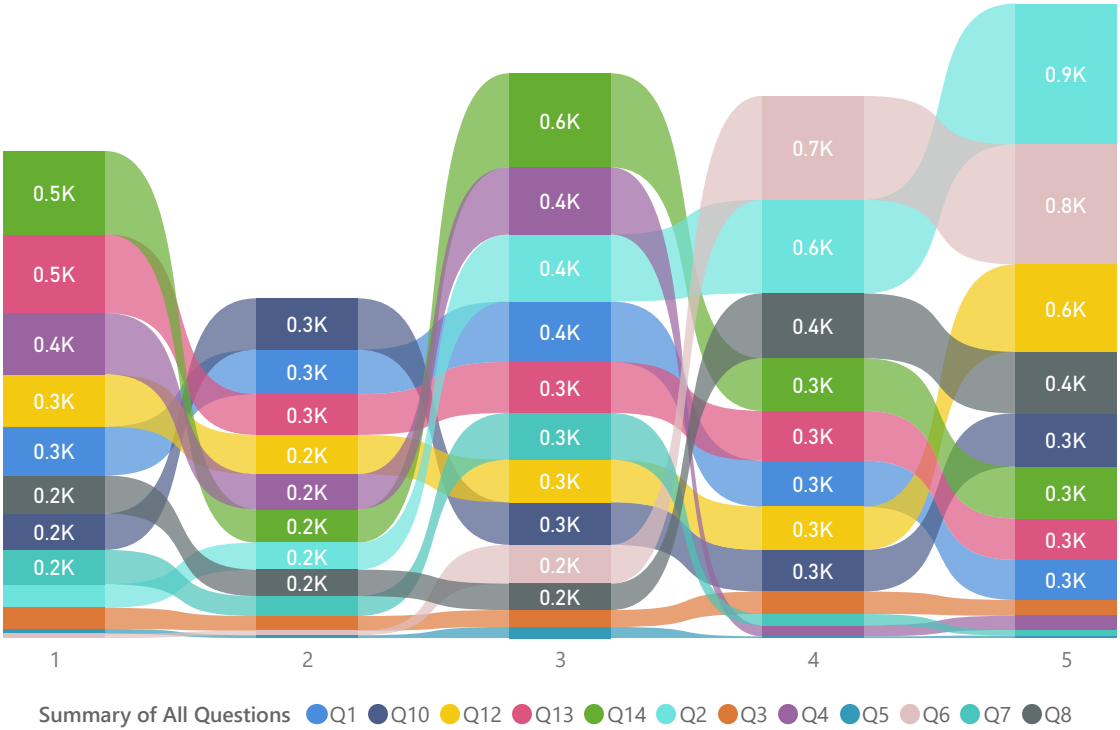
Gender	% Respondents	Respondents
Prefer not to answer	13.49%	34
Male	41.27%	104
Female	53.97%	136

Residency	% Respondents	Respondents
I live in Hamilton	100.00%	254
I run a Hamilton-based business	8.66%	22

Self Identification	% Respondents	Respondents
I do not identify with any of the above groups	71.49%	163
2SLGBTQIA+	12.72%	29
People with disabilities	12.28%	28
Racialized	3.95%	9
Immigrant +10	3.51%	8
Indigenous	3.51%	8
Immigrant <10	1.32%	3



Service Area	σ		Avg.	Avg. %	Opt Out	Opt out %
All Service Areas	1.18		3.2	63.9	8022	33.1
Q6 Agree with Statements about use and space	0.81		4.2	84.4	91	5.1
Q2 Importance	1.11		3.8	77.1	97	4.2
Q8 Comfortable and Safe, Services	1.43		3.4	67.9	949	40.9
Q12 Recommend to Others	1.51		3.3	65.6	649	28.0
Q10 Future Needs	1.26		3.1	62.1	124	8.0
Q3 Access, last 24 mo	1.40		3.0	59.3	1746	75.2
Q1 Performance, last 24mo	1.34		3.0	58.7	806	34.7
Q14 Rate Level	1.38		2.9	57.2	333	14.3
Q13 Value for Money	1.44		2.8	55.0	667	28.7
Q5 Comfortable, Safe and Clean Spaces	1.22		2.7	55.2	1145	88.8
Q7 Dispatch Times, Meet Needs	1.11		2.4	48.8	287	27.8
Q4 Meet Needs	1.19		2.4	47.5	1128	48.6



258

Respondents

16230

Responses

Survey Question Summary

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City Services & Asset Review
Hamilton Police Services
August 2023

Question # ▲	Survey Question	n	σ (Consistency)	Margin of Error (Confidence Level ±)
1	Over the last 24 months, how do you feel the Hamilton Police Service has performed overall in the following services?	168	1.34	20%
2	How important should the following services be as a responsibility for the Hamilton Police Service?	247	1.11	14%
3	In the last 24 months if you have used services provided by the Hamilton Police Service, how satisfied are you with your ability to access services? (If you have not used the services, please choose "Can't Say".)	64	1.40	34%
4	Do the following services provided by Hamilton Police Service meet your needs?	132	1.19	20%
5	If you've visited a police facility in the last 24 months, were the facilities sufficient for your needs? Please consider if the spaces were accessible, comfortable, and clean.	29	1.22	44%
6	Thinking about how you use internal and external public spaces do you agree with the following statements? Hamilton Police buildings should be:	245	0.81	10%
7	Do the police priority dispatch times meet your needs and expectations for an adequate and effective police response?	186	1.11	16%
8	Did you feel comfortable and safe accessing services provided by the Hamilton Police Service?	152	1.43	23%
10	Please rate the following potential services for the Hamilton Police Service based on their importance to you.	237	1.26	16%
12	How likely would you be to recommend the Hamilton Police Service to others?	186	1.51	22%
13	How would you rate the Hamilton Police Service for providing good value for money in the infrastructure and services provided to your community?	184	1.44	21%
14	If you had to choose, would you prefer to see a tax rate increase to improve service levels OR would you prefer to see changes in service levels to minimize tax rate increases?	221	1.38	18%

Respondents who opted out by not answering or selecting 'Can't Say' are not included in these calculations

All values were calculated and then rounded to the nearest whole number.

Q1

258

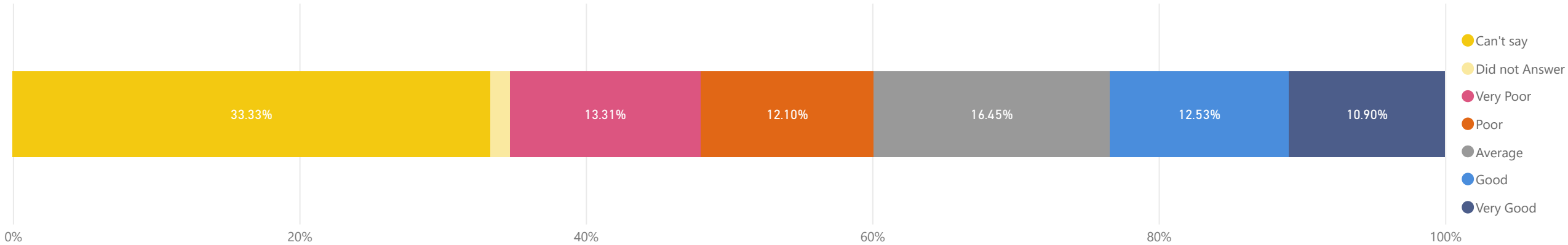
Respondents

1516

Responses

Performance, last 24mo

Over the last 24 months, how do you feel the Hamilton Police Service has performed overall in the following services?



Service Area	σ (consistency)	Avg.	Avg. %	Opt Out	Opt Out %	Very Poor	Poor	Average	Good	Very Good
▲										
All Service Areas	1.34	3.0	58.7	806	34.7	309	281	382	291	253
Crime Prevention Programs/ Public Outreach	1.39	2.7	54.8	77	29.9	46	40	37	31	27
Emergency Criminal Calls	1.34	3.2	64.2	92	35.7	25	23	47	34	37
Emergency Mental Health Calls	1.40	2.8	56.7	92	35.7	36	41	32	28	29
Investigative Services	1.30	3.2	64.1	106	41.1	19	28	39	35	31
Non-Emergency Calls	1.30	2.5	50.7	57	22.1	56	48	51	25	21
Online Reporting	1.32	2.9	57.1	111	43.1	31	27	42	26	21
Road Safety	1.35	2.9	57.3	41	15.9	50	35	54	50	28
Victim Services	1.42	2.9	58.5	115	44.6	33	26	29	29	26
Vulnerable Sector Clearance	1.20	3.4	68.4	115	44.5	13	13	51	33	33

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q2

258

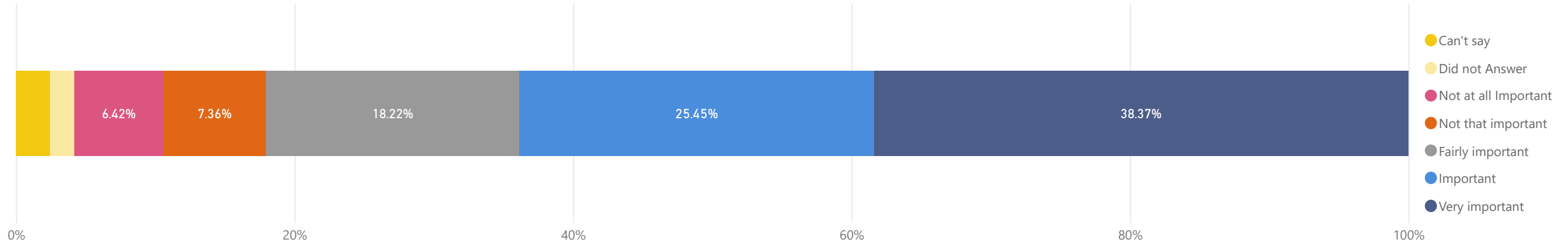
Respondents

2225

Responses

Importance

How important should the following services be as a responsibility for the Hamilton Police Service?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Not at all Important	Not that Important	Fairly Important	Important	Very Important
All Service Areas	1.11	3.8	77.1	97	4.2	149	171	423	591	891
Investigative Services	0.73	4.6	91.7	6	2.4	3	2	13	60	174
Emergency Criminal Calls	0.85	4.6	91.7	7	2.7	5	4	18	36	188
Road Safety	1.10	4.0	80.2	6	2.4	8	18	48	67	111
Non-Emergency Calls	0.96	3.8	76.7	9	3.5	7	13	58	107	64
Online Reporting	1.04	3.8	76.2	13	5.1	10	13	62	89	71
Emergency Mental Health Calls	1.53	3.6	72.7	10	3.8	41	27	24	46	110
Victim Services	1.34	3.5	69.9	11	4.3	29	29	54	61	74
Vulnerable Sector Clearance	1.15	3.4	67.7	25	9.7	17	30	77	64	45
Crime Prevention Programs/ Public Outreach	1.28	3.3	66.1	10	3.9	29	35	69	61	54

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q3

258

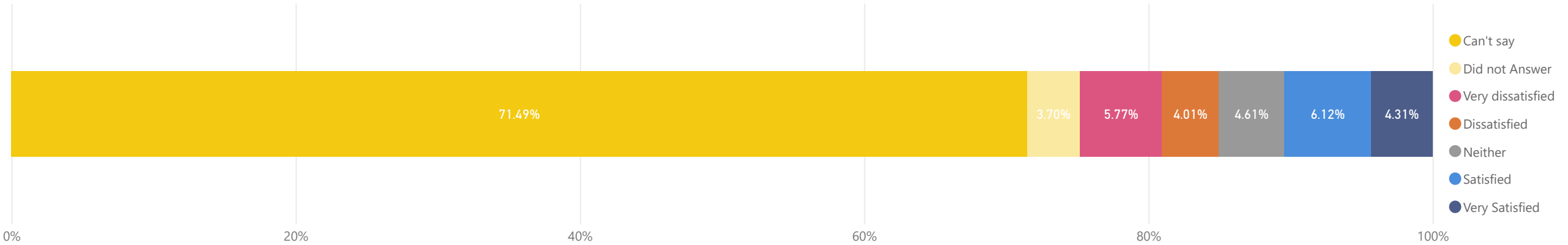
Respondents

576

Responses

Access, last 24 mo

In the last 24 months if you have used services provided by the Hamilton Police Service, how satisfied are you with your ability to access services? (If you have not used the services, please choose “Can’t Say”).



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied
All Service Areas	1.40	3.0	59.3	1746	75.2	134	93	107	142	100
Vulnerable Sector Clearance	1.29	3.5	70.4	187	72.5	8	8	12	25	18
Emergency Criminal Calls	1.46	3.2	64.4	204	79.1	11	7	8	15	13
Crime Prevention Programs/ Public Outreach	1.36	3.1	61.6	207	80.2	8	12	8	14	9
Non-Emergency Calls	1.42	2.9	57.1	154	59.7	25	22	16	25	16
Road Safety	1.40	2.9	57.1	154	59.7	26	19	16	30	13
Emergency Mental Health Calls	1.53	2.8	56.6	205	79.5	15	9	12	4	13
Victim Services	1.38	2.8	56.4	219	84.9	10	5	12	6	6
Online Reporting	1.42	2.8	55.6	190	73.7	21	7	14	18	8
Investigative Services	1.38	2.7	53.1	226	87.6	10	4	9	5	4

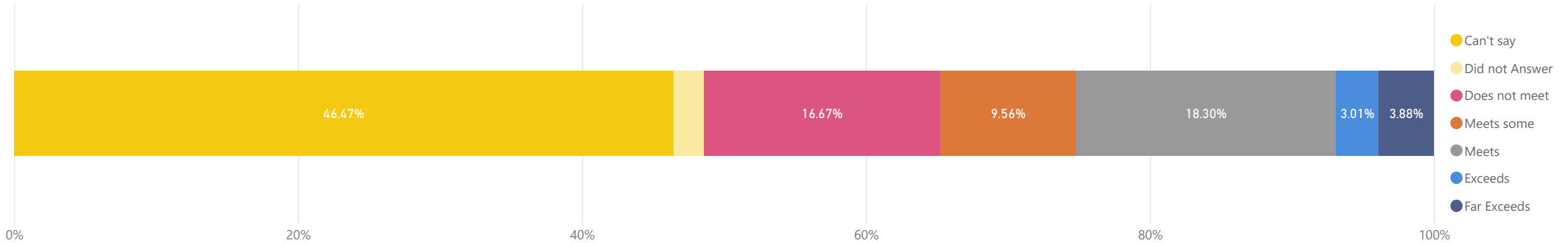
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q4

258
Respondents
1194
Responses

Meet Needs

Do the following services provided by Hamilton Police Service meet your needs?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Does not meet	Meets some	Meets	Exceeds	Far Exceeds
All Service Areas	1.19	2.4	47.5	1128	48.6	387	222	425	70	90
Vulnerable Sector Clearance	1.09	2.9	57.9	135	52.3	19	11	69	12	12
Investigative Services	1.20	2.6	51.3	152	58.9	26	21	42	7	10
Emergency Criminal Calls	1.09	2.5	49.3	121	46.9	32	33	57	6	9
Victim Services	1.28	2.4	47.6	155	60.1	36	18	33	6	10
Crime Prevention Programs/ Public Outreach	1.21	2.3	46.9	130	50.3	45	19	48	7	9
Online Reporting	1.21	2.3	46.2	133	51.5	44	23	42	7	9
Road Safety	1.13	2.2	44.3	89	34.5	64	29	57	14	5
Non-Emergency Calls	1.19	2.2	44.0	93	36.0	61	40	46	6	12
Emergency Mental Health Calls	1.30	2.2	43.3	120	46.6	60	28	31	5	14

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q5

258

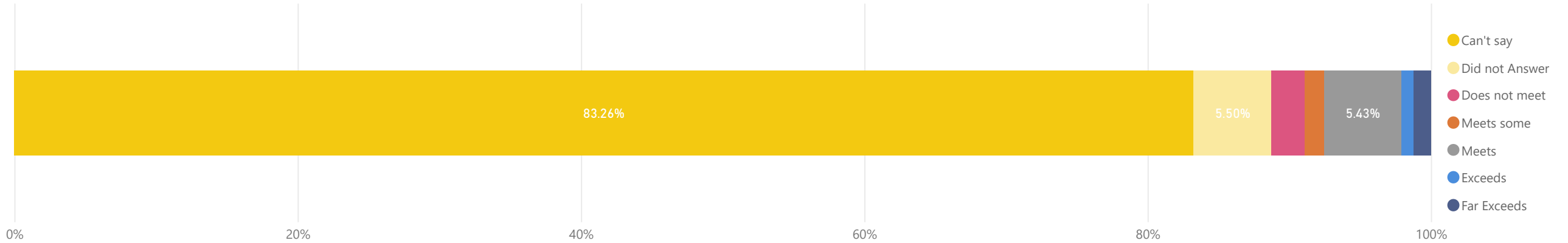
Respondents

145

Responses

Comfortable, Safe and Clean Spaces

If you've visited a police facility in the last 24 months, were the facilities sufficient for your needs? Please consider if the spaces were accessible, comfortable, and clean.



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Does not meet	Meets some	Meets	Exceeds	Far Exceeds
All Service Areas	1.22	2.7	55.2	1145	88.8	30	18	70	11	16
Central Station	1.16	2.9	57.9	192	74.5	11	7	34	6	8
Mountain Station	1.12	2.8	55.4	223	86.4	7	3	19	3	3
Investigative Services Station	1.48	2.7	54.5	247	95.7	4		4	1	2
East End Station	1.11	2.6	51.8	236	91.5	4	6	9	1	2
Dundas Station	1.21	2.3	45.5	247	95.7	4	2	4		1

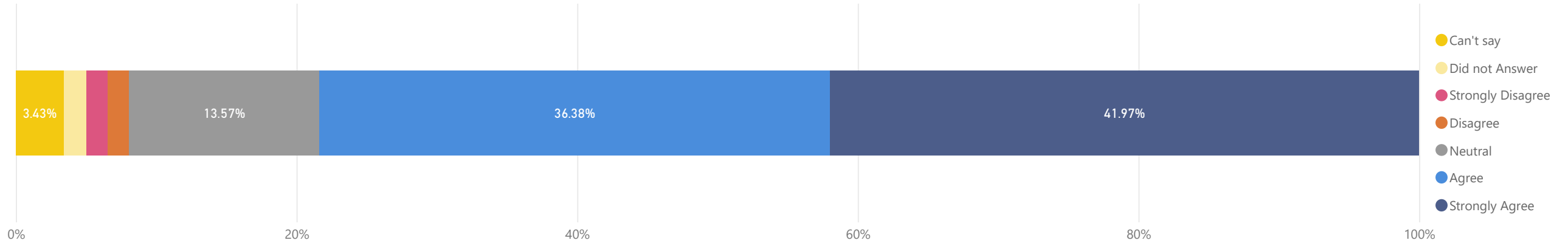
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q6

258
Respondents
1715
Responses

Agree with Statements about use and space

Thinking about how you use internal and external public spaces do you agree with the following statements?Hamilton Police buildings should be:



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
All Service Areas	0.81	4.2	84.4	91	5.1	27	28	245	657	758
Accessibility	0.72	4.5	89.9	12	4.6	1	5	12	81	147
Safe, Equitable and Inclusive	0.82	4.5	89.1	14	5.5	5	2	15	77	145
Active Transport Access	0.76	4.4	87.7	11	4.3	2	1	28	85	131
Clean and Good Repair	0.74	4.3	86.2	11	4.3	3	1	20	115	108
Comfortable	0.80	4.1	82.7	14	5.4	3	3	37	116	85
Energy Efficient	0.91	4.1	82.1	16	6.2	3	7	49	85	98
Inviting	0.95	3.6	72.8	13	5.1	10	9	84	98	44

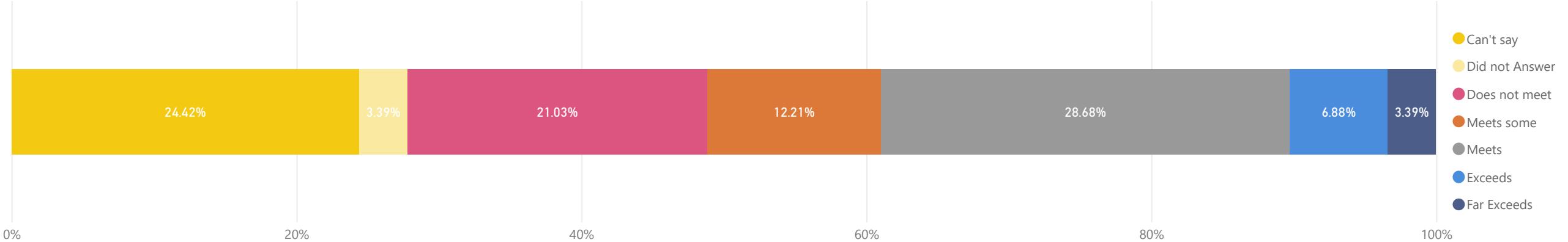
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q7

258
Respondents
745
Responses

Dispatch Times, Meet Needs

Dispatch times reflect the time between an emergency notification (i.e. 911 call) and when police are on-route. Priority 0 Highest Priority - Immediate Response Required, Injury occurring or imminent. Target 0:30 seconds / 2022 Actual 1:08 minutes
Priority 1 In Progress Events - Person in Crisis, Domestic Violence, Disturbance on Premise. Target 3 minutes / 2022 Actual 3:10 minutes
Priority 2 Just Occurred Events - Suspicious Activity, Driving Complaints, Disturbance on Premise. Target 15 minutes / 2022 Actual 13:28 minutes
Priority 3 Report Events - Trespassing, Residence / Compassion, Disorderly. Target 60 minutes / 2022 Actual 95 minutes
Priority 4 Report Events - Noise Complaints, Break Enter Reports, Neighbour Trouble. Target 180 minutes / 2022 Actual 108 minutes
Do the police priority dispatch times meet your needs and expectations for an adequate and effective police response?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Does not meet	Meets some	Meets	Exceeds	Far Exceeds
All Service Areas	1.11	2.4	48.8	287	27.8	217	126	296	71	35
Priority 1	1.06	2.6	53.0	73	28.3	37	27	94	18	9
Priority 2	1.07	2.6	51.9	67	26.0	42	32	84	27	6
Priority 0	1.18	2.5	50.7	74	28.7	49	32	71	20	12
Priority 3	1.12	2.0	39.4	73	28.3	89	35	47	6	8

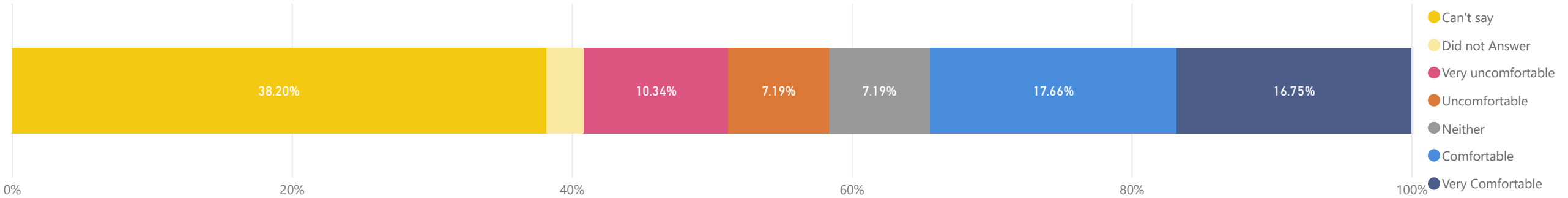
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q8

258
Respondents
1373
Responses

Comfortable and Safe, Services

Did you feel comfortable and safe accessing services provided by the Hamilton Police Service?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Uncomfortable	Uncomfortable	Neither	Comfortable	Very Comfortable
All Service Areas	1.43	3.4	67.9	949	40.9	240	167	167	410	389
Vulnerable Sector Clearance	1.24	3.7	74.7	106	41.1	15	8	28	52	49
Online Reporting	1.37	3.6	71.1	106	41.1	21	16	18	52	45
Emergency Criminal Calls	1.47	3.5	70.7	97	37.6	28	16	13	50	54
Non-Emergency Calls	1.34	3.5	69.8	77	29.8	20	30	23	57	51
Investigative Services	1.45	3.5	69.3	124	48.0	23	15	14	41	41
Road Safety	1.37	3.4	67.4	80	31.0	29	19	28	61	41
Crime Prevention Programs/ Public Outreach	1.44	3.3	66.5	122	47.3	22	23	17	37	37
Victim Services	1.56	3.0	60.2	125	48.4	36	21	15	28	33
Emergency Mental Health Calls	1.63	3.0	59.6	112	43.4	46	19	11	32	38

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q10

258

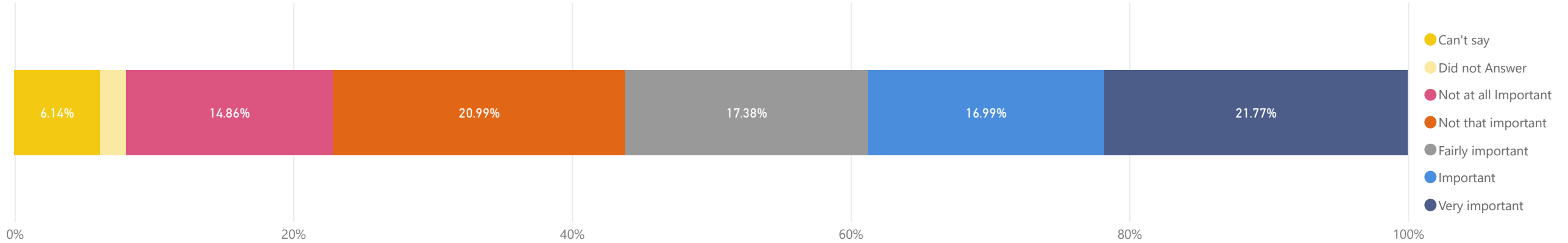
Respondents

1424

Responses

Future Needs

Please rate the following potential services for the Hamilton Police Service based on their importance to you.



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Not at all Important	Not that Important	Fairly Important	Important	Very Important
All Service Areas	1.26	3.1	62.1	124	8.0	230	325	269	263	337
Body Cameras	1.17	4.0	80.2	12	4.7	9	27	33	61	116
Meeting Facility Accessibility Standards	1.15	3.6	72.4	22	8.5	13	25	64	71	63
Reduced Emissions	1.38	3.1	62.3	10	3.8	41	46	59	48	54
Increasing Number of Police Officers	1.64	3.0	60.5	11	4.3	68	46	24	30	79
Facility Renewal	1.08	2.4	47.9	29	11.2	48	89	55	27	10
Increased Public Parking at Stations	1.16	2.4	47.3	40	15.5	51	92	34	26	15

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q12

258

Respondents

1673

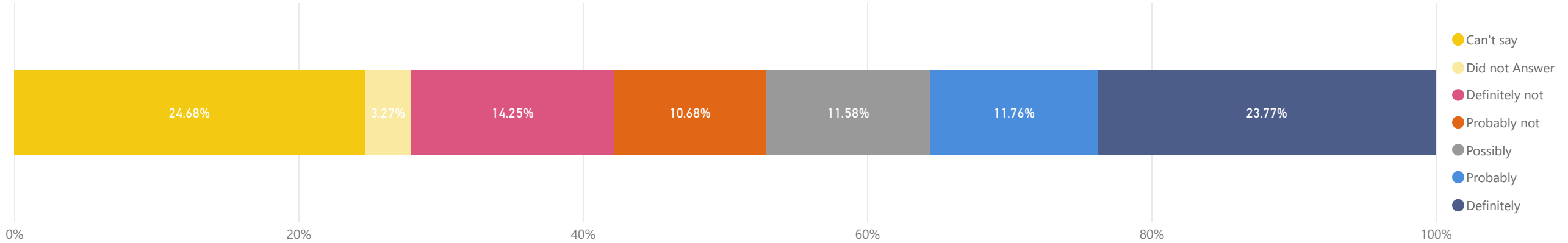
Responses

Recommend to Others

How likely would you be to recommend the Hamilton Police Service to others?

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Hamilton Police Services
August 2023



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Definitely not	Probably not	Possibly	Probably	Definitely
All Service Areas	1.51	3.3	65.6	649	28.0	331	248	269	273	552
Vulnerable Sector Clearance	1.42	3.6	71.1	82	31.8	24	20	29	40	63
Investigative Services	1.45	3.6	71.1	80	31.0	26	18	33	33	68
Emergency Criminal Calls	1.53	3.5	69.4	67	26.0	30	33	22	29	77
Online Reporting	1.46	3.4	68.0	72	27.9	31	22	36	36	61
Road Safety	1.47	3.3	66.8	57	22.1	35	26	40	36	64
Non-Emergency Calls	1.51	3.2	63.6	51	19.8	39	41	34	30	63
Crime Prevention Programs/ Public Outreach	1.56	3.1	62.3	85	33.0	40	29	27	25	52
Victim Services	1.61	3.1	61.2	89	34.5	44	29	21	23	52
Emergency Mental Health Calls	1.62	2.8	57.0	66	25.6	62	30	27	21	52

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q12

258

Respondents

1673

Responses

Net Promoter Score

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Hamilton Police Services
August 2023

Typically the Net Promoter Score is used to measure customer loyalty.

How likely would you be to recommend the Hamilton Police Service to others?



	<div>σ</div>	Net Promoter Score		Detractors	Passives	Promoters
All Service Areas	30.6		-17.58	848	273	552
Emergency Criminal Calls	30.6		-4.19	85	29	77
Investigative Services	28.9		-5.06	77	33	68
Vulnerable Sector Clearance	28.3		-5.68	73	40	63
Online Reporting	29.2		-15.05	89	36	61
Road Safety	29.4		-18.41	101	36	64
Non-Emergency Calls	30.2		-24.64	114	30	63
Victim Services	32.1		-24.85	94	23	52
Crime Prevention Programs/ Public Outreach	31.2		-25.43	96	25	52
Emergency Mental Health Calls	32.4		-34.90	119	21	52

Likert choices less than 4 are considered 'Detractors' while 5s are considered 'Promoters' and 4s are 'Passive'. Respondents who opted out by not answering or selecting 'Can't Say' were removed from the sample. Net Promoter score is calculated by subtracting (% Detractors) from (% Promoters). σ (Standard Deviation) is calculated in percent, the same units as the Net Promoter Score.

Q13

258

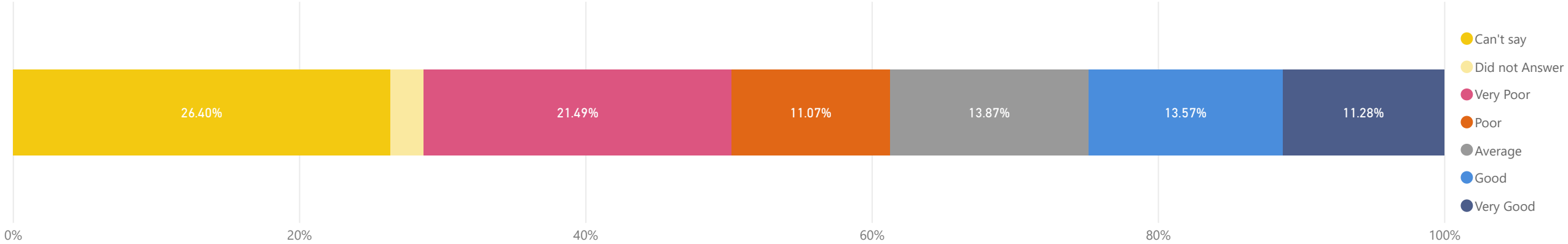
Respondents

1655

Responses

Value for Money

How would you rate the Hamilton Police Service for providing good value for money in the infrastructure and services provided to your community?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Poor	Poor	Average	Good	Very Good
All Service Areas	1.44	2.8	55.0	667	28.7	499	257	322	315	262
Vulnerable Sector Clearance	1.39	3.1	62.6	88	34.1	34	19	41	43	33
Emergency Criminal Calls	1.51	2.9	58.9	58	22.5	55	27	34	42	42
Investigative Services	1.46	2.9	57.0	89	34.5	48	20	40	31	30
Road Safety	1.40	2.8	56.0	53	20.5	54	34	46	41	30
Crime Prevention Programs/ Public Outreach	1.45	2.7	54.2	82	31.8	54	30	31	35	26
Online Reporting	1.41	2.7	53.7	77	29.8	52	36	35	33	25
Victim Services	1.50	2.6	52.2	101	39.1	59	19	27	28	24
Emergency Mental Health Calls	1.52	2.5	50.6	71	27.5	76	24	29	28	30
Non-Emergency Calls	1.36	2.5	50.1	48	18.6	67	48	39	34	22

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q14

258

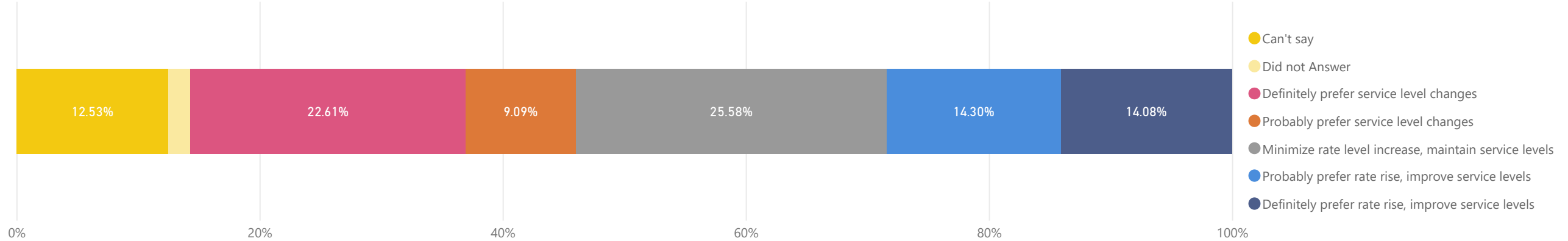
Respondents

1989

Responses

Rate Level

Understanding that Hamilton Police Service is required to provide adequate and effective policing services under the Comprehensive Ontario Police Services Act, 2019, S.O. 2019, c. 1 - Bill 68. If you had to choose, would you prefer to see a tax rate increase to improve service levels OR would you prefer to see changes in service levels to minimize tax rate increases?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Definitely prefer service level changes	Probably prefer service level changes	Minimize rate level increase, maintain service levels	Probably prefer rate rise, improve service levels	Definitely prefer rate rise, improve service levels
All Service Areas	1.38	2.9	57.2	333	14.3	525	211	594	332	327
Emergency Criminal Calls	1.45	3.2	63.5	30	11.6	51	14	62	46	55
Investigative Services	1.37	3.1	62.8	38	14.7	46	12	69	51	42
Non-Emergency Calls	1.41	3.0	59.4	32	12.4	53	27	62	42	42
Road Safety	1.42	3.0	59.2	28	10.8	54	30	63	37	46
Emergency Mental Health Calls	1.52	2.8	56.7	34	13.1	71	25	42	42	44
Online Reporting	1.29	2.8	55.7	40	15.6	52	29	77	34	26
Victim Services	1.40	2.7	54.0	43	16.7	67	24	58	38	28
Vulnerable Sector Clearance	1.24	2.6	52.6	56	21.8	54	23	90	14	21
Crime Prevention Programs/ Public Outreach	1.34	2.5	50.5	32	12.4	77	27	71	28	23

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Individual Service Areas Rates vs. Value for Money

Service areas where reasonable fees exceed value for money by 20 points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale used.

Service Area	Rates (index score)	Value for Money (index score)	Net Differential	Opt Out %
Average	57	55	-2	21.5
Vulnerable Sector Clearance	53	63	10	28.0
Crime Prevention Programs/ Public Outreach	51	54	4	22.1
Victim Services	54	52	-2	27.9
Online Reporting	56	54	-2	22.7
Road Safety	59	56	-3	15.7
Emergency Criminal Calls	64	59	-5	17.1
Investigative Services	63	57	-6	24.6
Emergency Mental Health Calls	57	51	-6	20.3
Non-Emergency Calls	59	50	-9	15.5

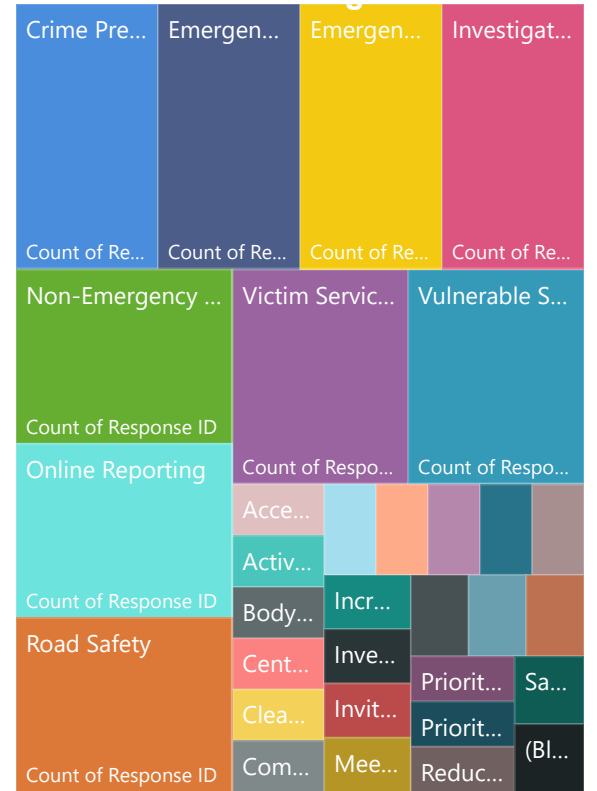
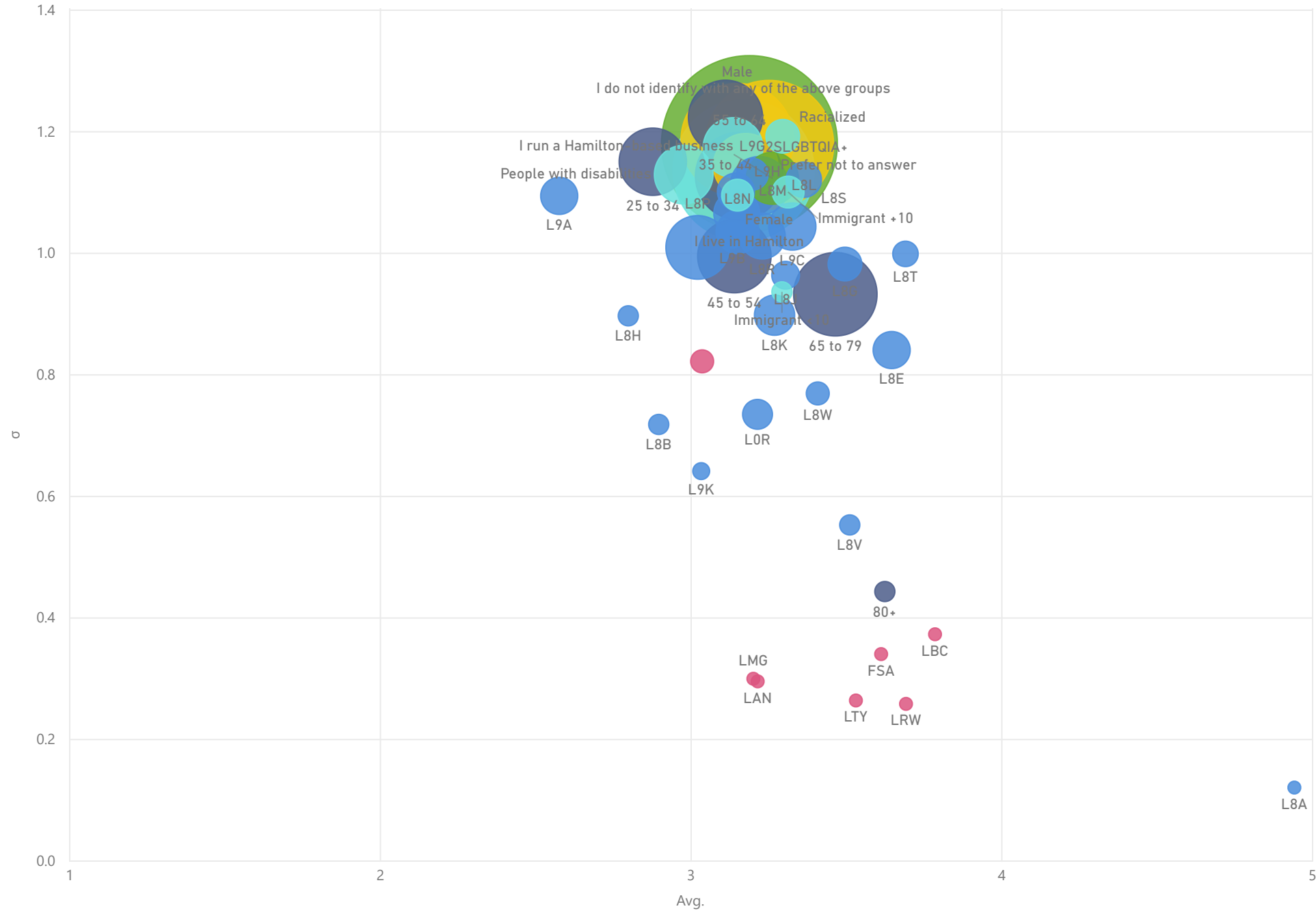
Positive Net Differential values indicate that 'Value for Money' was greater than willingness for 'Rates'. All values were calculated and then rounded to the nearest whole number. Low index scores in 'Rates' indicate that respondents are not willing to pay increased rates for the service area.

Value for Money Q13 How would you rate the Hamilton Police Service for providing good value for money in the infrastructure and services provided to your community?

Rates Q14 Understanding that Hamilton Police Service is required to provide adequate and effective policing services under the Comprehensive Ontario Police Services Act, 2019, S.O. 2019, c. 1 - Bill 68.If you had to choose, would you prefer to see a tax rate increase to improve service levels OR would you prefer to see changes in service levels to minimize tax rate increases?

Avg., σ , Sum of Count and Ct. by Value and Value (groups)

Value (groups) ● Age ● Gender ● Other ● Postal Code ● Residency ● Self-ID



Qshort	QID+mid
Q1	Q1 Performance, last 24mo
Q10	Q10 Future Needs
Q11 - Open	Q11 - Open Future Needs - Open
Q12	Q12 Recommend to Others
Q13	Q13 Value for Money
Q14	Q14 Rate Level
Q2	Q2 Importance
Q3	Q3 Access, last 24 mo
Q4	Q4 Meet Needs
Q5	Q5 Comfortable, Safe and Clean Spaces
Q6	Q6 Agree with Statements about use and spac
Q7	Q7 Dispatch Times, Meet Needs
Q8	Q8 Comfortable and Safe, Services
Q9 - Open	Q9 - Open Comfortable and Safe, Services - O

Data Grading Scales

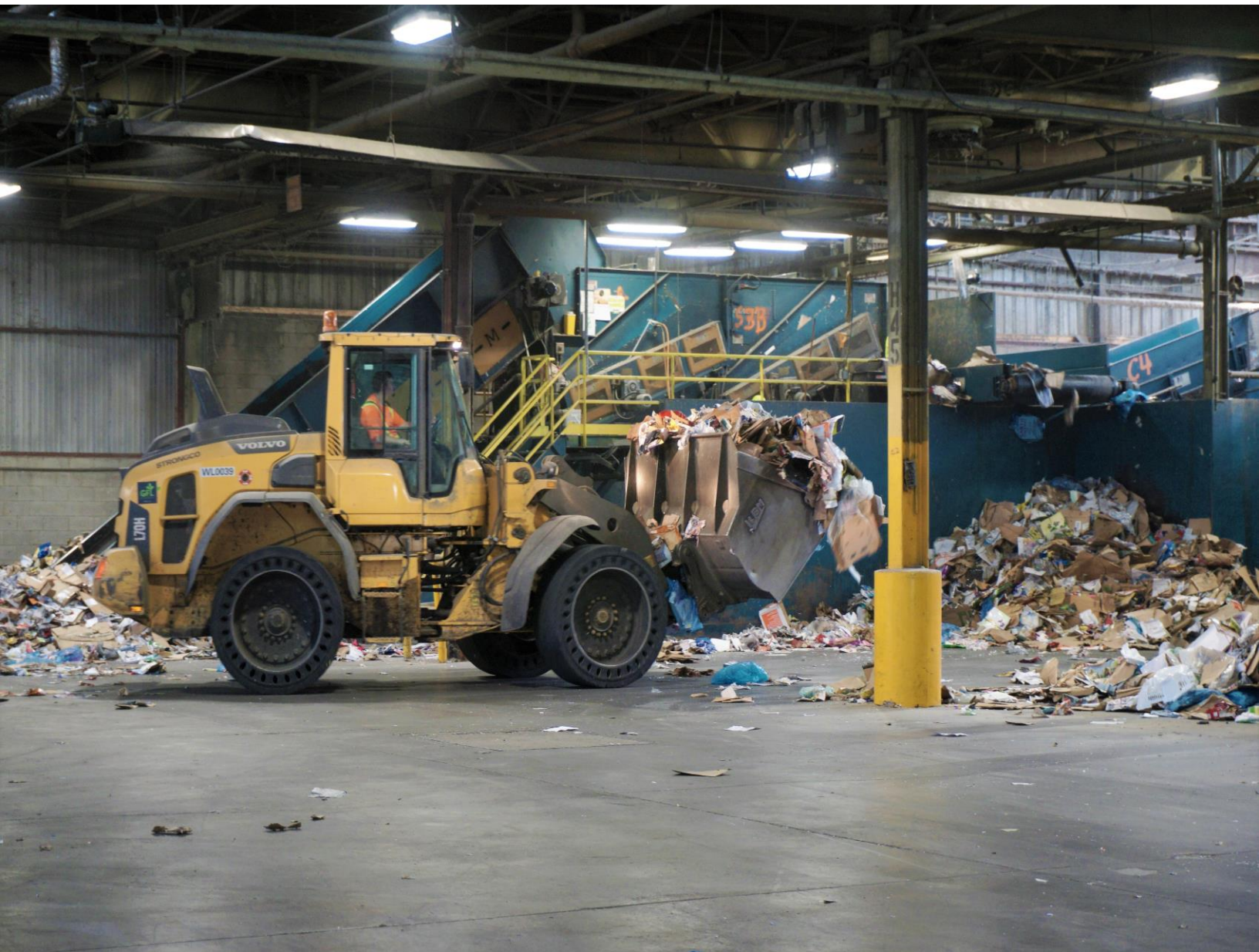
Grade		Data Consistency Standard Deviation (σ, Consistency of Responses)	Confidence Level Margin of Error (at 95% Confidence in Sample Size)
A	Very High	0 to 0.5 - results are tightly grouped with little to no variance in response	0% to 5% - Minimal to no error in results, can generally be interpreted as is
B	High	0.5 to 1.0 - results are fairly tightly grouped but with slightly more variance in response	5% to 10% - Error has become noticeable, but results are still trustworthy
C	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 final results
D	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
E	Very Low	2.0+ - results are highly variant with little to no grouping	30%+ - Significant error in results, hard to interpret data in much of a meaningful way

Margin of error = $z \times \frac{\sigma}{\sqrt{n}}$

Here we attribute a lower value of consistency of response (Standard Deviation) to a higher confidence grade, but it does not necessarily mean that the data is "better". In reality we receive more insight in the data regardless. With a high consistency we can tell that respondents more often come to the same conclusion on a response for a question, whereas with low consistency we would see a split in people's opinion, some with a very high rating and others with a very low rating. Knowing this and then understanding why is the most important thing.

The margin of error is calculated using 3 factors:
z - z-score, σ - standard deviation, n - sample size
The margin of error mainly tells us whether the sample size of the survey is appropriate. This is because in the calculation above, sample size would be the largest factor and thus have the biggest impact. The margin of error is represented as a percentage and indicates the range above and below the calculated average the true value is likely to fall. A smaller margin of error indicates a more precise estimate and vice versa.

2023 Waste Management Asset Management Plan



HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

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SUMMARY AND QUICK FACTS

SERVICE PROFILE



Waste Management provides waste collection, processing, and disposal of solid waste within the City of Hamilton. The Purpose of this Asset Management Plan (AM Plan) is to ensure that Waste Management has the required assets to deliver safe and effective waste management services to the City. This service is delivered using a combination of city staff and contracted resources.

ASSET SUMMARY



Replacement Value
\$560M

FAIR CONDITION
Average Age of **39** years
or **43%** of the average
remaining service life



Level of Service Summary

- Average survey respondents felt Waste Management has had Good performance overall the last 24 months.
- Average survey respondents agreed that waste collection vehicles were operated safely in the community.
- Average survey respondents felt Waste management provided Good value for money.
- Average survey respondents indicated that Waste Management meets their needs overall.
- Average survey respondents indicated Waste Management rarely missed a collection

Asset Highlights

ASSETS	QUANTITY	REPLACEMENT COST	AVERAGE CONDITION	STEWARDSHIP MEASURES
Waste Management Facilities	10	\$284.6M	Good	Building Condition Assessments
Waste Management Landfills & Site Assets	13 (1 Open, 12 closed)	\$258.2M	Fair	Regular Inspections and Maintenance
Fleet	43 Packer Trucks 30 support Vehicles	\$15.6M	Poor	Regular Maintenance

DATA CONFIDENCE



VERY GOOD

FAIR

VERY LOW



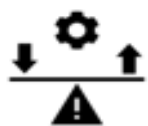
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DEMAND DRIVERS

Population change – Hamilton’s population will continue to grow, and Waste Management will likely see an increase in a number of residences that need service which will require additional collection vehicles and staff.

Environmental Awareness – Waste Management may be impacted by new services/processes for new waste streams. This may change the way waste is collected and processed in the future.

Regulatory Change – Implementation of the Expanded Producer responsibility model in 2025 as legislated will change the collection of recycling in the City.



RISK

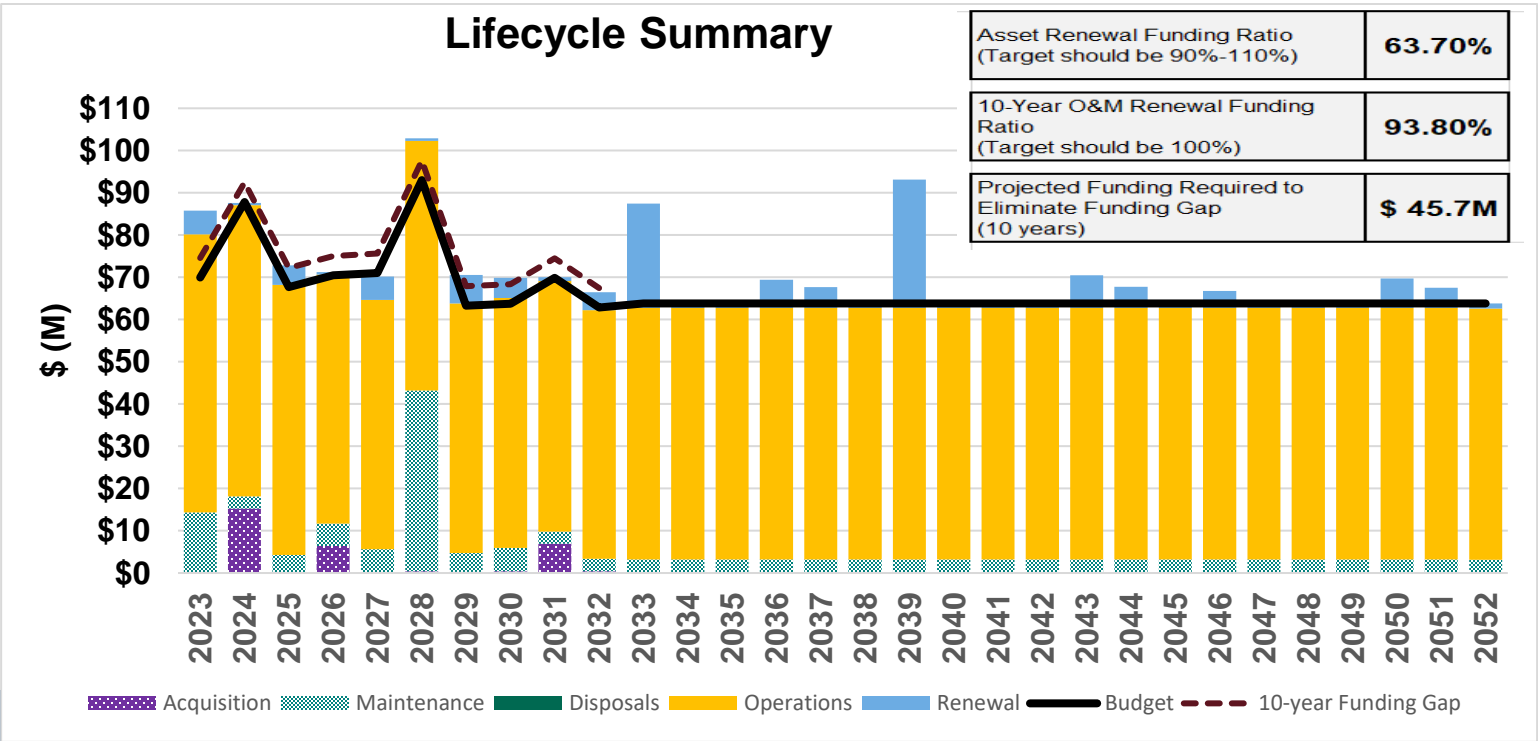
- Critical Assets are identified as Leachate pumping station and the Open Landfill



CLIMATE CHANGE MITIGATION

- Conduct feasibility studies to consider renewables on existing facilities
- Fleet transformation from diesel to natural gas vehicles
- Key Contributor to action 17 in the energy emissions plan goal of 95% organic waste sent to anaerobic digestion by 2050

LIFECYCLE SUMMARY



HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

1. INTRODUCTION

Waste Management provides waste collection, processing, and disposal of solid waste within the City of Hamilton. The Purpose of this Asset Management Plan (AM Plan) is to ensure that Waste Management has the required assets to deliver safe and effective waste management 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 to 2052 planning period.

The Waste Management Division assets include Transfer Stations, Community Recycling Centres (CRC), Glanbrook Landfill (which includes the Leaf Waste Composting Facility), scale houses, and Resource Recovery Centre (RRC) facilities that include the Waste Collection office/yard, Material Recycling Facility (MRF) and Central Composting Facility (CCF). The City owns machinery and equipment used for operations at its facilities and by its customers and contracted service providers.

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

2. BACKGROUND

The information in this section is intended to give a snapshot in time of the current state of Waste Management's 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 28, 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;
- City of Hamilton 2012 Solid Waste Management Master Plan;
- City of Hamilton Solid Waste Management 2020 Master Plan Update; and,
- Solid Waste Management Master Plan Five-Year Review (PW200072).

Additional financial related documents are identified in **Section 10** Plan Improvement and Monitoring.

The service profile consists of four (4) main aspects of the service:

- Service History;
- Service Function;
- Users of the Service; and,
- Unique Service Challenges.

2.1.1 SERVICE HISTORY

Waste management is a fundamental service provided by municipal governments. An effective and efficient waste management system is essential for preserving and enhancing healthy and safe communities.

Between 2000 and 2001 the City of Hamilton (the City) developed its first modern Solid Waste Management Master Plan (SWMMP) which included nineteen (19) recommendations intended to guide the service for the next twenty-five (25) years. In 2012 a new Solid Waste Management Master Plan was developed building on the guiding principles from 2001 and updated to include the community's philosophy and the provincial waste management value chain of reduce, reuse, divert and dispose.

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

In 2020 a Solid Waste Management Master Plan update was prepared to operationalize the final five years of the existing SWMMP to include eleven (11) action items to guide the Waste Management System (2021 to 2025).

The City is developing a new Solid Waste Management Master Plan with a targeted completion in 2025. It is expected that this SWMMP will investigate changes to waste collection and processing in the City including development of a new organics processing strategy and will consider future stages beyond the current Glanbrook Landfill. Once completed this SWMMP will require updating of the AM Plan as it will likely propose changes to existing facilities, assets, processes, and current and future Levels of Service.

The City provides waste management programs to the community through a mix of municipal and contracted service models. The collection of garbage, green bin organics and yard waste is provided by both municipal and contracted forces within assigned geographic boundaries, and the recycling program being entirely provided by a contracted service.

Waste Management has multiple third-party contracts in place as part of the service delivery. These contracts have different terms and end dates. Any changes to services or processes may require renegotiation of these contracts or may need to wait until the current contracts have ended and changes defined in new contracts.

2.1.2 SERVICE FUNCTION

Waste Management provides services to residents and businesses in the City of Hamilton. Waste Management operates solid waste management facilities and programs to increase the recycling, reduction, and reuse of waste materials to maximize landfill life while protecting the natural environment. The service also supports downtown cleanliness to create a vibrant and clean downtown. Waste Management is also involved with providing waste diversion services for festivals and special events. Waste Management requires assets in order to provide these services.

Curb side waste collection services are delivered through a combination of City of Hamilton staff and a contracted service. The City is divided into six geographical zones identified as A1, A2, A3, B1, B2 and B3 which include urban, suburban, and rural areas. The Contractor is responsible for recycling collection services in all six zones. City staff collect garbage, green bin, leaf and yard waste and bulk waste in the A Zones while the contractor is responsible for collecting the same waste streams in the three B zones.

The City owns the Materials Recovery Facility (MRF) and contracts out the operation of this facility to process blue box materials. The future of the MRF will be subject to review once the City changes over to the Expanded Producer Responsibility Model for the collection and processing of recyclable material. The City's Central Composting Facility (CCF) which treats green bin organic waste began operating in 2006. The facility has a rated capacity of 60,000

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

tonnes per year and currently has approval to process up to 20,000 tonnes per year of household organic materials collected through the green bin program. The City owns the CCF building and equipment and operations to run the facility are completed under contract.

The City owns three Community Recycling Centres (CRC) and three co-located Transfer Stations (TS) which are also operated under contract. The Mountain CRC also has a reuse store where the public can purchase reusable items which diverts items from the waste stream. The CRCs are available for use by the general public. Transfer stations are used by commercial customers and municipal waste collection trucks only. The City owns the Glanbrook Landfill, which is operated under a contract with a service provider. The facility includes the landfill, landfill gas-to-energy facility, and yard waste processing facility. The landfill gas-to-energy facility is operated under contract. City staff are responsible for contract management and environmental monitoring at the sites. Waste Management is also responsible for monitoring and continuous care of the City's twelve (12) closed landfills.

Public space litter container collection includes roadsides, transit stops, and special events. As with other services, the City has a combination of in-house and contracted services for waste collection from containers.

Waste Management also has responsibility for the Downtown Cleanliness Program which has dedicated staff and equipment to maintain the cleanliness of sidewalks, provide litter collection services, collect waste from specific alleyways, and provide collection support to the division in the downtown area.

Waste also provides development review services related to developing and implementing standards for development and growth and implementation of waste collection for eligible developments. This ensures that waste can be efficiently collected from new developments.

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

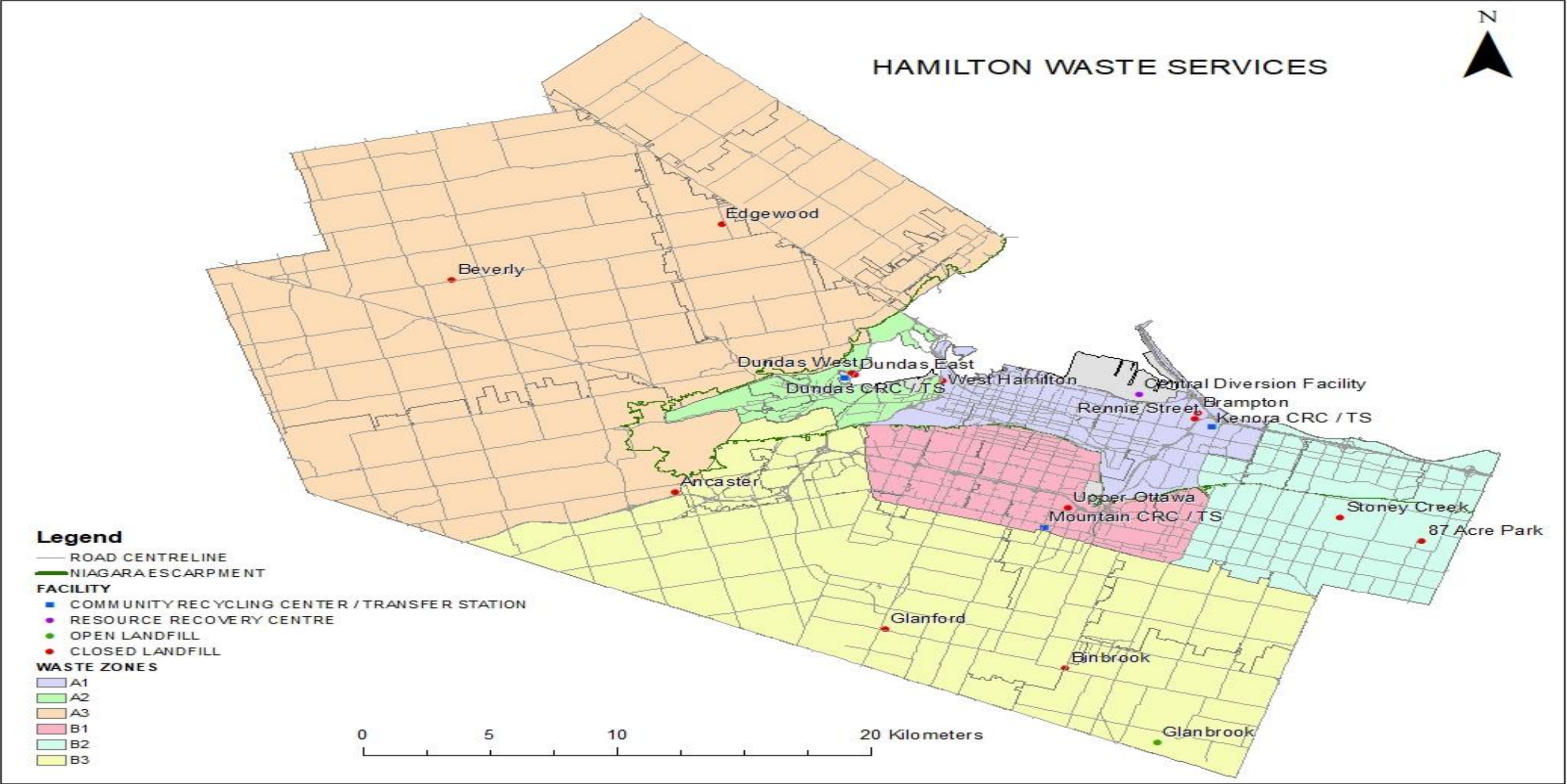
2.1.3 USERS OF THE SERVICE

The City of Hamilton is comprised of a diverse population living in diverse housing types. To meet the needs of users, waste management must be equipped to collect waste from all building types such as multi-unit residential buildings, commercial properties along narrow alleyways, public parks, residential streets, and locations on high-volume roadways all with differing population densities.

Based on the 2021 (2016) Census results¹, Hamilton's population is 569,353 (536,917), and the average household size is 2.5 (2.5) people. Nearly 72% (72%) of houses are single/row/semi with 28% (28%) multi-residential comprising 222,805 (211,605) occupied dwelling units with a population density of 509.1 (480.6) per square kilometre.

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

Figure 1: Hamilton Waste Services



HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

2.1.4 UNIQUE SERVICE CHALLENGES

Waste has several unique service challenges including:

- Meeting the historical waste diversion targets set in previous waste management plans which results in the Operating Landfill reaching capacity sooner than anticipated;
- Several waste collection vehicles have exceeded end of life due to challenges in obtaining new vehicles due to pandemic related supply challenges. Resulting in relying on older vehicles with higher maintenance needs causing higher downtime;
- Staffing challenges as side loaders require a single operator and rear packers require two staff. This is a challenge when side loaders break down and need to be replaced with a rear packer to drive the route;
- The current waste collection contract ends in 2028. Any changes to level of service prior to the contract end date would require renegotiation of the waste collection contract;
- In 2025 the Blue Box collection and processing will transition to Expanded Producer Responsibility Model for the collection and processing of recyclable material which will impact existing operating contracts for collection and operation of the Materials Recovery Facility (MRF). This also raises the question of the most appropriate future use of the MRF; and,
- Collection from multi-residential properties with varying degrees of accessibility for waste container storage and collection methods.

2.2 LEGISLATIVE REQUIREMENTS

The most significant legislative requirements that impact the delivery of Waste Management 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	REGULATION	REQUIREMENT
Environment Protection Act R.S.O 1990, c. E.19	<p>Part V – Waste Management</p> <p>Section 27 - Approval, Waste Management System or Waste Disposal Site</p>	<p>No person shall use, operate, establish, alter, enlarge or extend a waste management system or a waste disposal site except under and in accordance with an environmental compliance approval (ECA).</p> <p>ECA's outline site-specific conditions that the City's waste management systems must operate under. These conditions include, but are not limited to, requirements for inspections, training, environmental monitoring, operational restrictions and record keeping.</p>

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

LEGISLATION	REGULATION	REQUIREMENT
Environment Protection Act R.S.O 1990, c. E.19	O. Reg 101/94 Recycling and Composting of Municipal Waste	A local municipality that has a population of at least 5,000 shall establish, operate and maintain a blue box waste management system. This requires the services of community recycling centers, curbside collection of blue box waste, as well as a material recycling facility for processing. <i>NOTE: to be revoked following blue box transition to Expanded Producer Responsibility Model for the collection and processing of recyclable material</i>
		The leaf and yard waste system of a local municipality that has a population of at least 50,000 must include the collection or acceptance of leaf and yard waste in a manner that is reasonably convenient to the generators of leaf and yard waste in the municipality. This requires the services of a transfer station and community recycling center, curbside collection of leaf & yard waste, and a leaf & yard waste composting facility.
		Each operator and owner of a leaf and yard waste composting site shall ensure that the site is operated in accordance with the monitoring and sampling requirements outlined in the regulation.
	Reg. 347, R.R.O. 1990 General - Waste Management	As a requirement for operating a municipal hazardous and special waste depot at the transfer stations and community recycling centers, the City must register as a Generator within the Hazardous Waste Program Registry, report on wastes leaving the facilities, and keep records of completed waste manifests.

2.3 ALIGNMENT WITH COUNCIL PRIORITIES

As referenced in the AM Plan Overview in **Section 5.4**, Strategic Alignment, The City's strategic goals and objectives are shaped by internal drivers such as Council approved strategies and plans, as well as external forces such as citizen expectations, and legislative and regulatory requirements. The specific legislative and regulatory requirements for service areas are provided in each AM Plan.

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

City objectives provide asset owners with direction regarding levels of service and asset investment priorities. This AM Plan will demonstrate how the City's objectives for core assets can influence levels of service and direct asset expenditures.

2.4 ASSET HIERARCHY

In order to deliver adequate and effective services, Waste Management requires assets. The Waste Management Service Area has been broken down into three (3) asset classes for this AM Plan section: Landfill, Facilities, and Fleet and Equipment.

- **Landfill:** refers to the open and closed landfills and the installed equipment to support landfill function;
- **Facilities:** refers to facilities related to waste processing, collection, and administration; and,
- **Fleet and Equipment** refers to mobile fleet assets and Information Technology (IT) equipment that support waste management. This category also includes public space litter containers as they are deployed throughout the City.

An Asset Hierarchy is also being developed for implementation for the Enterprise Asset Management program (EAM). The hierarchy presented in this AM Plan may be different from the EAM hierarchy.

The asset class hierarchy outlining assets included in this section is shown below in **Table 2**.

Table 2: Asset Class Hierarchy

SERVICE AREA	WASTE MANAGEMENT		
ASSET CLASS	LANDFILLS	FACILITIES	FLEET & EQUIPMENT
Asset	Landfill Sites (All remaining assets not detailed below)	Transfer Stations (TS)	Waste Collection Packer Trucks
	Stormwater Management Ponds	Community Recycling Centres (CRC)*	Waste Support Vehicles
	Pumping Stations	Material Recycling Facility (MRF)	Waste Fleet Equipment
	Leachate Collection Systems	Central Composting Facility	IT Equipment

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

SERVICE AREA	WASTE MANAGEMENT		
ASSET CLASS	LANDFILLS	FACILITIES	FLEET & EQUIPMENT
	Groundwater Monitoring Wells	Leaf and Yard Waste Composting Facility	Public Space Litter Containers
	Landfill Gas Collection Systems	Glanbrook Facilities (Garage/Admin/Scale)	
	Site Assets (Fencing/Roads)		

*Community Recycling Centres include Hazardous Household Waste Collection facilities and the Mountain Reuse Centre.

**Administrative Facilities are combined into the MRF/CRC and Glanbrook garage facilities at this time.

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

3. DETAILED SUMMARY OF ASSETS

Table 3 displays the detailed summary of assets for the Waste Management service area. The sources for this data are a combination of data included in the City's database information. It is important to note that inventory information does change often, and that this is a snapshot of information available as of May 31, 2023.

The City owns approximately **\$560M** in Waste Management assets which are on average in **Fair** condition. Assets are a weighted average of **39 years** in age which is **43%** of the average remaining service life (RSL). The majority of the weighting for these averages comes from the Landfill and Central Composting Facility asset classes. 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.

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. Finally, it is possible that there are assets that may not be owned by Public Works which may be considered waste management assets which may be missing from this inventory. This has been identified as a continuous improvement Item in **Table 27**.

Table 3: Detailed Summary of Assets
***Weighted Average by Replacement Value**

ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
LANDFILLS				
Landfill Sites	13 (1 Open / 12 Closed)	\$250M (open landfill only)	43 years (43%)	3-FAIR
Data Confidence	Very High	Low	Low	Low
Stormwater Management Ponds	5	\$674K	36 years (64%)	3 - FAIR
Data Confidence	Very High	Low	Medium	Low
Landfill Pump Stations	3	\$1.6M	17 years (58%)	3 - FAIR
Data Confidence	Very High	Low	Very High	Low
Leachate Collection Systems	4000m	\$544K	37 years (63%)	3 - FAIR

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
Data Confidence	Medium	Low	Low	Low
Groundwater Monitoring Wells	260	\$3.0M	22 years (12%)	5- VERY POOR
Data Confidence	High	Very High	Low	Low
Landfill Gas Collection Systems	1100m	\$117K	32 years (68%)	3 - FAIR
Data Confidence	Medium	Low	Low	Low
Landfill Flare	1	\$350K	16 years (84%)	2 - GOOD
Data Confidence	Very High	Medium	Very High	Low
Site Assets (Fence/Roads)	4500m	\$1.95M	17 years (45%)	4 - POOR
Data Confidence	Medium	Low	Low	Low
SUBTOTAL		\$258.2M	42 years* (43%)*	3-FAIR*
Data Confidence		Low	Low	Low

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

FACILITIES				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
Transfer Station (TS)	3	\$49.7M	41 years (25%)	3 - FAIR
Data Confidence	Very High	Medium	High	High
Community Recycling Centres (CRC)	3	\$19.3M	13 years (76%)	2 – GOOD
Data Confidence	Very High	Medium	High	High
Material Recycling Facility (MRF)	1	\$88.1M	11 years (80%)	2 - GOOD
Data Confidence	Very High	Medium	High	High
Central Composting Facility	1	\$114M	13 years (76%)	2 - GOOD
Data Confidence	Very High	Medium	High	High
Glanbrook Landfill Facilities (Garage/Admin/Scale)	1	\$8.5M	17 years (31%)	2 – GOOD
Data Confidence	Very High	Medium	High	High
Leaf and Yard Waste Composting Facility	1	\$5M	27 years (51%)	2 - GOOD
Data Confidence	Very High	Medium	High	Low
SUBTOTAL		\$284.6M	23 years* (63%) *	2 – GOOD*
Data Confidence		Medium	High	High

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FLEET AND EQUIPMENT				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE EQUIVALENT CONDITION
IT Equipment (Computers)	88	\$155K	4 years (20%)	4-POOR
Data Confidence	Medium	Medium	Medium	Medium
Waste Collection Packer Trucks**	43	\$14.2M	5 years (29%)	4-POOR
Data Confidence	High	Medium	High	Low
Waste Support Vehicles**	30	\$1.4M	9 years (0%RSL)	5-VERY POOR
Data Confidence	High	Medium	High	Low
Waste Fleet Equipment**	8	\$0.5M	10 (0%RSL)	5-VERY POOR
Data Confidence	High	Medium	High	Low
Public Space Litter Containers	724	\$960K	No Data	No Data
Data Confidence	Medium	Medium	Very Low	Very Low
SUBTOTAL		\$17.2M	5 years* (26%)*	4-POOR*
Data Confidence		Medium	High	Low
TOTAL		\$560.0M	39 years* (43%)*	3-FAIR*
Data Confidence		Low*	Low*	Low*

The overall replacement value data confidence for the registry is Low. Replacement values for the highest value items are generally based on staff expert opinion or inflated values of original purchase/replacement cost estimates. In some of the asset classes there isn't current market data available for replacement value. Generally, landfills as an asset class, are replaced very rarely in the province and developing an accurate replacement value is difficult given the low sample size. For facilities, these replacement costs are calculated using an internal tool which

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

encompasses current market rates, building type and size. Fleet, equipment and technology assets replacement costs were gathered from the most recent purchase price for similar assets.

The overall average age data confidence is rated as Low as most of the highest replacement value asset classes data is largely estimated based on staff expert opinion. Data confidence is much higher for facilities and fleet and equipment hierarchy as service dates are generally known for these asset types.

The overall average condition data confidence is rated as Low. For the majority of the assets the condition is based on age and not based on actual physical inspection and data condition analysis. Exceptions to this are Facilities where, with the exception of the yard waste processing facility, the condition is based on Facility Condition Index (%FCI). More details can be found in **Section 3.2.2.2**

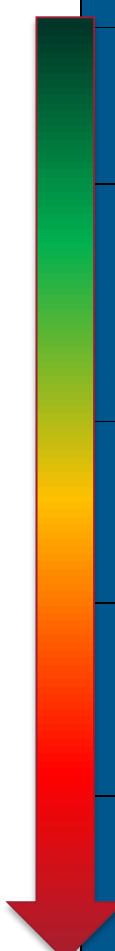
Please refer to the AM Plan Overview for a detailed description of data confidence.

3.1 ASSET CONDITION GRADING

Condition refers to the physical state of the waste management 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 4** 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 27**, is to review existing internal condition assessments and ensure they are revised to report on the same 5-point scale with equivalent descriptions.

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Table 4: Equivalent Condition Grading



EQUIVALENT CONDITION GRADING CATEGORY	CONDITION DESCRIPTION	% REMAINING SERVICE LIFE	FACILITIES CONDITION INDEX (FCI)
1-Very Good	The asset is new, recently rehabilitated, or very well maintained. Preventative maintenance required only.	>79.5%	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.	69.5% – 79.4%	< 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.	39.5% - 69.4%	>= 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.	19.5% - 39.4%	>= 10% to <30%
5-Very Poor	Asset has serious defects and deterioration. Asset is not fit for use. Urgent rehabilitation or closure required.	<19.4%	>= 30%

The following conversion assumptions were made:

- For assets where a condition assessment was not completed, but age information was known, the condition was based on the % of remaining service life; and,
- Facilities Condition Index was based on ranges provided by the consultant who completed the Building Condition Assessment (BCA).

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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 must be noted and prioritized.

3.2.1 LANDFILLS

Waste Management has one open and active Landfill and maintains twelve (12) closed landfills.

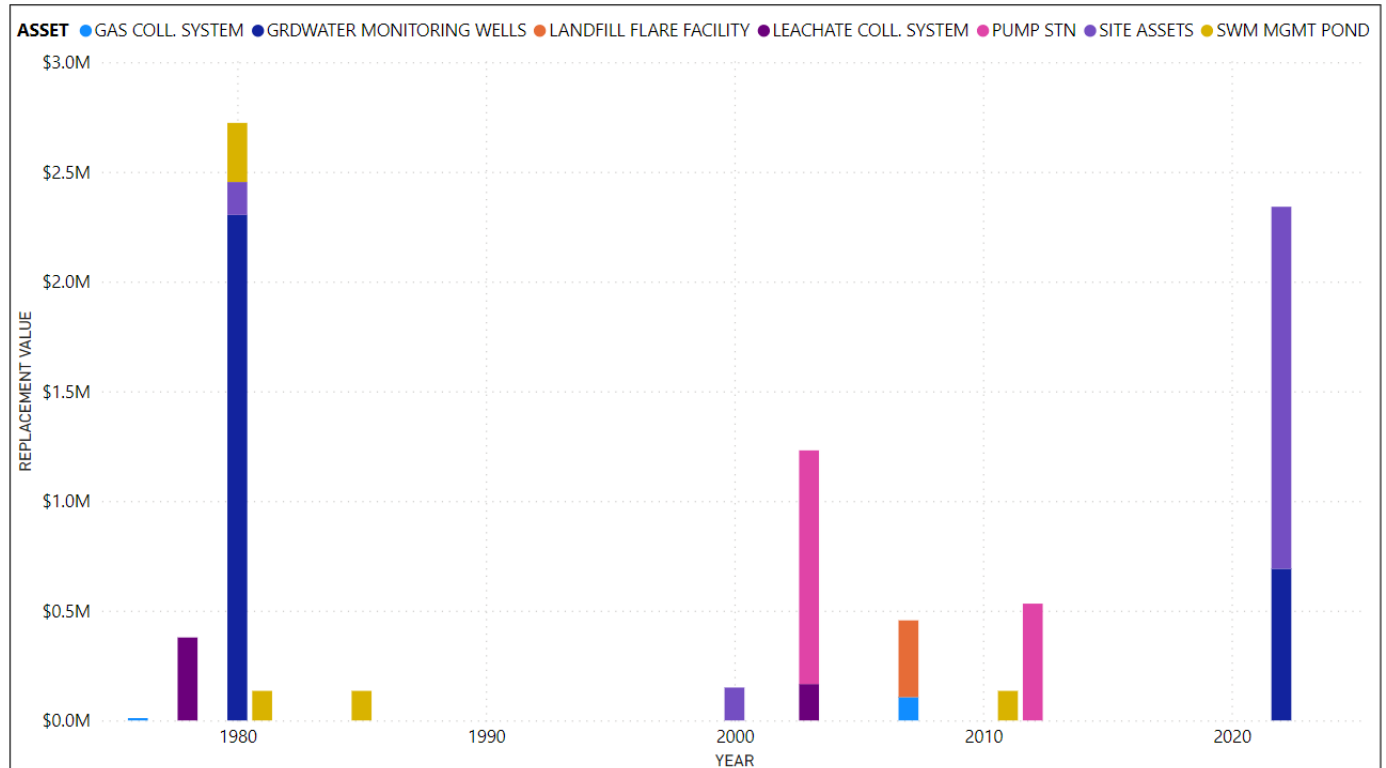
3.2.1.1 LANDFILLS - AGE PROFILE

The age profile of the landfill assets is shown in **Figure 2**. An analysis of the age profile is provided below. For landfill assets, the data confidence for age is typically low because the age of most assets in the Landfills category is assumed to correspond to the date of closure for the closed landfills where those assets are installed.

The Estimated Service Life for many landfills assets is very long. As a legal obligation, closed landfills are essentially maintained into perpetuity and the assets are not readily renewed in their entirety but rather the systems require continual maintenance.

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Figure 2: Landfill Age Profile



**The Landfill Age Profile above does not show the Landfill Asset Category, as the Replacement Value of \$250 Million would distort the scale of the remaining assets.*

- The gas collection and leachate system are installed in stages as the landfill is constructed and used in phases. The age of these systems is assumed as the same year of closure for the closed landfills and is likely older than assumed; and,
- Age of the groundwater wells was assumed equally distributed across their service life as the actual age distribution is not readily available.

3.2.1.2 LANDFILLS - CONDITION METHODOLOGY

Condition for Waste Management Landfills assets are determined based on remaining service life. Although assets are inspected regularly as part of the Condition of Approval requirements a formalized condition assessment is not completed as part of those inspections. The development of a Condition Rating tied to the regular inspections is a Continuous Improvement Item identified in **Table 27**.

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Table 5: Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Landfill Site Assets (Cover/Vegetation/Drainage control/Fence/Road) All Locations	Semi-Annual	2022	N/A
Leachate Treatment and monitoring facilities inspection and maintenance (6 Locations)	Annual	2022	N/A
Leachate Condition Assessments (6 Locations)	Every 5 years	2015 2020 Delayed due to pandemic To Be Scheduled	N/A
Pumping Stations (3 Locations)	Annual	2022	N/A
Gas Recovery Facilities Inspection and Maintenance (1 Location)	Annual	2022	N/A

3.2.1.3 LANDFILLS - ASSET CONDITION PROFILE

The condition profile for Landfills is shown below in **Figure 3**.

The landfill category includes twelve (12) closed landfills and one (1) open landfill. The condition of the closed landfills is generally rated as unknown as condition is based on age at this time. All landfills are operated and maintained as required under their Environmental Clearance Approvals. The open landfill is listed as 3-FAIR condition solely based on the age of the asset and remaining service life. At this time there is not a weighted overall condition assessment available for the open landfill. The closed landfills are shown as condition unknown however they are regularly monitored, and systems maintained in operating condition as required by legislation and due diligence requirements.

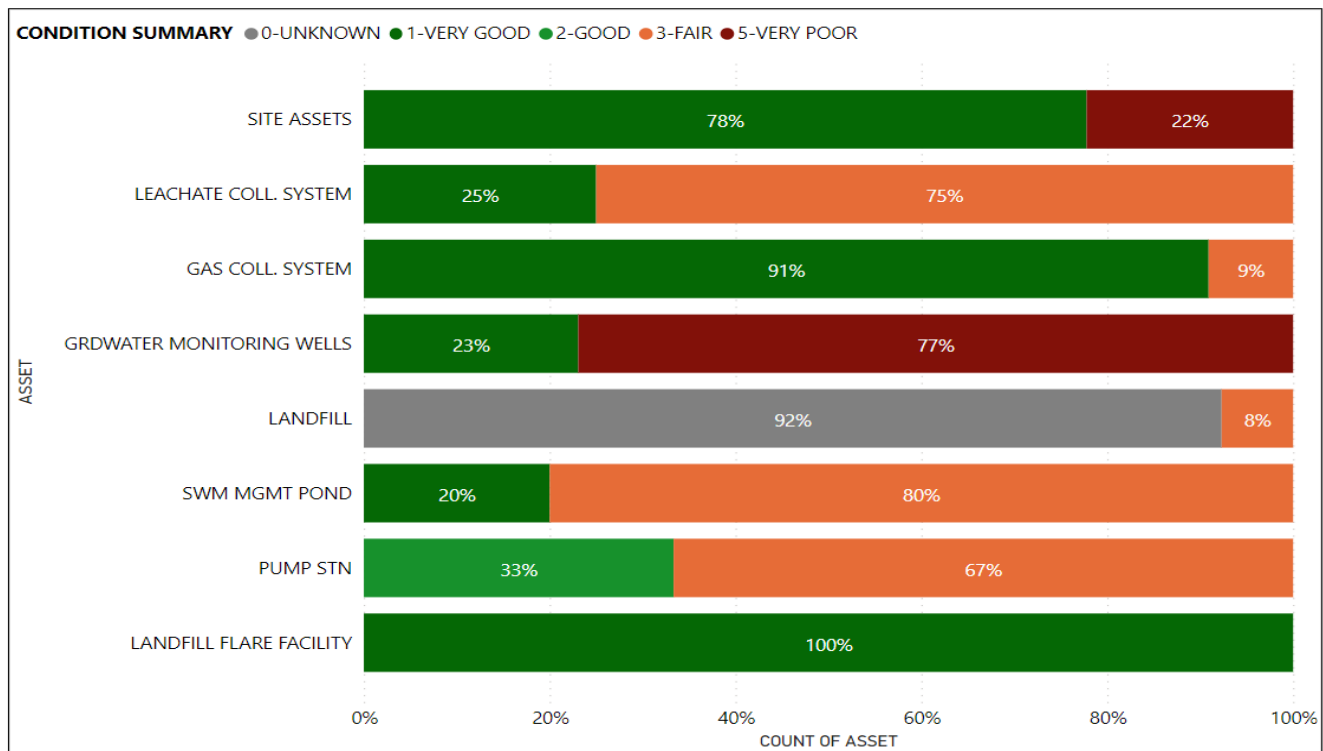
The condition of landfill assets is based on age and remaining estimated service life. A continuous improvement item identified in **Table 27** is to develop a 5-point condition rating scale to be included as part of the regular inspections. In practice landfill assets are generally not permitted to deteriorate below a 3 – FAIR condition in order to be compliant with permit requirements which require regular inspections, monitoring and reporting.

The condition of a majority of the ground monitoring wells is identified as Poor. This is based on assumed age of the assets and not based on an individual condition assessment. The ages of these assets have been assumed in two (2) groupings and is not likely representative of the

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actual age or actual condition distribution. It is known that several wells do require closure and replacement. For more details, see Asset Usage and Performance **Section 3.2.1.4**.

Figure 3: Landfill Asset Condition Distribution



3.2.1.4 LANDFILLS - ASSET USAGE AND PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The largest performance issues with Landfill Assets involve groundwater monitoring wells. The known service performance deficiencies in **Table 6** were identified using staff input.

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Table 6: Known Service Performance Deficiencies

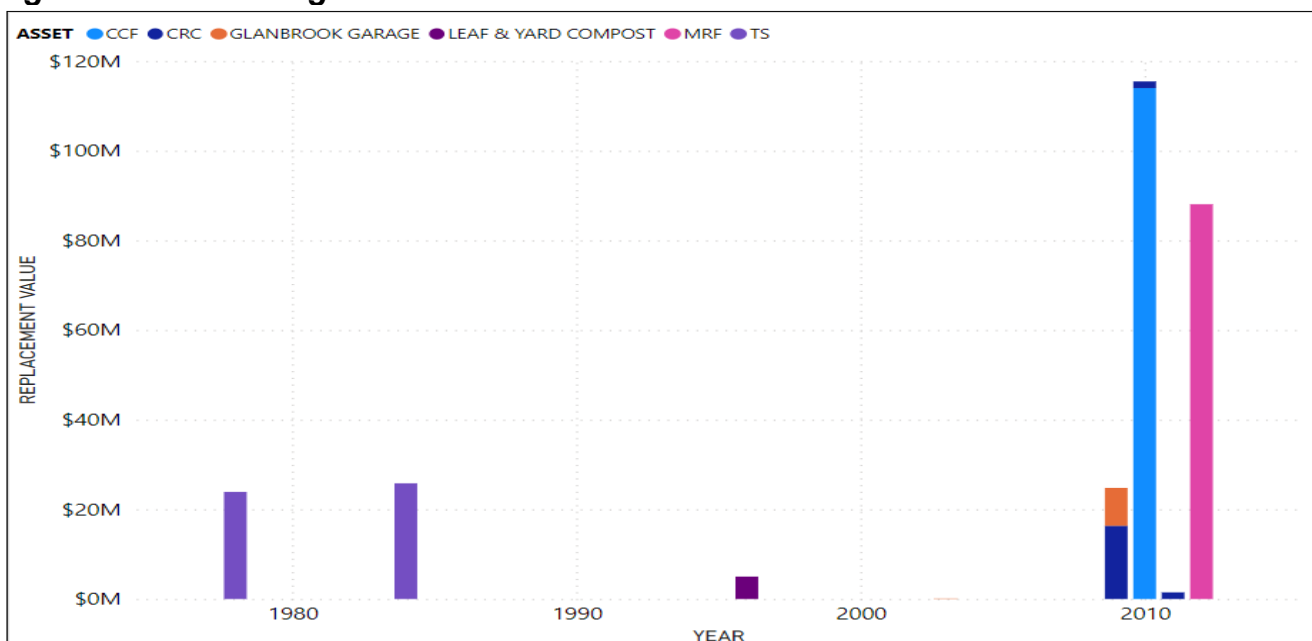
ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Groundwater Monitoring Wells	Various	Some wells exceed service life and require replacement	<p>Wells are not able to provide water for testing due to conditions, and testing must be completed at other wells.</p> <p>An inventory or quantity of these wells is not readily available at this time.</p> <p>Plan to decommission these wells if no longer required and replace some as needed in fall of 2023.</p>

3.2.2 FACILITIES

3.2.2.1 FACILITIES - AGE PROFILE

The age profile of the Waste Management Facilities assets is shown in **Figure 4**. An analysis of the age profile is provided below. For Facilities assets, the data confidence for age is typically high because this data was formally recorded at the time of construction.

Figure 4: Facilities Age Profile



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3.2.2.2 FACILITIES - CONDITION METHODOLOGY

Condition for Waste Management facilities is determined based on the results of a Building Condition Assessment (BCA). BCAs are completed on waste facilities every five (5) years and output a score called a Facility Condition Index (FCI) which is considered to be a high confidence level source. The FCI 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 Asset Management is shown in **Table 4**.

The BCA is a visual, surface level inspection which is typically a high confidence indicator of condition but does not involve detailed analysis such as cutting into walls or removing mechanical panels.

Waste Management also completed a Building and Process Equipment Condition Assessment on the CCF in 2020.

Table 7: Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
All Facilities	5 Year Regular Facilities Inspection	2020	% Facilities Condition Index (FCI)
Central Composting Facility		2016 2020	Building and Process Equipment Condition Assessment

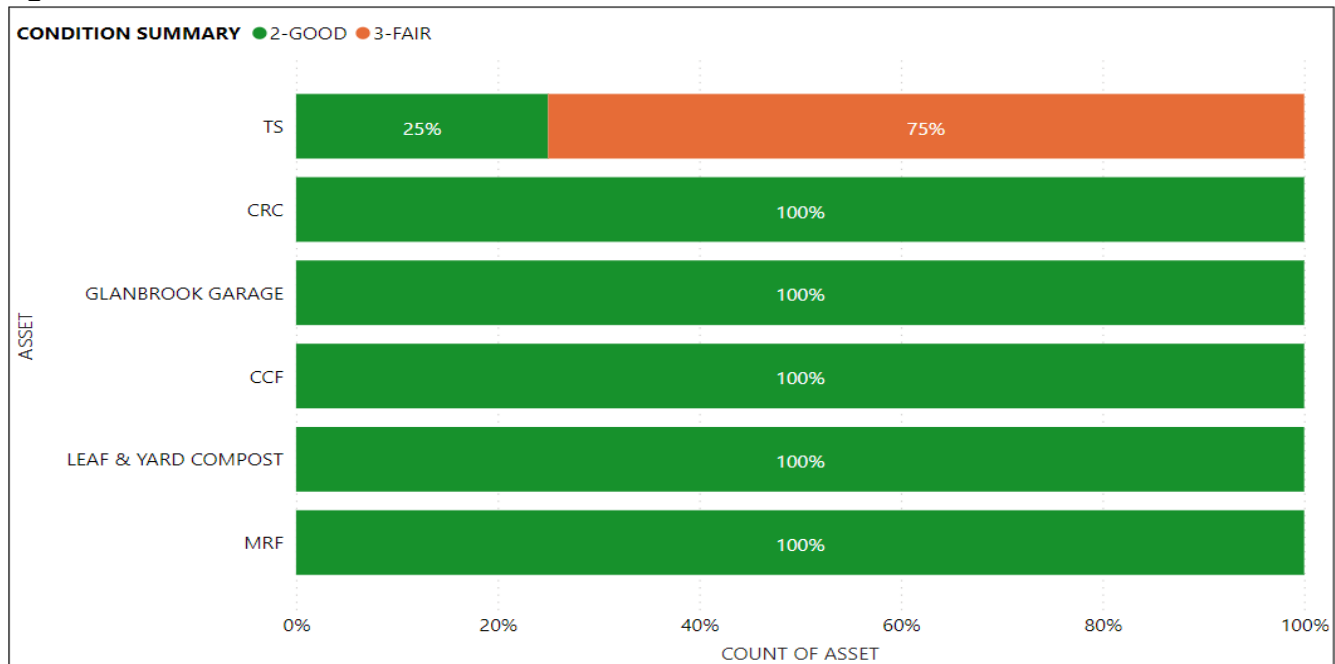
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3.2.2.3 FACILITIES - ASSET CONDITION PROFILE

The condition profile for Waste Management Facilities is shown *in Figure 5* below.

Waste Management facilities are generally in Good Condition based on the results of the BCA. Two of the TS facilities are identified as Fair Condition. The condition index also considers any processing equipment located within the facilities as this is part of the BCA evaluation.

Figure 5: Facilities Asset Condition Distribution



3.2.2.4 FACILITIES - ASSET USAGE AND PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The largest performance issues with Waste Management Facilities involve poor condition of asset components. The known service performance deficiencies in **Table 8** were identified using information from the 2020 Building Condition Assessment (BCA).

The MRF Facility has an uncertain future. This is the City's recycling processing facility which is currently operated under contract. As part of the change to the Expanded Producer Responsibility Model for the collection and processing of recyclable material the future use and need for this facility is uncertain at this time. Additionally, the current operation uses approximately 70% of the building and the other portion of the building is currently being evaluated on how to use this building most efficiently. This will impact the future replacement value of waste management assets if a portion of this building ends up being used by an outside third party or another city service.

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Table 8: Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Facilities	Central Composting Facility	Asphalt floor topping in curing storage building in fair to poor condition	The asphalt topping was worn and significantly rutted and cracked at the time of the site assessment including large cracks and uneven sections. The floor topping is considered to be in fair to poor condition.
		South office roof replacement	Blisters, ridges and signs of previously ponded water were found during the site assessment. The roof flashings were also noted to be deficient along the roof to parapet transitions. Failed sealants around flashing details and roof penetrations were also observed. Immediate repair and early term replacement are recommended.
		Bio Digester Roof Replacement	The membrane is blistered and delaminating from the below roof deck structure. Failed sealants around flashing details and roof penetrations were also observed. Immediate repair and early term replacement are recommended.
		Shredder	Shredder is at end of life
		Overhead Filling Machine	Machine showed signs of high wear.
	Dundas Transfer Station	Roof	Roof reported to have some leaks. Lifecycle replacement recommended.
		Tipping Bay concrete Floor	Floor in poor condition with areas of exposed rebar. Entrance observed to be very steep causing difficulty for vehicles to enter.
	Kenora Transfer Station	Tipping bay concrete floor	The floors in the tipping bay were observed to be in poor condition, with many areas of exposed re-bar. Repairs anticipated in 2023.
	Mountain Community	Skylights over storefront and Hazardous	Skylights reported by staff to be leaking. Repairs anticipated in 2023

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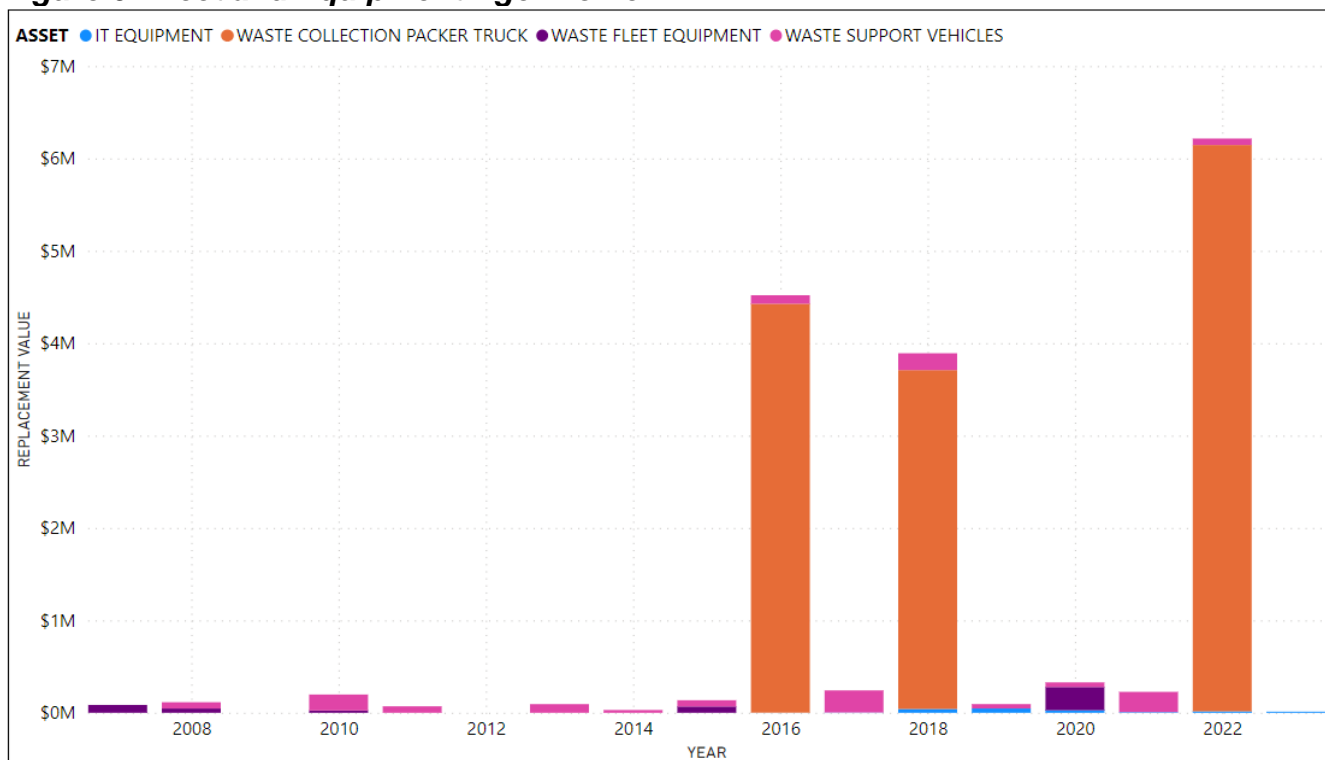
ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
	Recycling Center	household waste sorting area	
	Mountain Transfer Station	Tipping bay concrete floor	The floors in the tipping bay were observed to be in poor condition, with many areas of exposed re-bar.
	Material Recycling Facility	Radiant Tube Heaters	The radiant tube heaters were found to be in poor condition. Replace tube heaters to maintain proper building heating.

3.2.3 FLEET AND EQUIPMENT

3.2.3.1 FLEET AND EQUIPMENT - AGE PROFILE

The age profile of the Fleet and Equipment assets is shown in **Figure 6**. An analysis of the age profile is provided below. For Fleet and Equipment assets, the data confidence for age is typically High because asset ages are formally tracked, and many assets are replaced based on age.

Figure 6: Fleet and Equipment Age Profile



Waste Packer vehicles have an estimated seven (7) year service life. Most other light duty vehicles and equipment have an estimated service life of eight (8) years. Three quarter (¾) ton

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pickups and some additional equipment is estimated to have a nine (9) year estimated service life. Due to complications from COVID-19 and associated supply chain issues, many vehicle assets are being used for longer durations than anticipated.

It can be seen from the age profile graph that there are significant upcoming replacements required for IT equipment and for Waste Collection Packer Trucks based on age.

Information Technology (IT) Equipment is generally managed by the City's centralized IT group. Estimated service lives are four (4) years for enhanced laptops and five (5) years for laptops and desktop computers.

Public Space litter containers have been omitted from the graph as age information is not available.

3.2.3.2 FLEET AND EQUIPMENT - CONDITION METHODOLOGY

Vehicles are inspected and maintenance activities are conducted at specific intervals throughout the asset's lifecycle, however, no formal condition rating is assigned to each vehicle.

Condition rating is not available for public space litter containers. These are generally a binary, (i.e., they work, or they don't work) type of asset and are replaced as needed. These assets are informally inspected by staff on a regular basis when emptied and issues reported for repair or replacement.

Since there is no formal condition rating for these asset classes based on inspection the condition was estimated using the % of remaining service life and assigned a condition based on the conversion shown in **Table 4**.

A Continuous Improvement item identified in **Table 27** is to incorporate a condition rating during regular vehicle inspection/maintenance activities. This will assist waste with capital forecasting for all vehicles and provide information to make decisions about vehicle renewal.

Table 9: Inspection and Condition Information

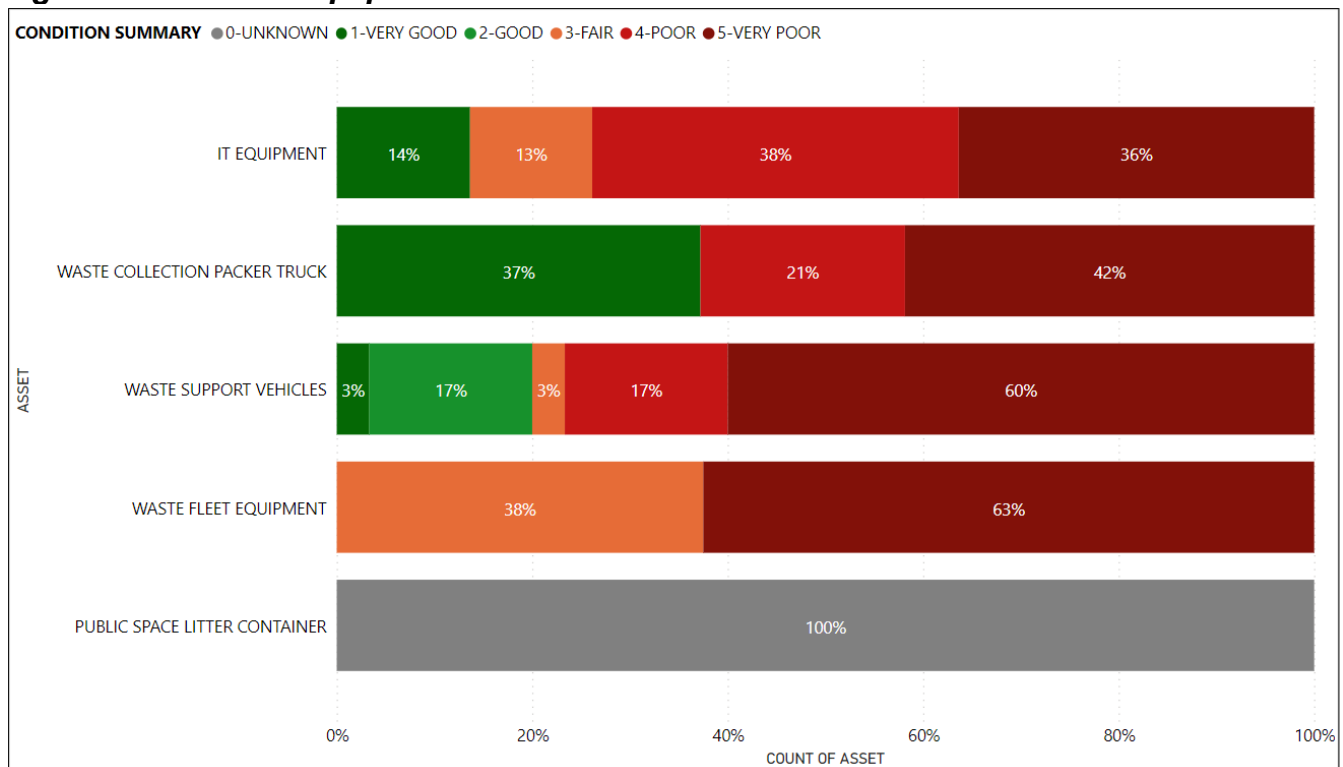
ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Fleet and Equipment	Ad Hoc	Varies	None
Public Space Litter Containers	Ad Hoc	Varies	None
IT Equipment	Ad Hoc	Varies	None

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3.2.3.3 FLEET AND EQUIPMENT - ASSET CONDITION PROFILE

The condition profile of Waste Management's Fleet and Equipment assets is shown in **Figure 7**. It can be seen that many of the vehicles and equipment are in Poor or Very Poor condition. The condition was estimated using the % of remaining service life and assigned a condition based on the conversion shown in **Table 4**.

Figure 7: Fleet and Equipment Asset Condition Distribution



There are fourteen (14) extended use vehicles included in the above fleet information. These are vehicles that have already had replacements put into service, but the area is maintaining the replaced vehicle for a period of time beyond the arrival of the replacement vehicle. The extended use vehicles have been included in the age and condition details in the Figures above and contribute to the increased percentage of Very poor vehicles. Extended use vehicles are not included in the replacement value calculations as they are still in use but upon disposal are not intended to be replaced. A continuous improvement item as shown in **Table 27** is to review the extended use vehicles/equipment and develop a long-term strategy for the fleet and their usage.

Much of the waste management services relies on fleet and equipment provided by and operated by external service providers as part of the operationally contracted services. The heavy equipment to operate the landfill, equipment operated at the Transfer Stations and Community Recycling Centres are largely all owned and operated by the contractors. Fleet equipment at

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the Central Composting Facility and the Material Recovery Facility are also owned and operated by third parties. Recycling collection vehicles across the City and Waste Collection vehicles within Zone B are also provided by the contractor.

3.2.3.4 FLEET AND EQUIPMENT - ASSET USAGE AND PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The known service performance deficiencies in **Table 9** were identified using staff input.

Table 9: Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Waste Packer Trucks	Various	Waste Collection Vehicles used beyond expected replacement interval	Vehicle shortage due to pandemic causing delays in replacing Waste Collection vehicles and will be ongoing until 2025. Increase to maintenance costs and vehicle downtime affects daily operations.

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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 Waste Management 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 6.5** of the AM Plan Overview.

4.1 SURVEY METHODOLOGY

To develop customer values and customer levels of service, a Customer Engagement Survey entitled *Let's Connect, Hamilton – City Services & Assets Review: Waste Management Services* was released February 13, 2023, on the Engage Hamilton platform and closed on March 20, 2023. The survey results can be found in **Appendix "A"** of this document.

The survey received submissions from 187 respondents and contained thirteen (13) questions related to Waste Management's service delivery. Based on the number of responses, a sample size of 187 correlates to a 95% confidence level with a 7.2% margin of error based on an approximate population size of 570,000. This was determined to be an acceptable confidence level to use to develop the customer values and customer performance measures for this AM Plan. It is important to note that respondents were allowed to opt out of questions, and as such different questions may have different confidence levels depending on the opt out rate for that question.

While these surveys were used to establish customer values and customer performance measures, it is important to note that there were also limitations to the survey methodology which may reduce the confidence level in the survey data. The survey was only released using an online platform and did not include telephone surveys and consequently there is no way to confirm the identity information provided in the survey. In addition, the survey did not control for IP addresses, and therefore it is possible that respondents could complete the survey more than once and skew the survey results.

However, when reviewing the demographic responses for the survey, there was no clear evidence that the survey results had been skewed. In addition, the responses were distributed across the City with responses from most communities as well as from a variety of self-identifications. Responses were also received from single family homes and multi-unit homes. Even when assessing the spikes in respondents per day, the results were distributed across different ages, postal codes, and self-identifiers. Therefore, although there are limitations to the survey, it does appear that these results can be used to make some conclusions about the feelings of customers on the services Waste Management provides.

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The future intent is to release this survey on a regular basis to measure the trends in customer satisfaction and ensure that the City is providing the agreed level of service as well as to improve the marketing strategy by incorporating telephone surveys and IP controls to improve confidence levels in the survey responses. This has been noted in **Table 27** in the continuous improvement section.

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 ten (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 *Let's Connect, Hamilton – City Services & Assets Review: Waste Management survey*.

Table 10: Customer Values

SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Garbage Collection Program, Blue Box Program, Yard Waste Program, Community Recycling Centre/Transfer Station, Green Bin Program	2023 Waste Management City Services & Assets Review Survey	Survey respondents on average feel these are very important services for Waste Management to be responsible for providing.	Maintain

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Bulk/Large Item pickup up program, Trash Tag Program, Education in Schools/Community Groups/Multi Residential Buildings		Survey respondents, on average, feel these are important services for Waste Management to be responsible for providing.	Maintain
Recycling and Waste Collection Calendar, Reuse Stores at CRC's.		Based on survey responses, there are differing opinions on if these services are considered important for Waste Management to be responsible for providing.	Maintain
Recycle Coach App		Based on survey responses, there are differing opinions on if this service is considered fairly important for Waste Management to be responsible for providing.	Maintain
Waste to Energy, Waste Digestion Chambers, Waste Palletization plants, Community Garden/Composting, Upgrading Processes and infrastructure should be considered as future needs.		Survey respondents, on average, feel these are important services for Waste Management to consider supporting and/or promoting in the future.	N/A

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Reduction in garbage pickup frequency (i.e., biweekly collection) is a divided subject.		Based on survey Responses, there are differing opinions on if this service is considered fairly important for Waste Management to consider supporting and/or promoting in the future.	N/A
Rate Levels should be maintained.		Survey respondents, on average, would prefer to minimize rate level increases and maintain service levels.	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 City's Waste Management 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.

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 11** 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 current budget allocation.

Table 11: Customer Levels of Service

TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Quality / Condition	Provide high performing waste management services.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on how Waste Management has performed overall in the last 24 months in all service areas (Q2)	Good	Maintain
		Confidence levels		Average 9% margin of error on a 95% confidence interval with a standard deviation of 1.15	
	Provide services in a safe and effective manner.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on if users felt safe and comfortable while accessing Waste Management services. (Q6)	Comfortable	Maintain
		Confidence levels		Average 9% marring of error on a 95% confidence interval with a standard deviation of 0.93	
		2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on if waste collection vehicles were operated safely in the community	Agree	Maintain
		Confidence levels		Average 7% margin of error on a 95% confidence interval with a standard deviation of 0.96	
	Ensure that waste management assets are kept in good condition.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on if waste collection vehicles do not have strong odours	Agree	Maintain
		Confidence levels		Average 8% margin of error on a 95% confidence interval with a standard deviation of 1.01	
	Be fiscally responsible when delivering services.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on if Waste Management is providing good value for money when providing infrastructure and services. (Q13)	Good	Maintain
		Confidence levels		Average 9% margin of error on a 95% confidence interval with a standard deviation of 1.16	
Function	Ensure waste management services are meeting needs.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on if the services provided by Waste Management are meeting needs overall (Q5)	Meets	Maintain
		Confidence levels		Average 9% margin of error on a 95% confidence interval with a standard deviation of 1.00	
Capacity	Ensure waste management services are accessible to the public when required.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on satisfaction with their ability to be access waste management services overall (Q4)	Satisfied	Maintain
		Confidence levels		Average 9% margin of error on a 95% confidence interval with a standard deviation of 1.00	
	Ensure waste management has resources to deliver timely collection.	2023 Waste Management City Service & Assets Review survey	Average survey respondent opinion on if Waste Management missed a collection (Green Bin, Blue Box, Garbage Collection, Yard Waste)	Rarely (twice a year)	Maintain
		Confidence levels		Average 8% margin of error on a 95% confidence interval with a standard deviation of 0.99	

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4.3.1 CUSTOMER INDICES

The three (3) indices calculated to assess how customer expectations for a service are aligning with the perceived performance for a service are listed below in **Table 12**. These indices are explained and analyzed in detail in the sections below.

Table 12: Customer Indices

Customer Indices	Average Result	Confidence Level
Service Importance Versus Performance Net Differential	-11	TBD
Net Promoter Score (%)	32.37%	TBD
Service Rates Versus Value for Money Net Differential	15	TBD

The information below is intended to provide context around the survey results to assist waste management with areas to further investigate before proposing any new levels of service.

SERVICE IMPORTANCE VERSUS PERFORMANCE INDICE

The Service Importance versus Performance indices is used to determine if a service's importance correlates with the perceived performance. Service areas where the average importance rating exceeds the average performance rating by twenty (20) points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale.

Per Figure 8 below the net differential exceeds twenty (20) points for Education in Schools / Community Groups / Multi-Residential Buildings and for Garbage Collection Program. This indicates that although survey responders consider these services to be Important and Very Important respectively, they also perceive that Waste Management only performed average and good in these areas. The Education component may be skewed as the opt out rate for responding on the comparison was nearly 63% and the standard deviation for performance and importance both exceed 1.23 indicating there is some difference of opinion by customers. The agreement for Garbage Collection program is less divided for importance however when considering performance, the standard deviation is 1.25 meaning people are experiencing this program differently leading to a wider variety of answers.

Overall, the performance of all services is less than Importance by 11%. To reduce the net differential Waste Management would need to increase their performance from Average to Good which could be accomplished by altering their Technical Levels of Service, explained **in Section 4.3.2**. If Waste Management were looking for service areas to improve, these would be the key services to investigate further. However, whether the customer is willing to pay for this increase in service is determined by the Service Rates Versus Value for Money Net Differential which is explained in the section below.

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Although there were percentages of respondents who opted out of the question, there is still a significant enough sample size to have a degree of confidence in these results.

Figure 8: Importance Versus Performance Index Score

Service Area	Importance (index score)	Performance (index score)	Net Differential	Opt Out %
Average	83	73	-11	26.6
Education in Schools / Community Groups / Multi-Residential Buildings	79	52	-27	62.9
Garbage Collection Program	96	73	-23	5.0
Blue Box Program	92	75	-17	4.4
Green Bin Program	90	75	-15	11.2
Yard Waste Program	91	76	-14	12.3
Bulk/Large Item Pick Up Program	86	73	-13	35.5
Community Recycling Centre/Transfer Station	90	79	-12	16.7
Trash Tag Program	80	76	-5	16.9
Reuse Stores at Community Recycling Centres	73	75	2	55.2
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	78	81	3	16.0
Recycle Coach APP	63	67	3	65.4

NET PROMOTER SCORE INDICE

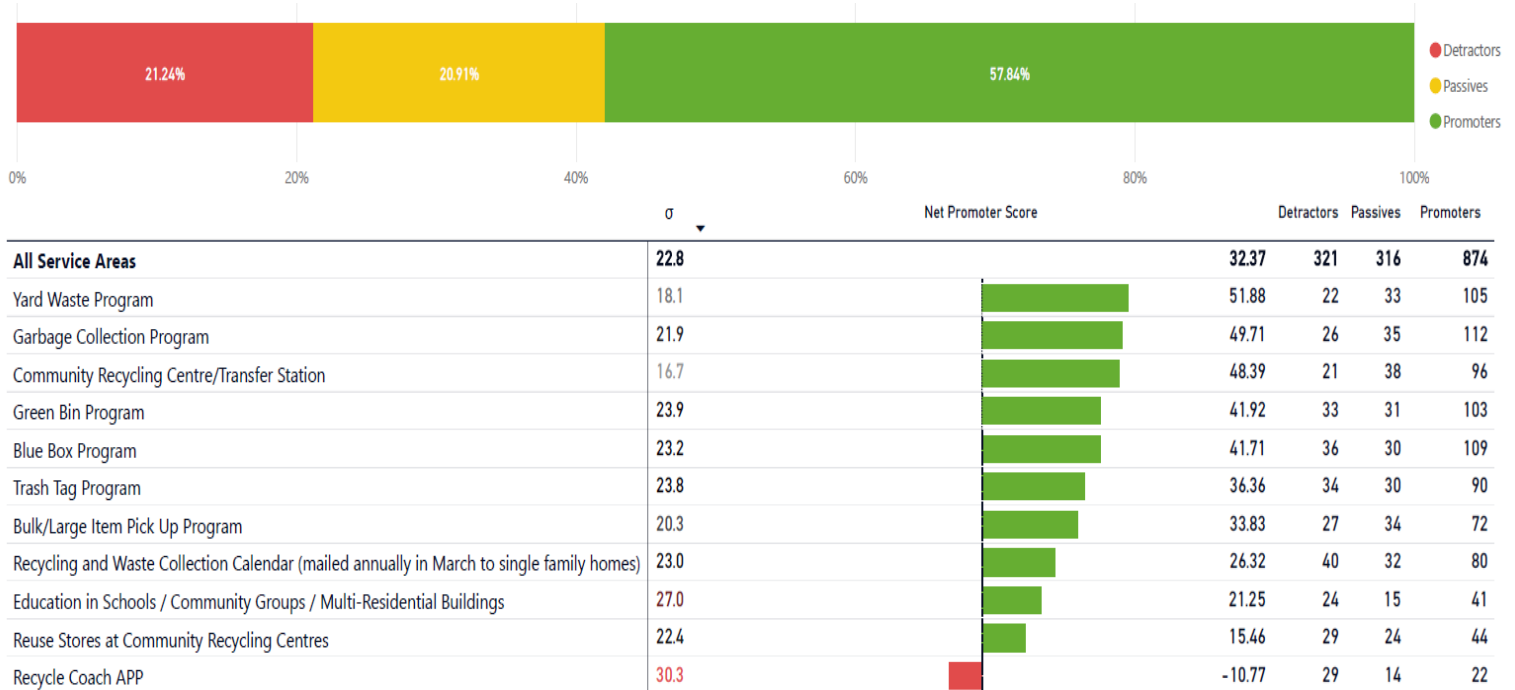
The Net Promoter Score indices outline how likely an individual is to recommend a service to another person and measures customer loyalty. For municipal services, this score is difficult to interpret because often times individuals do not have many alternatives for utilizing different services and also there may be internal biases for certain service areas, however, this score does provide valuable information for if customers would recommend using the service or whether they may seek alternatives or avoid using the service altogether.

Likert choices less than a score of four (4) are considered 'Detractors' meaning that they would not recommend the service, while scores of five (5) are considered 'Promoters' who would recommend the service, and scores of four (4) are considered 'Passive' which means they do not have strong feelings about the service. Respondents who opted out by not answering or selecting 'Can't Say' were removed from the sample. Net Promoter score is calculated by subtracting (% Promoters) and (% Detractors). The Standard Deviation (σ) is calculated in percent, the same units as the Net Promoter Score.

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Per **Figure 9** below, generally most users of the service would recommend Waste Management to another person. A net promotor score above thirty (30) is considered “great”. However, the standard deviation is greater than twenty (20) which does show that survey respondents were divided on their opinion on most of these services. It is evident that the least recommended service offered by Waste Management is the Recycle Coach App. This may be worth investigating by Waste Management why this free App is not recommended.

Figure 9: Net Promoter Score



SERVICE RATES VERSUS VALUE FOR MONEY INDICE

The Service Rates versus Value for Money indices is used to determine if the rate an individual is paying for a service correlates with the perceived value for money. Service areas where rate level ratings exceed value for money ratings by twenty (20) points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale. Positive Net Differential values indicate that 'Value for Money' was greater than willingness for 'Rates'. Low index scores in 'Rates' indicate that respondents are not willing to pay increased rates for the service area. All values were calculated and then rounded to the nearest whole number.

Per **Figure 10** below, survey respondents generally perceived they were getting Good value for money across all services and thought that Waste Management should minimize service cuts and maintain rates across all services as well. The average standard deviation for Value for Money was 1.16 and for Rate Level was 1.06 showing general agreement on the responses. Value exceeds rate by 20 for the Recycling Coach App and the Recycling and Waste Collection

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calendar. These are two service areas where the perception is that value exceeds rates and could be areas to investigate for service reduction to better align rates and value. There are no service areas where rates exceed value meaning Waste Management provides good value for rates. Therefore, based on these conclusions, Waste Management should consider only increasing rate levels to the minimum required to maintain the current levels of service.

Figure 10: Rates Versus Value for Money Index Score

Service Area	Rates (index score)	Value for Money (index score)	Net Differential	Opt Out %
Average	60	75	15	26.2
Recycle Coach APP	44	67	23	60.2
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	56	77	22	19.0
Trash Tag Program	60	76	16	17.9
Reuse Stores at Community Recycling Centres	56	71	15	47.6
Green Bin Program	64	79	14	11.5
Community Recycling Centre/Transfer Station	66	80	14	17.9
Yard Waste Program	67	79	13	13.7
Garbage Collection Program	65	77	12	7.3
Bulk/Large Item Pick Up Program	62	75	12	29.4
Education in Schools / Community Groups / Multi-Residential Buildings	58	69	12	56.4
Blue Box Program	66	75	9	7.5

4.3.2 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.^{2F}

² IPWEA, 2015, IIMM, p 2|28.

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Table 14 shows the activities expected to be provided under the current ten (10)- year Planned Budget allocation and the Forecast activity requirements being recommended in this AM Plan.

Table 13: Technical Levels of Service

LIFECYCLE ACTIVITY	LEVEL OF SERVICE STATEMENT	ACTIVITY MEASURE	CURRENT PERFORMANCE* (2022)	CURRENT TARGET PERFORMANCE (2023)	PROPOSED 10-YEAR PERFORMANCE (2023-2032)
Acquisition	Ensure Waste Management has the capacity to meet collection service needs due to growth	Number of new Waste Collection vehicles purchased or added to contracts due to growth / demand to 2023 baseline. This may also be accomplished by growth provisions in the contract depending upon if the growth occurs in A zone or B Zone	0	1 additional truck per 1,900 additional low and medium density units	6
		Budget			\$2.4 M Acquisition, \$0.6 M Annually by 2032 Operation /Mtce
Operation	Ensure Waste Management Assets are kept in safe and acceptable repair and issues are resolved in a timely manner	Litter Complaints at Glanbrook Landfill (2754)	0	0	0
		Verified Odour Complaints at Glanbrook Landfill (2755)	1	0	0
		Verified Odour Complaints at Central Composting Facility (1400)	0	0	0
		Number of Missed collections per 10,000	3.55	4	4

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LIFECYCLE ACTIVITY	LEVEL OF SERVICE STATEMENT	ACTIVITY MEASURE	CURRENT PERFORMANCE* (2022)	CURRENT TARGET PERFORMANCE (2023)	PROPOSED 10-YEAR PERFORMANCE (2023-2032)
		pickups (excludes bulk) (1410)			
		Number of TSCRC Audits and MRF Truck Audits Completed (Metric 4052, 4054, 4055, 4056)	57	48	48
		Total Presentations Delivered (4655) <i>*Quantity will decrease as transition from Virtual to In Person</i>	351	218*	218
		# of Recycle Coach App on Phones (4488)	20,071	21,476	22,000
		Budget			No Change
	Ensure waste management assets have optimal use/lifecycle	Residential Waste Diversion Rate (4546) <i>*Unverified by RPRA</i>	42%*	65%	65%
		Waste to Soil Ratio Glanbrook (1580)	7.48	7	7
		Leachate Volume Glanbrook (1581)	11.49	7	7
		Budget		TBD	TBD
Maintenan ce*	Ensure Waste Management Assets are kept in safe and acceptable repair and issues are	Active Waste Collection Fleet Actual Maintenance Costs to Budget (<i>*Monthly Average - 2021 actuals</i>)	415.7 %*	100%	100%
		Average %FCI of CRCs and TS's	2.2%	<5%	<5%
		Average %FCI of MRF	N/A	<5%	<5%

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LIFECYCLE ACTIVITY	LEVEL OF SERVICE STATEMENT	ACTIVITY MEASURE	CURRENT PERFORMANCE* (2022)	CURRENT TARGET PERFORMANCE (2023)	PROPOSED 10-YEAR PERFORMANCE (2023-2032)
	resolved in a timely manner	Average %FCI of CRC	0.24%	<5%	<5%
		Budget		TBD	TBD
Renewal	Ensure that Waste Management Assets are replaced when required	% of Waste Management Collection vehicles over replacement service life target (7 years)	14%	0%	0%

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

It is important to note that these metrics were created specifically for this 2023 AM Plan with available data. These metrics should be improved to include a target to be in line with SMART objectives identified in the AMP Overview. In addition, performance measure data should be both easy to extract and measured over time, and a data collection process may likely need to be created. These have been identified as a continuous improvement items in **Table 27**.

4.3.3 PROPOSED LEVELS OF SERVICE DISCUSSION

At this time, the City's technical metrics for the waste management service area are largely based on the number of complaints received or the reported condition of assets. It is evident per **Table 13** that the City is typically meeting these standards with a few exceptions. Customer preferences and expectations do not always match our Technical LOS requirements and are better measured through customer feedback including surveys. As mentioned in **Section 4.1**, while these surveys were used to establish customer values and customer performance measures, it's important to note that the number of survey respondents currently only represents a small portion of the population however the Customer Survey responses overall can be taken as a 95% confidence level with a 7% margin of error. 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. Therefore, the information below is intended to provide context to direct Waste Management to areas for further investigate before proposing any new levels of service.

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CONDITION/QUALITY

Based on **Table 11** above, survey respondents rated the overall service as good and felt comfortable accessing services. Waste management should consider that customers are not identifying a need for changes related to the condition or quality of the services provided and that any proposed changes would be done at their discretion in terms of operational needs. Customers were divided when asked about the reduction in waste collection frequency. Based on survey responses, there are differing opinions, if changes to frequency are considered fairly important for Waste Management to consider supporting and/or promoting in the future. At this time, it appears that rate levels should only be increased to the minimum required to maintain current levels of service and any legislated requirements.

FUNCTION

Based on **Table 11**, survey respondents felt that waste management services generally meet their needs. Waste management should consider that customers are not identifying a need for changes related to function of their services and any proposed changes would be done at their own discretion in terms of operational needs.

Change in Function related to recycling programs is required through legislated change and is not discretionary for Waste Management. Customers also felt it was important for Waste Management to continue to investigate alternative waste treatment technologies as future needs (i.e., Waste to Energy, Waste Digestion Chambers, Waste Palletization plants, Community Garden/Composting, Upgrading Processes and infrastructure should be considered as future needs. These ideas need to be further developed before future levels of service could be proposed relating to new technologies. At this time, it appears that function should be maintained and increased as driven by growth to maintain current levels of service and any legislated functions.

CAPACITY

Based on **Table 11**, survey respondents were generally satisfied with their ability to access Waste Management services. Waste Management is currently reviewing the operational needs at the existing three (3) TS/CRC locations. They are also studying the need for a potential fourth location. For the TS/CRC service, survey respondents rated importance higher than performance and identify that value exceeds rates so waste management should consider this input as part of their analysis that customers might benefit from additional capacity at TS/CRC and may be supportive of increasing rates to match the value. Waste collection vehicle collection capacity at this time should be increased only to match growth and as needed to maintain current levels of service.

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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 of the City to be able to predict future demand for services enables the City to plan 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 number of services (growth-driven household increases or changes to pick-up schedules) and types of service required (e.g., new waste collection/diversion/processing services)

5.1 DEMAND DRIVERS

For the Waste service area, the key drivers are population change, growth in low and medium-density housing units, climate change, and customer preferences and expectations. Legislative changes can also impact demand such as the Expanded Producer Responsibility Model for the collection and processing of recyclable material by 2026.

5.2 DEMAND FORECASTS

The high-level present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented in **Table 14**. At this time, specific projections have not been calculated and will be updated in the 2025 AM Plan per the timelines stated in the AMP Overview. In addition, growth projections have been shown in the AMP Overview.

Where costs are known, these additional demands as well as anticipated operations and maintenance costs or reductions have been encompassed in the Lifecycle Models 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 14**. 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.

Opportunities identified to date for demand management are shown in **Table 14**. Climate change mitigation and adaptation demands are included in **Section 7.0**. Many of these demands are difficult to predict at this time and therefore they are not included in the Lifecycle Management Plan at this time.

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Table 14: Demand Management Plan

DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Population Growth and Development	569,355 (2021)	636,080 (2031) Growing by 7,000 low and medium density units over next 10 years	Population growth will increase demand on waste management collection and processing services with new properties to collect from and additional material to process. (1 Truck per 1,900 additional low and medium density units) Increase in development review requirements and customer service requests	Solid Waste Management Master Plan Actions Route Optimization Study 6 additional collection vehicle trucks and/or contract expansion needed due to growth in next 10 years TS/CRC require expansion or 4 th TS/CRC location required
Environmental awareness	2 Stream Recycling system with specified recyclable materials and Green Bin Organics	Desire for additional product recycling/waste diversion (e.g., black plastic & Styrofoam) Public desire or regulatory requirement for additional organic diversion	Possible new services/processes required for new waste streams Public recycles incorrect items causing contamination of waste streams	Support Community reduce and reuse programs Increase curb side enforcement Investigate management of construction and demolition waste

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DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Regulatory Change - Waste Free Ontario Act	Municipalities are currently Responsible for Blue Box Program	<p>Hamilton Transition Date is 2025-04-01</p> <p>By 2026, all blue box related materials from eligible properties will be managed by the Expanded Producer Responsibility Model for the collection and processing of recyclable material</p>	<p>Impact to existing Waste Collection contracts which end in 2028.</p> <p>Possible changes in what/how recycling collection occurs</p> <p>Possible changes in how and where materials are processed</p> <p>Potential service by the municipality if acting as a service provider to the Producers, i.e. non-residential customers</p>	<p>Transition Plan development is underway.</p> <p>Carryout feasibility study related to MRF and CCF should processing no longer be completed at our facilities</p>

5.4 ASSET PROGRAMS TO MEET DEMAND

The new assets required to meet demand may be acquired, donated or constructed. Additional trucks and/or expanded services under existing contracts are required to service demand. This has already been anticipated and captured in the waste collection contract, B Zones. Regarding city waste collection operations in the A Zones, it is projected that six (6) additional waste collection vehicles are needed to meet growth in households over the next ten (10) years. The City is also examining the expansion of and/or process improvements of the three (3) existing TS/CRC to improve capacity at peak times. The study to identify and recommend improvements at the existing TS/CRC is currently underway and the impacts on lifecycle and costs will be better defined in a future AM Plan.

Acquiring new assets would commit the City to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan where they are known.

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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’³.

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 15**. Failure modes may include physical failure, collapse or essential service interruption.

Table 15: Critical Assets

CRITICAL ASSET(S)	FAILURE MODE	IMPACT
Leachate Pumping Station	Failure of pump system	Leachate backup into landfill can cause embankment failures or overflow of storage system causing discharge to the environment
Landfill (Open)	Loss of ECA Permit from non-compliance	Unable to accept waste – would need to ship waste to alternative facility until restored.

³ ISO 31000:2009, p 2

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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 risk:
- The likelihood of the risk event occurring;
- The consequences should the event occur;
- The 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 16**. It is essential that these critical risks and costs are reported to management. Additional risks will be developed in future iterations of the plan and is identified in **Table 27** in the Continuous Improvement Section of the plan.

Table 16: Risks and Treatment Plans

Note * The Residual Risk Is the Risk Remaining After the Selected Risk Treatment Plan Is Implemented.

SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
Waste Packer Trucks	Higher level of breakdowns due to delayed replacements. Spare vehicles require 2 staff to operate (rear loader) than scheduled with side loaders. Routes run short or delayed. Will continue until 2025 when fleet replacement back on schedule	High	Replace End of Life Vehicles as soon as supply chain permits.	Medium	\$4.1 Million in 2023 for 8 new vehicles

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SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
Waste Collection	Contracted collection services withdrawn with little notice. Waste not collected.	High	Alternative collection strategies; waste drop off locations	Medium	TBD
Waste Processing	Contracted processing services (Transfer Stations/Community Recycling Centers, Landfill) withdrawn with little notice. Materials go to landfill and reduce diversion rate. Loss of sales on recoverable materials	High	Short term waste diversion strategy to alternative locations, landfill of organics / recyclables	Medium	TBD

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. We do not currently measure our resilience in service delivery and this will be included in the next iteration of the AM Plan.

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.

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 Waste Management cannot afford to do over the next ten (10) years with their existing budget and provides the associated service and risk tradeoffs.

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Table 17: Services 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)
Construction of 4 th CRC/TS, current budget amount will permit operational improvements only at existing locations. Study underway.	Existing CRC/TS may continue to experience long lines and impacts to roadway traffic at peak periods	Increased risk of illegal dumping as people don't want to wait. Longer operating hours and increased volumes create wear and tear on existing facilities.
Expansion of yard waste compost pad capacity when being relocated to permit opening of Glanbrook Landfill Phase 3.	Unable to expand the capacity of the Compost Pad when being relocated	Unable to accept increasing volumes of yard waste due to processing limitations

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7. CLIMATE CHANGE MITIGATION & ADAPTATION

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 27**.

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.

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;

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- 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 18** 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 AMP, and new projects should incorporate GHG emissions reduction methods, and changes which will be incorporated into future iterations of the AMP. This has been identified as a continuous improvement item in **Table 27**.

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.

Waste Management is a key contributor to the *revolutionizing renewables* transformation with the development of a future organic waste strategy.

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Table 18: Climate Change Demand - Mitigation

CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	POTENTIAL IMPACT TO SERVICE/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.	Moving towards purchasing new packer trucks using CNG as a fuel source. Currently investigating the feasibility of electric waste collection packers.	<p>Purchase of 8 CNG powered packer trucks in 2023.</p> <p>Develop on-site refueling infrastructure using mobile refillable tanks</p> <p>Continue to investigate technology to capture gas at Landfill to net zero goals with Hamilton Renewable Power Inc at end of current Ontario Power Authority generator contract.</p>
		Electric vehicle chargers for support vehicles will need to be installed that yards. Initial upfront cost for electric vehicles.	Climate lens tool and business case will be used to develop rationale for electric vehicle fleet conversion and charger requirements.
Revolutionizing Renewables	By 2050, 50% of municipal buildings will add rooftop solar PV, covering 30% of the building's electrical load.	The addition of solar at the facilities would not impact operations and has been considered before at the CCF and at the landfill.	<p>Work with Energy and facilities division to conduct feasibility studies. Consider this goal for any new facilities to be constructed.</p> <p>Monitor feasibility of ground mounted solar at Landfill and availability of grid connection capacity.</p>
	By 2050, 95% of organic waste is sent to anaerobic digestion for local energy use.	Waste management has the ability to contribute towards this goal. To contribute to the goal the central composting facility	<p>Support action 17 in the energy emissions plan</p> <p>In order to reach net zero, as much organic waste as possible should be diverted from the landfill and used as</p>

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CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	POTENTIAL IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
		would need major capital changes to the facility to allow for gas capture and improved odor equipment. Alternatively, to meet this goal the organics from the curbside program could be sent to a facility other than the CCF. (this would leave the CCF without a use) Finally A new anaerobic digester could be built, this would require radical collaboration between city groups and industry partners. (Waste Management, Hamilton water, Energy and facilities division)	feedstock for anaerobic digester (AD) systems. Ideally, the City needs a centralized system for multiple local organic waste streams to achieve economies of scale. Organics opportunities report will be developed by the end of Q2 2024. May require significant capital investment once opportunities are better developed and a preferred alternative developed.

MITIGATION RISK ANALYSIS

Additionally, since the risk of not completing climate change mitigation projects is that the City continues to contribute to climate change in varying degrees which were modelled in the Climate Science Report for the City of Hamilton completed by ICLEI Canada, a risk analysis has not been completed in this AMP for not completing climate mitigation projects (ICLEI Canada, 2021).

CURRENT MITIGATION PROJECTS

Mitigation projects waste management is currently pursuing are outlined below in **Table 19**. These projects may already be included in the budget and may be quantified in the lifecycle models.

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Table 19: Building Asset Mitigation to Climate Change

PROJECT	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
CNG Fleet Conversion	Replacement of 8 end of life Diesel powered garbage packer trucks with Compressed Natural Gas packer trucks in 2023	Reduction in Greenhouse Gases approximately 99 tonnes annually
Various LED (Light Emitting Diode) Conversion Projects	10 Year Facilities Needs identifies 15 possible LED conversion projects at Waste Facilities locations when existing lighting reaches end of life (Approx. \$335k of identified forecast maintenance needs)	Reduction in electricity consumption, reducing greenhouse gases.

CLIMATE MITIGATION DISCUSSION

At this time Waste Management has made progress on moving towards *Changing How we Move* pursuing the renewal of diesel-powered vehicles with Natural Gas Heavy Duty vehicles. Waste will also support and implement any Central Fleet requirements for moving towards electric powered light duty vehicles at the appropriate replacement cycles.

Waste Management is a key contributor to the *Revolutionizing Renewables* target as the service provider who collects and disposes of organic waste for the City of Hamilton. Work is just beginning on what this strategy and plan requires into the future.

7.2 CLIMATE CHANGE ADAPTATION

Climate Adaptation refers to the process of adjusting to actual or expected climate and its effects (e.g. building stormwater pipes under roads that will handle forecasted increased stormwater capacity and reduce regular road flooding).

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.^{3F4}

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

⁴ IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

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ADAPTATION DEMAND ANALYSIS

These impact areas were incorporated into the climate change adaptation analysis for this service area by:

- Identifying the asset specific adaptation impact statements that affected the service areas;
- Discussing the potential impacts on the asset/service using the projected change in climate using the RCP4.5 Scenario; and,
- Proposing a preliminary demand management plan to adapt to these impacts as shown in **Table 20** below.

It is important to note that 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 and financial models at this time. The demand management plans discussed in this section should be explored by asset owners in more detail following the AMP, and new projects should consider these adaptation impacts during the planning and design processes. Once the demand management plans are more finalized, the information will be incorporated into future iterations of the AMP. This has been identified as a continuous improvement item in **Table 27**.

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 adaptation projects.

Table 20: Managing the Demand of Climate Change on Assets and Services

ADAPTATION IMPACT STATEMENT	BASELINE** (1976 - 2005)	AVERAGE PROJECTED** CHANGE IN 2021-2050 (ASSUMING RCP4.5* SCENARIO)	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
Increased instances of heat-related issues due to extreme heat.	25.9 degrees Celsius average summer seasonal temperature	27 degrees Celsius average summer seasonal temperature	Due to extended extreme heat Waste Collection staff would need to take more frequent breaks to cool down in their trucks, causing possible delays in collecting waste.	Standard procedure for communicating delays in collection

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ADAPTATION IMPACT STATEMENT	BASELINE** (1976 - 2005)	AVERAGE PROJECTED** CHANGE IN 2021-2050 (ASSUMING RCP4.5* SCENARIO)	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
	25.9 degrees Celsius average summer seasonal temperature And; 16.1 average days where temperature is 30 degrees Celsius or more	27 degrees Celsius average summer seasonal temperature And; 34.4 average days where temperature is 30 degrees Celsius or more	The temperature of the biofilter is affected by the ambient outdoor temperature. Environmental Compliance Approval (ECA) prescribes a Maximum Operating Temperature for the materials at the Central Composting Facility	The biofilter at the CCF would need to be closely monitored for temperature to ensure proper conditions for bacteria. Temperature exceedances monitored for reporting to Ministry of Environment Conservation and Parks if required for compliance to operating conditions.
Changes in the frequency of extreme rainfall events will result in increased instances of flooding on private and public properties.	6.7 heavy precipitation days (20 mm)	7.7 heavy precipitation days (20 mm)	Transfer stations play an important role in the management of storm and flooding events. These facilities accept branches and yard material collected after storm events. They also accept waste and recyclables cleaned up after flood events.	Ensure sufficient capacity at transfer stations prior to storm events. extend facility hours. Waive tipping fees for storm damage. Continue plans for 4th transfer station and keep in mind it's need during climate change related events (wind, rain, flooding)

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ADAPTATION IMPACT STATEMENT	BASELINE** (1976 - 2005)	AVERAGE PROJECTED** CHANGE IN 2021-2050 (ASSUMING RCP4.5* SCENARIO)	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	May affect processing organics and odour as outages affect ability to run tunnel fans providing aeration at full capacity Materials Recycling Facility equipment cannot process during outages	Maintain on site backup generator for outages Divert organics to another facility. Send organics to landfill. Verify Backup generation capacity at Materials Recycling Facility and/or develop resiliency plan for extended outages
More rainfall or dry periods will change tonnage peaks. This changes hours of collection (clean ups)	6.7 heavy precipitation days (20 mm)	7.7 heavy precipitation days (20 mm)	More tonnages to be collected at curb and more tonnage to be transferred from the Transfer Station and then processed at the landfill.	Ensure sufficient capacity at transfer stations prior to storm events. Extend facility hours. Waive tipping fees for storm damage. Continue plans for 4th transfer station and keep in mind the need during climate change related events (wind, rain, flood)

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ADAPTATION IMPACT STATEMENT	BASELINE** (1976 - 2005)	AVERAGE PROJECTED** CHANGE IN 2021-2050 (ASSUMING RCP4.5* SCENARIO)	POTENTIAL IMPACT ON ASSETS AND SERVICES	DEMAND MANAGEMENT PLAN
Reduced capacity of flood protection measures and water storage caused by an increase in rainfall intensity leading to flooding.	6.7 heavy precipitation days (20 mm) and; 217mm average total summer precipitation	7.7 heavy precipitation days (20 mm) And; 221mm average total summer precipitation	Pump stations may need to be directed to water treatment plant Greater leachate and surface flow volumes to ponds	Stay on top of maintenance at the facility to ensure its in good working order Consider Modelling stormwater and pumping Systems at higher days and increase average to check resiliency Environmental Technicians are on call and can take samples from ponds to determine ability to discharge from stormwater ponds in emergencies

*RCP4.5 Scenario: Moderate projected GHG concentrations, resulting from substantial climate change mitigation measures. It represents an increase of 4.5 W/m² in radiative forcing to the climate system. RCP 4.5 is associated with 580-720ppm of CO₂ and would more than likely lead to 3°C of warming by the end of the 21st century.

**Baseline and Projected numbers based on 2021 Climate Science Report.

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,

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- 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 came up with a preliminary risk adaptation plan shown below in **Table 21**.

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 models at this time. The adaptation plans discussed in this section should be explored by asset owners in more detail following the AMP, and new projects should consider these risks during the planning and design processes. Future changes will be incorporated into future iterations of the AMP. Moving forward, the Climate Lens tool will assess projects based on these targets and will assist with the prioritization of climate adaptation projects. This has been identified as a continuous improvement item in **Table 27**.

Table 21: Adapting to Climate Change

ADAPTATION IMPACT STATEMENT	SERVICE OR ASSET AT RISK DUE TO IMPACT	WHAT CAN HAPPEN	RISK RATING	RISK ADAPTATION PLAN
Increased intensity and frequency of ice storms lead to increased hazardous roads, pathways, and sidewalk conditions.	Field Staff / Vehicles	<p>Increase in injury risk to field staff from slips and falls</p> <p>Increased risk of motor vehicle collisions</p>	HIGH	Existing health and safety mitigation plan for working in icy conditions. Monitor Road conditions and work closely with road operations to modify collection routes as needed
More rainfall or dry periods will change tonnage peaks. This	Landfill – Compost Pad	Climate change can impact weather and precipitation which leads to changes in the amount of yard waste collected	HIGH	Ensure equipment availability to handle the increased

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ADAPTATION IMPACT STATEMENT	SERVICE OR ASSET AT RISK DUE TO IMPACT	WHAT CAN HAPPEN	RISK RATING	RISK ADAPTATION PLAN
changes hours of collection (clean ups)		due to growth or wind damage cleanup Climate change can also increase likelihood of major storms and flooding. Which can change the amount of demolition debris		volume of material. Contract provisions flexible to allow for changes in the amount of material processed.
Increased instances of heat-related issues due to extreme heat.	CCF Biofilter Field Staff	CCF Biofilter must be maintained at proper operating temperatures to be in compliance In extended high heat field staff require periods of relief from heat which can cause delays in collecting curbside materials	HIGH	Monitor conditions of bioreactor and adjusting flow of material in and out. Existing health and safety mitigation techniques to allow additional cooling time for staff and access to liquids.

CURRENT ADAPTATION PROJECTS

Currently Waste Management does not have any current or past climate change adaptation specific projects identified. 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

Currently, Waste Management has focused their climate change efforts on mitigation efforts and not yet onto adaptation methods. This is because climate effects are more difficult to assess on Waste Management services and assets and need to be investigated further which has been identified as a continuous improvement item in **Table 27**.

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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.

At the time of writing, Waste Management creates a Capital forecast for ten (10) years into the future, with higher confidence values in the earlier years and decreasing confidence in the later years. The remainder of the forecast was assumed based on predicted demands and averages. The Operating budget is created annually, but there is an additional estimated three (3) year projection (current year plus two (2)) which was used to estimate the operational budget for the first three (3) years for Waste Management. These projections were then flatlined for the remaining twenty-seven (27) years of the lifecycle.

Legislated changes will occur relating to the recycling collection and processing program. Waste Management is estimating a reduction in operating costs related to this change of \$6.9 Million in 2025 due to the partial year transition of the program and impacts to existing subsidies, and then approximately \$14.7 Million per year beginning in 2026. The total lifecycle budget estimate for these years has been reduced by these amounts in the following graphs. This is an estimate only at this time and it is not known with certainty if the budget can be reduced by the full amount as portions of this budget may need to be reallocated to provide waste collection activities for properties not covered by the legislated change or to implement new programs/services. This assumption will need to be re-evaluated in future updates to the AM Plan as the impacts of this transition become more known.

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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 to the City or through the construction of new assets which are mostly related to population growth. Waste Management does not receive donated or assumed assets through development agreements.

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 continue to develop its understanding of how projects are prioritized and ensure 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.

SELECTION CRITERIA

Proposed acquisition of new assets and upgrade of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrades and new works should be reviewed to verify that they are essential to the City's needs. The proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programs.

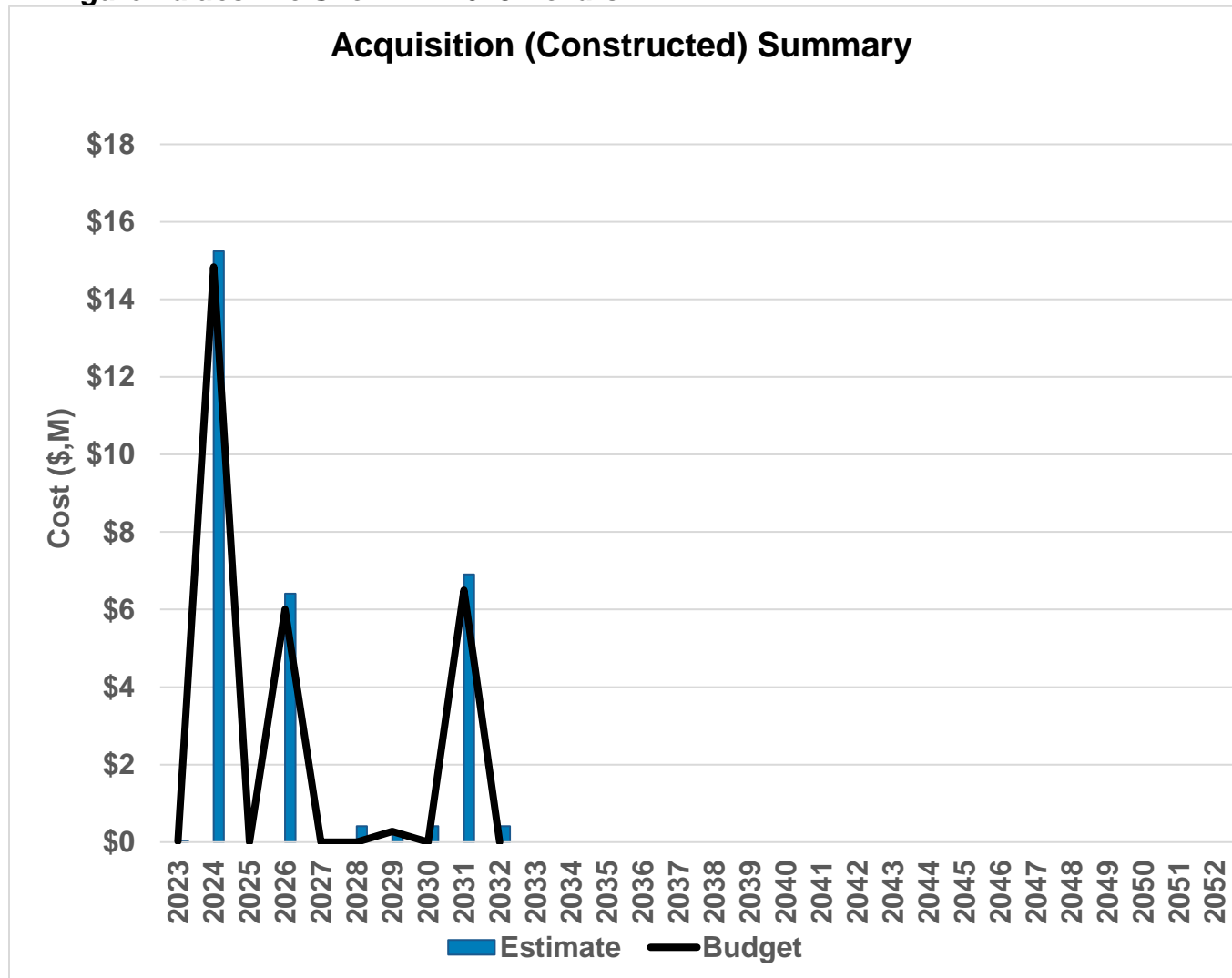
SUMMARY OF FUTURE ASSET ACQUISITION COSTS

Forecast acquisition asset costs are summarized in **Figure 12** and show the cumulative effect of asset assumptions over the next ten (10) year planning period.

Waste Management does not receive Donated Assets. All acquisitions are constructed.

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Figure 11: Acquisition (Constructed) Summary
All Figure Values Are Shown In 2023 Dollars.



Over the next 10 Year planning period the City will acquire approximately **\$29.3M** of constructed assets which can either be new assets which did not exist before or expansion of assets when they are to be replaced. Major acquisition expenditures over the next ten years include:

- **\$14.5 million** for Transfer Station / CRC improvements at existing locations;
- **\$13.0 million** for Stage 3 Development of the Glanbrook Landfill; and,
- **\$1.6 million** for development driven acquisition of additional collection vehicles.

The acquisition forecast generally meets the budget. Acquisition forecast also includes the purchase of six additional waste collection vehicles between 2023 – 2032. The current 2023 DC study identifies the need for four waste collection vehicles and waste management route analysis indicates that six overall will be required in this timeframe.

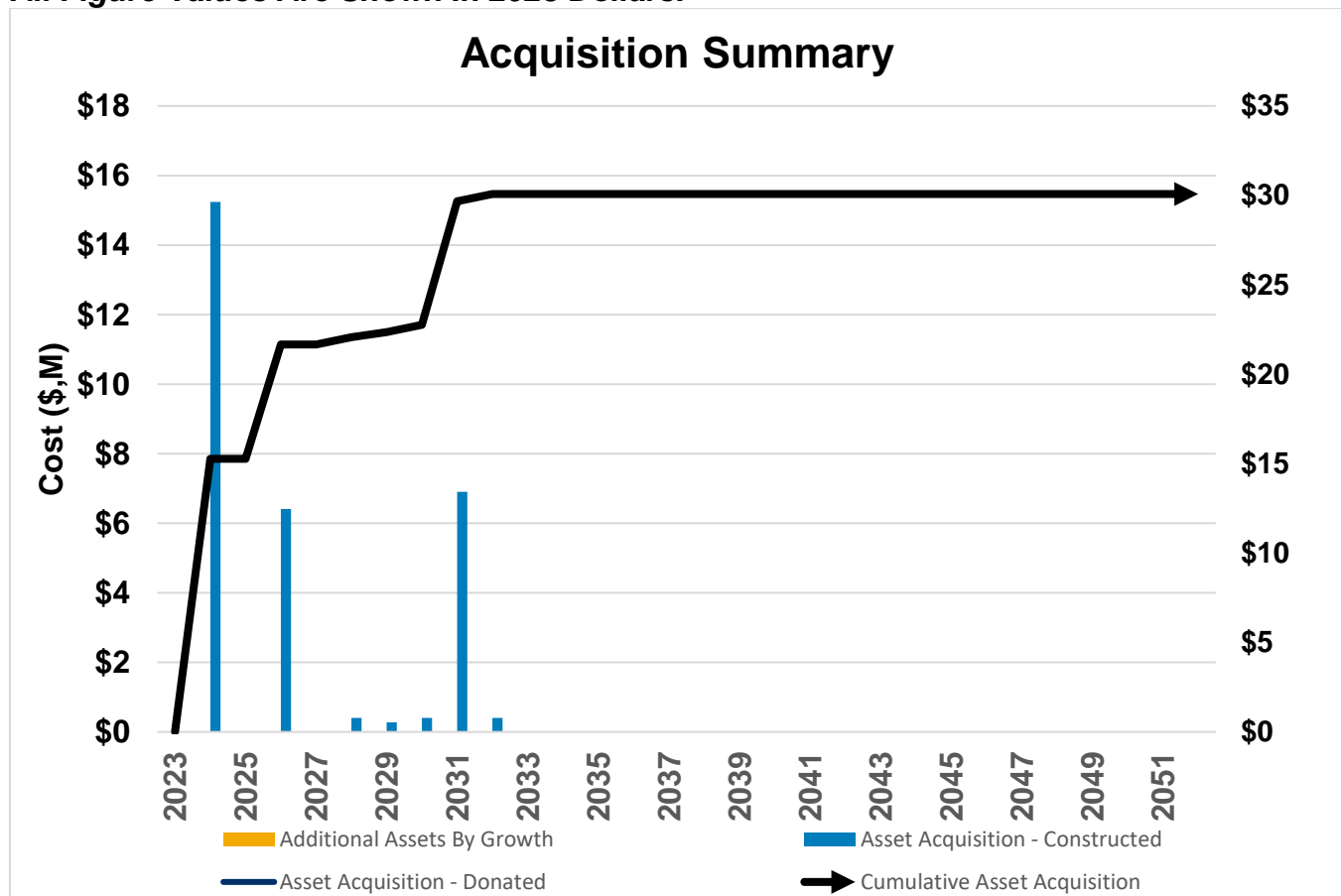
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The lack of acquired assets from 2032-2052 is due to a lack of data and limited forecasting ability at this time and not from the likelihood of actual construction projects or needs. These future acquisitions will be better defined once the next iteration of the Solid Waste Master Plan is completed. As AM knowledge, practices and abilities mature within the City then in all likelihood there will be significant projects with equally significant costs that will appear within the later years of the ten (10) year planning horizon.

The City has sufficient budget for its planned constructed acquisitions at this time; however, this does not address future asset needs that may need to be constructed to ensure service levels are maintained over the long term. With competing needs for resources across the entire city there will be a need to investigate tradeoffs 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.

Figure 12: Acquisition Summary
All Figure Values Are Shown In 2023 Dollars.



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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 on by Hamilton. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 11 above.

Over the next ten (10) year planning period Hamilton will acquire approximately **\$30.1 M** of forecast Waste Management network assets.

Hamilton has insufficient budget for its planned constructed acquisitions at this time. It will become critical to understand that through the construction of new assets, the City will be committing to funding the ongoing operations, maintenance and renewal costs which are very significant. Hamilton will need to address how to best fund these ongoing costs as well as the costs to construct the assets while seeking the highest level of service possible.

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.

8.2 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. Examples of typical operational activities include waste collection and processing contracts and internal collection activities, utility costs and the necessary staffing resources to perform these activities.

Some of the major operational investments over the next 10 years include:

- **\$12.2 million** annually for Employee related costs; and,
- **\$73.8 million** annually for Contracted costs.

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

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needs to plan and properly fund its maintenance to ensure the transportation network is reliable and can achieve the desired level of service.

Major maintenance projects the City plans to continuously manage over the next ten (10) years include:

- **\$36 million** (2024-2028) for CCF Equipment Replacement;
- **\$8.4 million** allocated for Open and Closed Landfill Maintenance and Capital Improvement Program;
- **\$2.8 million** allocated for TS/CRC Maintenance and Capital Improvement Program; and,
- **\$3.3 million** allocated for MRF Maintenance and Capital Improvement Program.

From **2023-2032** the City will invest an additional estimated **\$10.2 Million** for various projects across the City. 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.

The major lifecycle activities for the Landfills with their estimated costs in 2023 dollars (if known) are shown below in **Table 22**.

Table 22: Operation and Maintenance Summary

ASSET	LIFECYCLE STAGE	LIFECYCLE ACTIVITY	FREQUENCY	2023 ESTIMATED COST	UNIT
Landfills	Operations and Maintenance	Site Works (Inspection of Road, Fence, Vegetation, Ditch Cleaning, Plowing/Grading Roads)	Bi-Annual Inspections, rest as per operating contracts	\$305 K	Annually
	Operations	Leachate Treatment, Monitoring, Flushing, Condition Assessments,	Treatment/ Flushing As Needed, Assessments every 5 years, Header	\$1.24 M	Annually

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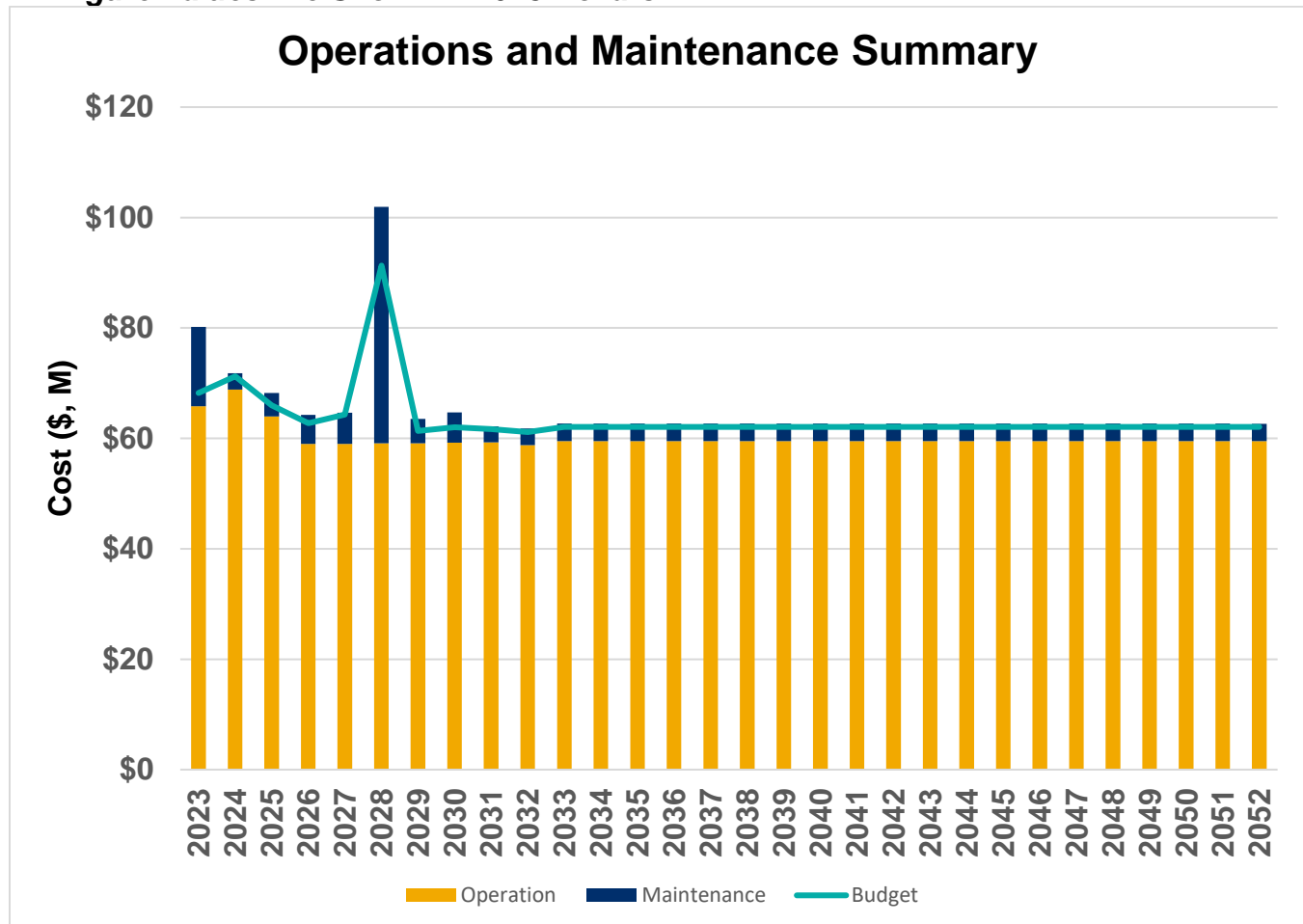
ASSET	LIFECYCLE STAGE	LIFECYCLE ACTIVITY	FREQUENCY	2023 ESTIMATED COST	UNIT
		Header Maintenance	Maintenance, Annual		
	Operations & Maintenance	Gas Recovery Facilities Inspection & Maintenance	Annual	\$50 K	Each
	Operations	Monitoring Program – Ground Water, Surface Water & Leachate and Maintenance	On Going	\$442 K	Per Location
	Operation	Reporting – Annual Reporting to MECP (Ministry of Environment, Conservation & Parks) (Operating Landfill & Closed Landfill,	Every 3 Years	\$94 K	Each
	Operations	Reporting - Annual Reporting to MECP (closed Landfills)	Every 3 Years	\$72 K	Each
	Operations	Reporting – Landfill Gas Emission & Benthic Study	Emission – Annual; Benthic – Bi-Annual	\$14 K	Each

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

Forecast operations and maintenance costs vary in relation to the total value of the asset registry. When additional assets are acquired, the future operations and maintenance costs are forecast to increase. When assets are disposed of the forecast operation and maintenance costs are reduced. **Figure 13** shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget. As mentioned in **Table 14** the planned operating budget shown below has been reduced by the estimated needs reduction related to moving to the Expanded Producer Responsibility Model for the collection and processing of recyclable material.

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Figure 13: Operations and Maintenance Summary
All Figure Values Are Shown In 2023 Dollars.



The forecast costs include all costs from both the Capital and Operating budgets. 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 must both be consolidated for the AM Plans. An approved 2023 and forecast 2024/2025 operating budget were received as inputs to the model and a ten (10) year capital proposed capital budget for 2023-2032. No escalation of budgets or costs was included for inflationary reasons and assumptions have been flatlined to project into the future. It is clear that operations and maintenance budgets will need to increase in the future to continue to deliver the current levels of service.

The forecast of operations and maintenance costs are largely stable over time, with the large spike in maintenance in 2028 related to a large project (**\$30M**) to replace processing equipment at the Central Composting Facility as part of a larger multi-year project. The City has insufficient budget to achieve all of the works required to ensure that assets will be able to achieve their estimated service life at the desired level of service. It is anticipated that at the current budget

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levels, there will be insufficient budget to address all operating and maintenance needs over the thirty (30) - year planning horizon. The graph above illustrates that without increased funding or changes to lifecycle activities, there is a significant shortage of funding which will lead to:

- Higher cost reactive maintenance;
- Possible reduction to the availability of the assets;
- Impacts on private property; and,
- Increased financial and reputational risk

This shortfall is primarily due to the additional operating and maintenance costs for growth driven waste collection vehicles and forecast 10 Year Facilities needs estimates. Adding additional assets over time impacts the operational and maintenance resources required to sustain the expected or mandatory level of service. It should be noted that a significant amount of operational and maintenance expenditures is mandatory due to legislative requirements and cannot simply be avoided or deferred.

As the City continues to develop condition profiles and necessary works are identified based on their condition, it is anticipated this operation and maintenance forecasts will increase significantly. Where maintenance budget allocations will result in a lesser level of service, the service consequences and risks have been identified and are highlighted in the **Risk, Section 6**.

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 for the next iteration.

Future iterations of this plan will provide a more thorough analysis of operations and maintenance costs including types of expenditures for training, mandatory certifications, insurance, staffing costs and requirements, equipment, and maintenance activities.

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 23** and are based on the 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

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useful lives were last reviewed in 2022 however they will be reviewed annually until their accuracy reflects the City's current practices.

Table 23: Useful Lives of Assets

ASSET (SUB)CATEGORY	EXPECTED USEFUL LIFE (YEARS)
Landfill	75 (Estimated)
Glanbrook Garage/Admin Facilities	55
Stormwater Management Ponds	100
Pump Stations	40
Gas Collection Systems	100
Landfill Flare Facility	100
Leachate Collection System	100
Groundwater Monitoring Wells	25
Fencing / Security	25
Site Assets - Roads	50
Transfer Stations (TS)	55
Community Recycling Centres (CRC)	55
Material Recycling Facility (MRF)	55
Central Composting Facility (CCF)	55
Leaf and Yard Waste Composting Facility	55
Vehicles and Fleet (Excluding Packer Trucks)	8 – 9 (depends on vehicle classification)
Waste Collection Packer Trucks	7
Public Space Litter Containers	7
IT Equipment	5

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Many Waste Management assets have very long useful lives which may not fall within the period of this current AM Plan. These significant renewal costs will require significant investment in future years related to waste processing and disposal.

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.

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).⁵

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.^{1F6}

At this time Waste Management does not have an asset renewal priority ranking criterion. A continuous improvement item has been identified to develop one, see details in **Table 27**.

SUMMARY OF FUTURE RENEWAL COSTS

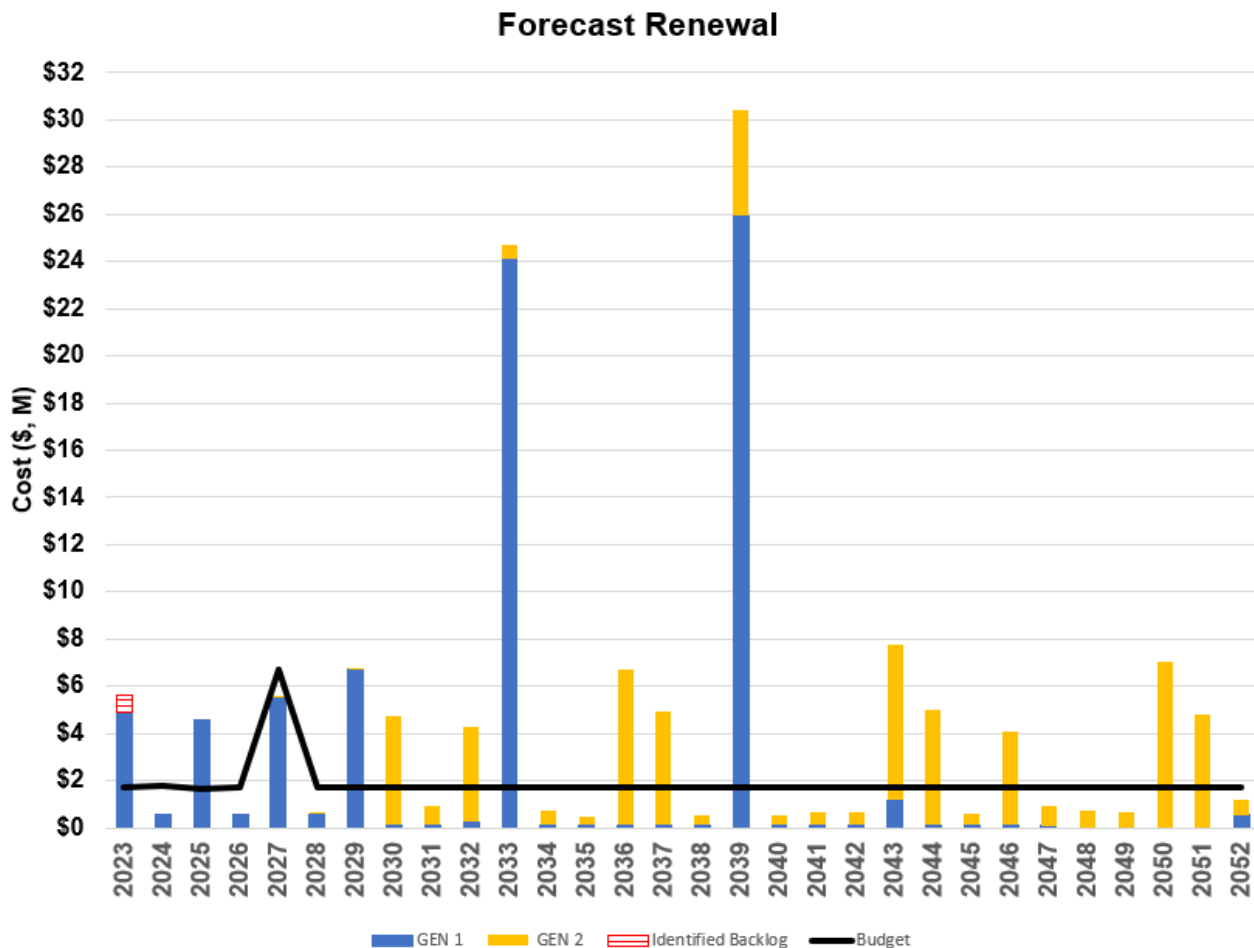
Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in **Figure 14**.

⁵ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

⁶ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

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Figure 14: Forecast Renewal Costs
All Figure Values Are Shown In 2023 Dollars.



The amount highlighted in 2023 represents the cumulative backlog of deferred work needed to be completed that has been either identified through its current estimated condition or age per **Table 4** when condition was not available. This back log represents approximately **\$737,040** of deferred works that have accumulated over multiple decades and for and have created a backlog of necessary works.

Deferred renewals (assets identified for renewal and not funded) are included and identified within the risk management plan. Prioritization of these projects will need to be funded and managed over time to ensure renewal occurs at the optimal time.

There is sufficient budget to support the planned projects only. Without additional funding the backlog will remain and continue to grow as future projects outside of the ten (10) year planning horizon continue to move forward into the 10-year scope. Continued deferrals of projects will lead to significantly higher operational and maintenance costs and will affect the availability of services in the future and impact levels of service.

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The expected renewal works over the ten (10) year planning horizon include **\$5 million** dollars in **2027** for renewal of the Leaf and Yard Waste composting facility and relocation. This does not include any additional funds that may be needed to accommodate expansion. In **2023** the City will invest **\$4.1 million** to renew eight (8) waste collection vehicles using natural gas as well as **\$2.4 million** renewing public space litter collection and special event containers over the next ten (10) years.

The large renewal spike in 2033 is related to the renewal of the Kenora Transfer Station, **\$23.9M**. The large spike in 2039 is related to the renewal of the Mountain Transfer Station, **\$12.9M**, and Dundas Transfer Station, **\$12.9M**.

Deferring renewals create risks of higher financial costs, decreased availability, and decreased satisfaction with asset performance. Ultimately, continuously deferring renewals works ensures Hamilton will not achieve intergenerational equality. If Hamilton continues to push out necessary renewals, there is a high risk that future generations will be unable to maintain the level of service the customers currently enjoy. It will burden future generations with significant costs that inevitably they will be unable to sustain.

Properly funded and timely renewals will ensure the assets perform as expected and 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.

Assets identified for possible decommissioning and disposal are shown in **Table 24**. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in **Table 24**. Any costs or revenue gained from asset disposals is included in future iterations of the plan and the long-term financial plan.

Table 24: Assets Identified for Disposal

ASSET	REASON FOR DISPOSAL	TIMING	DISPOSAL COSTS	OPERATIONS & MAINTENANCE ANNUAL SAVINGS
Waste Collection Packer Truck	End of Service Life	2024/2025	N/A	\$7,367.16 average per unit per year reduced maintenance for unit <7 years old

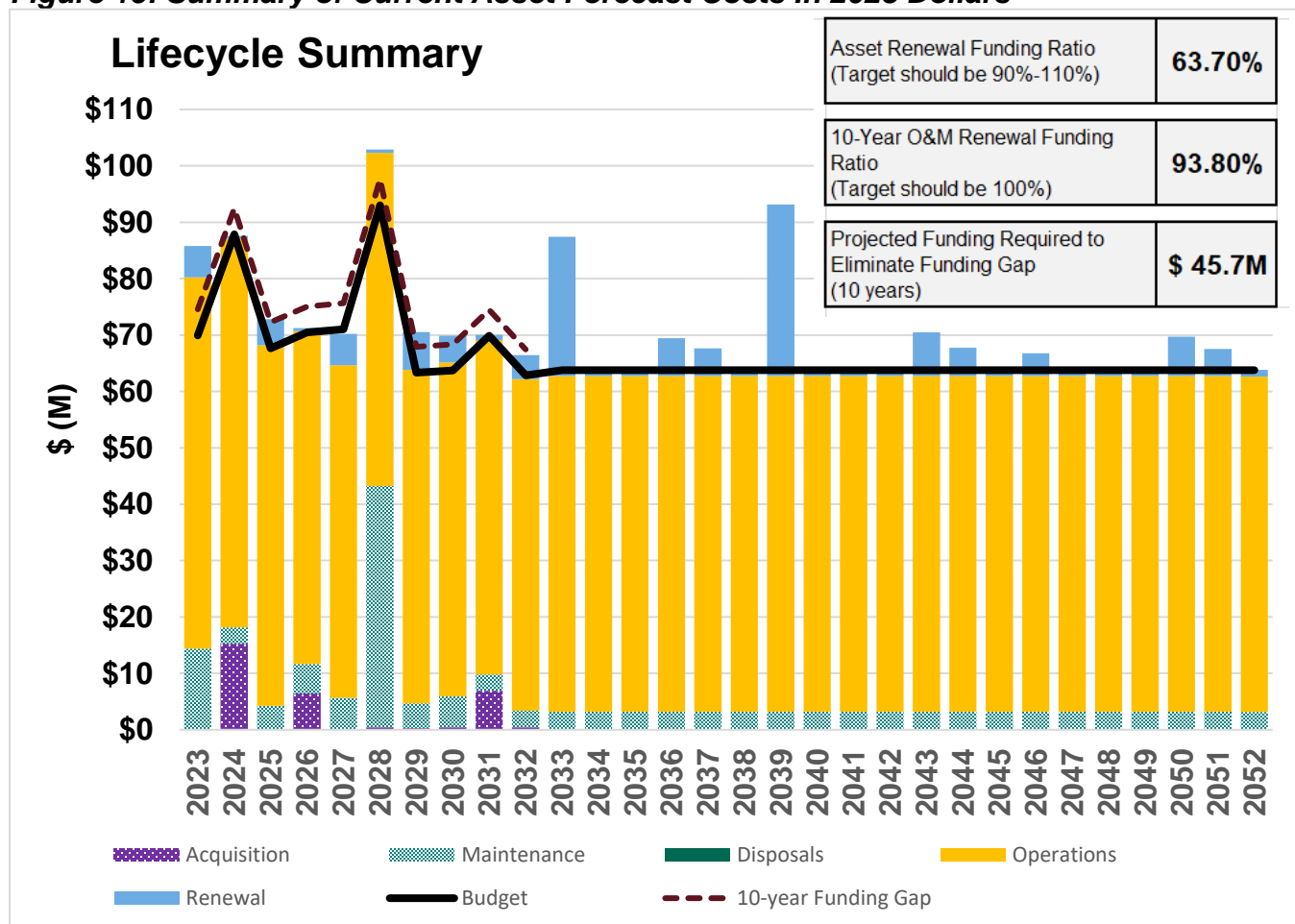
HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

8.5 SUMMARY OF CURRENT ASSET FORECAST COSTS

The financial projections from this asset plan are shown in **Figure 15**. 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 15: Summary of Current Asset Forecast Costs In 2023 Dollars



The lack of funding allocated for the backlog of renewals and the necessary lifecycle activities creates an additional issue which is intergenerational equity. Each year the City defers necessary lifecycle activities it pushes the ever-increasing financial burden on to future generations. It is imperative the City begin addressing the lack of consistent and necessary funding to ensure that intergenerational equity will be achieved. Over time, allocating sufficient

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funding on a consistent basis ensures that future generations will be able to enjoy the same standards being enjoyed today.

Over time the City will continue to improve its lifecycle data, and this will allow for informed choices as how best to mitigate those impacts and how to address the funding gap itself. This gap in funding future plans will be refined over the next three (3) years and improve the confidence and accuracy of the forecasts in future revisions of this AM Plan.

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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 Transportation network provides 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 customer while keeping costs at an affordable level and maintaining its financial sustainability.

Without funding asset activities properly for its Transportation network; 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 of the networks 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 ten (10) years / forecast renewal costs for next ten (10) years); and,
- Medium-term forecast costs/proposed budget (over ten (10) years of the planning period).

ASSET RENEWAL FUNDING RATIO

Asset Renewal Funding Ratio⁵⁷ **63.71%**

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 low indicator result generally indicates that service levels are achievable however the expenditures are below this level because the City is reluctant to fund the necessary work or prefers to maintain low levels of debt.

Over the next ten (10) years the City expects to have **63.71%** of the funds required for the optimal renewal of assets. This is a moderate number and should be addressed through this plan in the

⁷ AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

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next iteration. By having sufficient funding to renew **63.71%** of the required assets at the appropriate timing it will inevitably require 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 Plan's 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 **93.8%**

Although this AM Plan includes forecast projections to thirty (30) years, the higher confidence numbers are typically within the first ten (10) years of the lifecycle forecast. The ten (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 ten (10) years. 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's risk and service level commitments.

The forecast operations, maintenance, and renewal costs over the ten (10) year planning period are **\$73.8M** on average per year. Over time as improved information becomes available it is anticipated to see this number increase. In future AM Plans, staff will connect the operational and maintenance needs to the forecasts, and this will result in a significantly higher cost than is outlined here.

The proposed (budget) operations, maintenance, and renewal funding is **\$69.2M** on average per year giving a ten (10) year funding shortfall of **\$4.6M** per year or **\$46M** over the ten (10) year planning period. This indicates that **93.8%** of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, that these calculations exclude acquired assets (if any).

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 sustainably 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;

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- Adjustments to lifecycle activities – increase/decrease maintenance or operations, increase/decrease frequency of renewals, limit acquisitions or dispose of underutilized assets;
- Influence level of service expectations or demand drivers; and,
- Adjust the size of any contemplated budget reduction related to the legislated change to Expanded Producer Responsibility for recycling to improve the Asset Renewal Ratio and to match forecast costs.

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 achieve a financial indicator of approximately **90-110%** for the first years of the AM Plan and ideally over the ten (10) year life of the Long-Term Financial Plan.

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

Table 25 shows the forecast costs (outlays) required for consideration in the ten (10) 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.

These options will be explored in the next AM Plan and the City will provide analysis and options for Council to consider going forward.

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Table 25: Forecast Costs (Outlays) For the Long-Term Financial Plan
Forecast Costs Are Shown In 2023 Dollar Values.

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2023	\$20,000	\$65,835,752	\$14,340,798	\$5,604,936	0
2024	\$15,242,600	\$68,855,200	\$2,929,125	\$549,540	0
2025	0	\$63,948,776	\$4,250,410	\$4,589,486	0
2026	\$6,407,600	\$58,979,764	\$5,269,534	\$574,330	0
2027	0	\$58,989,764	\$5,670,849	\$5,530,785	0
2028	\$407,600	\$59,084,764	\$42,824,372	\$597,442	0
2029	\$275,000	\$59,094,764	\$4,421,994	\$6,753,690	0
2030	\$407,600	\$59,199,764	\$5,505,955	\$4,737,630	0
2031	\$6,907,600	\$59,294,764	\$2,906,246	\$1,338,807	0
2032	\$407,600	\$58,789,764	\$2,984,304	\$4,275,370	0

9.3 FUNDING STRATEGY

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

These operational and capital budgets determine 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 thirty (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

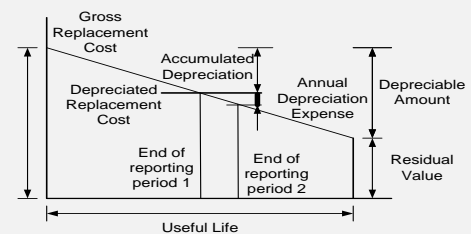
HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

add to future depreciation forecasts. Any disposals of assets would decrease the operations and maintenance needs in the longer term and remove the high costs of 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 VALUATIONS

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at estimated replacement costs:

Replacement Cost (Current/Gross)	\$559,889,408
Depreciable Amount	\$559,889,408
Depreciated Replacement Cost^{6F8}	\$309,395,936
Depreciation	\$ 11,309,516



The current replacement cost is the most common valuation approach for specialized infrastructure assets. The methodology includes establishing a comprehensive asset registry, assessing replacement costs (based on market pricing for the modern equivalent assets) and useful lives, determining the appropriate depreciation method, testing for impairments, and determining remaining useful life.

As the City matures its asset data, it is highly likely that these valuations will fluctuate significantly over the next 3 years, and they should increase over time based on improved market equivalent costs

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 thirty (30) year planning horizon and do not address other operational needs not yet identified;

⁸ Also reported as Written Down Value, Carrying or Net Book Value.

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- Maintenance forecasts are based on current budget allocations and do not identify asset needs at this time. It is solely based on planned activities; and,
- Replacement costs were based on historical costing. They were also made without determining what the asset would be replaced with in the future

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.

Table 26: Data Confidence Assessment for Data Used in AM Plan

DATA	CONFIDENCE ASSESSMENT	COMMENT
Demand drivers	Medium	Based on Development Charges By-Law Assumptions and previous Solid Waste Management Master Plans
Growth projections	Medium	Based on Development Charges By-Law assumptions, which are subject to change.
Acquisition forecast	Low	The acquisition forecast is based on a 10-year capital plan and proposed 2023 DC study and SME opinion. The remaining years are estimated.
Operation forecast	Low	Currently, the budget is based on 3 years of budget forecast and the remaining years are forecast with zero growth. Category allocation is based on SME opinion.
Maintenance forecast	Low	Currently, the Budget is based on 3 years of budget forecast and the remaining years are forecast with zero growth. Category allocation is based on SME opinion. All proactive maintenance needs may not have been identified and or identified.
Renewal forecast - Asset values	Low	Valuation will need to be reviewed as they are based on a mixture of historical costs and future-based estimates of replacement costs
- Asset useful lives	Low	Based on SME Opinion. Continuous improvement is required to ensure data is vetted and ensure it aligns with Hamilton's actual practices
- Condition modelling	Low	Mixture of assessment methods which are largely based on age or SME opinion. Requires standardization along with predictable timelines for assessments

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

DATA	CONFIDENCE ASSESSMENT	COMMENT
Disposal forecast	Very Low	Current disposal information is largely rolled into renewal. Continuous improvements are required to ensure accurate data is available.

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

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

10. PLAN IMPROVEMENT AND MONITORING

10.1 STATUS OF ASSET MANAGEMENT PRACTICES⁹

ACCOUNTING AND FINANCIAL DATA SOURCES

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

- 2023 Approved Operating Budget;
- 2024-2025 Multi-Year Operating Forecast;
- 2023 Approved Capital Budget;
- 2024-2032 Multi-Year Capital Forecast;
- 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;
- Tender documents, subdivision agreements, and projected growth forecasts as well as internal reports;
- Condition assessments;
- Subject matter Expert Opinion and Anecdotal Information; and,
- Reports from the mandatory inspections, operational, and maintenance activities internal reports.

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 plans to physically improve the assets.

The Improvement Plan **Table 27** below highlights proposed improvement items that will require further discussion and analysis to determine feasibility, resource requirements, and alignment

⁹ ISO 55000 Refers to this as the Asset Management System

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to current workplans. Future iterations of this AM Plan will provide updates on these improvement plans.

Table 27: Improvement Plan

***p.a – per annum**

TASK	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
1.	Identify Waste Management assets in other divisions and incorporate into next AM Plan.	Lead: CAM Support: Waste Management	\$5,000 total Internal Staff Time	1 Year (2024)
2.	Release public engagement survey annually/regularly to measure customer values and track customer trends	Lead: CAM Support: Waste Management	\$3,100 total Internal Staff Time	1 Year (2025)
3.	Develop Digital Forms for regular Waste Site Facility Inspections and implement overall Condition Assessment using 1-5 scale for Waste Management assets. Implementation will follow once IT Devices (i.e. Tablets) available and training completed. Condition should be based on a 5-point condition rating scale guided	Lead: Waste Management Support: CAM	\$14,000 total Internal Staff Time and 4 x Mobile Devices	1 Year (2024)

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TASK	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
	by the AM Overview Plan.			
4.	Improve Marketing Strategy of survey and consider telephone surveys and IP controls to improve confidence levels in the survey responses.	CAM	N/A	3 Years (2025-2028)
5.	Develop asset renewal priority ranking criteria	Waste	\$5,000 Internal Staff Time	1 Year (2025)
6.	Further investigate climate mitigation and adaptation projects and effects on assets and revise lifecycle model in future updates to AM Plan (e.g.. when is fleet going to convert to green fuel before 2050; When will organics strategy be implemented).	Lead: Waste Management Support: Climate Office	N/A	Ongoing
7.	Further investigate proposed demand management and risk adaptation plans associated levels of service so costs will be addressed in future revisions of the Lifecycle Model and AM Plans.	Waste Management	\$3,000 Internal Staff Time	Ongoing

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TASK	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
8.	Investigate Extended Use Vehicles, determine usage needs, and adjust fleet requirements as needed.	Waste Management	\$5,000 Internal Staff Time	1 Year (2024)
9.	Integrate the Climate Lens tool to assess projects based on these targets and will assist with the prioritization of climate adaptation projects.	Waste Management	N/A	Ongoing
10.	Implementation of EAM (Enterprise Asset Management) work order management system will allow future version of AM Plan to better allocate actual costs to Lifecycle Categories.	EAM Team Waste Management	N/A	Ongoing
11.	CCF Operating Strategy currently processes all green bin material, however potential for next operating contract of the CCF to include processing of material offsite or seek regulatory approvals for the site and install	Waste Management	\$150,000 Estimated Consultant Cost	1 Year (2025)

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TASK	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
	new equipment to allow for expanded site operating and processing capacities and incorporate into future options into the AM Plan lifecycle model			
12.	Develop Long-Term Waste Organics Strategy and update AM Plan when Long Term Solid Waste Plan completed	Waste Management	\$115,000 total \$100,000 Consultant Cost \$15,000 Internal Staff Time	1 Year (2024)
13.	Optimizing TSs and CRCs and study need for fourth TS/CRC. Update costs for future iterations of the AM Plan lifecycle model if need for fourth location confirmed.	Waste Management	\$115,000 total \$100,000 Consultant Cost \$15,000 Internal Staff Time	1 Year (2025)
14.	Planning for Blue Box Transition to Expanded Producer Responsibility Provincial Operator has been incorporated in the current Lifecycle Model for this Asset Management Plan. Update costs for	Waste Management	TBD Internal Staff Time	1 Year (2025)

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

TASK	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
	future iterations of the AM Plan lifecycle model			
15.	Develop and implement a Graffiti Removal Process. There are many containers and assets that Waste Collections has around the City that are often "tagged" and require removal. This process is being measured to understand the costs, time, and other impacts. Incorporate costs into the AM Plan lifecycle model and possible future Level of Service	Waste Management	\$3,000 Internal Staff Time	Undetermined
16.	Warranty Claims - Review the process for warranty claims and identify opportunities for improvement. This will ensure issues covered under warranties are managed under the warranty and not funded by the City.	Waste Management	\$,3000 Internal Staff Time	Undetermined

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

TASK	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
17.	Study implementing Two way/scale attendant at the Glanbrook LF site - We have no outbound ability at the scale currently but send finished compost outbound. Also, a scale operator business case to show the benefits for vehicle processing and site security Incorporate costs into the AM Plan lifecycle model and possible future Level of Service	Waste Management	\$2,000 Internal Staff Time	Undetermined

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.

HAMILTON WASTE MANAGEMENT ASSET MANAGEMENT PLAN

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 (1) to ten (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%).

APPENDIX A

Survey Analysis

APPENDIX A: SURVEY ANALYSIS

LET'S CONNECT, HAMILTON **City Services & Assets Review**



Hamilton
Corporate Asset Management

Waste Management Services

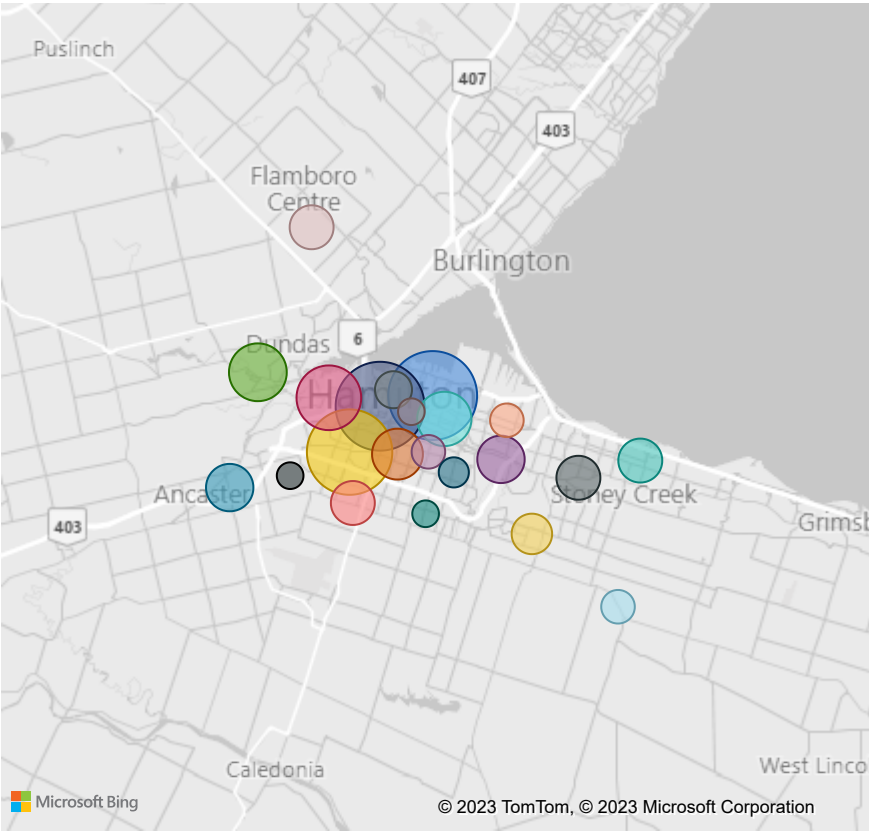
Survey Period: February 13 - March 20, 2023

May 2023

Postal Code	Respondents	% Respondents	Population
L8L	20	11.24%	50,110
L8P	20	11.24%	42,655
L9C	19	10.67%	64,505
L8S	13	7.30%	26,295
L9H	11	6.18%	50,480
L8M	10	5.62%	22,530
L9A	9	5.06%	40,750
L8K	8	4.49%	52,085
L9G	8	4.49%	38,540
L8B	7	3.93%	38,035
L8E	7	3.93%	64,835
L8G	7	3.93%	36,075
L9B	7	3.93%	38,295
L8J	6	3.37%	42,665
L8R	5	2.81%	19,375
L0R	4	2.25%	123,805
L8H	4	2.25%	41,715
L8V	4	2.25%	34,910
L8T	3	1.69%	31,140
L8N	2	1.12%	26,220
L8W	2	1.12%	39,195
L9K	2	1.12%	23,485

Self Identification	% Respondents	Respondents
2SLGBTQIA+	5.39%	9
I do not identify with any of the above groups	75.45%	126
Immigrant +10	5.99%	10
Immigrant <10	1.80%	3
Indigenous	2.40%	4
People with disabilities	10.78%	18
Racialized	3.59%	6

% Respondents by FSA



Respondents by Day

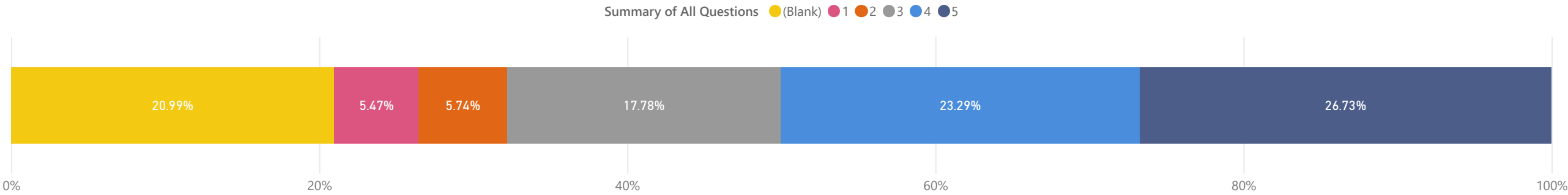


Age	% Pop. by Age	% Respondents	Respondents
18 to 24	6.8%	0.56%	1
25 to 34	15.3%	8.94%	16
35 to 44	13.8%	21.23%	38
45 to 54	13.2%	13.41%	24
55 to 64	14.7%	25.70%	46
65 to 79	14.3%	29.61%	53
80+	5.2%	0.56%	1

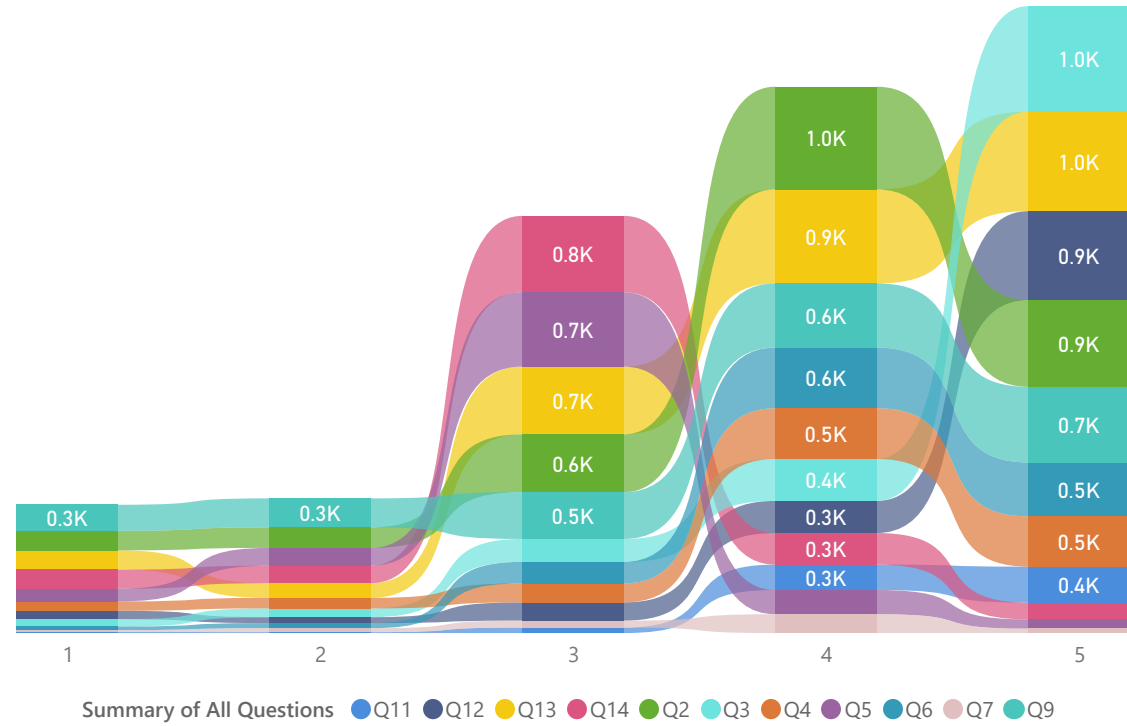
Residence	% Respondents	Respondents
Apartment/Condominium (more than 6 units)	4.92%	9
Multi-Unit building (2 to 6 Units)	3.28%	6
Row/townhouse	9.29%	17
Single Family (detached house; semi-detached house)	82.51%	151

Gender	% Respondents	Respondents
Prefer not to answer	11.35%	21
Male	41.08%	76
Female	54.05%	100

Residency	% Respondents	Respondents
I live in Hamilton	100.00%	181
I run a Hamilton-based business	7.73%	14



	σ		Avg.	Avg. %	Opt Out	Opt out %
All Service Areas	1.21		3.6	75.2	4839	23.9
Q11 Missed Collection	0.83		4.4	87.1	68	9.1
Q3 Importance	0.98		4.2	84.7	224	10.9
Q12 Recommend to Others	1.14		4.2	84.3	546	26.5
Q6 Comfortable and Safe	0.93		4.0	81.6	635	30.8
Q13 Value for Money	1.16		3.7	76.2	606	29.4
Q4 Access, last 24 mo	1.14		3.7	77.4	680	33.0
Q2 Performance, last 24mo	1.15		3.6	75.1	645	31.3
Q7 Agree with Statements	0.99		3.6	71.5	24	6.5
Q9 Future Needs	1.27		3.6	71.1	242	9.2
Q14 Rate Level	1.06		3.0	61.2	472	22.9
Q5 Meet Needs	1.00		2.9	59.9	697	33.9



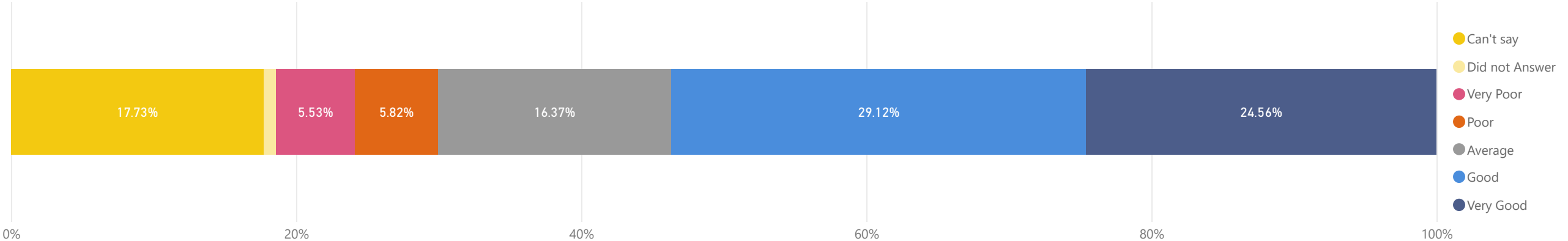
Q2

187
Respondents

3469
Responses

Performance, last 24mo

Over the last 24 months, how do you feel Waste Management Services has performed overall in the following services?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Poor	Poor	Average	Good	Very Good
All Service Areas	1.15	3.6	75.1	645	31.3	96	101	284	505	426
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	0.95	4.1	81.3	23	12.3	4	5	30	62	63
Community Recycling Centre/Transfer Station	0.97	3.9	78.6	31	16.6	5	6	32	65	48
Yard Waste Program	1.04	3.8	76.3	19	10.1	6	13	35	66	48
Trash Tag Program	1.17	3.8	75.6	34	18.1	10	12	29	53	49
Reuse Stores at Community Recycling Centres	0.99	3.8	75.2	129	69.0	1	6	13	24	14
Green Bin Program	1.20	3.7	74.8	21	11.2	13	12	32	57	52
Blue Box Program	1.19	3.7	74.6	1	0.5	15	11	40	63	57
Garbage Collection Program	1.25	3.7	73.2	2	1.0	16	19	34	59	57
Bulk/Large Item Pick Up Program	1.20	3.6	72.6	90	48.2	8	10	17	37	25
Recycle Coach APP	1.35	3.3	66.5	141	75.4	8	3	11	14	10
Education in Schools / Community Groups / Multi-Residential Buildings	1.30	2.6	52.1	154	82.3	10	4	11	5	3

Survey begins at Q2, as Q1 was a demographics question, specific to the Waste Management survey about Household type. Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q3

187

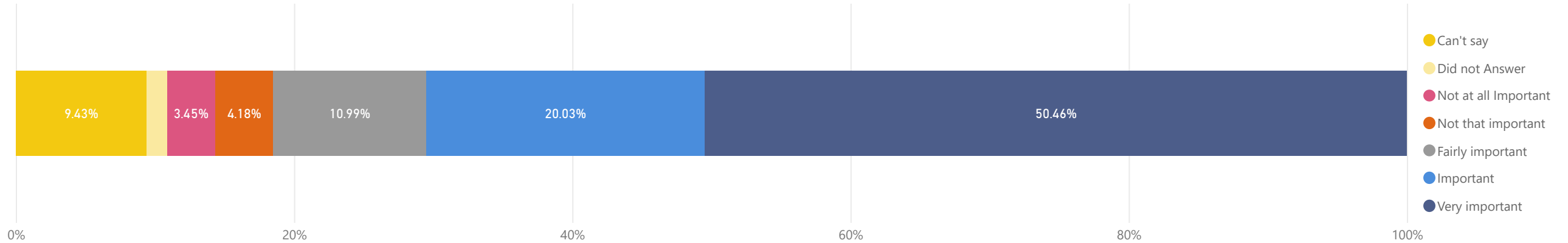
Respondents

2057

Responses

Importance

How important should the following services be as a responsibility for Waste Management?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Not at all Important	Not that Important	Fairly Important	Important	Very Important
All Service Areas	0.98	4.2	84.7	224	10.9	71	86	226	412	1038
Recycle Coach APP	1.42	3.2	63.0	82	43.8	18	18	26	16	27
Reuse Stores at Community Recycling Centres	1.26	3.7	73.3	44	23.5	10	18	31	35	49
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	1.25	3.9	77.9	8	4.3	15	11	27	51	75
Education in Schools / Community Groups / Multi-Residential Buildings	1.24	4.0	79.3	39	20.9	10	11	24	32	71
Trash Tag Program	1.14	4.0	80.1	13	6.9	7	14	28	47	78
Bulk/Large Item Pick Up Program	0.85	4.3	85.9	14	7.5	2	1	30	51	89
Green Bin Program	0.99	4.5	89.7	7	3.7	6	5	14	26	129
Community Recycling Centre/Transfer Station	0.68	4.5	90.4	7	3.8		2	13	54	111
Yard Waste Program	0.76	4.5	90.6	4	2.1		5	15	41	122
Blue Box Program	0.77	4.6	92.0	2	1.1	3	1	11	37	133
Garbage Collection Program	0.48	4.8	96.1	4	2.1			7	22	154

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Service Area	Importance (index score)		Performance (index score)		Net Differential	Opt Out %
Average	83		73		-11	26.6
Education in Schools / Community Groups / Multi-Residential Buildings	79		52		-27	62.9
Garbage Collection Program	96		73		-23	5.0
Blue Box Program	92		75		-17	4.4
Green Bin Program	90		75		-15	11.2
Yard Waste Program	91		76		-14	12.3
Bulk/Large Item Pick Up Program	86		73		-13	35.5
Community Recycling Centre/Transfer Station	90		79		-12	16.7
Trash Tag Program	80		76		-5	16.9
Reuse Stores at Community Recycling Centres	73		75		2	55.2
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	78		81		3	16.0
Recycle Coach APP	63		67		3	65.4

Q4

187

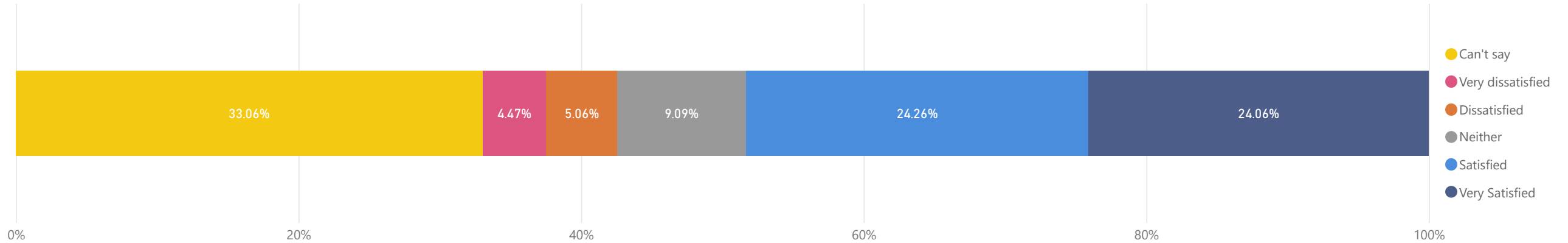
Respondents

2057

Responses

Access, last 24 mo

In the last 24 months if you have used Waste Management Services, how satisfied are you with your ability to access services? If you have not used the service, please select can't say.



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied
All Service Areas	1.14	3.7	77.4	680	33.0	92	104	187	499	495
Community Recycling Centre/Transfer Station	0.94	4.2	83.1	39	20.9	4	5	16	62	61
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	0.95	4.1	82.5	29	15.5	4	6	21	62	65
Yard Waste Program	1.06	4.0	80.5	28	15.0	5	14	15	63	62
Trash Tag Program	1.11	4.0	79.6	41	21.9	9	6	20	55	56
Garbage Collection Program	1.17	3.9	79.0	10	5.3	11	14	18	64	70
Blue Box Program	1.21	3.9	78.9	10	5.3	16	8	15	69	69
Green Bin Program	1.18	3.9	78.8	27	14.4	11	12	15	60	62
Bulk/Large Item Pick Up Program	1.31	3.5	70.7	95	50.8	10	11	17	28	26
Reuse Stores at Community Recycling Centres	1.20	3.3	66.1	128	68.4	5	10	17	16	11
Recycle Coach APP	1.24	3.1	62.9	132	70.6	8	7	17	15	8
Education in Schools / Community Groups / Multi-Residential Buildings	1.21	2.7	53.9	141	75.4	9	11	16	5	5

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q5

187

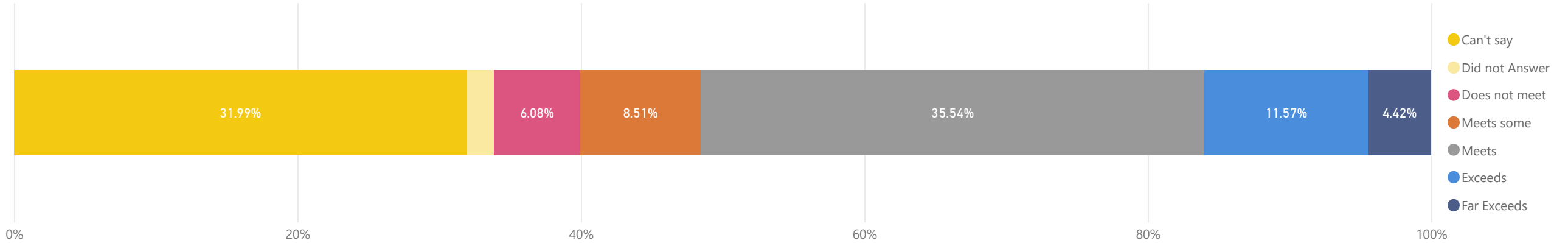
Respondents

2057

Responses

Meet Needs

Do the following services provided by Waste Management meet your needs?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Does not meet	Meets some	Meets	Exceeds	Far Exceeds
All Service Areas	1.00	2.9	59.9	697	33.9	125	175	731	238	91
Community Recycling Centre/Transfer Station	0.76	3.2	64.1	39	20.9	2	14	95	26	11
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	0.92	3.2	63.7	36	19.2	10	10	86	32	13
Trash Tag Program	0.99	3.1	62.5	34	18.2	12	16	81	29	15
Garbage Collection Program	0.95	3.0	60.7	7	3.8	16	18	103	30	13
Yard Waste Program	0.90	3.0	59.3	26	13.9	11	28	86	28	8
Green Bin Program	0.99	2.9	58.7	19	10.2	20	17	96	24	11
Blue Box Program	0.91	2.9	58.5	5	2.7	14	32	99	28	9
Bulk/Large Item Pick Up Program	1.03	2.9	57.0	93	49.7	11	21	37	21	4
Reuse Stores at Community Recycling Centres	1.07	2.8	56.7	139	74.4	7	8	22	8	3
Recycle Coach APP	1.16	2.7	53.0	144	77.0	11	4	19	7	2
Education in Schools / Community Groups / Multi-Residential Buildings	1.27	2.4	47.5	155	82.8	11	7	7	5	2

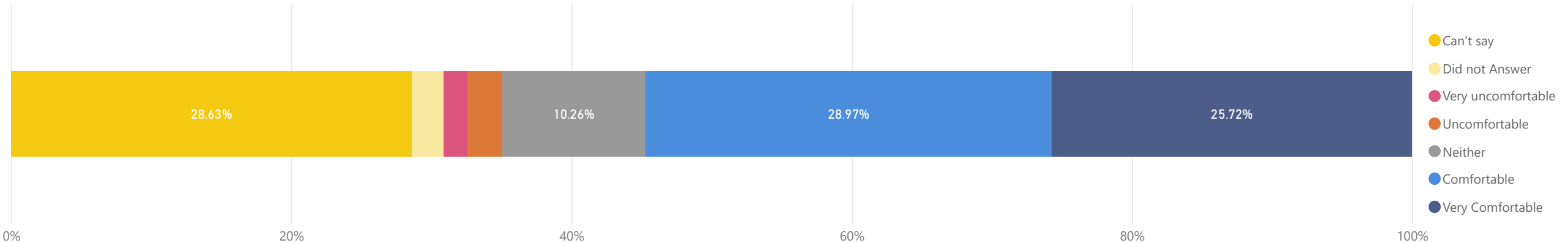
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q6

187
Respondents
2057
Responses

Comfortable and Safe

Did you feel comfortable and safe accessing services provided by Waste Management?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Uncomfortable	Uncomfortable	Neither	Comfortable	Very Comfortable
All Service Areas	0.93	4.0	81.6	635	30.8	35	51	211	596	529
Trash Tag Program	0.82	4.2	84.6	31	16.5	2	2	20	66	66
Yard Waste Program	0.79	4.2	84.2	28	14.9	1	5	16	75	62
Garbage Collection Program	0.91	4.2	84.1	12	6.4	5	3	19	72	76
Blue Box Program	0.93	4.2	84.0	10	5.3	6	4	14	78	75
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	0.77	4.2	83.9	38	20.3	1	1	24	65	58
Green Bin Program	0.97	4.2	83.0	23	12.3	6	5	15	70	68
Community Recycling Centre/Transfer Station	0.89	4.1	81.7	34	18.1	2	8	19	70	54
Bulk/Large Item Pick Up Program	1.06	3.8	75.5	75	40.1	6	7	21	50	28
Reuse Stores at Community Recycling Centres	0.99	3.8	75.4	117	62.6	1	5	23	21	20
Recycle Coach APP	1.13	3.5	70.9	132	70.6	4	3	20	15	13
Education in Schools / Community Groups / Multi-Residential Buildings	1.01	3.4	68.5	135	72.2	1	8	20	14	9

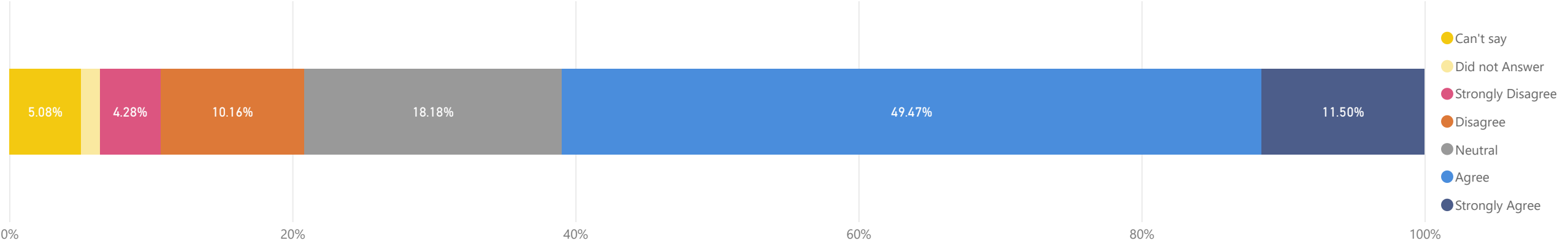
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q7

187
Respondents
374
Responses

Agree with Statements

Thinking about waste collection vehicles that you have seen in Hamilton; do you agree with the following statements:



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
All Service Areas	0.99	3.6	71.5	24	6.5	16	38	68	185	43	
Waste collection vehicles were operated safely in the community.	0.96	<div></div>	3.7	73.6	7	3.8	8	15	29	103	25
Waste collection vehicles did not have strong odours.	1.01	<div></div>	3.5	69.3	17	9.1	8	23	39	82	18

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q9

187

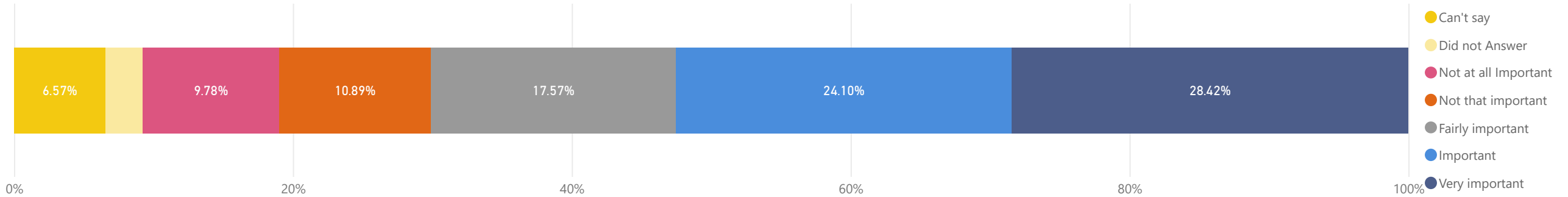
Respondents

2618

Responses

Future Needs

Please rate the following potential services and program based on their importance to you? The City could consider supporting and/or promoting these services/programs in the future.



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Not at all Important	Not that Important	Fairly Important	Important	Very Important
All Service Areas	1.27	3.6	71.1	242	9.2	256	285	460	631	744
Reduction in Garbage Pickup Frequency (ie. biweekly collection)	1.45	2.6	52.5	12	6.4	54	40	27	26	28
Bicycle Repair Programs	1.39	3.2	64.1	26	13.9	26	27	33	38	37
Food Waste Reduction Workshops	1.42	3.3	65.2	14	7.5	30	26	28	47	42
Repair and re-use Workshops Repair and re-use workshops for electronics, small appliances, and small engines	1.36	3.3	66.9	20	10.7	22	26	35	40	44
Alternative Fuel Collection Vehicles	1.37	3.3	67.0	15	8.0	24	24	38	40	46
Share and Re-Use Spaces	1.30	3.5	69.3	17	9.1	19	20	39	47	45
Furniture Banks	1.28	3.6	72.5	17	9.1	16	17	37	45	55
Landfill Mining	1.28	3.7	73.1	20	10.7	12	25	28	46	56
Textile and Clothing Programs	1.38	3.7	73.8	18	9.6	18	22	22	39	68
Upgrading Processes and Infrastructure	1.11	3.7	74.9	17	9.1	7	15	44	52	52
Community Garden/Composting	1.22	3.9	77.5	17	9.1	12	11	33	44	70
Waste Pelletization Plants	1.11	3.9	78.1	15	8.0	6	15	33	53	65
Waste Digestion Chambers	1.05	4.0	80.1	18	9.7	5	9	36	49	70
Waste-to-Energy	1.00	4.0	80.9	16	8.5	5	8	27	65	66

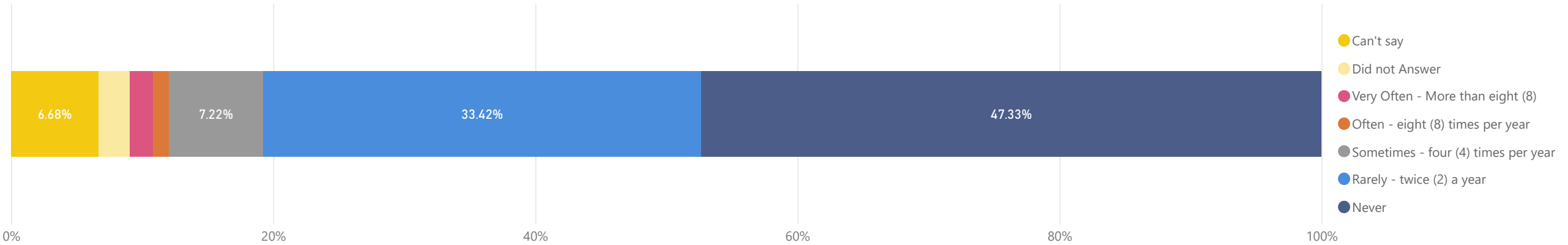
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q11

187
Respondents
748
Responses

Missed Collection

How often have you experienced a missed waste pickup on your regular collection day?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Often - More than eight (8)	Often - eight (8) times per year	Sometimes - four (4) times per year	Rarely - twice (2) a year	Never
All Service Areas	0.83	4.4	87.1	68	9.1	13	9	54	250	354
Green Bin Program	0.78	4.4	88.7	29	15.5	2	2	11	53	90
Blue Box Program	0.77	4.4	88.0	6	3.2	2	2	14	67	96
Garbage Collection Program	0.91	4.3	86.1	8	4.2	4	5	16	61	93
Yard Waste Program	0.86	4.3	85.8	25	13.3	5		13	69	75

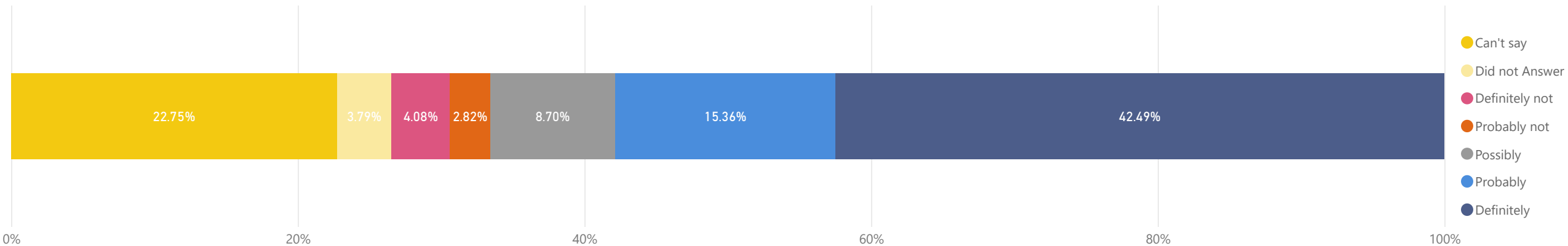
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q12

187
Respondents
2057
Responses

Recommend to Others

How likely would you be to recommend these services to others?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Definitely not	Probably not	Possibly	Probably	Definitely
All Service Areas	1.14	4.2	84.3	546	26.5	84	58	179	316	874
Yard Waste Program	0.91	4.5	89.1	27	14.4	4	2	16	33	105
Community Recycling Centre/Transfer Station	0.84	4.4	88.9	32	17.1	2	2	17	38	96
Garbage Collection Program	1.10	4.4	87.2	14	7.5	10	4	12	35	112
Blue Box Program	1.16	4.3	85.1	12	6.4	9	10	17	30	109
Bulk/Large Item Pick Up Program	1.01	4.2	85.0	54	28.8	5	2	20	34	72
Green Bin Program	1.19	4.2	84.8	20	10.7	11	8	14	31	103
Trash Tag Program	1.19	4.2	83.8	33	17.6	9	9	16	30	90
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	1.15	4.1	82.2	35	18.7	7	9	24	32	80
Reuse Stores at Community Recycling Centres	1.12	4.0	80.4	90	48.2	5	3	21	24	44
Education in Schools / Community Groups / Multi-Residential Buildings	1.35	4.0	79.0	107	57.2	9	3	12	15	41
Recycle Coach APP	1.52	3.4	68.0	122	65.2	13	6	10	14	22

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q12

187

Respondents

2057

Responses

Net Promoter Score

Typically the Net Promoter Score is used to measure customer loyalty.

How likely would you be to recommend these services to others?

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City Services & Asset Review
Waste Management Services
May 2023

	σ	Net Promoter Score	Detractors	Passives	Promoters	
All Service Areas	22.8		32.37	321	316	874
Yard Waste Program	18.1	<div></div>	51.88	22	33	105
Garbage Collection Program	21.9	<div></div>	49.71	26	35	112
Community Recycling Centre/Transfer Station	16.7	<div></div>	48.39	21	38	96
Green Bin Program	23.9	<div></div>	41.92	33	31	103
Blue Box Program	23.2	<div></div>	41.71	36	30	109
Trash Tag Program	23.8	<div></div>	36.36	34	30	90
Bulk/Large Item Pick Up Program	20.3	<div></div>	33.83	27	34	72
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	23.0	<div></div>	26.32	40	32	80
Education in Schools / Community Groups / Multi-Residential Buildings	27.0	<div></div>	21.25	24	15	41
Reuse Stores at Community Recycling Centres	22.4	<div></div>	15.46	29	24	44
Recycle Coach APP	30.3	<div></div>	-10.77	29	14	22

Likert choices less than 4 are considered 'Detractors' while 5s are considered 'Promoters' and 4s are 'Passive'. Respondents who opted out by not answering or selecting 'Can't Say' were removed from the sample. Net Promoter score is calculated by subtracting (% Detractors) from (% Promoters). σ (Standard Deviation) is calculated in percent, the same units as the Net Promoter Score.

Q13

187

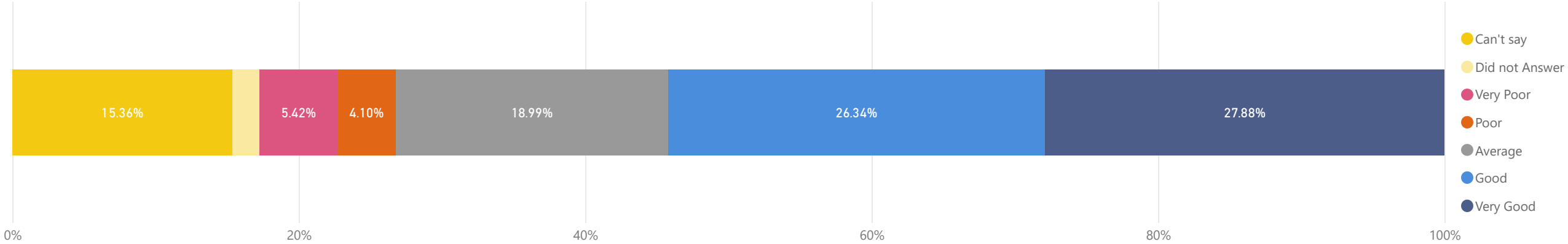
Respondents

3508

Responses

Value for Money

How would you rate the Waste Management Division for providing good value for money in the infrastructure and services provided to your community?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Very Poor	Poor	Average	Good	Very Good
All Service Areas	1.16	3.7	76.2	606	29.4	95	72	333	462	489
Community Recycling Centre/Transfer Station	1.02	4.0	80.0	34	18.2	5	4	37	47	60
Yard Waste Program	1.07	4.0	79.0	24	12.8	8	6	32	57	60
Green Bin Program	1.15	3.9	78.5	23	12.3	10	7	33	49	65
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	1.17	3.9	77.4	36	19.2	10	7	34	42	58
Garbage Collection Program	1.12	3.9	77.3	10	5.4	10	10	34	63	60
Trash Tag Program	1.14	3.8	76.0	32	17.1	10	8	36	50	51
Blue Box Program	1.18	3.7	74.9	9	4.8	13	11	41	56	57
Bulk/Large Item Pick Up Program	1.09	3.7	74.6	65	34.7	8	5	31	46	32
Reuse Stores at Community Recycling Centres	1.02	3.6	71.1	108	57.7	3	7	27	27	15
Education in Schools / Community Groups / Multi-Residential Buildings	1.36	3.5	69.5	132	70.5	8	4	13	14	16
Recycle Coach APP	1.41	3.3	66.7	133	71.1	10	3	15	11	15

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q14

187

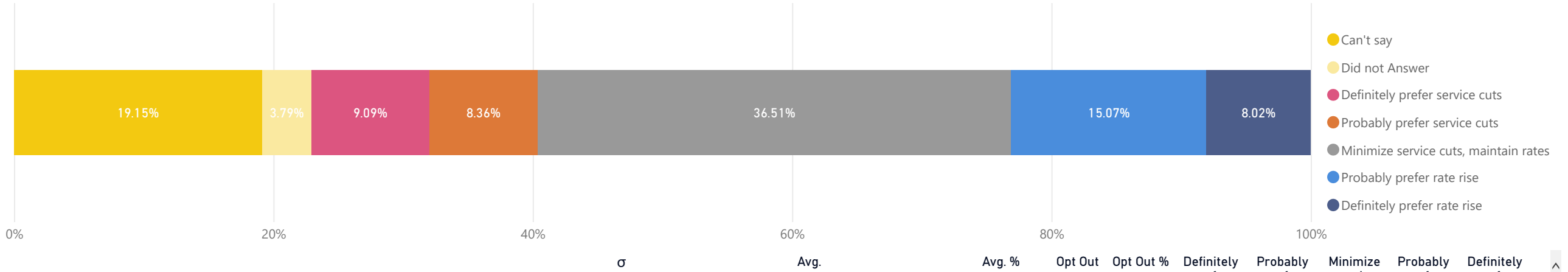
Respondents

2057

Responses

Rate Level

If you had to choose, would you prefer to see tax rates increase to improve local services OR would you prefer to see service level cuts to minimize tax rate increases?



	σ	Avg.	Avg. %	Opt Out	Opt Out %	Definitely prefer service cuts	Probably prefer service cuts	Minimize service cuts, maintain rates	Probably prefer rate rise	Definitely prefer rate rise
All Service Areas	1.06	3.0	61.2	472	22.9	187	172	751	310	165
Yard Waste Program	0.93	3.3	66.5	27	14.5	6	13	84	37	20
Blue Box Program	0.98	3.3	66.1	19	10.2	10	12	84	41	21
Community Recycling Centre/Transfer Station	0.93	3.3	65.8	33	17.6	8	10	82	37	17
Garbage Collection Program	1.02	3.2	64.8	17	9.1	12	15	85	36	22
Green Bin Program	1.07	3.2	64.2	20	10.7	16	12	81	37	21
Bulk/Large Item Pick Up Program	0.96	3.1	62.3	45	24.0	9	20	71	30	12
Trash Tag Program	1.08	3.0	59.7	35	18.7	20	15	78	25	14
Education in Schools / Community Groups / Multi-Residential Buildings	1.30	2.9	57.8	79	42.2	24	12	38	20	14
Reuse Stores at Community Recycling Centres	1.18	2.8	56.4	70	37.4	19	25	43	18	12
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	1.04	2.8	55.5	35	18.7	26	18	79	22	7
Recycle Coach APP	1.18	2.2	43.8	92	49.2	37	20	26	7	5

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

187

Respondents

5565

Responses

Individual Service Areas Rates vs. Value for Money

Service areas where reasonable fees exceed value for money by 20 points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale used.

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City Services & Asset Review
Waste Management Services
May 2023

Service Area	Rates (index score)	Value for Money (index score)	Net Differential	Opt Out %
Average	60	75	15	26.2
Recycle Coach APP	44	67	23	60.2
Recycling and Waste Collection Calendar (mailed annually in March to single family homes)	56	77	22	19.0
Trash Tag Program	60	76	16	17.9
Reuse Stores at Community Recycling Centres	56	71	15	47.6
Green Bin Program	64	79	14	11.5
Community Recycling Centre/Transfer Station	66	80	14	17.9
Yard Waste Program	67	79	13	13.7
Garbage Collection Program	65	77	12	7.3
Bulk/Large Item Pick Up Program	62	75	12	29.4
Education in Schools / Community Groups / Multi-Residential Buildings	58	69	12	56.4
Blue Box Program	66	75	9	7.5

Positive Net Differential values indicate that 'Value for Money' was greater than willingness for 'Rates'. All values were calculated and then rounded to the nearest whole number. Low index scores in 'Rates' indicate that respondents are not willing to pay increased rates for the service area.

Value for Money Q13 How would you rate the Waste Management Division for providing good value for money in the infrastructure and services provided to your community?

Rates Q14 If you had to choose, would you prefer to see tax rates increase to improve local services OR would you prefer to see service level cuts to minimize tax rate increases?

2023 Hamilton Municipal Parking System Asset Management Plan



Hamilton

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SUMMARY AND QUICK FACTS

SERVICE PROFILE



The Hamilton Municipal Parking System (HMPS) consists of parking operations and parking enforcement sections, a parking property portfolio, and associated infrastructure. HMPS collectively provides management of on-street and municipal off-street parking in the City of Hamilton. HMPS is responsible for operations across the municipality.

ASSET SUMMARY



Replacement Value

\$131 Million

FAIR CONDITION



Average age of 39 Years
or 15% of the average
remaining service life.



Level of Service Summary

- P** Survey respondents feel HMPS has performed AVERAGE overall in the last 24 months across all service areas.
- P** Survey respondents feel HMPS is providing GOOD value for money when providing infrastructure and services.
- P** Survey respondents feel that HMPS is Meeting Some of their service needs overall.
- P** Survey respondents are neither satisfied nor dissatisfied considering access to parking across various communities and on-street parking across the City.

Critical Asset Summary

CRITICAL ASSETS	QUANTITY	REPLACEMENT COST	AVERAGE CONDITION	STEWARDSHIP MEASURES
 PARKING GARAGES	2	102.6 Million	Fair	Parking garages are inspected by an Engineer every 10-12 years
 PARKING LOTS	57	14.6 Million	Poor	Staff inspects Surface Lots

DATA CONFIDENCE



VERY GOOD

FAIR

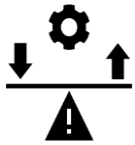
VERY LOW

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DEMAND

Population Growth: Employment Growth, new development, changes to parking supply and changing travel patterns are noted impacts. Future parking operations are projected to approach and likely exceed capacity under these demands and result in parking shortages and an inefficient parking system, specifically in the downtown area but other areas such as Stoney Creek and Waterdown are also experiencing parking shortages. There are areas of the city where the available supply of parking regularly exceeds demand such as Dundas and Ottawa Street.



RISK

- Critical Assets are identified as the Parking Garage Structures and the surface parking lots.

CLIMATE CHANGE

Mitigation

- New small and Light Duty Fleet to be electric by 2040
- LED Lighting Installations
- Support safe secure parking for bicycles and/or micro mobility solutions

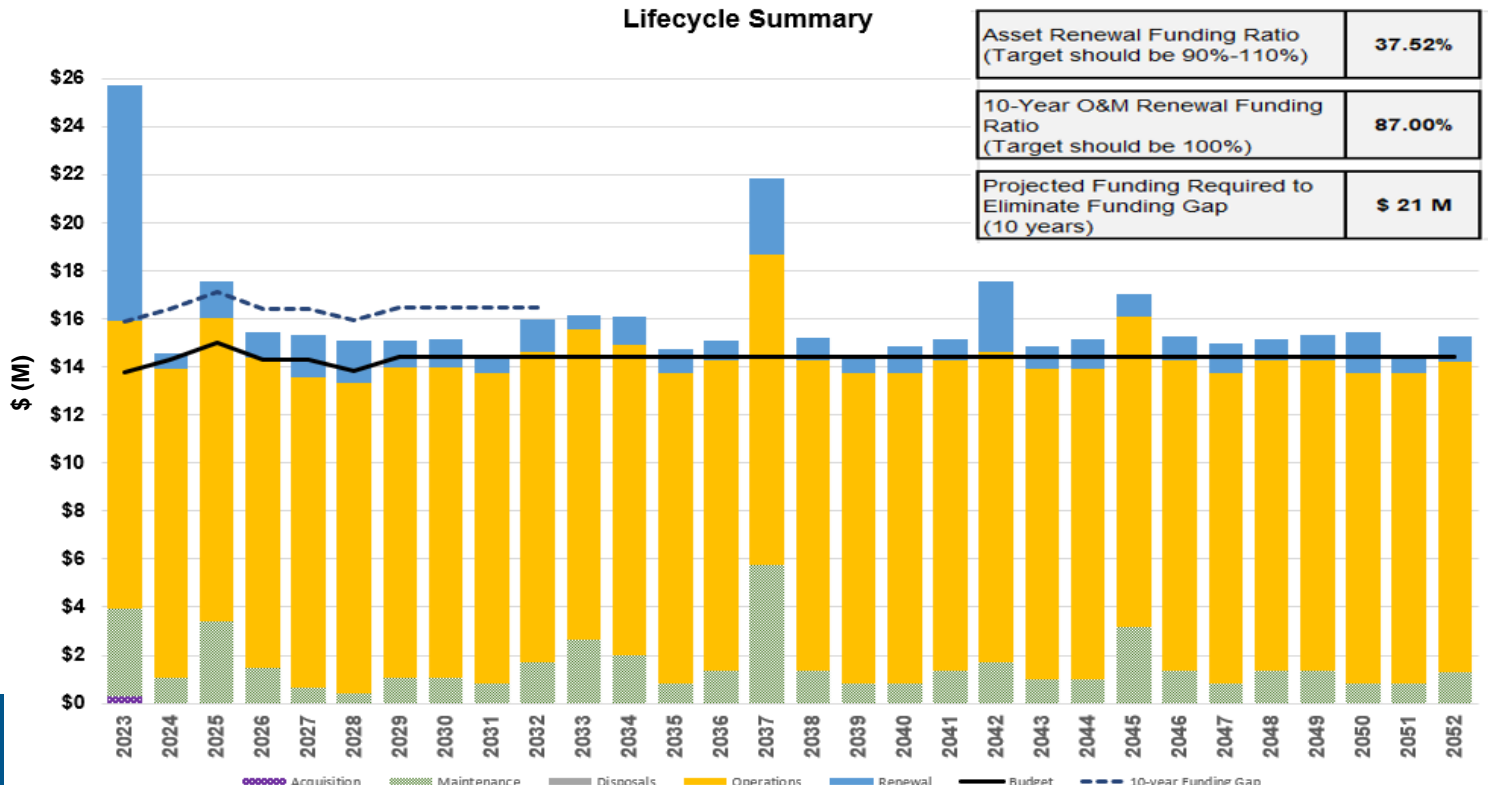
Adaptation

- No Adaption Projects identified at this time



LIFECYCLE SUMMARY

Lifecycle Summary



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1. INTRODUCTION

The Hamilton Municipal Parking System (HMPS) consists of parking operations and parking enforcement sections, a parking property portfolio, and associated infrastructure. HMPS collectively provides management of on-street and municipal off-street parking in the City of Hamilton. HMPS is responsible for operations across the municipality, from Downtown Hamilton to Stoney Creek, Dundas, Ancaster, Waterdown, Glanbrook and everywhere in between, each with their own unique characteristics.

The HMPS Asset Management Plan (AM Plan) is to identify the intended asset management (AM) programs for assets delivering the HMPS services. The City of Hamilton (the City) will identify these programs based on its understanding of the current service level requirements and the current ability of HMPS to meet those requirements and proposed service level requirements for the future.

The infrastructure assets covered by this AM Plan include assets which are part of the City's overall municipal parking system and written in accordance with O. Reg 588/17. As mentioned in **Section 5.2** of the AM Plan Overview, these AM Plans were completed using the Federation of Canadian Municipalities (FCM) approach to asset management in partnership with the Institute of Public Works Engineering Australasia (IPWEA) and NAMS (National Asset Management System) Canada framework for asset management to fulfill the O.Reg. 588/17 timeline and requirements. It is important to note that this is the first iteration of the HMPS AM Plan completed by the Corporate Asset Management (CAM) office using this framework for asset management.

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2. BACKGROUND

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. The assets covered by this plan include the major components required to deliver effective parking operations and enforcement to the City's residents.

2.1 RELATED DOCUMENTS

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

- Asset Management Plan Overview Document;
- City of Hamilton Parking Master Plan, August 17, 2021, prepared by IBI Group;
 - Background Report I – Existing Conditions and Best Practices, April 1, 2021,
 - Background Report II – Future Conditions and Financial Assessment April 1, 2021,
- Planning Committee Report PED20051(b).

Additional financial related documents are identified in **Section 10** Plan Improvement and Monitoring.

2.2 LEGISLATIVE REQUIREMENTS

The most significant legislative requirements that impact the delivery of the service 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
Accessibility for Ontarians with Disabilities Act, 2005, S.O. 2005, c.11 Ontario Regulation 191/11	Prescribes requirements for off-street accessible parking spaces.
Highway Traffic Act, R.S.O. 1990, c.H.8; R.R.O. 1990, Reg. 615: Signs	Provides instructions for all matters related to highway traffic within Ontario.
Municipal Act, 2001, S.O. 2002, C. 25, O. Reg 239/02 Minimum Maintenance Standards for Municipal Highways	Prescribes frequency of inspecting regulatory signs or warning signs to meet retro-reflectivity requirements of the Ontario Traffic Manual.
Fire Protection and Prevention Act 1997; Ontario Regulation 213/07	Prescribes requirements for inspection and testing of Fire Protection equipment
Technical Standards and Safety Act, 2000	Prescribes Technical Standards for Elevating Devices

2.3 ALIGNMENT WITH COUNCIL PRIORITIES

As referenced in the AM Plan Overview in Section 5.4, Strategic Alignment, The City's strategic goals and objectives are shaped by internal drivers such as Council approved strategies and plans, as well as external forces such as citizen expectations, and legislative and regulatory requirements. The specific legislative and regulatory requirements for service areas are provided in each AM Plan.

City objectives provide asset owners with direction regarding levels of service and asset investment priorities. This AM Plan will demonstrate how the City's objectives for core assets can influence levels of service and direct asset expenditures.

2.4 SERVICE PROFILE

The service profile consists of four (4) main aspects of the service:

- Service History;
- Service Function;
- Users of the Service; and,
- Unique Service Challenges.

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2.5 SERVICE HISTORY

Prior to 1998 Municipal Parking was operated by the former Parking Authority Board. This was an independent public agency responsible for paid parking operations in the City. In 1998, the former Parking Authority Board was dissolved and integrated with other city parking services, creating the Hamilton Municipal Parking System (HMPS). HMPS is operated within the Planning and Economic Development, Transportation Planning & Parking Division.

HMPS operates with a self-funding model. When parking revenue exceeds HMPS operating expenses, the surplus is used to fund the Parking Capital Reserve, Business Improvement Area (BIA) revenue sharing, and the City's General Tax Levy.

Capital expenditures are funded through the reserve, which at the end of 2022 had approximately \$7.6 million uncommitted to projects. The reserve is primarily funded through annual contributions from surplus, with some additional variable funding from special programs and property sales. The last full reserve contribution from surplus was \$840k in 2020, there was no surplus in 2020 – 2022 due to impacts of COVID-19. Annual reserve contributions are currently at a fixed rate as determined by Council which increases by \$25,000 a year, i.e., the 2021 contribution would have been \$865k if there had been a surplus. Partial contributions were made for 2022 (\$740k) and 2023 (\$765k). This gap in funding due to COVID-19 represents a loss of approximately \$1.2 million to pre-pandemic forecasts for the parking capital reserve.

Between 1998 and 2015, HMPS did not operate a capital improvement plan and had very low capital expenditures. The lack of renewal and replacement over an extended period has resulted in a significant backlog of aged infrastructure with a replacement value significantly exceeding reserve funding.

HMPS also participates in revenue sharing with the BIAs that host paid parking for up to 10% of the revenue earned within a BIA going back into the same BIA, to a maximum of \$167,280/year for all BIAs combined. This provides funding for them to maintain improvement programs and to undertake promotional initiatives within their boundaries.

All remaining funds go to the General Tax Levy. Historically this contribution was between \$1 and \$2 million per year.

2.6 SERVICE FUNCTION

HMPS provides parking enforcement, maintenance, and operation of all paid on-street and municipally owned off-street parking facilities. They also maintain and manage all on-street and off-street parking by-laws and relevant parking permit programs including enforcement of the parking by-laws. HMPS is also responsible for reviewing development proposals to ensure compliance with any parking requirements or by-laws. HMPS operates 57 surface parking lots, two (2) parking structures with approximately 4320 off-street spaces and approximately 2200 metered on-street parking spaces across the City.

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In order to deliver adequate and effective parking services, HMPS requires assets. Some ways assets support the delivery of the service include:

- The provision of off-street parking in municipal surface lots and parking structures;
- Equipment that supports flexible payment options to ensure choice and reliability when paying for parking both on and off street;
- Equipment and resources to maintain parking facilities and services at the desired level of service;
- Required officer equipment and vehicles to ensure efficient enforcement of parking by-laws; and,
- Administrative equipment to support the delivery of services.

2.7 USERS OF THE SERVICE

Hamilton Municipal Parking Service provides services to residents, visitors and businesses within the City and serves to support economic development, tourism, and events across the City. The 2021 Hamilton Parking Master Plan focused on parking operations in the Downtown area and within the existing Business Improvement Areas (BIA's). Each has unique characteristics and usage patterns summarized in **Table 3** below, for more details please refer to the Master Plan.

Table 2: BIA Area details from 2021 Parking Master Plan

BIA AREA	HMPS ON STREET SPOTS	HMPS OFF STREET SPOTS	COMMENT ON PARKING, MAJOR GENERATORS / USERS:
Ancaster	17	38	High vehicle mode share, 11 of 17 on-street spaces observed occupied. Off street parking is free.
Barton Village	186	156	Hamilton General Hospital creates large parking demand spilling over into residential areas
Concession Street	133	24	Juravinski is a major trip generator but has on-site parking. 20% of on-street available when observed. Supply is sufficient
Downtown Dundas	90	331	On-street well utilized, almost 100 off-street spots available at all times
Downtown Hamilton	224	71	95% of parking spaces occupied during weekday peak. Large volumes of alternative curb side activities (transit, passenger pickup/drop-off deliveries, patios, etc.) occur.

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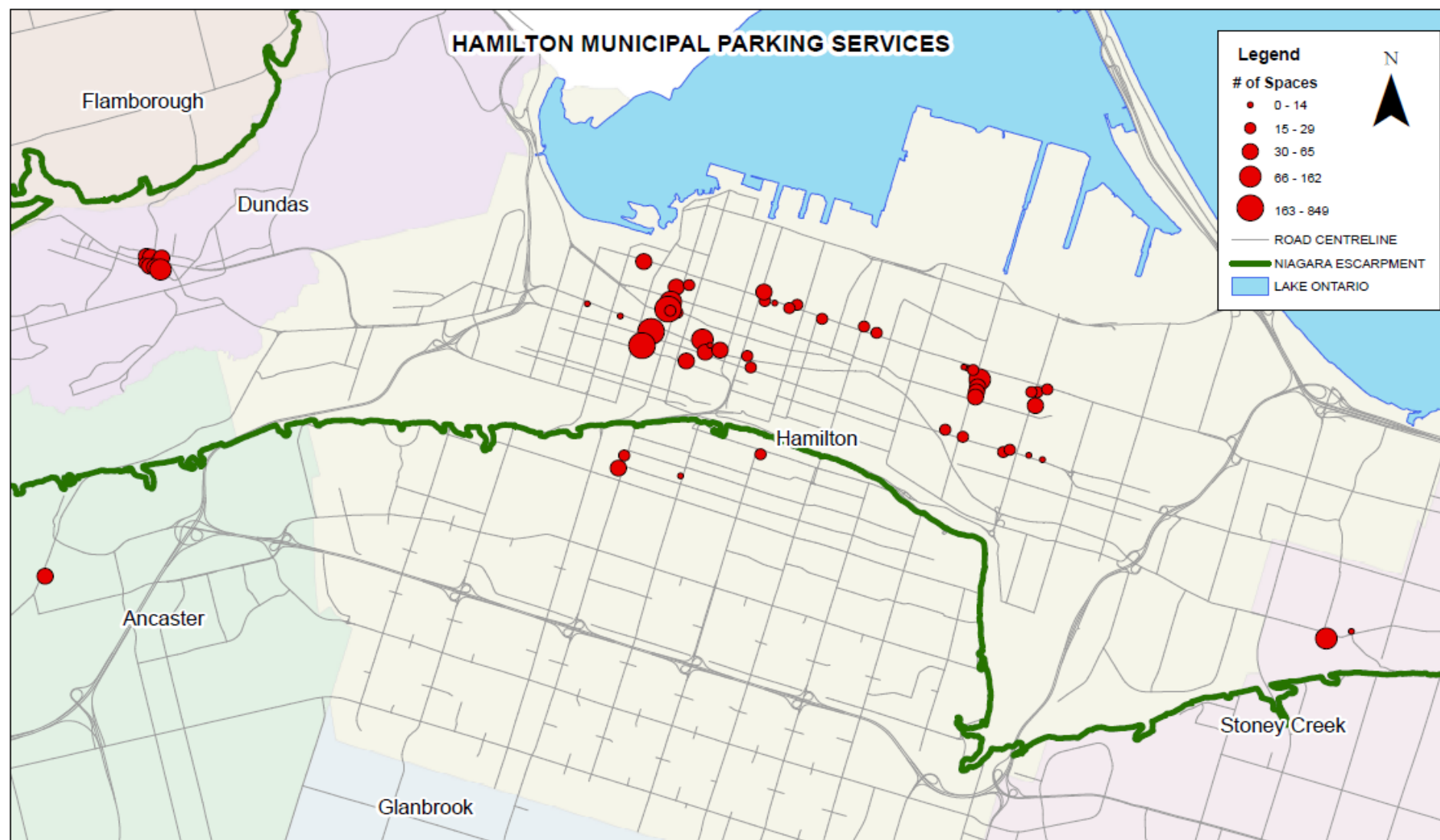
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BIA AREA	HMPS ON STREET SPOTS	HMPS OFF STREET SPOTS	COMMENT ON PARKING, MAJOR GENERATORS / USERS:
International Village	117	281	Users experience difficulty finding parking spaces during weekday business hours. A large number of passenger pickup/drop off and ride sharing activities occur.
King Street	16	11	Most parking needs are met privately. Challenging to find on-street during peak periods
Locke Street	124	0	Private parking complements on-street parking. Available on-street parking observed at all times.
Main Street West Esplanade	39	0	Private parking complements on-street parking. Abundant on-street parking opportunities but conflict with high traffic volumes.
Ottawa Street	102	306	Plentiful available parking opportunities at all times.
Stoney Creek	0	169	Large supply of municipal off street and on-street parking available at no cost with maximum 2 hour. Parking is known to be limited during weekday business hours
Waterdown	55	8	On Site parking supply shortages may develop partially due to lack of local municipally operated parking facilities. On-street parking is no cost.
Westdale Village	98	0	On-street parking demand is known to be high but opportunities available in 2019 utilization survey. Parking infiltration from surrounding areas is known to be an issue.

Based on the 2021 census¹ results Hamilton's population is 569,353 and the average age of Hamilton's population is 41.5 years. Over 77% of the population indicates they primarily commute by car/truck or van as a driver. 65% report a commute of less than 29 minutes. Many of these commuters will park in private facilities provided by business or employers but others will rely on both private and municipal off-street parking lots for work and for business use.

¹ <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>

Figure 1 : Hamilton Municipal Parking Services Map



2.8 UNIQUE SERVICE CHALLENGES

There are several unique service challenges facing Hamilton Municipal Parking Services:

- The 2021 Parking Master Plan predicted that the downtown area is approaching the peak parking utilization of 91%. This utilization calculation did not account for the redevelopment of the York Parkade and adjoining surface lot on York with the Hamilton Urban Precinct Group (HUPEG) agreement or Light Rail Transit (LRT) implementation. Combined, these two major projects will result in the loss of approximately 950 off-street and 500 on-street metered parking spaces above what was anticipated in the 2021 Master Plan. With these reductions it will not be feasible to support unconstrained parking demand in the downtown area. This will require significant operational changes to shift parking to other areas and modes of travel while protecting loading zones for businesses.
- Parking demand is expected to exceed capacity in some areas, but no additional parking facilities are being planned for those locations at this time, with the exception of a study looking at parking demand and opportunities in the West Harbour area as well as joint parking opportunities with private developments. Shifting demand away from single occupant vehicles to transit, active transportation and shared mobility will be critical given the increasing challenges, costs and environmental impacts associated with expanding parking supply.
- HMPS managed parking supply, on and off street, is spread out across the city with variation in intensity of use and parking regulations. This creates difficulties providing appropriate enforcement, maintenance, and coin collection activity levels.
- A lack of a standardized capital improvement program since dissolution of the parking authority in 1998 has resulted in significant degradation in physical surface lot infrastructure and created a significant renewal backlog.
- Historic records are limited, and numerous parking lot properties have poorly defined leases or agreements predating amalgamation and dissolution of the parking authority.
- As the convention center parking garage ages, it is expected to have higher reactive maintenance costs and risks related to aging infrastructure.
- Enforcement requests in 2019 were 57% higher than 2015, post COVID-19 the trend of increasing demand has resumed.
- Availability of parking enforcement staff creates service challenges. Responsive enforcement for parking complaints is limited by the size of the City and centralization of

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staff, additionally no Parking Enforcement staff are scheduled from 5:45 am to 10:00 pm on Sundays or holidays.

- The primary mode of funding for the Parking Capital Reserve is annual contributions from parking revenue surplus, the amount of which is set by Council. Reserve contributions are scheduled to increase by \$25,000/year. The 2023 reserve contribution would have been up to \$915,000 had a surplus been achieved in 2022, however the last full reserve contribution was \$840,000 in 2020 due to decreased revenue. The 2022 and 2023 reserve contributions were \$740,000 and \$765,000 respectively. There are additional funding streams for the reserve including property sales and some fees which are variable year to year.
- The Parking Capital Reserve balance is currently insufficient to cover the backlog of required capital repairs. The annual funding of the reserve, even when fully realized, is likely inadequate to maintain the HMPS asset portfolio meaning the backlog will continue to increase without correction.
- While HMPS is intended to be self-funding, it is not an autonomous organization and Council dictates how revenue is used and what rates can be charged for rates and fines.
- HMPS has historically transferred parking revenues to the levy each year, pre-COVID. The amount is the balance of revenues after the capital transfer reserve has been subtracted from the operating balance. In cases where there is a deficit in the Operating Balance or revenues are less than the capital reserve fund transfer \$0, zero dollars are transferred to the levy.
- The transition to higher order transit in the downtown area will take several years while LRT construction and bus network redevelopment occur. Parking will be impacted prior to the alternative transportation systems being implemented.
- The downtown parking area will be impacted by implementation of the Hamilton Urban Precinct Entertainment Group (HUPEG). This proposal announced in 2020 at a value of \$500 million dollars to renovate downtown entertainment facilities. As part of the agreement, the City will "transact" the MCP 68 York Boulevard Parkade, MCP 69 and the Surface parking lot located at MCP 62 14 Vine Street to become development sites. Timing of the transaction of these parking facilities is not known at this time. At this time for the purposes of the plan it is assumed these are still HMPS assets but recognize at some point they will be removed once the agreement specific to these assets is finalized.
- HMPS maintains some lots in areas with very low utilization rates where it may make sense to review HMPS operations in the near term to make more efficient use of limited resources.

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- The City has many different areas which are distinctly different markets with different travel patterns and parking demands as outlined in **Section 2.7**. This results in differences in how public parking facilities are operated across the city.

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3. SUMMARY OF ASSETS

3.1 ASSET HIERARCHY

In order to deliver effective and efficient parking services, HMPS requires assets. The HMPS area has been broken down into four (4) asset classes for the purpose of this AM Plan section: Parking Facilities, Site Works, Meters & Signs, and Administrative.

- **Parking Facilities:** refers to the physical parking assets, specifically the parking garages and the Surface Lots which includes the pavement and granular base of the parking lots. This also includes hard surfaces such as internal sidewalks and perimeter curbing.
- **Site Works:** refers to parking lot support assets exclusive of hard surfaces
- **Meters & Signs** refers to payment machines, parking meters and signs
- **Administrative:** refers to all equipment and fleet that support delivery of the parking service.

The HMPS also has a real estate portfolio related to the delivery of the service. The valuation of the real estate portfolio is not included in any valuation or asset information contained in this plan. The value of the real estate portfolio is over and above any financial data and information provided in this plan. HMPS has identified they have incomplete property and/or leasing records and a continuous improvement item has been identified to complete property profiles for all HMPS leased or owned properties.

The asset class hierarchy outlining assets included in this section is shown below in **Table 4**.

Table 3: Asset Class Hierarchy

PARKING FACILITIES	SITE WORKS	METERS & SIGNS	ADMINISTRATIVE
Surface Lots – Surface Pavement and granular (Includes curbs/interlock Misc. Surfaces)	Surface Lot Lighting System	Pay Machines	Vehicles
Parking Garages*	Linear Barriers (Crash Guard, Decorative Walls)	Parking Meters	Maintenance Equipment
	Privacy Fencing	Non-Regulatory Signs	Officer Equipment
	Stormwater Facilities (CBMH, Storm Sewer)	Regulatory Parking Control Signs	Technology
	Retaining Walls		Coin Handling Equipment
	Electric Vehicle Chargers		

*Facilities Parking Administration Offices is included in the Parking Garage Condition at this time as the data is not broken out separately from Facilities

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3.2 DETAILED SUMMARY OF ASSETS

Table 5 displays the detailed summary of assets for the parking service area. The sources for this data are a combination of data provided by HMPS and other available data from the City's database information. It is important to note that inventory information does change often, and that this is a snapshot of information available largely as of December 31, 2022.

The City owns approximately **\$131 million** in municipal parking assets which are on average in **3-FAIR** condition. Assets are an average of **39 years** in age which is **15%** of the average remaining service life (RSL). For most assets this means that the City should be completing preventative, preservation and maintenance activities as well as operating activities (e.g., inspection, cleaning) to prevent any premature failures. As detailed in **Table 5** below, many of the assets, particularly surface lots and site works assets, are at the end of or exceed their estimated service lives. The overall asset condition is being inflated by the condition of the York Street Parkade.

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. There also may be assets not currently managed by HMPS that may be considered HMPS assets which are missing from this inventory or conversely assets that are better aligned to another City of Hamilton division that could be removed from this inventory in future editions of the AM Plan. This asset review has been identified as a continuous improvement Item in **Table 32**.

Table 4: Detailed Summary of Assets
Weighted Average by Replacement Value

ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE CONDITION
PARKING FACILITIES				
Surface Lots – Surface Pavement* Includes curbs/interlock Misc. Surfaces	57	\$14.6M	37 years (0%)	4-POOR
Data Confidence	High	Low	Low	Low
Parking Garages (*Includes Parking Administrative Facilities)	2	\$102.6M	41 years (54%)	3-FAIR
Data Confidence	Very High	Medium	Very High	Medium

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ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE CONDITION
SUBTOTAL		\$117.2M	41 years* (42%)*	3-FAIR*
Data Confidence		Medium	Low	Low
SITE WORKS				
Surface Lot Lighting System (poles, luminaires, wiring and controls)	161 Poles 215 Fixtures	\$1.52M	38 years (0%)	4-POOR
Data Confidence	High	High	Low	Medium
Linear Barriers (Crash Guard, Decorative Walls)	3.2 km	\$0.20M	39 years (0%)	2-GOOD
Data Confidence	Medium	Low	Low	Low
Privacy Fencing	2.0 km	\$0.26M	38 years (0%)	No Data
Data Confidence	Medium	Low	Low	Very Low
Stormwater Facilities (CBMH)	152	\$0.15M	36 years (0%)	3-FAIR
Data Confidence	Medium	Low	Low	Low
Retaining Walls	3	\$0.05M	38 years (0%)	No Data
Data Confidence	Medium	Very Low	Low	Very Low
Electric Vehicle Chargers	19	\$0.45M	1 year (90%)	1-VERY GOOD
Data Confidence	Very High	High	Very High	High
SUBTOTAL		\$2.6M	32 years* (0%)*	3-FAIR*
Data Confidence		High	Low	Medium

METERS AND SIGNS				
Pay Machines	126	\$0.82M	8 years (47%)	3-FAIR
Data Confidence	High	Medium	Medium	Low
Parking Meters	2310	\$2.3M	No Data	3-FAIR
Data Confidence	High	Medium	Very Low	Low

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ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE CONDITION
Non-Regulatory Signs	475	\$0.2M	No Data	2-GOOD
Data Confidence	Very Low	Low	Very Low	Low
Regulatory Parking Control Signs	No Data	\$6.0M**	No Data	No Data
Data Confidence	Very Low	Very Low	Very Low	Very Low
SUBTOTAL		\$9.3M	8 years (47%)	3-FAIR
Data Confidence		Very Low	Low	Low

**Replacement Value of Regulatory Parking Control Signs is based on the assumption HMPS provides \$400K to Public Works per year to renew signs under work orders with an estimated service life of 15 years. This totals to an approximate value of \$6M dollars. This value is not based on an actual inventory and has very low data confidence.

ADMINISTRATIVE				
Vehicles	30	\$1.2M	6 years (33%)	4 - POOR
Data Confidence	Very High	Medium	High	Low
Maintenance Equipment	5	\$0.15M	10 years (0%)	5 – VERY POOR
Data Confidence	High	Medium	High	Low
Officer Equipment (Uniforms/Mobile Printers/Phones)	168	\$0.24M	No Data	2-GOOD
Data Confidence	High	High	Very Low	Low
IT Equipment & Curbside Mgmt. Tool	60	\$0.2M	3 years (33%)	4 – POOR
Data Confidence	Medium	Medium	Medium	Low
Coin Handling Equipment	3	\$0.06M	9 years (33%)	4 - POOR
Data Confidence	Very High	High	Medium	Low
SUBTOTAL		\$1.85M	7 years* (29%)*	4-POOR*
Data Confidence		Medium	High	Low

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ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% RSL)	AVERAGE CONDITION
TOTAL		\$131.0M	39 years* (41%)*	3-FAIR*
Data Confidence		Low	Low	Low

The overall replacement value data confidence for the registry is low. The replacement values are generally based on staff expert opinion or inflationary values of original purchase/replacement cost estimates. In most of the asset classes, current market data is not available for replacement value.

The overall average age data confidence is rated as Low. For most of the asset classes (i.e., surface parking lots, pay machines and signs) the data is largely estimated based on staff expert opinion and not based on actual in-service dates. However, the parking structures have the highest weighted contribution to the overall results and the age of the structures is documented.

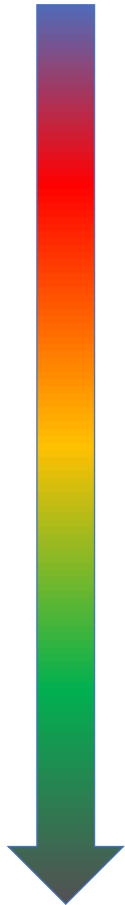
The overall average condition data confidence is rated as Low. For the majority of the assets the condition is based on age and not based on actual physical inspection and data condition analysis. Exceptions to this are the Convention Center parking garage, where condition is based on Facility Condition Index (%FCI) and the surface parking lots where condition is based on staff expert opinion. More details can be found in **Section 3.4.1**.

Please refer to the AM Plan Overview for a detailed description of data confidence.

3.3 ASSET CONDITION GRADING

Condition refers to the physical state of HMPS assets and are 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. Condition 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 6** 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 32**, 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: Conditional Conversion Table



EQUIVALENT CONDITION GRADING CATEGORY	CONDITION DESCRIPTION	% REMAINING SERVICE LIFE	FACILITIES CONDITION INDEX (FCI)	PARKING LOT SURFACE PAVEMENT	PARKING LOT LIGHTING	LINEAR BARRIERS / FENCE/ STORMWATER FACILITIES
1-Very Good	The asset is new, recently rehabilitated, or very well maintained. Preventative maintenance required only.	>79.5%	N/A	N/A	Excellent	N/A
2-Good	The asset is adequate and has slight defects and shows signs of some deterioration that has no significant impact on the asset's usage. Minor/preventative maintenance may be required.	69.5% – 79.4%	< 5%	Good	Good	Good
3-Fair	The asset is sound but has minor defects. Deterioration has some impact on asset usage. Minor to significant maintenance is required.	39.5% - 69.4%	>= 5% to < 10%	Passable	Fair	Fair
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.	19.5% -39.4%	>= 10% to <30%	Poor	Poor	Poor
5-Very Poor	Asset has serious defects and deterioration. Asset is not fit for use. Urgent rehabilitation or closure required.	<19.4%	>= 30%	Very Poor	Very Poor	N/A

The following conversion assumptions were made:

- For assets where a condition assessment was not completed, but age information was known, the condition was based on the % of remaining service life.
- For Surface Pavement, Stormwater Facilities, Fencing and Linear Barriers the condition assessment is on a 3-point scale ranging from Good to Poor.
- Surface Pavement Condition was based on subject expert opinion based on the condition descriptions above.

3.4 ASSET CLASS BREAKDOWN

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 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 assets' condition is based on age, it is typically considered to be of a lower confidence level.

As previously mentioned, condition refers to the physical state of assets and are 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 which are noted in this section.

Finally, assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies, and so performance deficiencies inevitably arise which should be noted.

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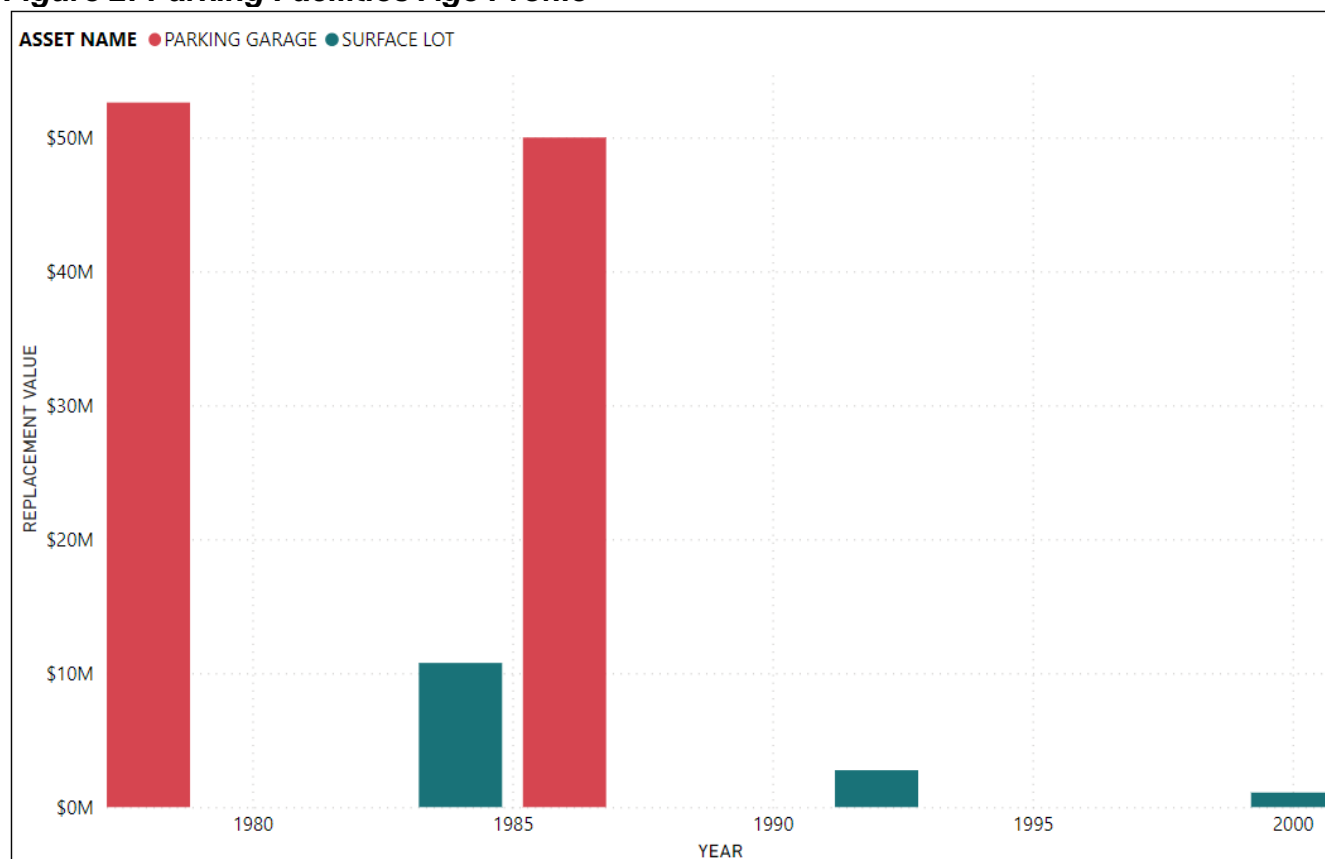
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3.4.1 PARKING FACILITIES

AGE PROFILE

The age profile of the parking facilities assets is shown in **Figure 2**. An analysis of the age profile is provided below.

Figure 2: Parking Facilities Age Profile



Average age data confidence for surface lots is very low as the last major reconstruction and/or original construction year for surface lots is estimated by staff from available records. Most parking lots were built between the late 1960's and early 1980's and are in similar condition. The plan assumes the year of construction to be 1984 where otherwise unknown. Many surface lot pavements are approaching or exceeding the end of their service life and this clustering of construction dates in 1984 will lead to a significant spike in reconstruction (renewal) and resurfacing (maintenance) needs.

HMPS has estimated the service life of the surface lot asphalt pavement structure between full reconstructions (renewal) of the asphalt and granular at 30 years for a large parking lot and 40 years for a small parking lot, based on differing usage patterns. The prescribed treatment to reaching the full-service life would be for asphalt resurfacing (mill and pave), a maintenance

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treatment to be done halfway through the estimated service life at 15 years, large and 20 years, small respectively.

The city has two (2) parking garages operated and maintained by HMPS. The estimated service life of a parking garage based on staff expert opinion is 75 years, it should be noted this differs from service life estimated in the Parking Master Plan of 50 years. For this asset management plan a service life of 75 years has been used. The data confidence for age of parking garages is Very High given the limited number of assets and verifiable construction dates.

The 80 Main Street West underground parking garage, Lot 37, was constructed in approximately 1978. The York Street former Eaton's Parkade, Lot 68, was constructed in 1986. This parking garage is one of the properties identified for transaction to the Hamilton Urban Precinct Entertainment Group (HUPEG), for more detail see **Section 2.8**. Moving forward, this property will likely not be managed by HMPS and replacement may not be required by HMPS. The Parkade has been included in the AM Plan at this time due to uncertainty over timing and final arrangements of this component of the HUPEG agreement.

Both parking structures are nearing the end of their estimated service life and planning should begin for their ultimate replacement.

CONDITION METHODOLOGY

Building Condition Assessments (BCA) are completed on a 5-year cycle by the Facilities & Energy Management department. The BCA identifies necessary major and minor maintenance activities in a 10-year forecast with projected costs, and outputs a detailed report outlining methodology, overall findings, and condition. The condition is reported as a Facilities Condition Index (FCI), which is a ratio of total cost for required repairs, renewal or upgrades to replacement value of building components. The 10-year forecast from the BCAs were incorporated into the lifecycle models in **Section 8** indicating facilities maintenance requirements. BCA data is available for the Convention Center parking garage only. The York Parkade is not part of the Energy and Facilities Management portfolio and so as such, it does not have a standardized FCI Rating.

Specialized Engineering reports are commissioned by HMPS in advance of major projects in the parking garages to evaluate the condition of the waterproofing membrane and to provide expert opinion on the structure and any needed repairs or remediation work.

The Surface Lots condition is based on a 2022 HMPS staff visual condition rating using a 3-point scale. Previously condition ratings were from a 2016 consultant report using a 5-point scale. These condition ratings used differing visual assessment descriptions of the scoring criteria.

The condition score output for Surface Lots has been inconsistent over time with various condition scores and rating systems used. A comprehensive asset inspection program for all assets should be developed identifying the frequency of inspection and developing 5-point scales for use during inspection so a condition can be determined. Condition assessment frequency should also be determined for asset categories, so condition is being reviewed and

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updated on a regular basis to better identify asset service lives. This is detailed in the Continuous improvement plan in **Table 32**.

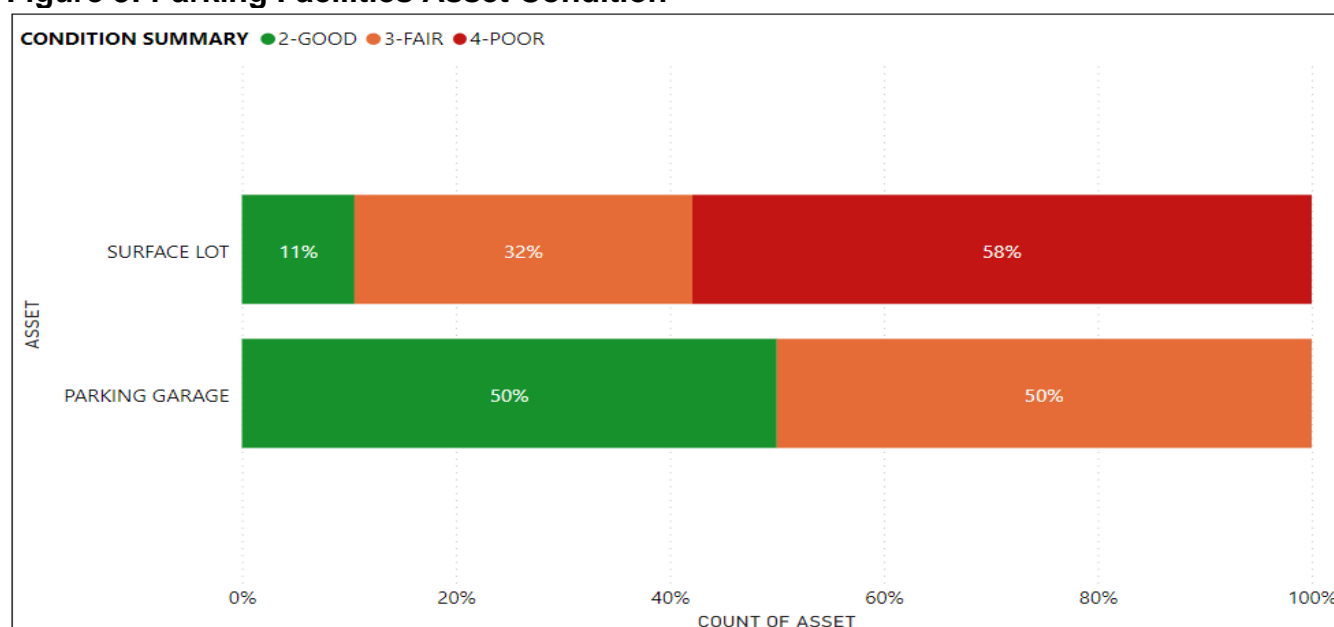
Table 6: Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Surface Lots – Pavement* Includes curbs/interlock Misc. Surfaces	Ad Hoc	2012 2016 2022	3 Point Scale 5 Point Scale 3 Point Scale
Parking Garage(s)	Lot 37 – 5 years	2015, 2020	Engineering Reports on Structure and Waterproofing;
	Lot 37 - 5 years	2022	Facilities Condition Index (FCI) + staff expert opinion on outstanding work and value of work with adjusted FCI.
	Lot 68 - Unknown	Unknown	2017, 2018 Rehab. Condition based on staff expert opinion.

ASSET CONDITION PROFILE

The condition profile of the City's parking facilities assets is shown in **Figure 3**. As mentioned in **section 3.3**, the original condition grades were converted to a standardized condition category for report consistency.

Figure 3: Parking Facilities Asset Condition



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The majority of surface lots are in poor condition (58%), with only 11% of lots rated as Good condition. The condition is based on “each” or count of the lots and is not weighted to the area of pavement. This is not an ideal asset distribution and shows that many lots are in need of renewal (full reconstruction) to improve their condition and will require significant funding to improve the overall condition of surface lots. It should be noted that some surface lots are on leased land and consideration must be given to asset renewal in conjunction with the length and terms of the lease to optimize renewal investments and therefore condition. Lot 40, City Hall, is managed as a surface lot by HMPS. Corporate Facilities and Energy Management Division has responsibility for waterproofing the roof of the maintenance garage that is underneath areas of the parking lot at the rear of the lot that fronts onto Hunter Street West.

The parking garages are evenly split between good and fair condition. The Convention Center garage is in fair condition based on a revised Facility Condition Index. A BCA was completed in late 2022 which drastically revised the previous FCI from the 2017 BCA. The 2017 BCA identified an FCI of 26.31% (Approx. \$13 Million in needs) which based on **Table 6** outputs a condition score of 4-Poor. The 2022 BCA identified an FCI of 1% (\$331,000 in needs) which based on **Table 6** outputs a condition score of 2-Good. Based on this drastic change in outstanding needs, a review of planned maintenance work based on the ongoing rehabilitation was added to the 2022 BCA identified maintenance needs which then totaled Approx. \$2.6 Million. Using the 2022 replacement value of the parking garage (\$52.6M) this puts the FCI at approximately 5%. Based on discussion with Subject Matter Expert parking staff and a review of the **Table 6** conversion table they felt that the condition of the parking garage is best described as 3-Fair.

The condition of the Parkade is based on Subject Matter Expert Opinion from HMPS as this facility is not included in the portfolio overseen by Corporate Facilities & Energy Management and as such replacement value and FCI are not readily available.

ASSET USAGE AND PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The largest performance issues with parking facilities involve the underground parking garage and surface lot pavement condition. The known service performance deficiencies in **Table 8** were identified using staff input.

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Table 7: Known Service Perform Deficiencies

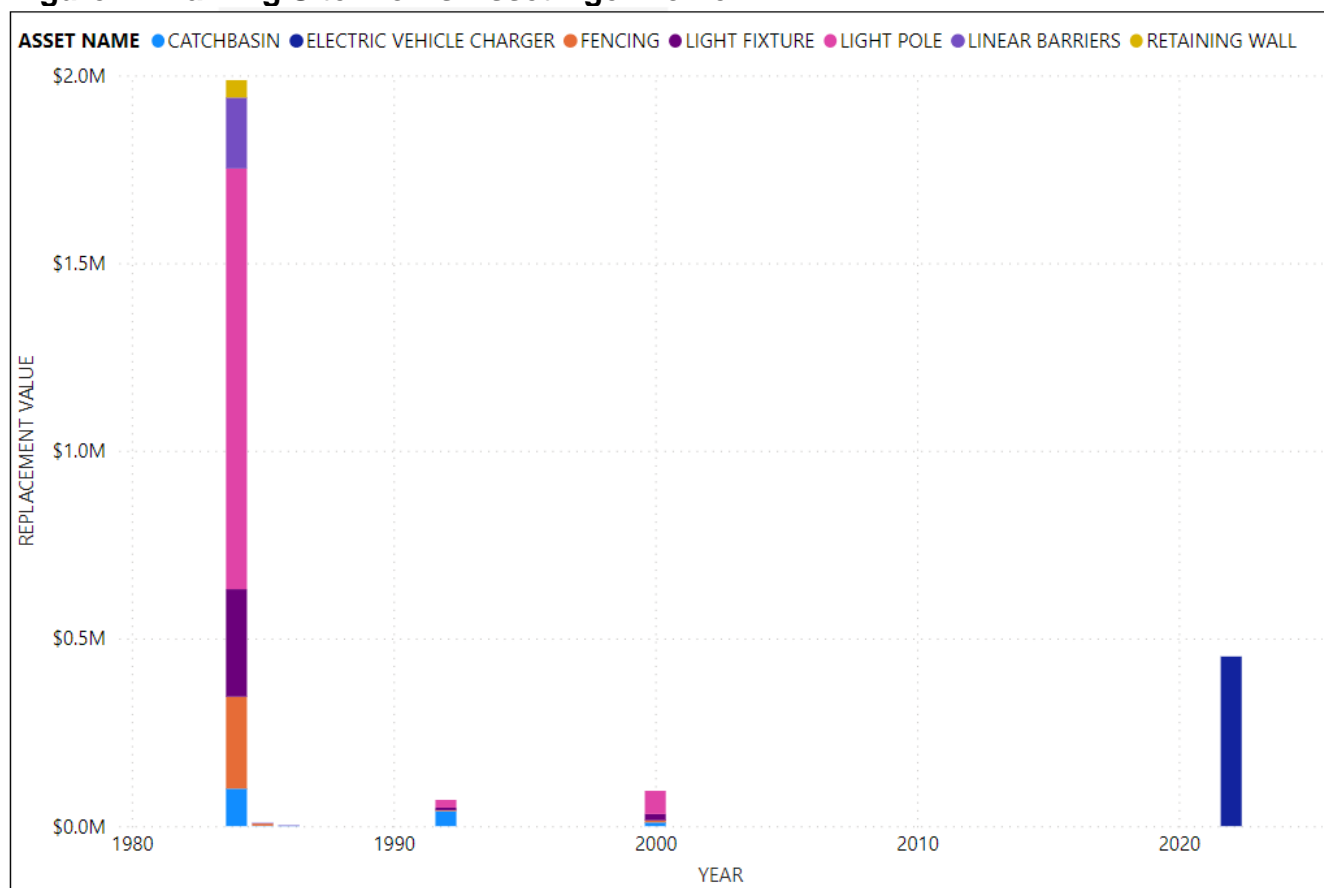
ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
PARKING FACILITIES	Parking Garage Lot 37	Waterproofing at end of life	<p>Waterproofing membrane within the garage has become brittle with extensive areas of cracking and delamination. Project underway to replace garage waterproofing.</p> <p>Rooftop waterproofing (Summers Lane and the Open Space) has begun to break down causing leaks into the parking garage structure and parking offices. This waterproofing is part of the Corporate Facilities and Energy Management Division portfolio, not HMPS, however the leaks are causing damage within the areas operated by HMPS.</p>
		Structural concrete degradation	Concrete slab, soffits and walls have numerous localized areas of deterioration including loose concrete and rusting rebar.
		Garage drainage system in poor repair	Storm drains and associated pipes are in overall poor condition with extensive rusting and leaks. In 2022 a multi-year rehabilitation project began to address the structure, waterproofing and drainage system.
		Doors and finishing's in poor repair	Doors and finishing's are aged and lack accessibility and security features.
	Surface Lot Asphalt	Poor Condition	Surface Lot Pavement Condition identified as Poor at 33 of 57 locations from 2022 assessment.
	Surface Lot	Poor Condition	Several Surface Lots are on Leased Land which impacts long term asset renewal decisions and investments

3.4.2 PARKING SITE WORKS

AGE PROFILE

The age profile of the parking site works assets are shown in **Figure 4**. An analysis of the age profile is provided below. For parking site works assets, the data confidence for age is typically Low because site works asset ages are derived from the Parking Facilities ages which are generally assumed.

Figure 4 : Parking Site Works Asset Age Profile



The ages of many of the Site Works assets are unknown. The age of many of the surface parking lots (facilities) have been assumed to be 1984 unless otherwise known and a similar assumption has been made for the age of site works asset groupings, which include surface lot lighting, linear barriers, stormwater facilities and retaining walls. This results in a low data confidence for Site Works age. This also results in a large spike in asset acquisitions in this particular year. Many of these assets are beyond their ESL and will contribute to the renewal backlog in the Lifecycle Model in **Section 8**.

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It is important to note that linear barriers are not replaced like-for-like and will be replaced with concrete curbing during renewal as the use of steel beam guardrail in that manner is an older practice.

Retaining walls for surface lots should be considered as part of retaining wall inventory condition assessments completed by the Engineering Services division in Public Works and as outlined in the Ontario Structure Inspection Manual (OSIM). This has been included as a continuous improvement item for investigation in **Table 32**.

Finally, the quantity and age of Electric Vehicle (EV) Charges have a Very High data confidence as these assets are all recently installed as part of a major project in 2022 and are also easily verified in the field.

CONDITION METHODOLOGY

Condition for assets was determined from available inspection data or parking staff expert opinion where inspection data was not available.

The condition of stormwater facilities is limited to a visual inspection of the catch basin surface condition. A condition assessment of the below grade concrete structure and related storm water connection pipes has not been completed. The condition of Surface lot lighting is limited to a review of the above ground poles and fixtures only. The assessment did not review wiring or condition of the breaker/service entrance panels.

A comprehensive asset inspection program for all assets should be developed identifying the frequency of inspection and developing 5-point scales for use during inspection so a condition can be determined. Condition assessment frequency should also be determined for asset categories, so condition is being reviewed and updated on a regular basis to better identify asset service lives. This is detailed in the Continuous improvement plan in **Table 32**.

Table 8: Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Surface Lot Lighting (poles, luminaires, wiring and controls)	Ad Hoc, above ground Poles and Fixtures only. No wiring or service condition available	2012 2022	3 Point Scale Poles – 4 Point Scale Fixtures – 5 Point Scale Wiring / Supply Points – No Condition
Linear Barriers	Ad Hoc	2012	3 Point Scale
Privacy Fencing	Ad Hoc	Ad Hoc	No Condition Data
Stormwater Facilities	Ad Hoc	2012	3 Point Scale for CBMH No condition on sewer lateral

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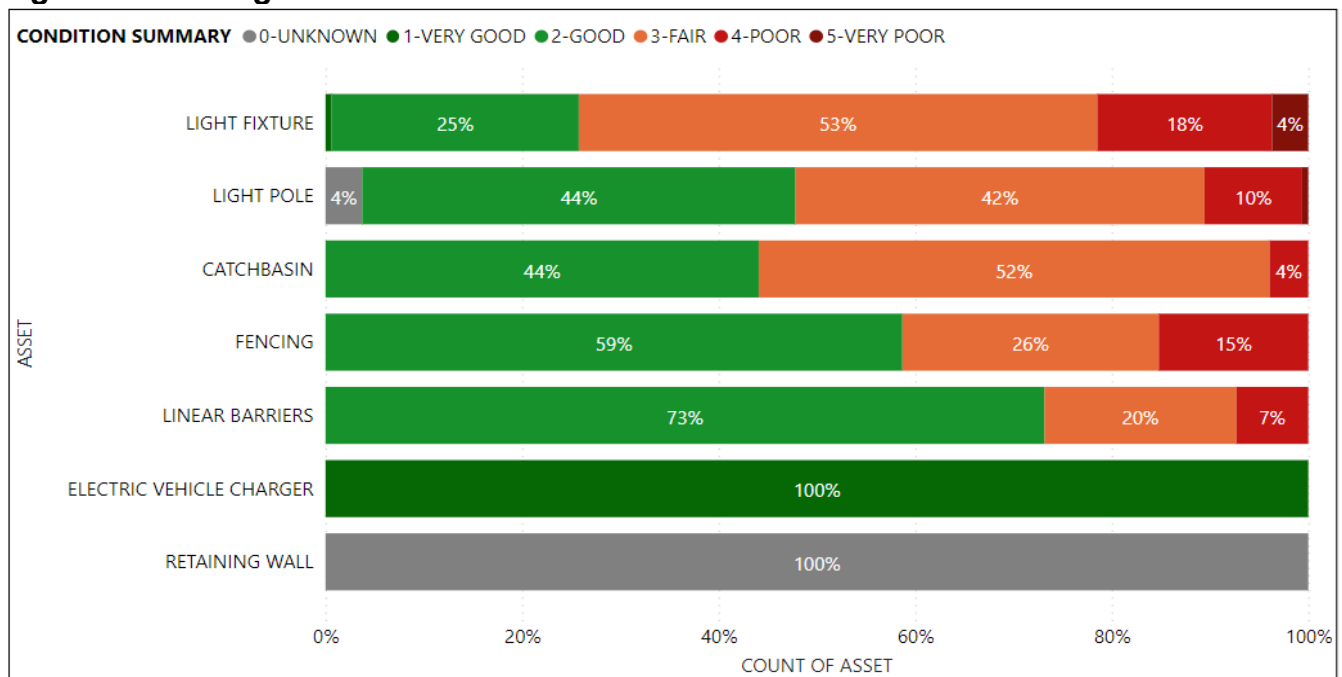
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ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Retaining Walls	Currently Ad Hoc; should be investigated as per Ontario Structural Inspection Manual (OSIM)	Unknown	N/A, assumed based on age
Electric Vehicle Chargers	Ad Hoc	New Asset 2022	N/A, assumed based on age

ASSET CONDITION PROFILE

The condition profile of the City's assets is shown in **Figure 5**. As mentioned in **section 3.3**, the original condition grades were converted to a standardized condition category for report consistency.

Figure 5 : Parking Site Works Asset Condition Distribution



The condition of the overall surface lot lighting system is based on staff subject matter expert opinion and is considered to be Poor. Although the poles and luminaires have had a recent inspection and condition rating which are detailed in the Figure above, this inspection did not review the wiring or electrical power supplies to the lights and the subject matter expert opinion is that the overall lighting system is in Poor Condition which is not reflected in the individual asset breakdown shown in the figure above.

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The condition of retaining walls is unknown and no physical attribute data is available. Data collection is required to determine the appropriate inspection requirements and reporting requirements as outlined in the Ontario Structure Inspection Manual (OSIM) which outlines that all retaining walls shall be inspected every two years.

A comprehensive asset inspection program for all assets should be developed identifying the frequency of inspection and developing 5-point scales for use during inspection so a condition can be determined. Condition assessment frequency should also be determined for asset categories, so condition is being reviewed and updated on a regular basis to better identify asset service lives. This is detailed in the Continuous improvement plan in **Table 32**.

ASSET USAGE & PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The largest performance issues with parking site services involve overall age and condition of the assets. The known service performance deficiencies as shown in **Table 10** were identified using staff input.

Table 9 : Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
SITE WORKS	Surface Lot - Lighting	Poor illumination (requiring installation of additional fixtures and/or poles)	39 Surface Lots
		Existing Lighting in poor condition (requiring full pole replacements and other repairs)	12 Surface Lots
		Existing Lighting requiring localized repair (new fixtures, handhole covers or painting)	9 Surface Lots
		Underground wiring/conduit and electrical service entrances panels	The 2022 Lighting assessment did not include the underground wiring or electrical service entrances which were not inspected or assessed and are generally believed to be at end of life.

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ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
	Electric Vehicle Chargers	Out of Service	Frequent Vandalism / theft of cable
	Linear Barriers	Condition	Poor Condition due to deterioration and vehicle impacts. Replaced with Curbs when lots are reconstructed.
	Stormwater Facilities	Condition	Based on age, most surface lots have exceeded the lifespan of underground infrastructure.

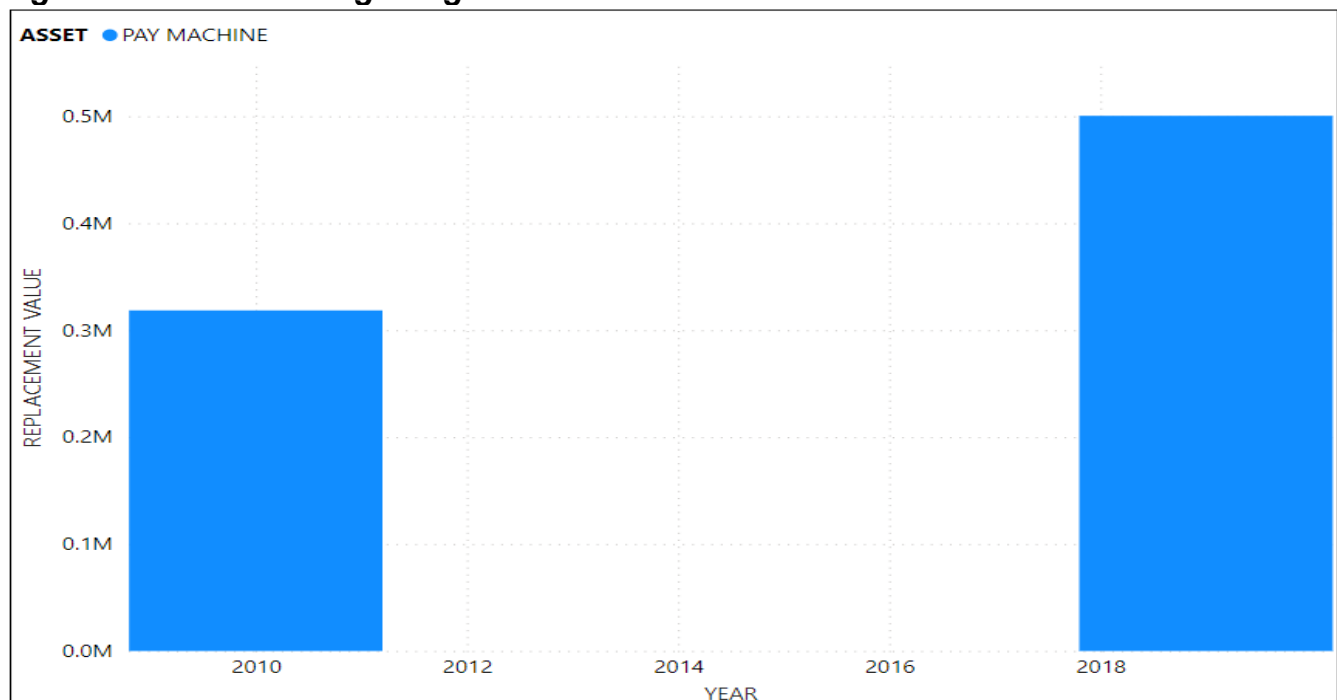
3.4.3 METERS AND SIGNS

The asset profile information for Meters and Signs asset classes is included in each section below and includes an age profile, the condition methodology used, the condition profile, and asset usage and performance.

AGE PROFILE

The age profile of the meters and signs assets is shown in **Figure 6**. An analysis of the age profile is provided below. For meters and signs assets, the data confidence for age is typically Low because age is generally unknown or assumed.

Figure 6: Meters and Signs Age Profile



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The age profile distribution of Pay Machines was determined in consultation with HMPS based on the manufacturer and years purchased from those manufacturers. The current pay machine inventory database does not capture the year of manufacture for the device. The confidence of age data for Pay Machines is medium based on this.

No data is available for the age of parking meters. Based on expert discussions with HMPS staff, Parking Meter metal casings generally have an estimated service life of 25 years and the electronic mechanism within the casing can be replaced separately. The mechanism has an estimated service life of 10 years. Generally, most meters are then believed to be less than 25 years of age. The confidence of age data for Pay Machines is medium based on the above.

No age data is available for non-regulatory signs. Non-regulatory signs are typically removed and replaced often; age data often is typically not a reliable indicator of condition. Signs can deteriorate based on many factors including weather, vehicular accidents, graffiti, etc. They are also typically a low value asset that can be replaced at a low cost with minimal impact.

No data is available for parking control regulatory signs.

CONDITION METHODOLOGY

As shown in **Table 11** below, inspections are completed for meters and signs on an ad-hoc basis and condition is largely based on age or subject matter expert opinion.

Table 10: Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Pay Machines	Ad Hoc	N/A	N/A, assumed based on age
Parking Meters	Ad Hoc Visual on Coin Pickup	N/A	N/A, not permitted to deteriorate below 3 - FAIR
Non-Regulatory Signs	Ad Hoc	N/A	N/A, assumed based on asset owner opinion
Regulatory Parking Control Signs	Ad Hoc - MMS 16 Months	N/A	N/A, assumed based on asset owner opinion

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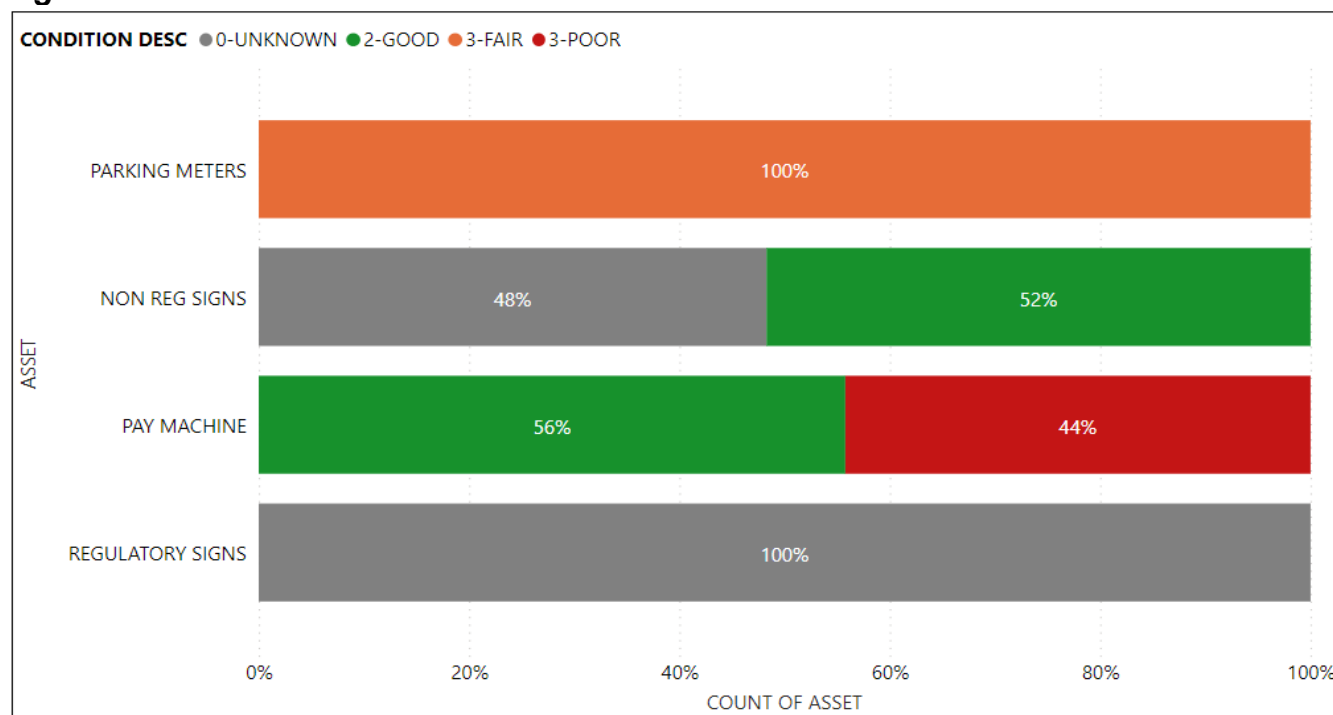
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ASSET CONDITION PROFILE

The condition profile of the City's assets is shown in **Figure 7**. As mentioned in section 3.3, the original condition grades were converted to a standardized condition category for report consistency.

Figure 7: Facilities Asset Condition Distribution



Parking meter condition has been assumed to be in Fair condition based on subject matter expert opinion. These assets are patrolled regularly as part of coin collection activities and non-functioning parking meters are generally repaired within 24 hours when reported. In addition, the internal mechanisms can be replaced separately from the external metal housing and mechanisms. The data confidence for condition is evaluated as low as it is based on assumption and subject matter expert opinion.

Non-Regulatory signs are largely replaced due to rate changes in parking and are typically replaced before the condition deteriorates significantly and the asset reaches the estimated service life.

Parking Regulatory signs do not have condition or inventory data. As part of a larger program this gap analysis in meeting Minimum Maintenance Standards has been identified and previously reported in Council Report PW18096(a). Work is ongoing between Transportation Planning and Parking Division (TPP) in the Planning & Economic Development Department and the Transportation Division in Public Works to determine how the levels of service will be met which should generate an inventory and condition as part of this work for future asset management plans. This item is identified in **Table 32** as a continuous improvement item.

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ASSET USAGE & PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The largest performance issues with meters and signs involve machines and meters malfunctioning. The known service performance deficiencies in **Table 12** were identified using staff input.

Table 11: Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
METERS AND SIGNS	Various	Outage, Vandalism	Pay Machines not working
	Various	Outage, Vandalism	Parking Meters not working
	Various	Poor condition signs, missing signs or improperly spaced signs	Regulatory Signs in poor condition requiring inspection and/or replacement or new installations to meet spacing requirements.

3.4.4 ADMINISTRATIVE ASSETS

The asset profile information for administrative asset classes is included in each section below and includes an age profile, the condition methodology used, the condition profile, and asset usage and performance. At this time, administration assets such as facilities and vehicles have been included in the AM Plan in a very limited capacity to ensure the replacement value has been encompassed since these assets are assisting in the delivery of the parking service. More details related to these assets will be included in future iterations of the plan.

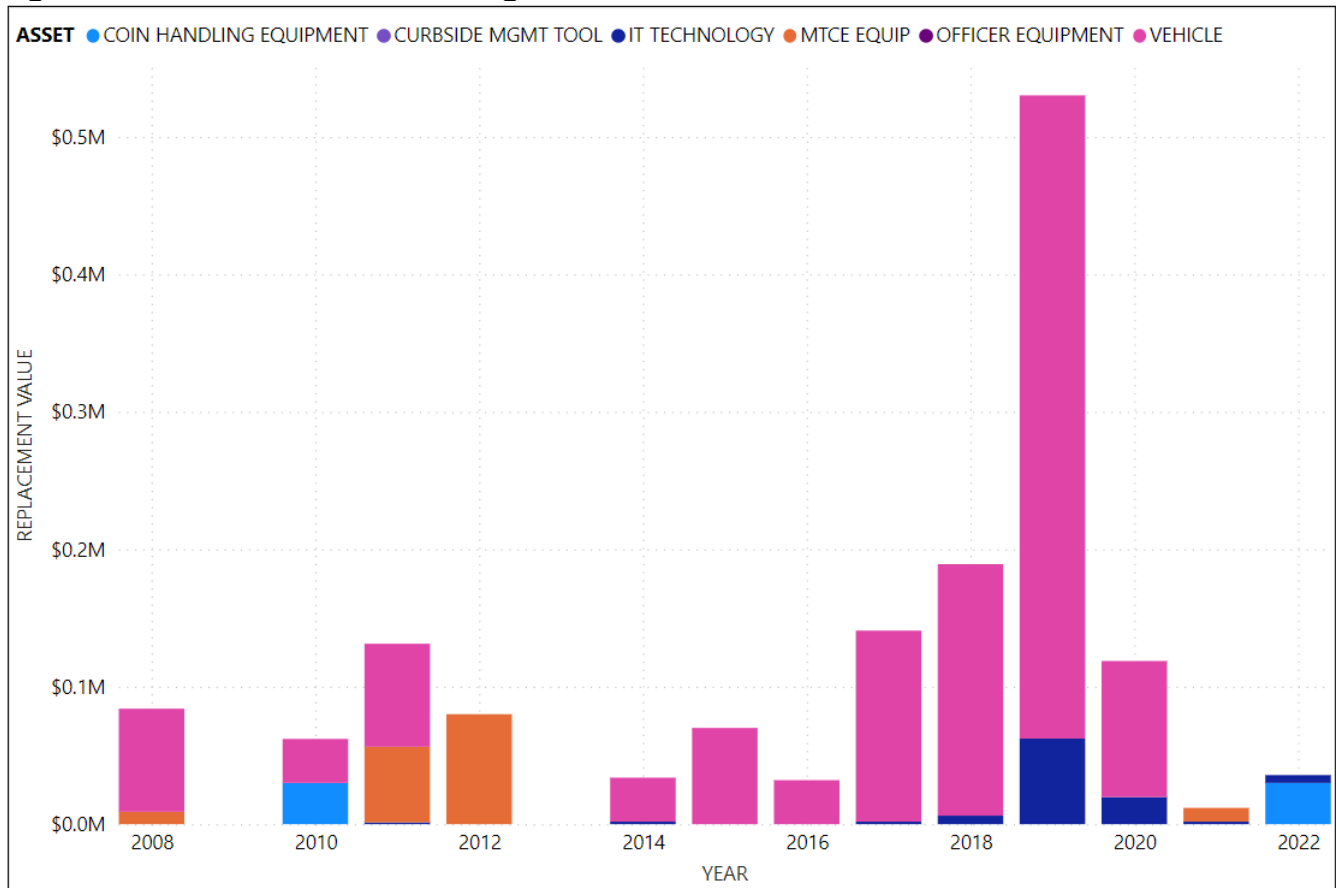
AGE PROFILE

The age profile of the administrative assets is shown in **Figure 8**. For administrative assets, the data confidence for age is typically high because age is generally known for administrative assets with the exception of Officer Equipment (uniforms and technology), which are replaced as needed.

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Figure 8 : Administrative Asset Age Profile



Maintenance Equipment and the coin handling equipment generally exceed their estimated service life.

CONDITION METHODOLOGY

As shown in **Table 13** below, the condition for Administrative Assets is based on age as there are no regular condition assessments completed on these assets which reflects a data confidence of low for these assets.

Table 12 : Inspection and Condition Information

ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
Vehicles	As Per Fleet	N/A	N/A, assumed based on age
Maintenance Equipment	As Per Fleet	N/A	N/A, assumed based on age
Officer Equipment	Ad Hoc	N/A	Replaced as Needed, not allowed to deteriorate. Condition would not drop below 3 - FAIR

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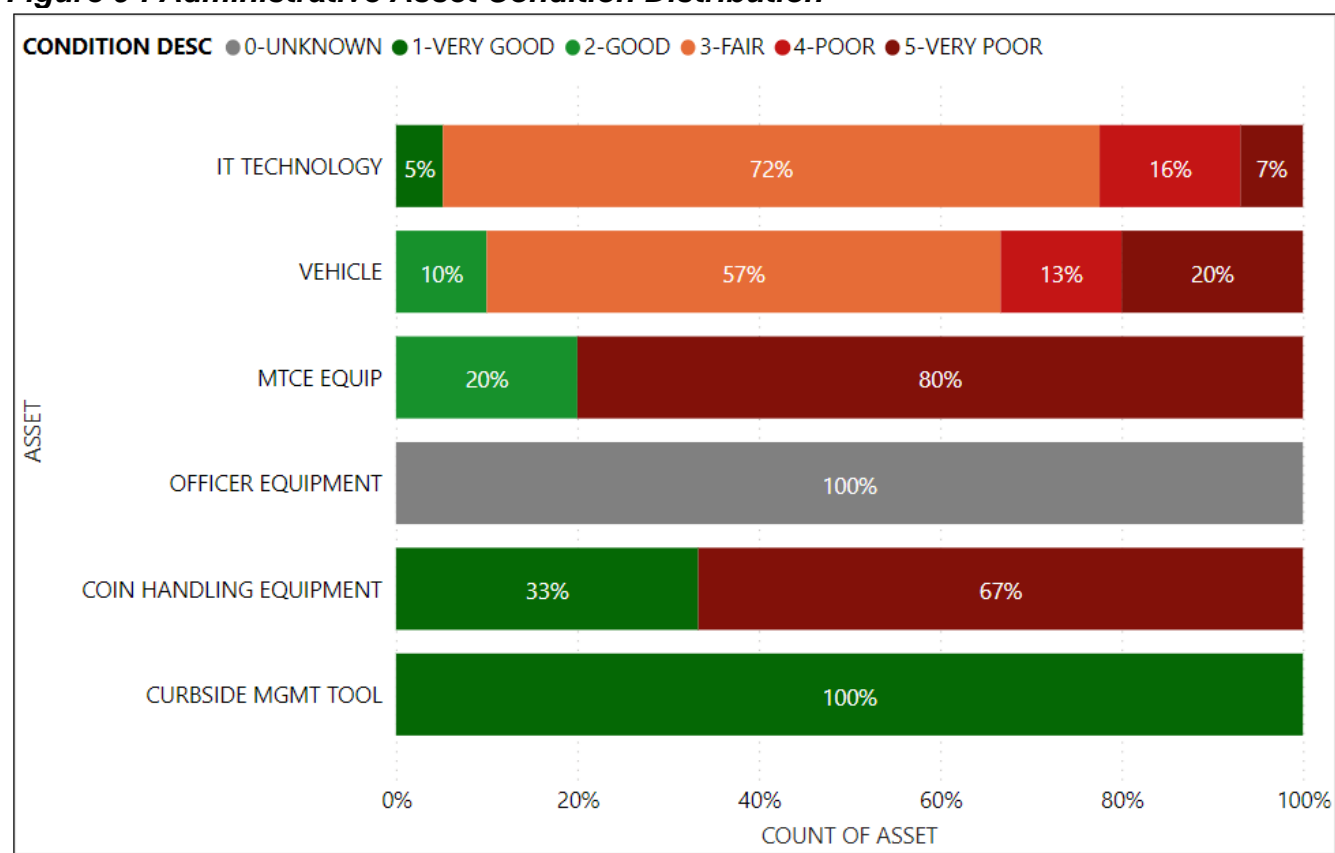
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ASSET	INSPECTION FREQUENCY	LAST INSPECTION	CONDITION SCORE OUTPUT
IT Technology	None	N/A	Based on Age
Coin Handling Equipment	Ad Hoc	N/A	Based on Age

ASSET CONDITION PROFILE

The condition profile of the HMPS Administrative assets is shown in **Figure 9**. As mentioned in **section 3.3**, the original condition grades were converted to a standardized condition category for report consistency.

Figure 9 : Administrative Asset Condition Distribution



The condition of both maintenance equipment and coin handling equipment is generally very poor. There is no formal condition assessment provided for this equipment, but it exceeds the estimated service life and planning for replacement should be considered.

Officer Equipment condition is not tracked; however, this equipment is replaced as needed and is maintained in operating condition and generally not permitted to deteriorate below Fair Condition based on expert staff opinion.

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ASSET USAGE & PERFORMANCE

Assets are generally provided to meet design standards where available. However, there are often insufficient resources to address all known deficiencies.

The largest performance issues with administrative assets involve maintenance equipment. The known service performance deficiencies in **Table 14** were identified using staff input.

Table 13: Known Service Performance Deficiencies

ASSET	LOCATION	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
ADMINISTRATIVE ASSETS	Fleet	Sweeper nearing end of life. Replacement planned in 2024	Reduced operating efficiency and increased repair costs

4. MUNICIPALLY DEFINED CURRENT 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 6.5 of the AMP Overview**.

4.1 SURVEY METHODOLOGY

To develop customer values and customer levels of service, a Customer Engagement Survey entitled *Let's Connect, Hamilton – City Services & Assets Review: Hamilton Parking Services* was released February 13, 2023 on the Engage Hamilton platform and closed on March 20, 2023. The survey results can be found in **Appendix "A"**.

The survey received submissions from 132 respondents and contained twenty (20) questions related to the Hamilton Municipal Parking Services service delivery. Based on the number of responses, a sample size of 132 correlates to a 95% confidence level with an 8.6% margin of error based on an approximate population size of 570,000. This was determined to be an acceptable confidence level to use to develop the customer values and customer performance measures for this AMP. It is important to note that respondents were allowed to opt out of questions, and so different questions may have different confidence levels depending on the opt out rate for that question.

While these surveys were used to establish customer values and customer performance measures, it is important to note that there were also limitations to the survey methodology which may reduce the confidence level in the survey data. The survey was only released using an online platform and did not include telephone surveys and consequently there is no way to confirm the identity information provided in the survey. In addition, the survey did not control for IP addresses, and therefore it is possible that respondents could complete the survey more than once and skew the survey results.

However, when reviewing the demographic responses for the survey, there was no clear evidence that the survey results had been skewed. When comparing the age and postal code demographics from the survey to the age demographics of the City there appears to be a slight over-representation of ages 55 and up. For postal code demographics for the City there does not seem to be a significant over-representation of postal code demographics within the survey. In addition, the responses were distributed across the City with responses from most communities as well as from a variety of self-identifications. Even when assessing the spikes in respondents per day, the results were distributed across different ages, postal codes, and self-identifiers. Therefore, although there are limitations to the survey, it does appear that these

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results can be used to make some conclusions about the feelings of customers on the services HMPS provides.

The future intent is to release this survey on a regular basis to measure the trends in customer satisfaction and ensure that the City is providing the agreed level of service as well as to improve the marketing strategy by incorporating telephone surveys and IP controls to improve confidence levels in the survey responses. This has been noted in **Table 32** in the continuous improvement section.

4.2 CUSTOMER VALUES

Customer values are what the customer can expect from their tax dollar in “customer speak” which outlines 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 *Let's Connect, Hamilton – City Services & Assets Review: Hamilton Parking Service* survey.

Table 14: Customer Values

SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Car Park Lighting, On-Street Parking and Car Park Accessibility, are very important services.	2023 HMPS City Services & Assets Review Survey	Based on survey responses, on average, these are very important services for HMPS to be responsible for providing.	Decrease

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Car Park Condition and Appearance, Car Park Locations, Accessible Parking Permit Exemptions, Municipal Car Parks and Parking Structures, Parking Penalty Dispute Options, Parking Meters and Pay Machines, Temporary Regulation Enforcement Request, Parking Penalty Payment Options are important services.		Survey respondents on average feel these are important services for HMPS to be responsible for providing.	Decrease
Residential Boulevard Parking, Residential Driveway Access Permit, "Passport Parking" Mobile APP, Special Event Parking Permit for Residents are important services.		Based on survey respondents there are differing opinions on whether it is important for HMPS to be responsible for providing these services, but on average, these are considered important services.	Maintain
More stormwater runoff controls and more parking near transit are an important potential service.		Survey respondents on average feel these are important potential services for HMPS to be providing.	Decrease

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
More secure storage facilities and more bike racks and more electric vehicle charging stations are fairly important potential services, but customers are divided.		Based on survey respondents, there are <i>differing opinions</i> on these <i>potential services</i> but on average they are rated as <i>fairly important</i> .	Decrease
Increasing fees for environmentally sustainable changes, increasing monthly parking fees to prioritize transit and time of use pricing are not that important potential services but customers are divided.		Based on survey respondents there are <i>differing opinions</i> on these <i>potential services</i> but on average they are rated as <i>not that important</i> .	Maintain
Surface lot condition impacts how well it meets needs of customers.		Survey respondents, on average who rate the <i>condition</i> of surface lots as <i>average or below</i> indicate that parking lots in those conditions <i>only meet some of their needs</i> . The lower the condition score the less likely the surface lot meets their needs.	Decrease

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Current fees are reasonable for the service level provided, customers, based on average, generally do not want increases to improve services and want to maintain rates.		Survey respondents feel on average, HMPS should minimize service cuts and maintain rates.	Slight Decrease

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 customer's desire. Customer level of service measurements relate to how the customer feels about the City's HMPS 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 of how the customers feel about the services and the value for their tax dollars.

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 measure 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 current budget allocation.

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Table 15: Customer Levels of Service

TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Quality / Condition	Provide efficient HMPS services	2023 HMPS City Services & Assets Review Survey	Average survey respondent opinion on how HMPS has performed overall in the last 24 months across all service areas.	Average	Maintain
			Confidence levels	11% at 95% confidence level	
			Average survey respondent opinion on whether HMPS services felt comfortable and safe when being accessed.	Neither Comfortable nor Uncomfortable	Maintain
			Confidence levels	11% at 95% confidence level	
	Be fiscally responsible when delivering infrastructure and services to the Community	2023 HMPS City Services & Assets Review Survey	Average survey respondent opinion on whether HMPS is providing good value for money when providing infrastructure and services.	Average	Slight Decrease
			Confidence levels	11% at 95% confidence level	
Function	Provide services that meet needs	2023 HMPS City Services & Assets Review Survey	Average survey respondent opinion on if HMPS is meeting service needs overall	Meets Some	Slight Decrease
			Confidence levels	11% at 95% confidence level	






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TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Capacity	Ensure HMPS services are accessible when needed	2023 HMPS City Services & Assets Review Survey	Average survey respondent opinion on if HMPS is providing access to parking across various communities and On-Street parking across the City.	Neither Satisfied nor Dissatisfied	Decrease
			Confidence levels	11% at 95% confidence level	

Table 17 below shows the comparison between HMPS staff condition ratings of asphalt pavement and customer condition ratings from the survey to see if there is general alignment between how asset condition is evaluated between staff and customers. It is interesting to note that City staff were focused on Asset Condition specifically the pavement when determining condition rating. Customers from their written responses are considering all of the assets shown in the photographs and lot configuration. It is also interesting to note than when customers responded to the follow up Question “Please consider if this parking lot would meet your needs” the response seemed to be based on the overall functionality of the lot and related features and attributes such as trees, walkways, accessibility of parking spots and not just on how the condition of the pavement asset might affect useability. Generally, it appears that HMPS staff and customers are generally aligned in condition rating Very Good to Poor and that even lots in Poor and Very Poor condition as rated by customers still meet some of their needs.

Table 16 : Comparison of Customer Ratings to HMPS Condition Ratings

HMPS ASPHALT CONDITION RATING	PHOTO USED IN SURVEY*	AVERAGE CUSTOMER RESPONSE TO “PLEASE RATE THE CONDITION OF THE PARKING LOT AND SPACES”***	AVERAGE CUSTOMER RESPONSE TO “PLEASE CONSIDER IF THIS PARKING LOT WOULD MEET YOUR NEEDS”
1-Very Good		1-Very Good (Very Good = 4.53, standard deviation 0.75)	Meets (3.34, standard deviation 1.03)
2-Good		3-Fair (Average = 3.06, standard deviation 0.99)	Meets Some (2.43, standard deviation 0.90)
3-Fair		3-Fair (Average = 2.74, standard deviation 0.83)	Meets Some (2.33, standard deviation 0.78)
4-Poor		4-Poor (Poor = 1.99, standard deviation 0.90)	Meets Some (1.94, standard deviation 0.80)
5-Very Poor		4-Poor (Poor = 2.05, standard deviation 0.78)	Meets Some (1.93, standard deviation 0.66)

Note: * Photos used in Survey were not all from HMPS lots
** Response scales used for survey were reversed from CAM asset condition scales, in the survey was 5-Very Good and 1-Very Poor.

4.4 CUSTOMER VALUES AND LEVELS OF SERVICE ALIGNMENT

The three (3) indices calculated to assess how customer expectations for a service are aligning with the perceived performance for HMPS are listed below in **Table 18**. These indices are explained and analyzed in detail in the sections below and will be included for all assets (when available) in the overall measures in the AM Plan Overview.

Table 17 : Customer Indices

CUSTOMER INDICES	AVERAGE RESULT	CONFIDENCE LEVEL
Service Importance Versus Performance Net Differential	-19	10% at 95% Confidence Level
Net Promoter Score (%)	-57%	TBD
Service Rates Versus Value for Money Net Differential	-1	TBD

SERVICE IMPORTANCE VERSUS PERFORMANCE INDICE

The Service Importance versus Performance indices is used to determine if a service's importance correlates with the perceived performance. Service areas where the average importance rating exceeds the average performance rating by 20 points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale.

Generally, it appears that most responders see a mismatch between importance and performance in infrastructure driven areas such as Car Park Lighting, Car Park Condition and Appearance. There are also mismatches in some service driven areas such as On-Street Parking, Temporary Regulation Enforcement Requests, Residential Boulevard Parking and Parking Penalty Dispute Options. To reduce the net differential, HMPS would have to increase their performance by improving the responses given by respondents on the Likert Scale, which they would accomplish by altering their Technical Levels of Service. If HMPS was looking for areas to improve these would be the key services to investigate further. However, whether the customer is willing to pay for this increase in service is determined by the Service Rates Versus Value for Money Net Differential which is explained in detail in the section below.

Although there were percentages of respondents who opted out of the question, there is still a significant enough sample size to have a degree of confidence in these results.

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Figure 10: Performance Versus Importance Index Score

Service Area	Importance (index score)	Performance (index score)	Net Differential	Opt Out %
Average	76	57	-19	29.8
Temporary Regulation Enforcement Request	73	39	-33	58.0
Residential Boulevard Parking	75	47	-28	39.0
Car Park Lighting	86	61	-25	15.2
On Street Parking	81	57	-24	4.2
Parking Penalty Dispute Options	75	50	-24	36.7
Car Park Condition and Appearance	80	59	-21	10.6
Accessible Parking Permit Exemptions	79	59	-20	42.8
Car Park Accessibility	81	61	-20	20.1
Residential Driveway Access Permit	72	51	-20	57.2
Car Park Locations	80	61	-19	9.5
Special Event Parking Permit for Residents	69	51	-17	55.7
Municipal Car Parks and Parking Structures	78	62	-15	12.9
Parking Meters and Pay Machines	74	61	-12	12.6
Parking Penalty Payment Options	72	62	-10	32.6
"Passport Parking" Mobile APP	71	70	-1	40.9

*It is important to note the opt out % for some of the responses when evaluating the overall results.

NET PROMOTER SCORE INDICE

The Net Promoter Score indices outline how likely an individual is to recommend a service to another person and measures customer loyalty. For municipal services this score is difficult to interpret because often times individuals do not have many alternatives for utilizing different services and also there may be internal biases for certain service areas. However, this score does provide valuable information for determining if customers would recommend using the service or whether they may seek alternatives or avoid using the service altogether.

Likert choices less than a score of 4, are considered 'Detractors' meaning that they would not recommend the service, while scores of 5 are considered 'Promoters' who would recommend the service, and scores of 4 are considered 'Passive' which means they do not have strong feelings about the service. Respondents who opted out by not answering or selecting 'Can't Say' were removed from the sample. Net Promoter score is calculated by subtracting (% Promoters) and (% Detractors). The Standard Deviation (σ) is calculated in percent, the same units as the Net Promoter Score.

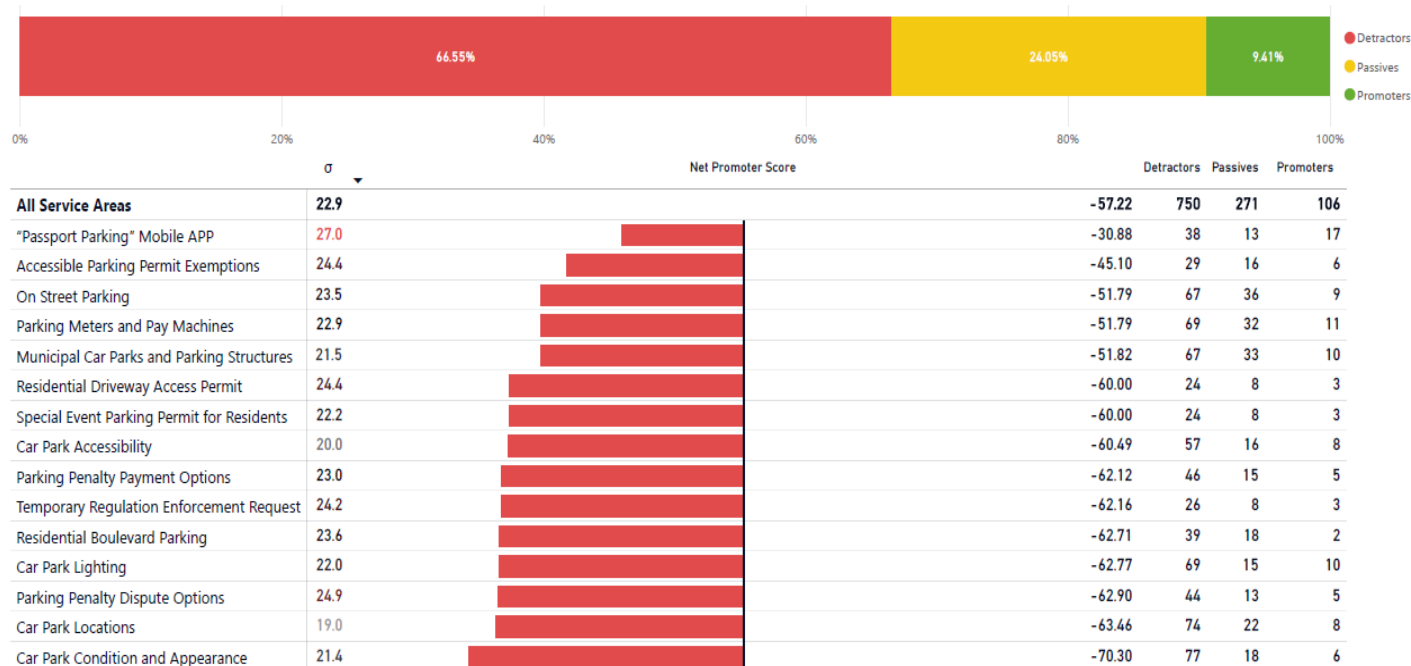
Per **Figure 11** below, generally most users of the service would not recommend HMPS to another person. However, the standard deviation being greater than 20 does consistently show that survey respondents were divided on most of these services. Generally, there are large quantities of detractors for nearly all services. The highest related to car park condition and appearance, car park locations and car park lighting with the highest related to services such as parking penalty dispute options, residential boulevard parking and temporary regulation /enforcement request.

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Figure 11: Net Promoter Score



SERVICES RATES VERSUS VALUE FOR MONEY INDICE

The Service Rates versus Value for Money indices is used to determine if the rate an individual is paying for a service correlates with the perceived value for money. Service areas where rate level ratings exceed value for money ratings by 20 points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale. Positive Net Differential values indicate that 'Value for Money' was greater than willingness for 'Rates'. Low index scores in 'Rates' indicate that respondents are not willing to pay increased rates for the service area. All values were calculated and then rounded to the nearest whole number.

Generally, customers see value for money in the Passport Parking Mobile App and parking penalty payment options. Customers do not see value for money in car park condition and appearance, car park lighting and temporary regulation enforcement request.

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Figure 12: Services Rates Versus Value for Money Index Score

Service Area	Reasonable Fees (index score)	Value for Money (index score)	Net Differential
Average	60	59	-1
"Passport Parking" Mobile APP	54	63	9
Parking Penalty Payment Options	54	60	6
Accessible Parking Permit Exemptions	58	62	4
Special Event Parking Permit for Residents	56	59	3
Parking Meters and Pay Machines	59	60	0
Car Park Accessibility	62	60	-2
Parking Penalty Dispute Options	55	53	-2
Car Park Locations	61	59	-2
Municipal Car Parks and Parking Structures	62	58	-4
On Street Parking	62	58	-4
Temporary Regulation Enforcement Request	60	54	-5
Car Park Lighting	66	59	-7
Car Park Condition and Appearance	65	55	-11

**Please note that due to a survey error the dimensions "Residential Boulevard Parking" and "Residential Driveway Access Permit" do not appear in the results as they were omitted for survey Questions 19 and 20.*

4.5 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.²

At this time HMPS does not have a large number of Technical Levels of Service. A continuous improvement item has been identified in **Table 32** to identify and develop additional Asset Related performance measures that could be used as Technical LOS for future iterations of the AM Plan.

Table 19 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 18: Current Technical Levels of Service

LIFECYCLE ACTIVITY	LEVEL OF SERVICE STATEMENT	ACTIVITY MEASURE	CURRENT PERFORMANCE (2023) *	CURRENT TARGET PERFORMANCE (2023) **	PROPOSED 10 YEAR PERFORMANCE (2023-2032) ***
Operations	Ensure appropriate level of resources to meet service requests	Average Response Time to complaints requesting parking enforcement (Time measured from call to on-site)	Approx. 56 Minutes	TBD	TBD
		Budget			\$430K per 5 additional FTE officers
	Ensure appropriate level of parking utilization	2021 Downtown On-Street parking utilization rate – Weekday12:00 pm (1,158 spaces) ****	74%	Below 85%	Below 85%
		2021 Downtown Off-Street Weekday 12:00 pm (public) utilization rate (2,811) ****	82%	Below 85%	Increase above 85%
		Budget		Current Budget	Current Budget
	Ensure optimum costs are achieved over the whole life of the asset	Actual Operating Expenditures vs Planned Budget (2022 Actuals)	98%	100%	100%
		Budget		N/A	N/A
	Compliant with Minimum Maintenance Standards	Inspection and Inventory of Regulatory Parking Control Signs	0%	0%	100%
		Budget			\$500 K

LIFECYCLE ACTIVITY	LEVEL OF SERVICE STATEMENT	ACTIVITY MEASURE	CURRENT PERFORMANCE (2023) *	CURRENT TARGET PERFORMANCE (2023) **	PROPOSED 10 YEAR PERFORMANCE (2023-2032) ***
Maintenance*	Ensure Parking assets are kept in a safe and acceptable repair and issues are resolved in a timely manner	Average Response Time to repair non-functioning meter or pay machine	TBD	24 Hours	24 Hours
		% of off-street Parking Lots where Surface Asphalt rated as Fair or Above in condition assessments	42%	42%	42%
		Budget		Maintain	Maintain
	Ensure efficient operation of on and off-street parking and enforcement	Net Revenue per parking space (4320 off street, 2200 on-street) / Operating + Capital budgets - Less Revenue per space	\$27.11 per space	Maintain	Maintain
		Budget		N/A	N/A
Renewal	Ensure parking assets are renewed in a timely manner and Accessibility is a component of renewal	Percent (%) Surface Parking Lots with Pavement renewed (full reconstruction of asphalt and granular) within Estimated Service Life (30 years since last renewal for lots > 1000 m ² and 40 years for lots <1000 m ²)	0%	0%	TBD
		Budget			TBD
		Percent (%) of Parking lot Lighting Retrofits completed to 2022 Design Plan	0%	TBD	TBD
		Budget			\$400,000
		% of off-street parking lots and garages that are AODA Compliant for Signs and Pavement Markings	5%	60%	100%
		Budget		\$16K	\$14K
	Renew Regulatory Parking Signs identified as Non-Compliant from Inspection	Renew identified non-compliant MMS Regulatory Parking Control Signs and/or Install signs as required to meet spacing requirements. Assumes 25% will require renewal or acquisition.	0%	0%	100%
		Budget (Assumes \$400k per year for 4 years)			\$1.6M
		Note: * Current activities related to Planned Budget. ** Current internal target *** Expected performance related to forecast lifecycle costs. **** These values are taken from the 2021 Parking Master Plan background study. The Target of 85% is also defined in that report. At this time there is no automated way to update or calculate these values outside of a dedicated parking use study. A Continuous Improvement Item in Table 32 is to investigate ways to simplify the data collection for this LOS in the future so operational capacity can be tracked in real time.			

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time. These metrics were created specifically for this 2023 AMP with available data. Many of these metrics should be improved to include a target to be in line with SMART objectives identified in the AMP Overview. In addition, performance measure data should be both easy to extract and measured over time, and a data collection process may likely need to be created. These have been identified as continuous improvement items in **Table 32**.

4.6 PROPOSED LEVELS OF SERVICE DISCUSSION

At this time, the City's technical metrics for the HMPS service area are largely based on utilization rates and asset condition. Calculation of utilization rates is complex and requires manual vehicle counts and is largely only available during major Master Plan type studies. Technical Levels of Service have been added to track and identify additional costs needed to become compliant with the Minimum Maintenance Standards for regulatory parking control signs.

Customer preferences and expectations do not always match technical targets. It is difficult to make any conclusive decisions based on the initial survey. In the interim it has been assumed that the current levels of service will be the proposed levels of service moving forward past 2025 in accordance with O. Reg 588/17. Therefore, the information below is intended to provide context to HMPS to areas for further investigation before proposing any new Levels of Service.

CONDITION

Based on **Table 16** above, survey respondents rated overall quality and condition of HMPS services as generally Average and feel neither safe nor unsafe accessing services. There is a mismatch in how important customers rated Car Park Lighting, Car Park Condition and Appearance and the related performance. These could be an area where HMPS could investigate and propose new levels of service to improve the overall condition of physical assets such as Parking Lots and Lighting. These are also some of the items that most negatively impact the Net Promoter Score. However, based on the services rates versus value for money indices it does not appear that customers are willing to pay more for improved performance in these areas. It is also noted that when comparing physical photos of car parking lots that customers identified that car parking lots in Fair or lesser condition still meet most of their needs.

FUNCTION

Based on **Table 16**, survey respondents rated that HMPS services met some of their needs when considering the service overall. Customers felt that important potential services could be considered relating to more stormwater runoff controls from parking lots and more parking near transit are an important potential service. Customers were more divided but also identified desire for more secure storage facilities, more bike racks and more electric vehicle charging stations. Willingness to pay was not a survey component for these potential future services so HMPS should do further study on these items prior to proposing changes to Levels of Service in these areas.

CAPACITY

Based on **Table 16**, survey respondents were neither satisfied nor unsatisfied with generally finding parking both on and off street across the various communities. There is a mismatch in performance and importance for On-Street Parking and car park locations indicating this could be an area to proposed improved levels of service. It is expected that capacity will be reduced

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in certain areas of the City as described elsewhere due to LRT and HUPEG. This will affect capacity for physical municipal parking locations and lead to reduction. The services rates versus value for money indices is largely balanced for On-Street Parking and Car Park Locations meaning most customers are balanced on this matter so there is no real desire to pay more or less for additional parking capacity to be created.

There are a number of staffing focused services in the survey that could largely be grouped as "enforcement" types of activities such as, Temporary Regulation Enforcement Request and Special Event Parking Permits for Residents. There were a large percentage of opt-outs in responding to these specialized programs however customers who did respond felt that performance was below importance. HMPS as part of their 2023 budget business case did request and receive approval from Council to add an additional five (5) Full Time Equivalent (FTE) enforcement staff. The impact of these additional staff should be measured to see if there are improvements to enforcement type services and response times. HMPS should review and determine if additional officers are required and propose them as a future level of service once the impact of the new officers is fully implemented. Ideally performance on these items will improve in future surveys as a result of increased capacity of additional staff.

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 effectively plan and identify the best way of meeting the current demand while also 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 (assumption of assets due to development growth) and types of service required (alternative pavement options or traffic calming devices)

5.1 DEMAND DRIVERS

For Parking service area, the key drivers identified in the Parking Master Plan are population and employment growth, new developments, changes to parking supply, and changing travel patterns. Other drivers are the cost of parking.

5.2 DEMAND FORECASTS

The high level present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented in Table 20. Growth projections have been shown in the AM Plan Overview.

The 2021 Parking Master Plan identified the peak periods for the Downtown Area by 2030:

- On-Street: 840 vehicles (72% utilization);
- Off-street (Public): 2,200 vehicles (90% utilization);
- Off-street (Private): 4,100 vehicles (97% utilization); and,
- Overall: 7,100 vehicles (91% utilization).

The Parking Master Plan was completed prior to the finalization of the LRT System and the HUPEG agreement. As part of the agreement, the City will “transact” the MCP 68 York Boulevard Parkade, MCP 69 and the Surface parking lot located at MCP 62 14 Vine Street to become development sites. Finalization of the LRT System will impact and eliminate areas of on-street parking in the downtown core. These two issues combined will result in the loss of more than 1000 (950 off street and 100 on-street) spaces in the downtown area, which will reduce available parking required to meet future demand since utilization will greatly exceed the 90% forecast.

It is also predicted that several downtown private off-street parking lots will be lost in the next decade as development occurs on these properties creating additional demand in this area while further reducing supply.

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The Parking Master Plan also identified several municipal lots in the downtown that are currently operating above the recommended threshold capacity of 85% and operate at 100%. These include Lot 5 (King William/Mary); Lot 7 (Ferguson/Main) and Lot 76 (Catherine/Hunter).

Future parking operations are projected to approach and likely exceed capacity under these demands and result in parking shortages and an inefficient parking system, specifically in the downtown area but other areas such as Stoney Creek and Waterdown are also experiencing parking shortages.

The redevelopment of the west harbour also results in the loss of a surface parking lot between Pier 4 and Pier 8 of approximately 883 spots. These spots are not currently managed by HMPS.

As per Report PED17181(e) It is estimated that 500-600 new spaces will be required to address the longer-term shortage related to a redeveloped West Harbour Area and a new centralized parking structure may be required for this area.

The Parking Master Plan also identified several dispersed lots that are operating above the recommended effective capacity threshold of 85%. These include Lot 20 (Southam) at 100%, Lot 33 (Southam) at 98% and Lot 34 (Homeside) at 100%.

There are also areas of the City where the available supply of parking regularly exceeds demand such as Dundas where nearly 100 vacant spots were observed at all times and Ottawa Street where Off-street parking Utilization is 18%. These areas should be reviewed to determine if assets can be rationalized, and the resources needed to maintain them redeployed to other areas.

5.3 DEMAND IMPACT AND DEMAND MANAGEMENT

The impact of demand drivers that may affect future service delivery and use of assets are shown in **Table 20**.

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.

Opportunities identified to date for demand management are shown in **Table 20**. Climate change mitigation and adaptation demands are included in **Section 7.0**. Many of these demands are difficult to predict at this time and therefore they are not included in the Lifecycle Management Plan at this time. Further opportunities will be developed in future revisions of this AM Plan, as identified in **Table 32** in the continuous improvement section.

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Table 19: Demand Management Plan

DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Parking Price Changes*	1% Increase in pricing yields 0.2 reduction in demand*	Approx. 4% rate increase annually	Economic Solution reduce demand	Pricing Framework approved by Council. Reduce demand by 0.8% annually
Single Occupancy Vehicle (SOV) Modal Share Changes*	2018 (67%) of Trips SOV*	2031 – reduce SOV trips to 52%*	1.02% annual decrease in parking demand*	Influence modal choice to reduce parking demand
Background population and employment growth*	Growth factors developed for each BIA*	2019-2030 Growth Factors vary 1.090 – 1.204*	Growth will not be linear across the city, concentrated downtown. Demand exceeds supply in some BIA areas.	Improve distribution of parking demand in Downtown from popular facilities to underutilized facilities. No additional surface lots planned at this time.
New Developments in the Downtown Area and BIA's*	Developments assumed to be self-sustaining no impact to demand	No Change	No Change	No Plan required
Parking supply losses and gains*	Development will reduce available parking as private and public lots are converted*	719 spaces removed estimated by 2030*	Sufficient capacity may not be available	Improve distribution of parking demand in Downtown from popular facilities to underutilized facilities via Parking Wayfinding/App
Parking supply losses and gains	HUPEG Agreement Loss of York Parkade and Vine Street Lot	950 spaces removed by 2030 if not earlier	Sufficient capacity may not be available	Improve distribution of parking demand in Downtown from popular facilities to underutilized facilities

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DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Parking supply losses and gains	LRT Construction will impact on-street parking	Anticipated 2024 – Approx. 100 spaces	Loss of on-street short term parking availability	Proactive parking enforcement
Parking Enforcement Calls for service	2015-2019 57% increase in service calls	Population Growth will drive additional requests for enforcement	Longer wait time for response	Additional 5 FTE Enforcement officers approved as part of 2023 Budget Process

*Details taken from Background Report II Future Conditions and Financial Assessment of 2022 Parking Master Plan and 2022 Parking Master Plan

**Details taken from West Harbour Re-Development Plan Status Update (PED17181(e))

5.4 ASSET PROGRAMS TO MEET DEMAND

At this time there are approximately two (2) new assets being acquired to manage demand over the 10-year planning horizon. Acquiring new assets would commit the City to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan

No additional HMPS parking garages or surface lots are planned over the 10-year planning horizon for the Downtown, Waterdown or Stoney Creek areas.

(1) Automated License Plate Reader System

The City of Hamilton is planning to purchase an Automated License Plate Reader system. This will increase the efficiency of enforcement and permit more proactive enforcement both on and off-street. This increased enforcement should improve the turnover of parking spaces, which will assist in meeting demand. The City is also planning where economically feasible to remove approximately 500 parking meters for individual spaces and replace them with 75 new pay and display machines or in some instances signage to facilitate mobile payment. This is not a true acquisition as the pay machines are effectively renewal of the parking meters as the costs are very similar with one machine replacing several meters. This will not necessarily assist with demand reduction but will streamline parking operations by eliminating coin collection from individual meters and maintenance activities with individual meters, including rate change modifications. This will free up staff to focus on other demands and maintenance needs including meter refurbishment activities. There is no anticipated reduction in the operating budget related to this change as staff will be reassigned to other needs in HMPS.

(2) West Harbour Parking Garage

The West Harbour long term Transportation and Parking study has identified a possible need for a new parking garage in this area to be constructed with approximately 500 new spaces. In 2017 it was suggested this garage would be needed within 5-12 years and Council had previously budgeted \$23.5 Million for a parking garage to be constructed at a later date. Studies are ongoing and at this time the owner/operator of this garage is undetermined and could be outside of the scope of HMPS services. At this time this potential asset and related lifecycle costs is not included in the AM Plan.

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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’³.

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 21**. Failure modes may include physical failure, collapse or essential service interruption.

Table 20: Critical Assets

CRITICAL ASSET(S)	FAILURE MODE	IMPACT
Parking Garage(s)	Collapse	Severe Injury Service Interruption Financial Reputational
Surface Lot(s)	Physical Failure	Service Interruption Reputational

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.

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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 22**. It is essential that these critical risks and costs are reported to management. Additional risks will be developed in future iterations of the plan and are identified in **Table 32** in the Continuous Improvement Section of the plan.

Table 21: Risks And Treatment Plans

Note * The Residual Risk Is The Risk Remaining After The Selected Risk Treatment Plan Is Implemented.

SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN?	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
Convention Center Parking Garage	<p>Structural deterioration from water infiltration into garage leads to major structural failure or failure of life safety system. There have been previous high-profile parking structure collapses in other North American cities.</p> <p>Water comes from assets owned by others (King Street Drainage, Convention Center, Roof / Summers Lane Structure.</p>	Very High	<p>Inspections by P.Eng. every 10 years; Budget for Major Maintenance every 10-12 years</p> <p>Coordinate response to water infiltration from all external sources (Continuous improvement plan Table 32)</p> <p>Working Group of asset owners to determine accountability for each shared asset, regular</p>	Medium	\$3.7M every 10-12 years

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SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN?	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
	Uncoordinated inspections and/or comprehensive inspection program by all asset owners misses root cause		parking garage committee meetings; coordinate inspections and asset management plans		
	Extreme flooding of Parking Garage lower levels caused by storm event	High	Regular Inspection and testing of sump pumps and their electrical power supply	Low	TBD
	Sustained Power outage in Parking Garage – No Lighting, Elevators, Sump pumps, Fire detection	High	Regular Inspection and Testing of Backup Generator by Facilities; Regular Inspection of electrical system as preventative maintenance. Consider connecting Elevators and garage lighting to backup generator supply. Consider implementing the inspection and maintenance standards of CSA 282 –	Medium	TBD

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SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN?	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
			Emergency Electrical power supply for buildings		
Pavement	Pavement not being renewed when at end of service life; increases reactive maintenance costs; decreases LOS;	High	Develop Pavement Lifecycle Strategy; Implement a Work Order Management System; Investigate Transitioning Pavement Management to Roads/Facilities	Low	TBD
Site Works - Storm Sewers	collapse / sinkhole of storm sewers causing sinkhole/flooding	High	Develop Overall Asset Management Strategy (Asset Inventory, standardized inspection criteria, standardized condition rating and prioritization) Maintenance Strategy; Investigate Transitioning Storm Water Inspections / Maintenance to Water	Low	TBD

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SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN?	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
Site Works - Lighting System	Lighting Systems (poles/luminaires/service entrance and u/g cables)	High	Develop Overall Asset Management Strategy (Asset Inventory, standardized inspection criteria, standardized condition rating and prioritization) Maintenance Strategy; Investigate Transitioning Management of Lighting to Street Lighting group	Low	TBD
Accessibility Initiatives in Parking Lots	Unable to Renew lots to incorporate greater accessibility for all users	High	When parking lots are renewed implement AODA (Accessibility for Ontarians with Disabilities Act,) Requirements	Medium	Varies – Renewal Costs by Lot
Retaining Walls	Structural failure of retaining wall, impact to adjoining properties, injury/property damage.	High	Develop Overall Asset Management Strategy (Asset Inventory, standardized inspection criteria, standardized condition rating and prioritization) Maintenance Strategy; Investigate transitioning	Low	TBD

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SERVICE OR ASSET AT RISK	WHAT CAN HAPPEN?	RISK RATING	RISK TREATMENT PLAN	RESIDUAL RISK *	TREATMENT COSTS
			Inspection of retaining walls to Engineering Services		

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. We do not currently measure our resilience in service delivery and this will be included in the next iteration of the AM Plan.

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.

6.4 SERVICE AND RISKS TRADE-OFFS

The decisions made in AM Plans are based on the objective to achieve the optimum benefits from the available resources outlined in **Table 23** Below:

Table 22: Services 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)
Renew Convention Centre Parking Garage at end of Estimated Service Life.	Service interruptions due to higher maintenance needs, longer and more expensive repair timelines. Floors out of service	Increased risk of structural failure and maintenance costs.
Renew Surface Lots and Site works at needed rate	Surface lots will continue to deteriorate. Unable to improve lighting and mitigate localized flooding risk. Higher reactive maintenance costs.	Risk of Injury to public from trip/fall. Reputational impacts, safety concerns.

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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)
Increase supply of parking in Waterdown, Downtown and Stoney creek or others where utilization exceeds capacity	Utilization rates will exceed capacity and impact businesses and residents. Shift in Transportation mode can be dependent upon LRT and re(Envision) bus network which have long implementation timelines.	Reputation Risk, Economic risk to businesses.

7. CLIMATE CHANGE MITIGATION & ADAPTATION

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 have 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 32**.

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 the 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.

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,

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- Proposing a preliminary demand management plan for how this modelled target will be achieved by 2050 as shown in **Table 24** below.

As previously mentioned, due to the high level of uncertainty with the demand management plans, the cost of the demand impacts below has 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 32.

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

Table 23: Climate Change Mitigation

CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	POTENTIAL IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
Changing How We Move	100% of new municipal small and light-duty vehicles are electric by 2040.	Current charging infrastructure would be inadequate if all patrol and maintenance vehicles were electric	Develop plan for fleet vehicle charging. Determine if the increased scale would support sharing charging infrastructure with public users. Assess if current vehicle types are appropriate
Changing How We Move	Private vehicle trips decline by 9% relative to 2016 per person by 2050.	Less reliance on parking for commuting trips in single occupant vehicles. Private vehicle trips will not decrease when parking is less expensive than alternative transport modes and parking is readily available	Market-based pricing to address increasing demand as opposed to adding spaces

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CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	POTENTIAL IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
Changing How We Move	By 2050, 50% of short trips in the urban area take place through walking or cycling.	Parking becomes more of a luxury. Private vehicle trips will not decrease when parking is less expensive than alternative transport modes and readily available	Market-based pricing to address increasing demand as opposed to adding spaces Support safe secure parking for bicycles and/or micro mobility solutions.
Changing How We Move	Increase transit use to 15% of trips by 2050 in the urban area	Parking becomes more of a luxury. Private vehicle trips will not decrease when parking is less expensive than alternative transport modes and readily available	Increase user fees and enforcement to address increasing demand as opposed to adding spaces
Growing Green	Planting 50,000 trees a year through to 2050	Adding trees to parking lots and urban streets will reduce the number of spaces. Trees are very expensive to install in a hardscaped environment	Adopt standards for greening (all) City parking facilities and account for the cost. It would be preferable to offer cost sharing incentives to add trees for public and private properties with existing significant hardscaping to overcome the prohibitive cost to properly install viable trees in these environments

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CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	POTENTIAL IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
Transforming Our Buildings	By 2050, all municipal buildings are retrofitted to achieve 50% energy efficiency relative to 2016.	Convert parking lot lighting and parking garage lighting systems to LED. Review electric motors and replace them with High Efficiency when replacement is required.	Facilities 10-year needs identify LED conversion for parking garage in 2032. Parking lot lighting will be replaced with LED when replaced where possible. Consider performing Lifecycle cost analysis on pumps / motors to drive selection of more efficient types
Transforming Our Buildings	By 2050, all new municipal buildings achieve net-zero emissions.	If new buildings are constructed, they would be designed with this target.	If new buildings are constructed, they would be designed with this target.
Revolutionizing renewables	By 2050 50% of municipal buildings will add rooftop solar PV, covering 30% of the building's electrical load.	Incorporate target into any new construction.	Incorporate target into any new construction.

Additionally, since the risk of not completing climate change mitigation projects is that the City continues to contribute to climate change in varying degrees which were modelled in the Climate Science Report for the City of Hamilton completed by ICLEI Canada, a risk analysis has not

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been completed in this AM PLAN for not completing climate mitigation projects (ICLEI Canada, 2021).

In addition, there are mitigation projects the City is currently pursuing or considering in this service area which are outlined below in **Table 25**.

Table 24: Building Asset Mitigation to Climate Change

PROJECT	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
Installation of new LED luminaires in surface lots	10-year capital budget identifies funding for replacement of some parking lot lighting. Where possible it will be installed as LED.	Reduce demand for electricity will reduce production of greenhouse gases.
Conversion of lighting in parking garage to LED	Building Condition Assessment identifies conversion to LED in 10-year facilities needs for convention center parking garage. Not yet incorporated into the capital budget.	Reduce demand for electricity will reduce production of greenhouse gases.

7.2 CLIMATE CHANGE ADAPTATION

Climate Adaptation refers to the process of adjusting to actual or expected climate and its effects (e.g., building stormwater pipes under roads that will handle forecasted increased stormwater capacity and reduce regular road flooding).

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.⁴

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 Change Impact Adaptation Plan (CCIAP) (ICLEI, 2021). The BARC Framework identified thirteen high impact areas. These impact areas were incorporated into the climate change adaptation analysis for this service area by:

- Identifying the asset specific adaptation impact statements that affected the service areas;
- Discussing the potential impacts on the asset/service using the projected change in climate using the RCP4.5 Scenario; and,
- Proposing a preliminary demand management plan to adapt to these impacts as shown in **Table 32** below.

⁴ IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

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It is important to note that 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 and financial models 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 consider these adaptation impacts during the planning and design processes. Once the demand management plans are finalized, the information will be incorporated into future iterations of the AM PLAN. This has been identified as a continuous improvement item in **Table 32**.

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

Table 25: Managing the Demand of Climate Change on Assets and Services

Adaptation Impact Statement	Baseline** (1976 - 2005)	Average Projected** Change in 2021-2050 (assuming RCP4.5* Scenario)	Potential Impact on Assets and Services	Demand Management Plan
Reduced capacity of flood protection measures and water storage caused by an increase in rainfall intensity leading to flooding.	6.7 total heavy precipitation days (20 mm)	7.7 total heavy precipitation days (20 mm)	Flooding can close parking facilities as well as damage structures	Identify and address locations with a history of flooding through retrofits (additional connected or dry well Catch basins) and prioritize rainwater capture and flood mitigation when reconstruction. Follow City standards for storm water management.
Increased instances of heat-related issues due to extreme heat.	16.1 average days where temperature is 30 degrees	34.4 average days where temperature is 30 degrees Celsius or more	Extended periods of extreme heat can damage infrastructure	Increase tree cover in parking lots to limit periods of direct sun on

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Adaptation Impact Statement	Baseline** (1976 - 2005)	Average Projected** Change in 2021-2050 (assuming RCP4.5* Scenario)	Potential Impact on Assets and Services	Demand Management Plan
	Celsius or more			infrastructure or investigate solar installations that provide shade.
Increased intensity of rainfall leading to increasing runoff into rivers and lakes, and washing of sediment, nutrients, pollutants and other materials.	25.8 heavy precipitation days (10 mm)	27.6 heavy precipitation days (10 mm)	Limited impact to service or asset, significant impact on environment due to the nature of the asset	Incorporate run off management (bio swales, silva cells) in reconstructions
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 salt use, a pollutant, and/or increased liability	Adopt Smart About Salt practices including salt alternatives, application standards, investigate closing areas with low winter utilization.

*RCP4.5 Scenario: Moderate projected GHG concentrations, resulting from substantial climate change mitigation measures. It represents an increase of 4.5 W/m² in radiative forcing to the climate system. RCP 4.5 is associated with 580-720ppm of CO₂ and would more than likely lead to 3°C of warming by the end of the 21st century.

**Baseline and Projected numbers based on [2021 Climate Science Report](#).

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;

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- 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 27**.

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 models 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. This has been identified as a continuous improvement item in **Table 32**.

Table 26: Adapting to Climate Change

Adaptation Impact Statement	Service or Asset at Risk Due to Impact	What Can Happen	Risk Rating	Risk Adaptation Plan
Reduced capacity of flood protection measures and water storage caused by an increase in rainfall intensity leading to flooding.	Convention Center Parking Garage	Flooding due to extreme rainfall in parking garage impacting below grade levels.	Very High	Model severe stormwater inflows and impacts of pumps or pump failure; Develop stormwater working group to address water infiltration to convention center parking garage. Implement Inspection and maintenance and contingency plans for sump pumps.
Increased instances of heat-related issues due to extreme heat.	Parking lot pavements	Parking lot conditions can deteriorate faster resulting in reduced Estimated service life due to increased	Medium	Prioritize replacements, review condition lifecycle model and develop preventative maintenance

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Adaptation Impact Statement	Service or Asset at Risk Due to Impact	What Can Happen	Risk Rating	Risk Adaptation Plan
		frequency of storm events and/or freeze thaw events.		measures to optimize Estimated Service Life
All Adaptation statements	HMPS Assets	Unable to mitigate impacts from climate change with current budget allocation; increased offsite flow from storm events as no local storage/mitigation; funding for additional car chargers; hardy tree planting; shade structures	Medium	Monitor Opportunities to address sustainability / climate change initiatives during asset renewal and funding becomes available.

HMPS does not have any planned Climate Adaptation projects now. The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

8. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the City plans to manage HMPS assets at the agreed levels of service and at the projected lifecycle costs

In order to quantify the whole life costs for assets, asset management focuses on how taxpayer or ratepayer dollars are invested by lifecycle activities and not by budget allocation. Therefore, forecast costs for each lifecycle stage (i.e., acquisition, operations, maintenance, renewal, disposal) may include costs from both the Capital and Operating budget. For example, values from the capital budget may appear under operations/maintenance, and values from the operating budget may appear under acquisition/renewal depending on the purpose of the activity.

It is important to note that inflationary values are excluded from this analysis, as the purpose of the AM Plan is to be able to compare needs in today's dollars to be able to incorporate into financial planning completed by others.

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.

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 ensure 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.

SELECTION CRITERIA

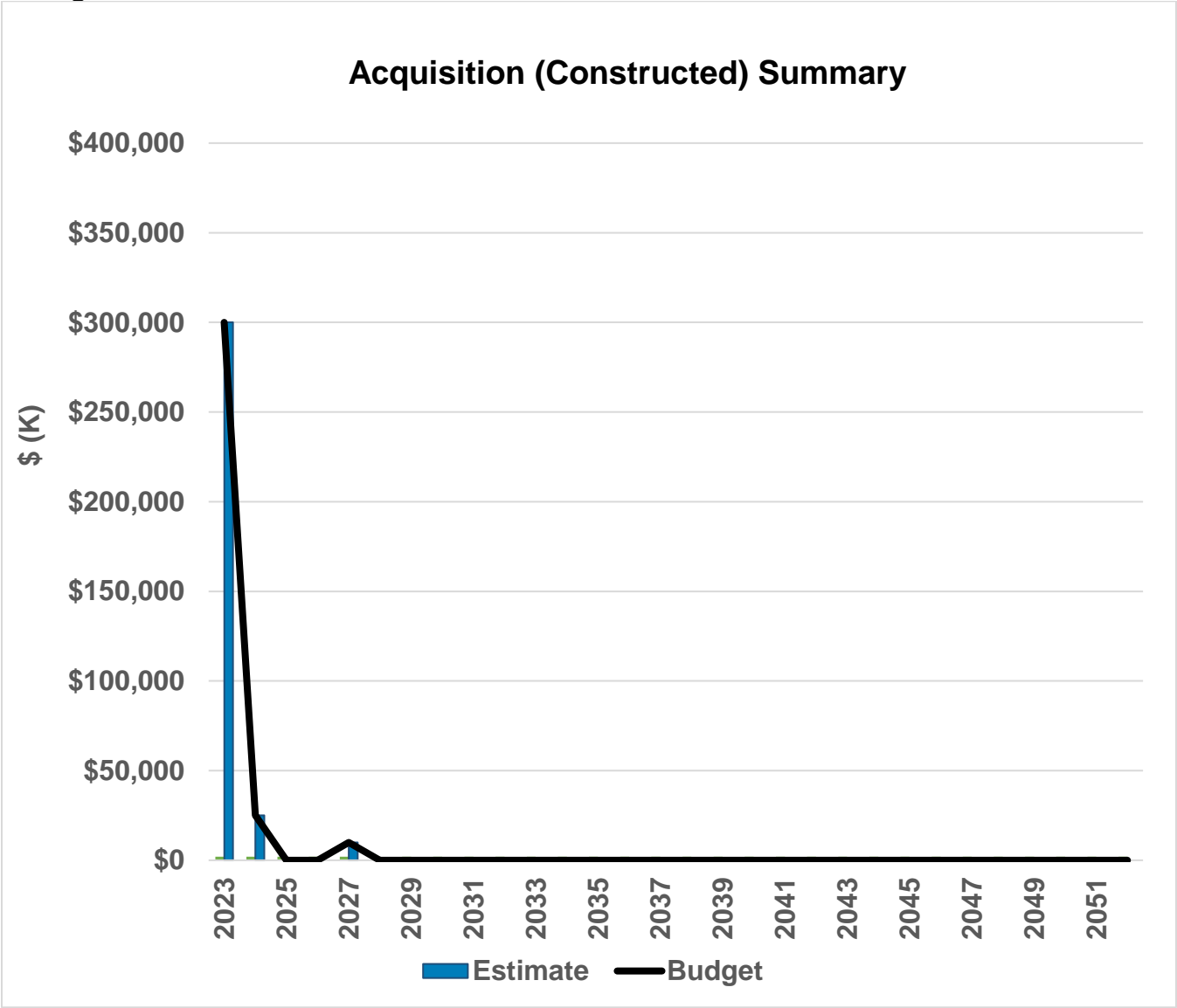
Proposed acquisition of new assets and upgrade of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrades and new works should be reviewed to verify that they are essential to the City's needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programs.

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SUMMARY OF ASSET ACQUISITION (CONSTRUCTED) COSTS

Forecast acquisition costs are summarized in Figure 13 and show the cumulative effect of asset acquisition over the next 10-year planning period.

Figure 13: Acquisition (Constructed) Summary
All Figure Values Are Shown In 2023 Dollars



Over the next 10 Year planning period, the City will acquire approximately **\$335 K** of constructed HMPS assets which can either be new assets which did not exist before or expansion of assets when they are to be replaced. Major acquisition expenditures over the next ten years include:

- **\$300 K** for acquisition of Automated License Plate Reader for parking enforcement in 2023; and,

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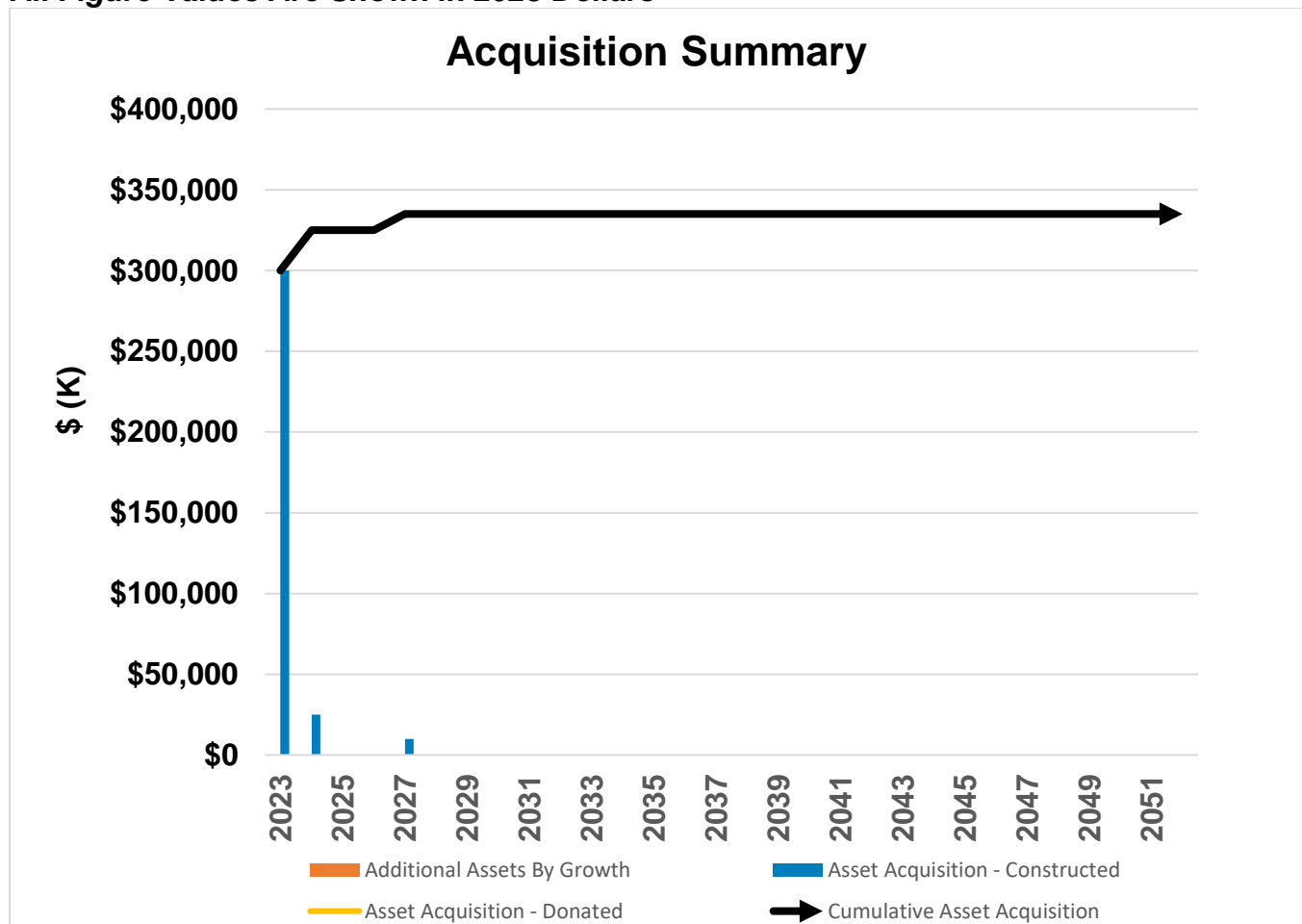
- **\$35 K** assumed 10% of capital budget for surface lot lighting will be spent on new lighting and balance on renewals of existing lighting.

The lack of acquired assets in the balance of the years is due to limited forecasting ability at this time and not from the likelihood of actual new acquisitions. As AM knowledge, practices and abilities mature within the City then in all likelihood there will be additional projects with equally significant costs that will appear within the later years of the 10-year planning horizon.

The City has sufficient budget for the license plate reader and surface lot lighting acquisitions. With competing needs for resources across the entire city there will be a need to investigate tradeoffs 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.

Figure 14: Acquisition Summary
All Figure Values Are Shown in 2023 Dollars



When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by Hamilton. The cumulative value of all acquisition work, including assets that are constructed shown in **Figure 14** above. Over the next 10 Year planning period Hamilton will acquire approximately **\$335K** of HMPS assets.

When new assets are acquired, the City commits to funding the ongoing operations, maintenance and renewal costs which are very significant and have been incorporated into the other lifecycle stage figures in the following sections. Hamilton must also account for future depreciation when reviewing long term sustainability. Hamilton will need to address how to best fund these ongoing costs as well as the costs to construct the assets while seeking the highest level of service possible.

Future AM Plans will focus on improving the understanding of Whole Life Costs and funding options. However, at this time the plan is limited in 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.

8.2 OPERATIONS & 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. Examples of typical operational activities include regular inspections, snow clearing, patching of lots, sweeping, coin collecting, utility costs and the necessary staffing resources to perform these activities.

Some of the major operational investments over the next 10 years include:

- **\$7.5 M** annually in employee related costs, this includes beginning in 2023 **\$0.43 M annually (\$4.3 M over 10 years)** allocated for an additional 5 FTE parking enforcement officers.

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 replacement of waterproofing membrane and structural repairs in the parking garages, mill and pave in surface lots with localized asphalt repairs, parking meter mechanism repairs and equipment repairs along with appropriate staffing and material resources required to perform these activities.

Proactively planning of maintenance significantly reduces the occurrence of reactive maintenance which is always linked to a higher risk to human safety and higher financial costs. With the funding available to HMPS and the condition of many of the assets, almost all maintenance work is reactive resulting in excessive deferred maintenance of assts. A continuous improvement item identified in **Table 32** is to develop a proactive maintenance

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program for all HMPS assets and then to develop the appropriate lifecycle model and costs to support the shift to a proactive maintenance program, including renewal of assets when condition requires.

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

- **\$2.0 M** York Parkade membrane replacement (pending HUPEG assumption of asset);
- **\$1.0 M** (balance of \$2.5 M project ongoing since 2020) until 2025 for Convention Center parking garage membrane replacement and structural repairs;
- **\$1.4 M** Surface lot and garage repairs and improvements;
- **\$0.4 M** Convention Center elevator work; and,
- **\$0.15 M** Convention Center painting.

From **2023-2032** the City will invest an additional approximate **\$2.75M** for various other maintenance projects across the City. These investments for maintenance are intended to allow these assets 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.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

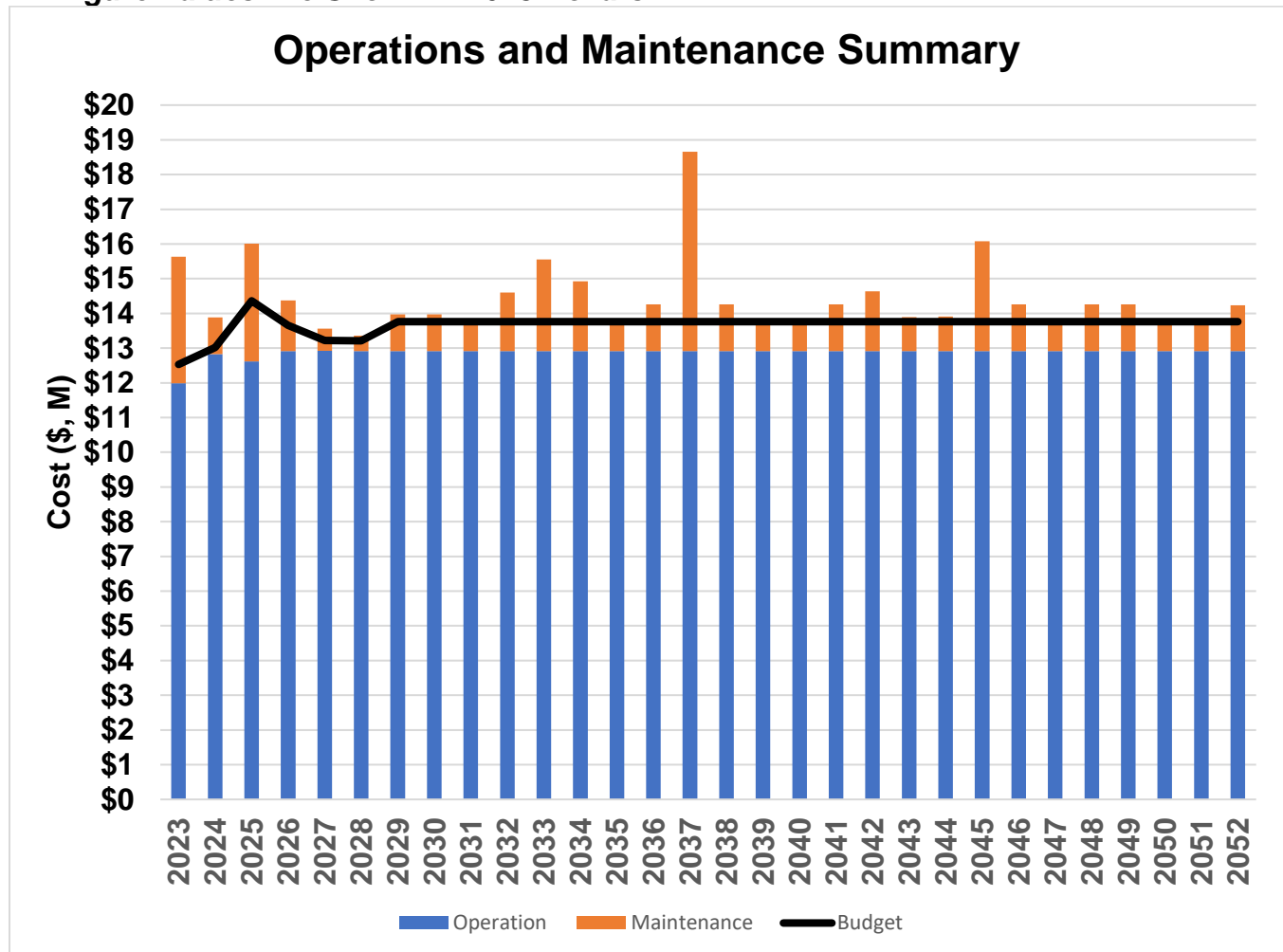
HMPS does not have a work order management system so the breakdown of total annual costs by asset are unknown and rely on total budget costs and allocation of the budget accounts to Lifecycle activities for this analysis. A continuous improvement item in **Table 32** is to improve this information through the implementation of an asset management system which can track worder orders to unique assets and by lifecycle activity.

Forecast operations and maintenance costs vary in relation to the total value of the asset registry. When additional assets are acquired, the future operations and maintenance costs are forecast to increase. When assets are disposed of the forecast operation and maintenance costs are reduced. **Figure 15** shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

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Figure 15: Operations and Maintenance Summary
All Figure Values Are Shown In 2023 Dollars.



The forecast of operations costs are mainly steady over time based on available information. Maintenance costs show several spikes related to specific forecasted maintenance activities the spikes relate to forecast needs as follows:

- Surface Lot resurfacing – (2023 resurfacing backlog, 2037 resurfacings);
- Parking Garage(s) waterproofing and structural repairs (2023 Balance of project, 2026, 2035, 2047, 2048); and,
- Parking Garage possible conversion to LED Lighting (2032).

It is anticipated that at the current budget levels there will be insufficient budget to address all operating and maintenance needs over the 30-year planning horizon. The graph above illustrates that without increased funding or changes to lifecycle activities there is a significant shortage of funding which will lead to:

- Higher cost reactive maintenance;
- Possible reduction to the availability of the assets;

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- Impacts to private property;
- Increased financial and reputational risk; and,
- Assets do not reach estimated service life.

This shortfall is primarily due to deferred maintenance activities for surface lot resurfacing, the 10-year facilities needs backlog and future replacement cycles for parking garage waterproofing and structure repair activities.

As the City continues to develop condition profiles and necessary works are identified based on their condition, it is anticipated this operation and maintenance forecasts will increase significantly. Where maintenance budget allocations will result in a lesser level of service, the service consequences and risks have been identified and are highlighted in the **Risk Section 6**.

Future iterations of this plan will provide a more thorough analysis of operations and maintenance costs including types of expenditures for training, mandatory certifications, insurance, staffing costs and requirements, equipment, and maintenance activities.

HMPS also has similar assets to other areas within the city such as Public Works. Cost efficiencies might be achieved by modifying existing contracts or changing scope when tendered next to bundle these assets together for maintenance and operations purposes. A Continuous Improvement Item has been identified in **Table 32** to investigate cross-departmental contracts for maintenance and construction. Similarly, the City may benefit from the development of common construction and design standards for parking facilities. A Continuous Improvement item has been identified in **Table 32** to further investigate where opportunities for design efficiencies may be achieved.

8.3 RENEWAL PLAN

Renewal is major work 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 28** 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 2023 however they will be reviewed annually until their accuracy reflects the City's current practices.

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Table 27: Useful Lives of Assets

ASSET (SUB)CATEGORY	EXPECTED USEFUL LIFE (YEARS)
Surface Lot Pavement (full depth reconstruction)	30 (large) / 40 (small)
Parking Garage	75
Surface Lot Lighting	15 - Fixture, 30 - Poles
Linear Barriers	30
Privacy Fencing	20
Stormwater Facilities	30
Retaining Walls	30
Electric Vehicle Chargers	10
Pay Machines	15
Parking Meters	25
Non-Regulatory Signs	5
Regulatory Parking Control Signs	15
Vehicles	9
Maintenance Equipment	9
Officer Equipment (uniforms/handhelds/printers)	5 (replaced as needed)
IT Technology	5
Coin Handling Equipment	12

Parking lot surface pavement renewal and maintenance was determined from existing condition. Assumptions for lifecycle modelling were as follows:

Surface parking lots were divided into two categories and different estimates of service life and treatments were determined based on their level of usage and risk detailed in the table below. Large Parking Lots > 1000 m² and small parking lots <1000 m². Reconstruction is defined as complete replacement of the asphalt, curbs, sidewalks and granular and is considered a renewal activity. Resurfacing is milling the asphalt surface and replacement of the surface asphalt and is considered a maintenance activity.

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CURRENT CONDITION	GOOD	FAIR	POOR
Large lot (>1000 m2)	Resurface (maintenance) 15 years from last estimated resurfacing	Reconstruct (renewal) 15 years from last estimated resurfacing	Overdue for Reconstruction (renewal) Renewal Backlog
Small lot (<1000 m2)	Resurface (maintenance) 20 years from last estimated resurfacing (maintenance)	Resurface (maintenance) 20 years from last estimated resurfacing (maintenance)	Overdue for resurfacing (maintenance). Maintenance Backlog

The lifecycle model for Parking Facilities, surface lots, assumes alternating cycles of Resurfacing and Reconstruction with resurfacing occurring at 50% of ESL (15/20 years). The development of an ideal pavement management program is identified as a continuous improvement item in **Table 32**.

Funding for the renewal of fleet and IT equipment is identified in the operating budget. Account 58102 – Trsf to Veh/Equip Rsve and account 59433 DIR_Hardware Lease/Mtce Recov are classified as Renewal in the lifecycle model as these funds accumulate for renewal of these items.

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.

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., replacing a bridge that has a load limit); or,
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g., condition of a culvert).⁵

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;

⁵ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

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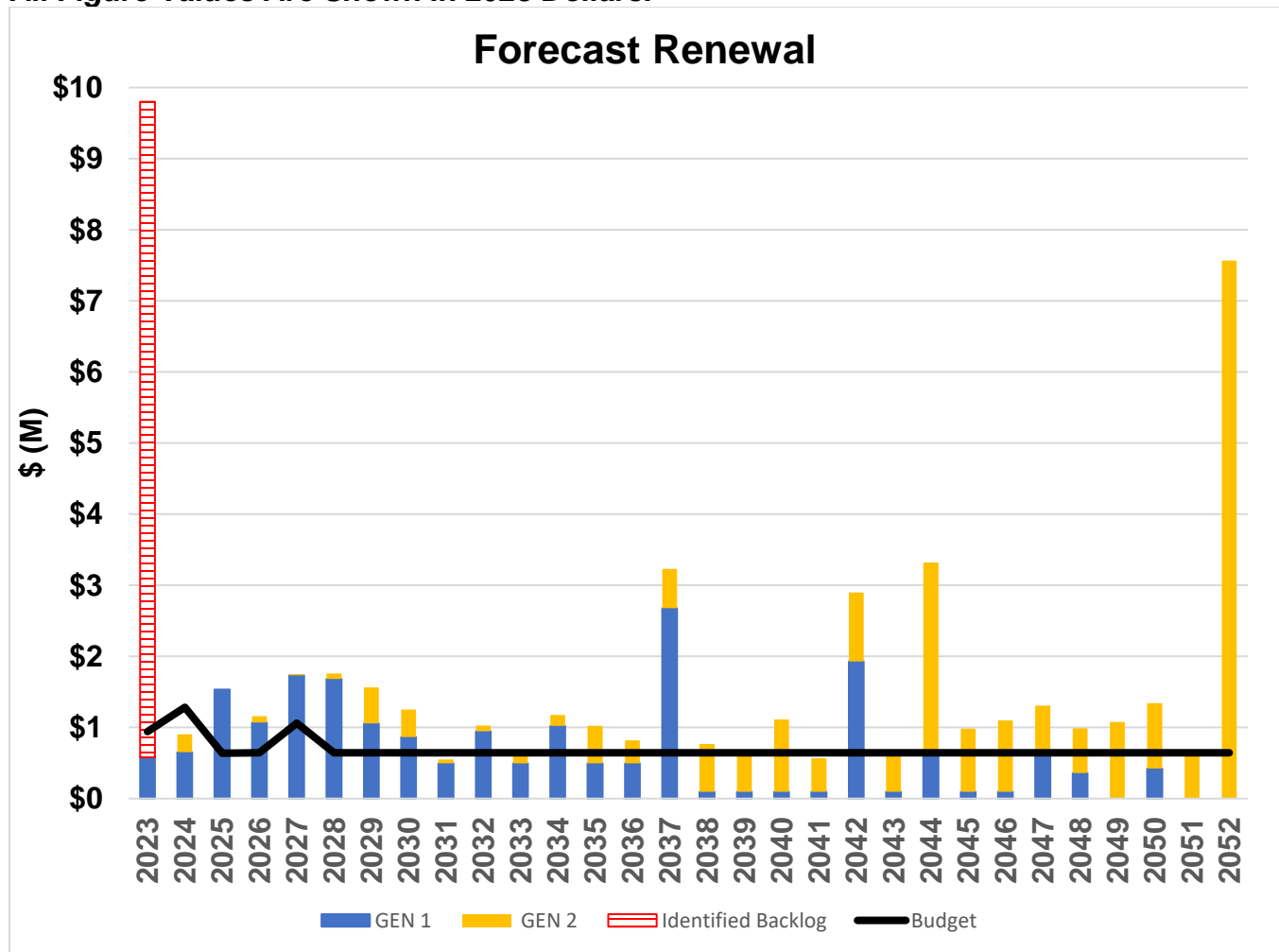
- Have higher than expected operational or maintenance costs; and,
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.⁶

HMPS does not currently have a renewal priority ranking criteria. A renewal priority ranking criteria has been identified as a Continuous Improvement Item in **Table 32** and will be developed future AM Plans when completed.

SUMMARY OF FUTURE RENEWAL COSTS

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 16**.

Figure 16: Forecast Renewal Costs
All Figure Values Are Shown In 2023 Dollars.



⁶ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

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The significant amount highlighted as unfunded in 2023 represents the cumulative backlog of deferred work needed to be completed that has been either identified through its current estimated condition or age per **Table 6** when condition was not available. This back log represents nearly **\$9.2 million** of deferred works that have accumulated over multiple decades and for and have created a significant backlog of necessary works.

Major backlog items include:

- Surface Lot Renewal;
- Site Works Renewal; and,
- Vehicle and Maintenance Renewal.

There is sufficient budget to support the planned renewal projects only. Without additional funding the backlog will remain and continue to grow as future projects outside of the 30-year planning horizon continue to move forward into the 30-year scope. Continued deferrals of projects will lead to significantly higher operational and maintenance costs and will affect the availability of services in the future and impact levels of service.

The expected planned renewal works over the 10-year planning horizon include a remaining balance of **\$0.3 million** in 2023 for PARCS and MAPPS (pay on foot) replacement project completion and **\$0.525 million** in **2024** for surface lot lighting renewal, sweeper replacement and parking meter/pay machine replacement. In **2027** the City will invest **\$0.4 million** to renew privacy fencing, parking lot lighting and parking meters/pay machines.

Deferring renewals (assets identified for renewal and not funded) create risks of higher financial costs, decreased availability, and decreased satisfaction with asset performance. Continuously deferring renewals works ensures Hamilton will not achieve intergenerational equality. If Hamilton continues to push out necessary renewals, there is a high risk that future generations will be unable to maintain the level of service the customers currently enjoy. It will burden future generations with significant costs that inevitably they will be unable to sustain. Prioritization of these projects will need to be funded and managed over time to ensure renewal occurs at the optimal time.

Properly funded and timely renewals will ensure the assets perform as expected and it is recommended to continue to analyze asset renewals based on criticality and availability of funds for future AM Plans.

A Continuous Improvement item has been identified in **Table 32**. to conduct a business review and establish a funding plan for the Parking Capital Reserve and 10-year capital budget.

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 parking facility has fallen.

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Assets identified for possible decommissioning and disposal are shown in **Table 29**. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in **Table 29**. Any costs or revenue gained from asset disposals will be included in future iterations of the plan and the long-term financial plan as the timing of these disposals is still unknown no reduction in Operations or Maintenance costs has been accounted for in the current Asset Management Plan.

Table 28: Assets Identified for Disposal

ASSET	REASON FOR DISPOSAL	TIMING	DISPOSAL COSTS	OPERATIONS & MAINTENANCE ANNUAL SAVINGS
Lot 68 York Parking Garage – 813 Spaces	PED 18168(g) HUPEG Agreement	Possible 2024	To be determined	Revenue Reduction: \$558 K O&M Savings: \$ 679 K
Lot 69 York Parkette – 17 Spaces	PED 18168(g) HUPEG Agreement	Possible 2024	To be determined	Revenue Reduction: \$13 K O&M Saving: \$57 K
Lot 62 Surface Parking Lot (Vine) – 137 Spaces	PED 18168(g) HUPEG Agreement	Possible 2024	To be determined	Revenue Reduction: \$157 K O&M Savings: \$59 K

At this time any Operations and Maintenance savings have not been removed from the current lifecycle model as timing for HUPEG agreement is not yet confirmed. Total Revenue Reduction from the 3 lots identified above is estimated at \$728K and O&M Savings estimated at \$795K (low confidence estimates of O&M Savings). These disposals would also eliminate future renewal requirements for these assets. Generally, the loss in revenue (budget) is balanced by a reduction in O&M costs, as such the lifecycle model is not greatly impacted by not including this at this time.

As a Continuous improvement item identified in **Table 32**, a financial analysis should be completed to identify potential disposal opportunities using the utilization rates in the 2021 Parking Master Plan and an analysis completed on parking lots with low utilization or areas where there is an oversupply to determine if some lots should be identified for disposal or non-lease renewal to reduce future renewal costs and ongoing Operating and Maintenance expenses.

8.5 SUMMARY OF CURRENT ASSET FORECAST COSTS

The financial projections from this asset plan are shown in **Figure 17**. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

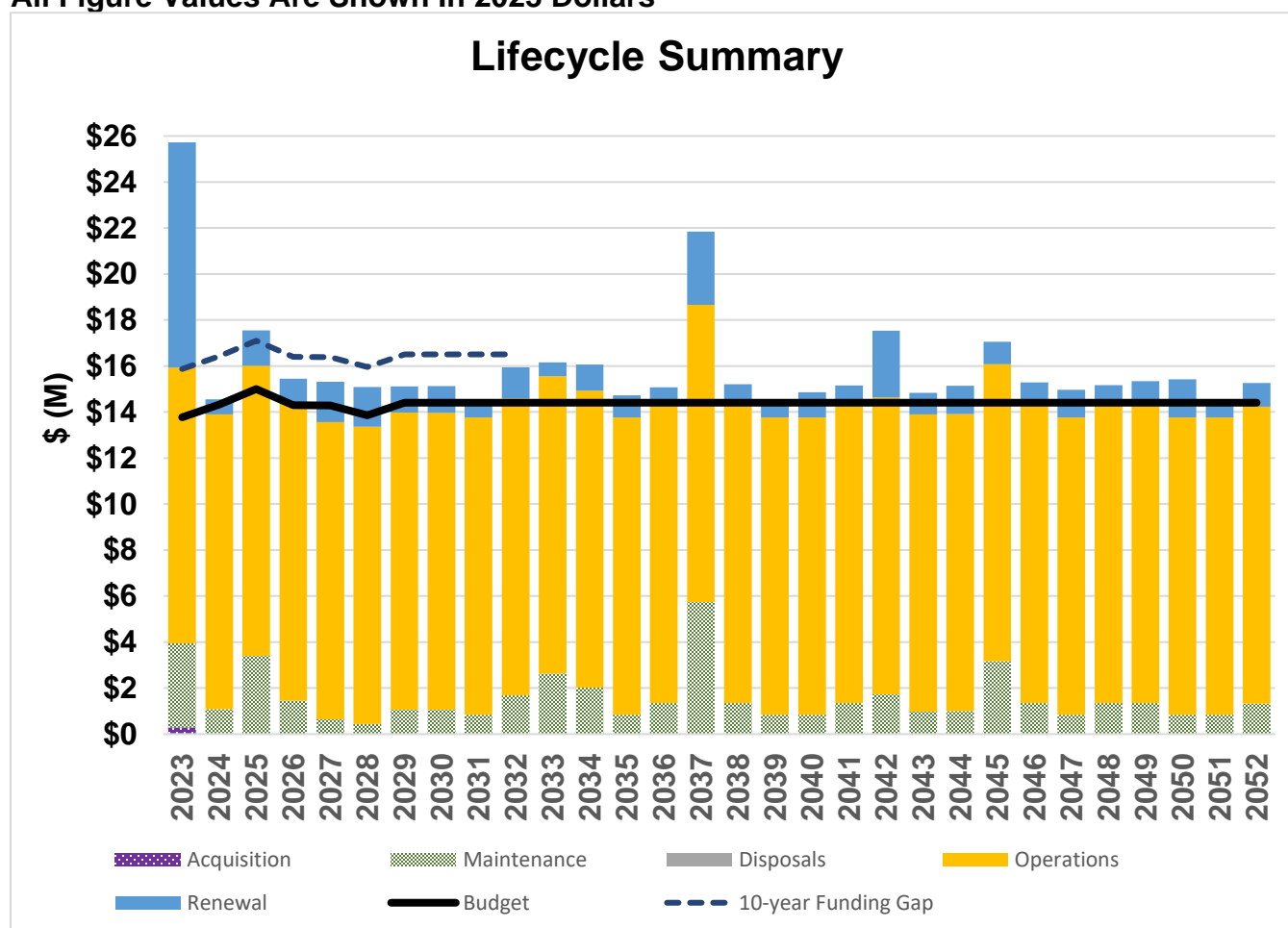
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The bars in the graphs represent the forecast costs needed to minimize the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed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

Figure 17: Lifecycle Summary
All Figure Values Are Shown In 2023 Dollars



There is sufficient budget to address most of the planned operational and maintenance activities for the planning period. However, with their increased costs over time or the implementation of an idealized maintenance strategy then there may be impacts to the service itself. Without some adjustment to available funds or other lifecycle management decisions there will be insufficient budget to address all planned lifecycle activities.

Hamilton currently has insufficient budget to address the large backlog of renewal work projected by the plan over the 30-year horizon. When deferring of renewals occurs Hamilton runs the risk of higher cost reactive maintenance, service interruptions, decreased satisfaction, harm to its reputation along with other risk costs such as legal fees. Deferring renewals is not the optimal

recommendation and Hamilton would benefit from seeking out long term financing strategies to enable a more rapid renewal plan.

Without sufficient funding the City has little option but to defer these necessary lifecycle activities. Deferring important lifecycle activities is never recommended. The City will benefit from allocating sufficient resources to developing its long-term financial plan to ensure that over time the City can fully fund the necessary lifecycle activities. Funding these activities helps to ensure the assets are compliant, safe and effectively deliver the service the customers need and desire.

Renewing at a greater rate and increasing major maintenance projects would allow Hamilton to mitigate ever decreasing parking asset conditions proactively. With 57 surface lots and two (2) garages in addition to thousands of regulatory signs and parking meters to manage it is imperative that Hamilton optimize its renewal and major maintenance planning so that over time, high cost reactive maintenance will be avoided or deferred to a later date.

The lack of funding allocated for the backlog of renewals and the necessary lifecycle activities creates an additional issue which is intergenerational equity. Each year the City defers necessary lifecycle activities, it pushes the ever-increasing financial burden on to future generations. It is imperative the City begin addressing the lack of consistent and necessary funding to ensure that intergenerational equity will be achieved. Over time, allocating sufficient funding on a consistent basis ensures that future generations will be able to enjoy the same standards being enjoyed today.

Over time the City will continue to improve its lifecycle data, and this will allow for informed choices as to how best to mitigate those impacts and how to address the funding gap itself. This gap in funding future plans will be refined over the next 5 years and improve the confidence and accuracy of the forecasts in future revisions of this AM Plan.

The lifecycle summary includes additional needs to:

- Undertake a Consultant Assignment to undertake MMS Parking Regulatory Sign Inventory and Condition Assessment. This is a one-time \$500K increase added to Operating in 2024;
- Anticipated Remediation of Non-MMS Compliance with additional Parking Regulatory Sign Renewal estimated at \$400K per year for 4 years beginning in 2025-2029; and,
- Compliance with AODA requirements for Signs and Pavement markings at 100% of Lots
- Cost internal staff time to repaint plus additional sign costs estimated at \$21 K.

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 HMPS provides 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 HMPS and 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 of the networks 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 Ratio⁷ **37.52%**

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 low indicator result generally indicates that service levels are achievable, however Hamilton is below this level in some 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.

⁷ AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

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Over the next ten (10) years the City expects to have **37.52%** of the funds required for the optimal renewal of assets. This is a significantly low number and should be addressed through this plan in the next iteration. By only having sufficient funding to renew **37.52%** of the required assets in the appropriate timing it will inevitably require difficult trade off choices that could include:

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

This low Asset Renewal Funding Ratio outlines that this service is very underfunded and will not be able to renew and maintain assets at an appropriate rate. This ratio is largely driven by the significant costs anticipated to renew Surface Lots and related site works.

The lack of renewal resources will be addressed in future AM Plan's 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

O&M & Renewal Ratio **87%**

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed level of service to the community over a 10-year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast operations, maintenance and renewal costs over the 10-year planning period is **\$16.4** on average per year. Over time as improved information becomes available it is anticipated to see this number increase. In future AM Plans, staff will connect the operational and maintenance needs to the forecasts, and this will result in a significantly higher cost than is outlined here.

The proposed (budget) operations, maintenance and renewal funding is **\$14.3M** on average per year giving a 10-year funding shortfall of **\$2.1M** per year or **\$21M** over the 10-year planning period. This indicates that **87%** of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets (if any).

Funding an annual funding shortfall or funding 'gap' of **\$2.1M** per year cannot be addressed in a single year and has not been incorporated as identified within this plan into any existing plan or budget. The gap will require vetting, planning and resources to begin to incorporate gap management into the future budgets. This gap will need to be managed over time to reduce it

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in a sustainable manner and limit financial shock to customers. It is intended that HMPS remain a self-funded business unit. Options for managing the gap include:

- Financing strategies – leverage alternative funding (e.g. grants), 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;
- Influence level of service expectations or demand drivers;
- Increase revenues – strategically increase rates/fees/fines to achieve cost recovery and other business objectives;
- Assess parking revenue subsidized programs and the allocation of parking revenue surplus for alignment with business objectives and transparency; and,
- HMPS is a revenue generating service. There are initiatives that could be used to maintain HMPS as self-funded. The portion of revenue that is allocated to the capital reserve could be modified. Parking Rates and other fees for service could be increased. A review of the cost/benefits of operating programs and assets can also be completed as part of a financial analysis to determine where services and fees to maintain the service are not matched.

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 achieve a financial indicator of approximately **90-110%** for the first years of the AM Plan and ideally over the 10-year life of the Long-Term Financial Plan.

LONG TERM – LIFECYCLE COSTS

This AM Plan identifies the Lifecycle forecast (average 10 years) for operations, maintenance and depreciation. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

The Lifecycle forecast operations, maintenance and depreciation over the 10-year planning period is **\$17.1M** on average per year. Over time as improved information becomes available it is anticipated to see this number increase. In future AM Plans, staff will connect the operational and maintenance needs to the forecasts, and this will result in a significantly higher cost than is outlined here.

The proposed Lifecycle (budget) operations, maintenance and depreciation funding is **\$14.3M** on average per year giving a Lifecycle Gap of **\$2.8M** per year. This indicates that the Lifecycle Indicator comparing Planned Budget to Lifecycle Forecast is **83.54%**. Note, these calculations exclude acquired assets (if any).

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

Table 30 shows the forecast costs (outlays) required for consideration in the 10-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.

These options will be explored in the next AM Plan and the City will provide analysis and options for Council to consider going forward.

Table 29: Forecast Costs (Outlays) For the Long-Term Financial Plan
Forecast Costs Are Shown In 2023 Dollar Values.

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2023	\$300,000	\$11,986,509	\$3,644,984	\$9,799,066	0
2024	\$25,000	\$12,827,943	\$1,052,381	\$651,938	0
2025	0	\$12,618,610	\$3,391,985	\$1,534,310	0
2026	0	\$12,915,560	\$1,460,302	\$1,070,830	0
2027	\$10,000	\$12,925,560	\$632,952	\$1,749,644	0
2028	0	\$12,915,560	\$441,902	\$1,730,726	0
2029	0	\$12,915,560	\$1,057,777	\$1,143,232	0
2030	0	\$12,915,560	\$1,056,177	\$1,155,925	0

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YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2031	0	\$12,915,560	\$845,302	\$548,822	0
2032	0	\$12,915,560	\$1,684,642	\$1,350,529	0

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 determine 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.

HMPS is a revenue generating division of the City and typically revenues exceed expenses creating a positive operating balance, but capital funding is insufficient to continue HMPS' self-funding model long term. It is necessary to decrease costs and/or increase revenues to address the funding gap without utilizing levy funding. The fixed annual funding for the Parking Capital Reserve would need to be adjusted for the reserve to address the asset maintenance and renewal backlog and capture any increases in revenue. This would likely require reducing the levy transfer and impact levy funding. This item will require more discussion between HMPS and Council on the optimal balance between addressing the state of the assets and the impacts to the levy transfer.

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 increase.

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.

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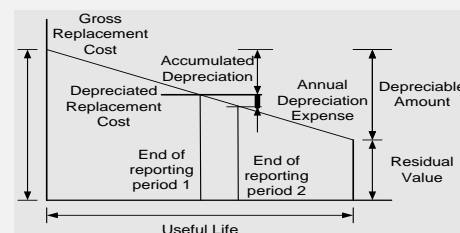
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9.5 ASSET VALUATIONS

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at estimated replacement costs:

Replacement Cost (Current/Gross)	\$131,146,082
Depreciable Amount	\$131,146,082
Depreciated Replacement Cost⁸	\$ 55,756,108
Depreciation	\$ 2,786,113



The current replacement cost is the most common valuation approach for specialized infrastructure assets. The methodology includes establishing a comprehensive asset registry, assessing replacement costs (based on market pricing for the modern equivalent assets) and useful lives, determining the appropriate depreciation method, testing for impairments, and determining remaining useful life.

As the City matures its asset data, it is highly likely that these valuations will fluctuate significantly over the next 3 years, and they should increase over time based on improved market equivalent costs

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 10-year horizon and do not address other operational needs not yet identified;
- Maintenance forecasts are based on current budget allocations and do not identify asset needs at this time. It is solely based on planned activities; and,
- Replacement costs were based on historical costing and engineering estimates. They were also made without determining what the asset would be replaced with in the future.

⁸ Also reported as Written Down Value, Carrying or Net Book Value.

HAMILTON MUNICIPAL PARKING SYSTEM ASSET MANAGEMENT PLAN

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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 AM PLAN Overview.

Table 30: Data Confidence Assessment for Data Used in AM Plan

DATA	CONFIDENCE ASSESSMENT	COMMENT
Demand drivers	Medium	Demand Drivers were taken from the 2021 Parking Master Plan. Improvement is needed to validate the demand driver assumptions over time to verify if they are accurate. All drivers require annual monitoring
Growth projections	Low	Population Data is of high confidence. Current growth projection will need to be vetted and improved.
Acquisition forecast	High	Additional assets beyond those identified are not anticipated at this time.
Operation forecast	Low	Currently budget based and required future improvement to ensure allocation is accurate and all operational needs accounted for.
Maintenance forecast	Low	Currently budget based and required future improvement to ensure allocation is accurate and all maintenance needs accounted for.
Renewal forecast - Asset values	Low	Asset renewal values are based on SME (subject matter experts) estimates, Facilities estimates, and Public Works roads estimating tool.
- Asset useful lives	Low	Based on SME opinion. Continuous improvement required to ensure data is vetted and ensure it aligns with Hamilton's actual practices and experiences in other areas with similar assets.
- Condition modelling	Low	Condition assessments are inconsistent and largely not current. Requires standardization of methodology along with predictable timelines for condition assessments.
Disposal forecast	Low	Current disposal information is rolled into renewal. Continuous improvements are required to ensure accurate data is available.

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

10. PLAN IMPROVEMENT AND MONITORING

10.1 STATUS OF ASSET MANAGEMENT PRACTICES

ACCOUNTING AND FINANCIAL DATA SOURCES

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

- 10 Year Capital Plan updated Feb 2023;
- HMPS Net Levy Multi-Year Budget 2023-04-14;
- 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;
- 10-Year Facility's Needs;
- IT Inventory for HMPS;
- Asset Management Data Collection Templates;
- Tender documents, subdivision agreements and projected growth forecasts as well as internal reports;
- Condition Assessments;
- Subject Matter Expert Opinion and Anecdotal Information; and,
- Reports from the mandatory biennial inspection, operational & maintenance activities internal reports.

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.

The Improvement plan **Table 32** 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.

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Table 31: Improvement Plan

	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
1.	<p>Develop an inventory and condition assessment program for parking assets</p> <p>Description: Inventory all assets in GIS, develop condition inspection protocol based on a 5-point scale, create inspection templates and implement a routine inspection program. Investigate digital solutions to streamline the program and analyze data collected.</p>	<p>Lead: HMPS</p> <p>Support: CAM / Possible EAM Team.</p>	<p>15,000 Total Internal Staff Time</p> <p>Digital Solution Cost TBD.</p>	High	<p>1 Year (2023-2024)</p> <p>Digital Solution TBD.</p>
2.	<p>Address on-street signage inspection requirements for MMS (Also ties into CI Item 7 and 10 on standardization)</p> <p>Description: Investigate regular inspections of Regulatory signage in compliance with Minimum Maintenance Standards requirements (MMS). A continuous improvement item is already identified, and underway as outlined in PW18096 dated Feb 1, 2021, to collect an inventory and a plan to determine the state of repair inspections.</p>	<p>Lead: HMPS</p> <p>Support: TOM</p>	<p>\$500,000 Total Consultant to collect inventory and initial condition.</p>	High	<p>1 Year (2024)</p>

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	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
3.	<p>Adopt a work order tracking system for asset maintenance</p> <p>Description: Develop and implement a work order tracking system to organize and categorize work on assets. This will permit the tracking of lifecycle activities, frequency and costs. Investigate Partnering with Public Works on EAM implementation.</p>	<p>Lead: HMPS</p> <p>Support: CAM / Possible EAM Team</p>	TBD	High	1 Year (2024)
4.	<p>Work with other City Departments to address "grey" assets</p> <p>Description: Review known "Grey" Assets (private or abandoned infrastructure on City property, private infrastructure using un-metered City utilities, unallocated assets on old lots) to ensure all assets have clear ownership and responsibility for maintenance, inspection and repair. Develop a protocol to address grey assets when identified.</p>	<p>Lead: CAM</p> <p>Support: Parking, Corporate Real Estate, Facilities, Legal, Public Works</p>	\$25,000 Total Internal Staff Time	Low	3 Years (2026-2028)
5.	<p>Develop Asset Related Key Performance Indicators</p> <p>Description: Develop SMART KPI (Technical LOS) for frequently used or</p>	HMPS	\$4,000 p.a. \$8000 Total Internal Staff Time	Medium	2 Years (2024-2025)

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	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
	requested metrics such as enforcement or maintenance request times, parking utilization, downtime etc.				
6.	<p>Develop a Working Group for the Convention Center Garage MCP 37</p> <p>Description: Develop working group to determine asset responsibilities/SOP/RASCI for all co-mingled parking garage assets, including those causing external impacts from water infiltration to ensure clear lines of accountability for ownership, maintenance, repair and replacement. Utilize internal expertise regarding the maintenance of the facility.</p>	<p>Lead: HMPS Facilities</p> <p>Support: Building / Engineering</p>	<p>\$5,000 p.a. \$10,000 Total Phase 1: Internal Staff Time, Possible Consultants</p>	High	2 Years (2023-2024)
7.	<p>Investigate cross-departmental contracts for maintenance and construction</p> <p>Description: Develop working group with Public Works to discuss maintenance and renewal of physical assets where there are synergies (lighting, storm sewer, pavement, regulatory signs, Engineering Services)</p>	<p>Lead: CAM</p> <p>Support: HMPS / Public Works</p>	<p>\$10,000 p.a. \$20,000 Total Internal Staff Time</p>	Medium	2 Years (2023-2024)

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	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
8.	<p>Develop a renewal priority ranking criterion</p> <p>Description: Develop a renewal priority ranking criterion to allocate capital to renewal projects using multi criteria evaluation approach (i.e. condition, age, environmental impact, health and safety)</p>	HMPS	\$5,000	Low	1 Year 2026
9.	<p>Develop City-wide standards for asset management for Common Assets</p> <p>Description: Develop planned asset management strategies for all assets (i.e. define maintenance treatments, preventive maintenance strategy, inspection and assessment frequency, costs)</p>	<p>Lead: CAM</p> <p>Support: HMPS / Public Works / Engineering Services</p>	\$15,000 Internal Staff Time	High	2 Years 2024 - 2026
10.	<p>Develop City-wide construction and design standards for parking facilities</p> <p>Description: Investigate Standardizing Construction Standards and Design Guidelines for Parking facilities across all City facilities (lighting/space width/pavement design guidelines)</p>	<p>Lead: Public Works</p> <p>Support: Engineering Services; HMPS</p>	\$15,000 Internal Staff Time	Medium	1 Year 2025

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	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
11.	<p>Investigate improvements for financial Tracking</p> <p>Description: Investigate tools to permit Financial Tracking for on and off-street parking areas to compare revenue to costs; possible EAM. Moving from manual spreadsheets to a dynamic analysis in a dashboard format.</p>	<p>Lead: HMPS</p> <p>Support: Finance</p>	<p>\$1,000 Total Internal Staff Time</p> <p>Digital Platform cost TBD</p>	Medium	1 Year 2025
12.	<p>Conduct a financial analysis of Parking Facilities</p> <p>Description: Assess revenue vs. expenses for all off street parking facilities. Identify opportunities to improve cost recovery in facilities operating at a loss and/or asses for disposal to ensure stable funding for required lifecycle costs across assets.</p>	HMPS	<p>\$5,000 Total Internal Staff Time</p>	High	1 Year 2023-2024
13.	<p>Explore Opportunities for routine parking occupancy data collection</p> <p>Description Investigate ways or technology to simplify parking utilization rate data collection establish demand patterns.</p>	HMPS	<p>\$4,000 Internal Staff Time Plus possible technology costs TBD.</p>	Low	1 Year 2025

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	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
12.	<p>Complete property profiles for all HMPS leased or owned properties</p> <p><u>Description:</u> Parking does not have comprehensive data on its properties, relying on Real Estate staff to provide documents as requested. Additionally, some documents lack clarity (leases without diagrams), and many properties are used for private access without formal agreements.</p>	<p>Lead: HMPS</p> <p>Support: CREO / Legal</p>	<p>\$5,000 Internal Staff Time</p>	Medium	<p>2 Years (2023-2025)</p>
13.	<p>Conduct a business review and establish a funding plan for the Parking Capital Reserve and a 10-year budget</p> <p><u>Description:</u> Addressing the funding gap will require a multi-pronged approach of reducing expenses, increasing revenues and long-term planning. An in-depth assessment of all HMPS business operations (permits, tickets, driveways, signs, rates, etc.) will identify where resources are being expended vs. public and financial value.</p>	<p>Lead: HMPS</p> <p>Support: External Consultant</p>	<p>\$100,000 for internal staff time and consultant</p>	High	<p>2 Years 2023-2025</p>

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	TASK	RESPONSIBILITY	RESOURCES REQUIRED	PRIORITY (High / Med / Low)	TIMELINE
14.	Release public engagement survey annually to ensure customer satisfaction and track customer trends	Lead: CAM Support: HMPS	\$3,100 Internal Staff Time	Medium	2025
15.	Further investigate climate mitigation and adaptation effects on assets and revise lifecycle model (e.g. . when is fleet going to convert to green fuel before 2050?).	Lead: HMPS Support: Climate Change Office	N/A	N/A	Ongoing
16.	Identify additional risks and trade-offs/shortfalls and develop detailed risk management plans with treatment costs	Lead: HMPS Support: CAM	\$1540 Internal Staff Time	Medium	2024-2026

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 1-10-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 – 100% and/or steady improvement to the Asset Renewal Ratio).

Appendix A: Survey Analysis

An aerial photograph of the Hamilton city skyline at dusk. The image is overlaid with a network diagram consisting of various colored lines (red, blue, yellow, green) and dots (red, yellow, blue) connected by lines, suggesting a connectivity or infrastructure theme. The text "LET'S CONNECT, HAMILTON City Services & Assets Review" is prominently displayed in white, bold, sans-serif font across the center of the image.

LET'S CONNECT, HAMILTON **City Services & Assets Review**



Survey Response Demographics

132
Respondents

134
Survey Questions

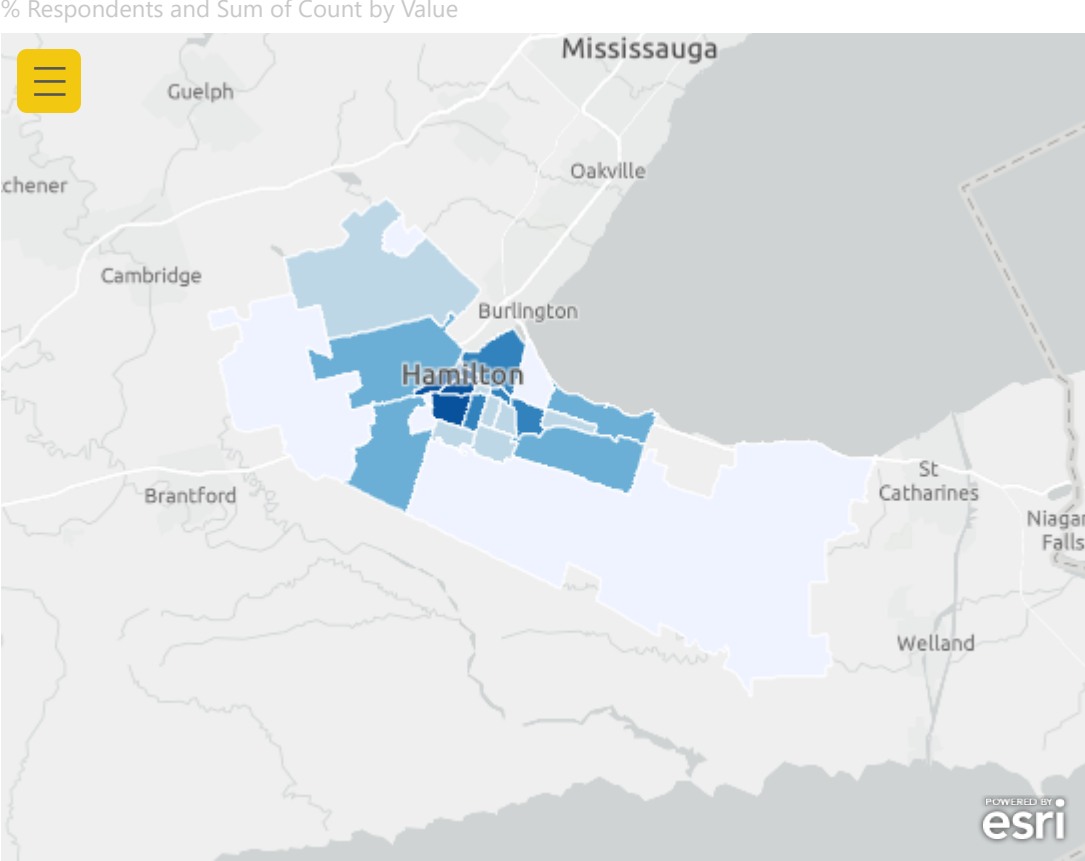
5
Demographic Questions

17556
Survey Responses

759
Demographic Responses

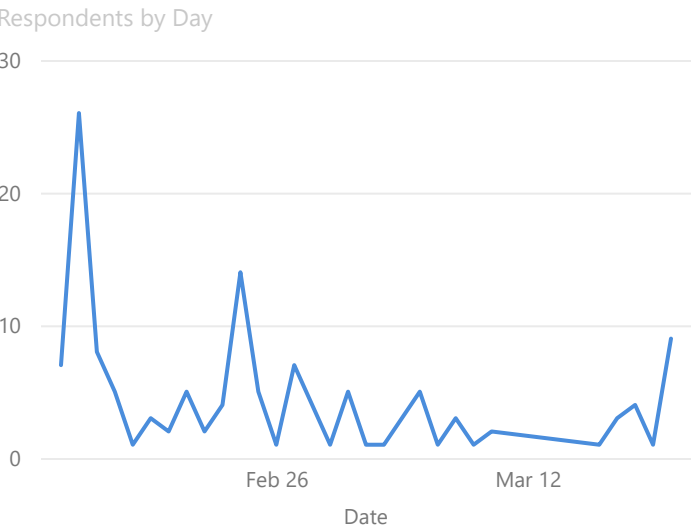
Postal Code	Respondents	% Respondents	Population
L9C	16	12.60%	64,505
L8P	15	11.81%	42,655
L8R	9	7.09%	19,375
L8S	9	7.09%	26,295
L8M	8	6.30%	22,530
L8K	7	5.51%	52,085
L8L	7	5.51%	50,110
L9A	7	5.51%	40,750
L8E	6	4.72%	64,835
L8J	5	3.94%	42,665
L9G	5	3.94%	38,540
L9H	5	3.94%	50,480
L8G	4	3.15%	36,075
L8N	4	3.15%	26,220
L8T	4	3.15%	31,140
L8B	3	2.36%	38,035
L8V	3	2.36%	34,910
L8W	3	2.36%	39,195
L9B	3	2.36%	38,295
L0R	2	1.57%	123,805
L8H	1	0.79%	41,715
L9K	1	0.79%	23,485

Self Identification	% Respondents	Respondents
2SLGBTQIA+	9.57%	11
I do not identify with any of the above groups	73.04%	84
Immigrant +10	5.22%	6
Immigrant <10	1.74%	2
Indigenous	1.74%	2
People with disabilities	13.04%	15
Racialized	5.22%	6
Total	100.00%	115



Residence	% Respondents	Respondents
I live elsewhere	0.79%	1
I live in Hamilton	99.21%	126
I run a Hamilton-based business	7.09%	9
I work in Hamilton	0.79%	1
Total	100.00%	127

Age	% Pop. by Age	% Respondents	Respondents
25 to 34	15.3%	12.40%	16
35 to 44	13.8%	15.50%	20
45 to 54	13.2%	17.05%	22
55 to 64	14.7%	33.33%	43
65 to 79	14.3%	20.93%	27
80+	5.2%	0.78%	1
Total		100.00%	129



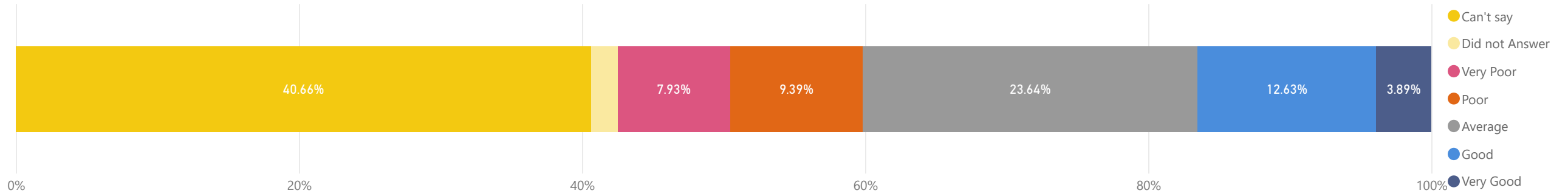
Gender	% Respondents	Respondents
Female	51.52%	68
Male	40.15%	53
Other	1.52%	2
Prefer not to answer	15.91%	21
Total	100.00%	132

Q1

132
Respondents
1980
Responses

Performance, last 24mo

Over the last 24 months, how do you feel Parking Services has performed overall in the following services?



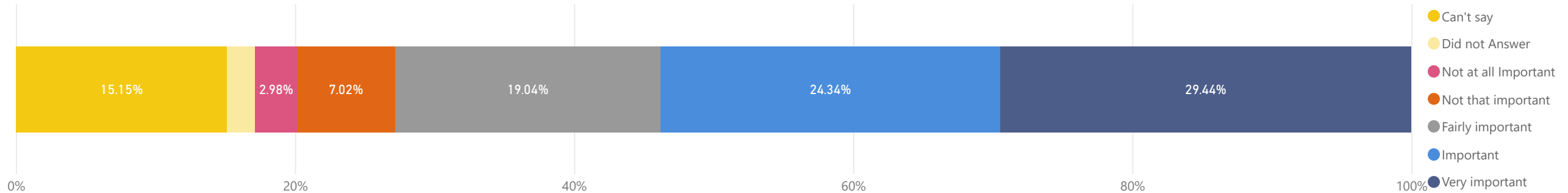
	σ	Avg.	Avg. %	Opt out	Opt out %	Very Poor	Poor	Average	Good	Very Good
All Service Areas	1.08	2.8	58.3	842	42.5	157	186	468	250	77
“Passport Parking” Mobile APP	1.25	3.5	69.7	74	56.0	6	5	17	15	15
Municipal Car Parks and Parking Structures	0.94	3.1	62.5	26	19.7	8	11	53	28	6
Parking Penalty Payment Options	1.11	3.1	61.8	64	48.5	9	5	32	15	7
Car Park Locations	0.95	3.1	61.1	20	15.1	9	16	52	30	5
Car Park Accessibility	1.02	3.0	60.9	46	34.9	9	11	38	23	5
Car Park Lighting	0.94	3.0	60.8	33	25.0	4	24	41	24	6
Parking Meters and Pay Machines	1.02	3.0	60.6	25	19.0	10	17	47	26	7
Accessible Parking Permit Exemptions	1.19	3.0	59.2	83	62.9	7	9	18	9	6
Car Park Condition and Appearance	0.92	3.0	59.1	22	16.7	8	21	53	24	4
On Street Parking	1.14	2.8	56.5	5	3.8	20	27	44	27	9
Special Event Parking Permit for Residents	1.21	2.6	51.4	104	78.8	9	1	12	5	1
Residential Driveway Access Permit	1.26	2.5	50.7	102	77.3	9	5	9	5	2
Parking Penalty Dispute Options	1.14	2.5	50.2	75	56.8	15	11	20	9	2
Residential Boulevard Parking	1.14	2.4	47.4	64	48.5	21	14	22	9	2
Temporary Regulation Enforcement Request	0.90	2.0	39.4	99	75.0	13	9	10	1	

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q2
132
Respondents
1980
Responses

Importance

How important should the following services be as a responsibility for Parking Services?



	σ	Avg.	Avg. %	Opt out	Opt out %	Not at all Important	Not that important	Fairly important	Important	Very important
All Service Areas	1.09	3.8	77.0	340	17.2	59	139	377	482	583
Car Park Lighting	0.91	4.3	86.4	7	5.3	1	6	14	35	69
On Street Parking	1.04	4.1	81.4	6	4.5	3	7	25	34	57
Car Park Accessibility	0.97	4.1	81.1	7	5.3	2	5	28	39	51
Car Park Condition and Appearance	0.95	4.0	80.2	6	4.5	1	8	26	45	46
Car Park Locations	0.98	4.0	80.2	5	3.8	2	6	30	40	49
Accessible Parking Permit Exemptions	1.04	4.0	79.2	30	22.7	3	6	21	34	38
Municipal Car Parks and Parking Structures	1.01	3.9	78.1	8	6.0	2	8	34	36	44
Residential Boulevard Parking	1.24	3.8	75.5	39	29.5	8	5	21	25	34
Parking Penalty Dispute Options	1.08	3.7	74.7	22	16.6	3	12	29	33	33
Parking Meters and Pay Machines	1.07	3.7	73.5	8	6.1	2	17	35	35	35
Temporary Regulation Enforcement Request	1.15	3.6	72.8	54	40.9	4	9	20	23	22
Parking Penalty Payment Options	1.07	3.6	71.8	22	16.7	4	12	35	33	26
Residential Driveway Access Permit	1.25	3.6	71.6	49	37.1	7	10	18	24	24
"Passport Parking" Mobile APP	1.34	3.6	71.4	34	25.7	10	14	16	26	32
Special Event Parking Permit for Residents	1.24	3.4	68.5	43	32.6	7	14	25	20	23

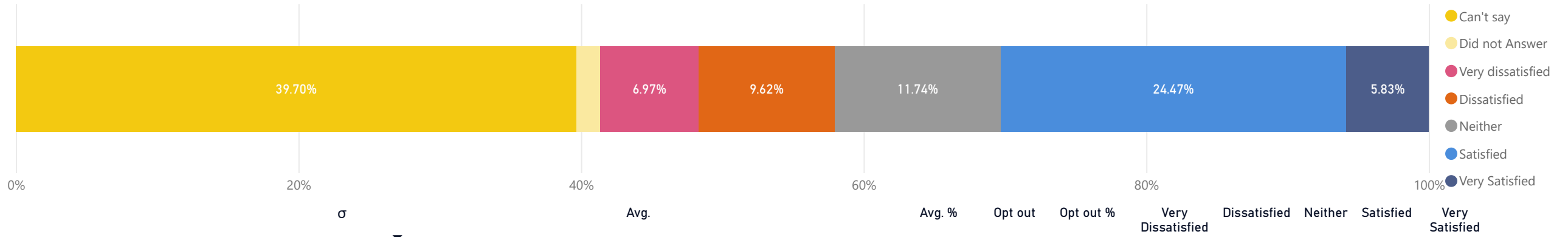
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q3

132
Respondents
1320
Responses

Access, last 24 mo

In the last 24 months if you have used Hamilton Parking’s services, how satisfied are you with your ability to access parking in these locations?



All Service Areas	1.14	3.3	64.3	546	41.4	92	127	155	323	77
Ancaster	0.94	3.6	72.5	76	57.6	2	4	15	27	8
Stoney Creek	1.17	3.5	70.0	78	59.1	6	3	12	24	9
Waterdown	1.07	3.5	69.5	92	69.7	4	2	9	21	4
Dundas	1.12	3.5	69.3	48	36.3	8	7	18	40	11
Ottawa Street North	1.16	3.4	69.0	45	34.1	9	9	15	42	12
On Street Parking across the city	1.14	3.2	64.7	13	9.9	11	23	23	51	11
Concession Street	1.17	3.1	61.5	64	48.5	8	15	14	26	5
Barton Village	1.21	3.0	60.7	72	54.5	9	12	11	24	4
Locke Street	1.15	3.0	59.3	43	32.5	10	25	17	32	5
Downtown Hamilton	1.27	2.8	55.7	15	11.4	25	27	21	36	8

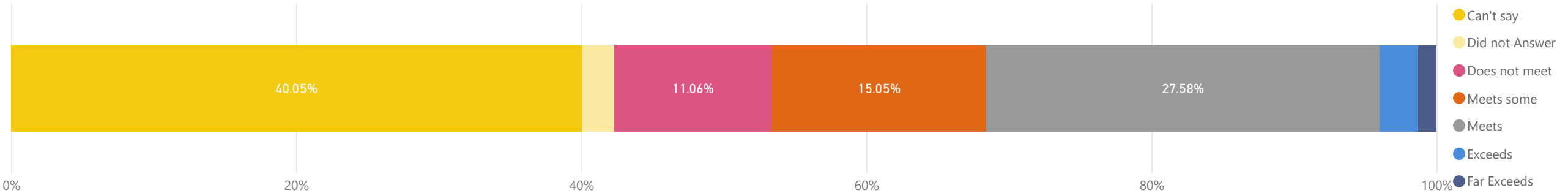
Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q4

132
Respondents
1980
Responses

Meet Needs

Do the following services meet your needs?



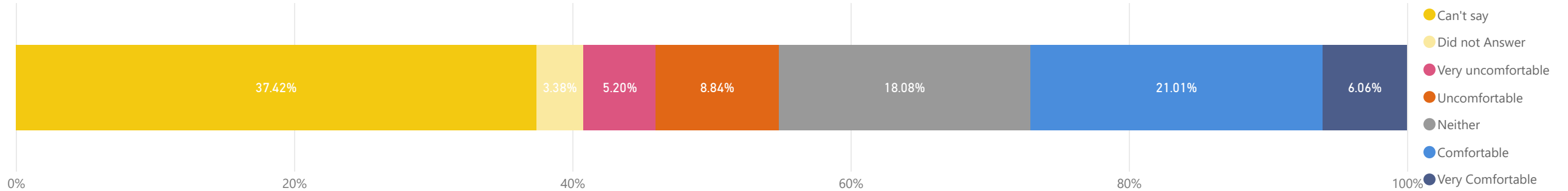
	σ	Avg.	Avg. %	Opt out	Opt out %	Does not meet	Meets some	Meets	Exceeds	Far Exceeds
All Service Areas	0.93	2.5	48.9	838	42.3	219	298	546	54	25
“Passport Parking” Mobile APP	1.14	2.9	58.2	75	56.8	10	5	27	10	5
Special Event Parking Permit for Residents	1.04	2.6	51.6	101	76.5	6	6	16	1	2
Accessible Parking Permit Exemptions	0.78	2.5	50.7	87	65.9	6	11	26	2	
Municipal Car Parks and Parking Structures	0.81	2.5	50.6	21	15.9	15	29	61	5	1
Car Park Accessibility	0.82	2.5	50.2	50	37.9	11	23	44	3	1
Parking Penalty Payment Options	0.93	2.5	50.0	70	53.1	12	13	32	4	1
Parking Meters and Pay Machines	0.92	2.5	49.3	12	9.1	22	32	56	8	2
Car Park Lighting	0.90	2.4	48.5	29	22.0	18	32	46	5	2
Car Park Locations	0.78	2.4	48.4	20	15.1	14	42	52	3	1
Car Park Condition and Appearance	0.88	2.4	47.4	29	21.9	21	29	48	4	1
Residential Driveway Access Permit	0.98	2.4	47.2	96	72.7	9	8	17	1	1
On Street Parking	0.94	2.4	47.1	5	3.8	28	37	54	5	3
Temporary Regulation Enforcement Request	1.13	2.3	46.5	98	74.3	11	6	14	1	2
Residential Boulevard Parking	0.99	2.3	45.1	69	52.3	18	16	26	1	2
Parking Penalty Dispute Options	0.99	2.3	45.0	76	57.5	18	9	27	1	1

Q5

132
Respondents
1980
Responses

Comfortable and Safe

Do you feel comfortable and safe accessing these services?



	σ	Avg.	Avg. %	Opt out	Opt out %	Very Uncomfortable	Uncomfortable	Neither	Comfortable	Very Comfortable
All Service Areas	1.09	3.2	64.7	808	40.8	103	175	358	416	120
“Passport Parking” Mobile APP	1.38	3.6	71.3	70	53.0	10	4	6	25	17
Accessible Parking Permit Exemptions	1.10	3.3	65.3	87	65.9	4	6	14	16	5
Car Park Accessibility	0.99	3.3	66.1	47	35.6	4	13	29	31	8
Car Park Condition and Appearance	1.07	3.0	60.2	23	17.4	11	23	35	34	6
Car Park Lighting	1.09	3.0	60.6	28	21.2	10	22	35	29	8
Car Park Locations	0.97	3.3	66.4	23	17.4	4	17	38	40	10
Municipal Car Parks and Parking Structures	1.01	3.3	65.5	12	9.1	6	22	34	49	9
On Street Parking	1.07	3.5	69.9	7	5.3	5	21	26	53	20
Parking Meters and Pay Machines	1.01	3.5	70.7	9	6.8	5	16	26	60	16
Parking Penalty Dispute Options	1.14	2.8	56.9	74	56.0	10	10	20	15	3
Parking Penalty Payment Options	1.10	3.2	63.8	68	51.5	8	5	23	23	5
Residential Boulevard Parking	1.19	3.0	60.0	70	53.0	11	6	22	18	5
Residential Driveway Access Permit	1.18	2.9	58.9	95	71.9	6	5	15	7	4
Special Event Parking Permit for Residents	0.95	3.1	61.8	98	74.3	3	3	18	8	2
Temporary Regulation Enforcement Request	1.09	2.9	58.9	97	73.5	6	2	17	8	2

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q6

132

132

Respondents

Responses

Q7

132

132

Respondents

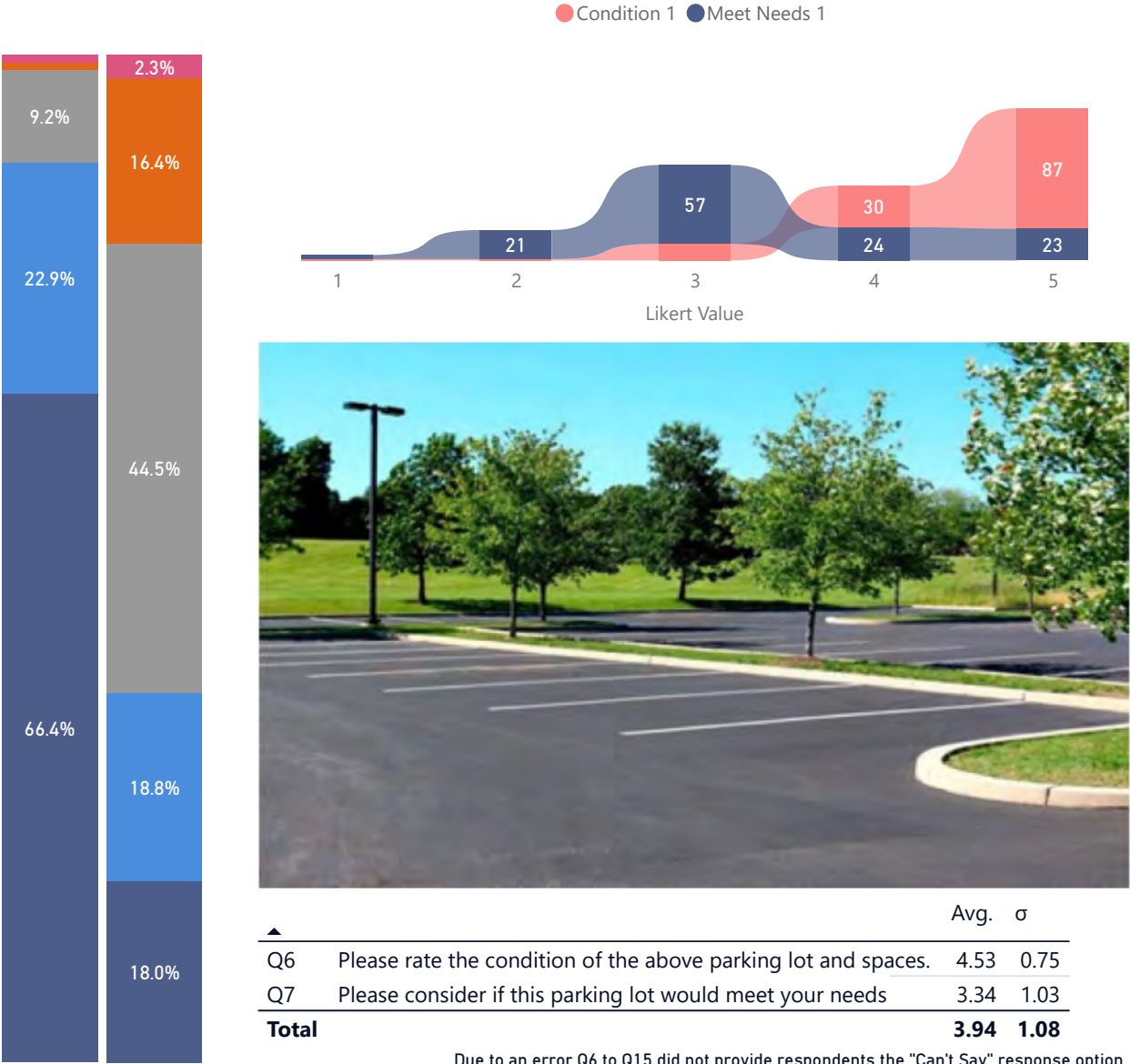
Responses

Condition 1

Please rate the condition of the above parking lot and spaces.

Meet Needs 1

Please consider if this parking lot would meet your needs

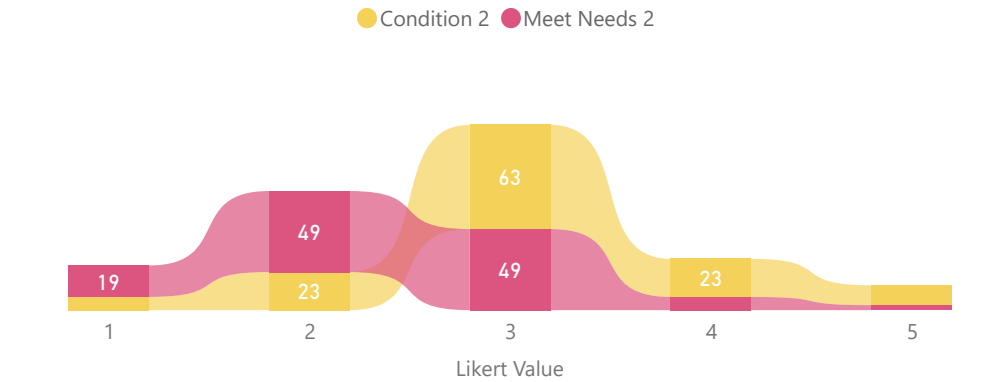
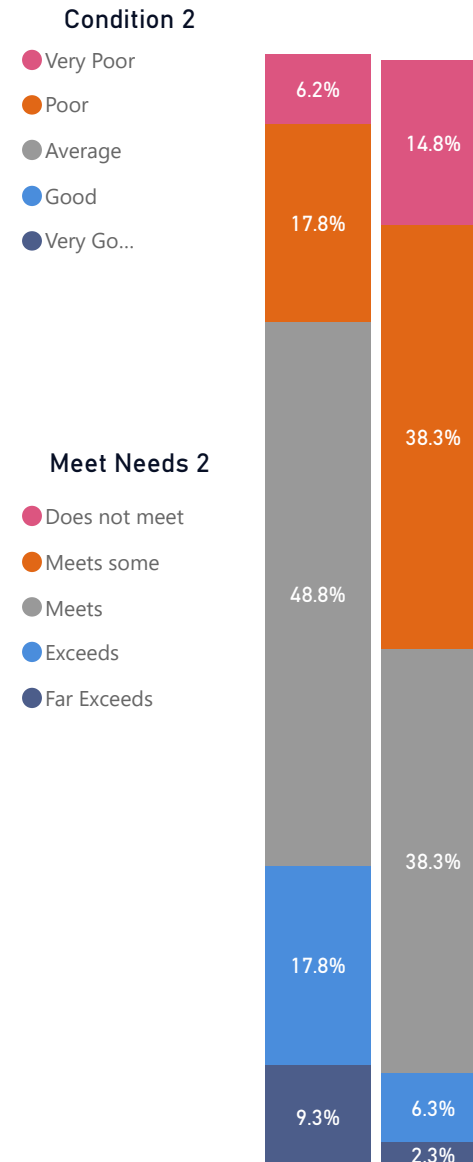
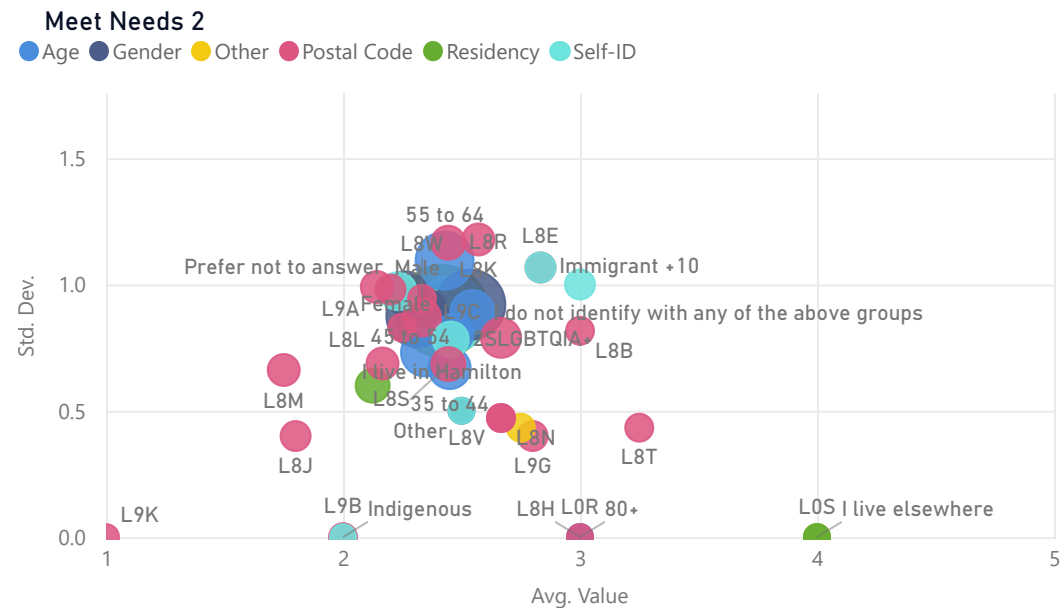


132	132
Respondents	Responses

132	132
Respondents	Responses

Please rate the condition of the above parking lot and spaces.

Please consider if this parking lot would meet your needs



		Avg.	σ
Q9	Please consider if this parking lot would meet your needs	2.43	0.90
Q8	Please rate the condition of the above parking lot and spaces.	3.06	0.99
Total		2.75	1.00

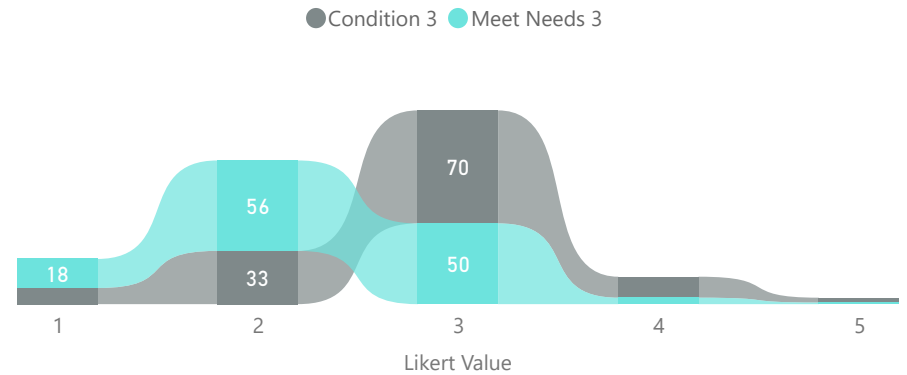
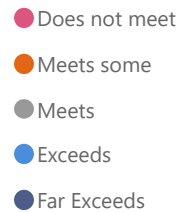
Due to an error Q6 to Q15 did not provide respondents the "Can't Say" response option

132	132
Respondents	Responses

132	132
Respondents	Responses

Please rate the condition of the above parking lot and spaces.

Please consider if this parking lot would meet your needs



		Avg.	σ
Q10	Please rate the condition of the above parking lot and spaces.	2.74	0.83
Q11	Please consider if this parking lot would meet your needs	2.33	0.78
Total		2.53	0.83

Due to an error Q6 to Q15 did not provide respondents the "Can't Say" response option

132

Respondents

132

Responses

132

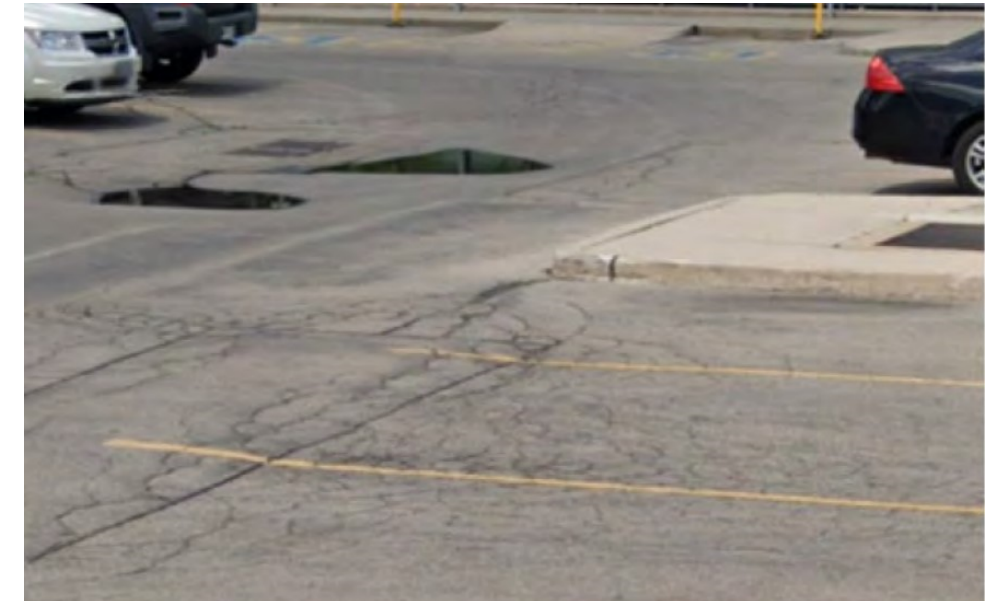
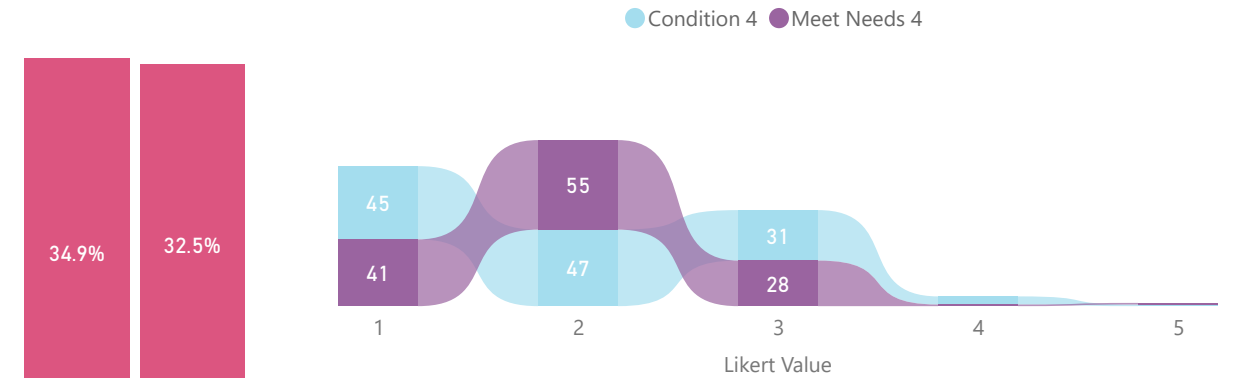
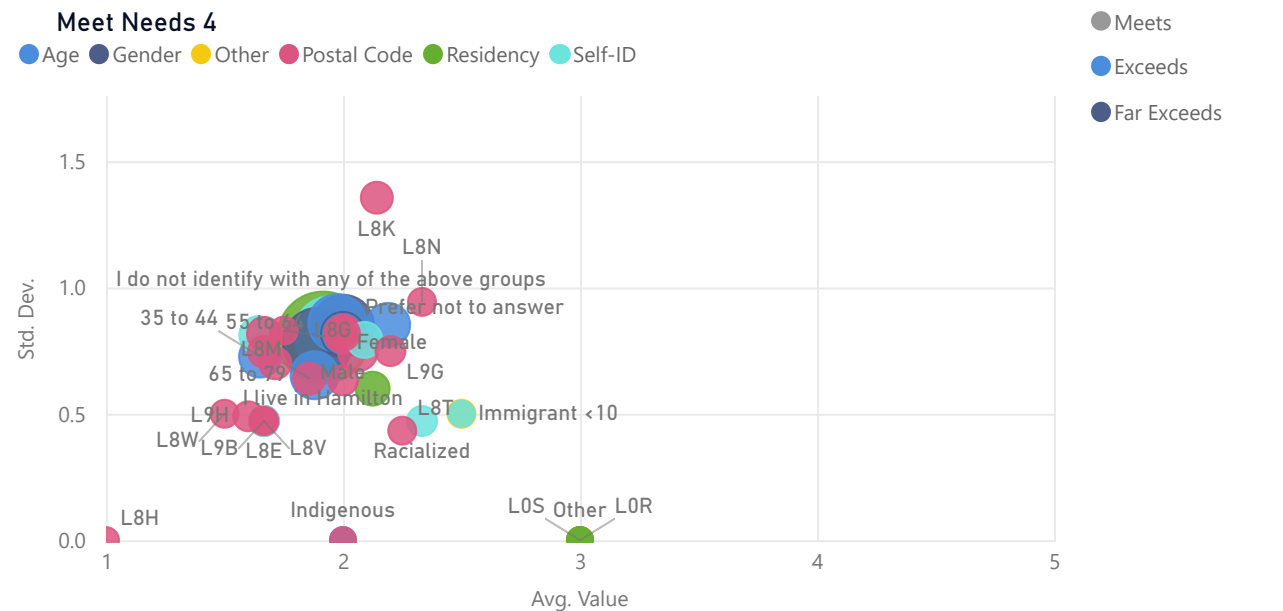
Respondents

132

Responses

Please rate the condition of the above parking lot and spaces.

Please consider if this parking lot would meet your needs



		Avg.	σ
Q12	Please rate the condition of the above parking lot and spaces.	1.99	0.90
Q13	Please consider if this parking lot would meet your needs	1.94	0.80
Total		1.96	0.86

Due to an error Q6 to Q15 did not provide respondents the "Can't Say" response option

132

Responses

132

Responses

Please rate the condition of the above parking lot and spaces.

Please consider if this parking lot would meet your needs



		Avg.	σ
Q14	Please rate the condition of the above parking lot and spaces.	2.05	0.78
Q15	Please consider if this parking lot would meet your needs	1.93	0.66
Total		1.99	0.73

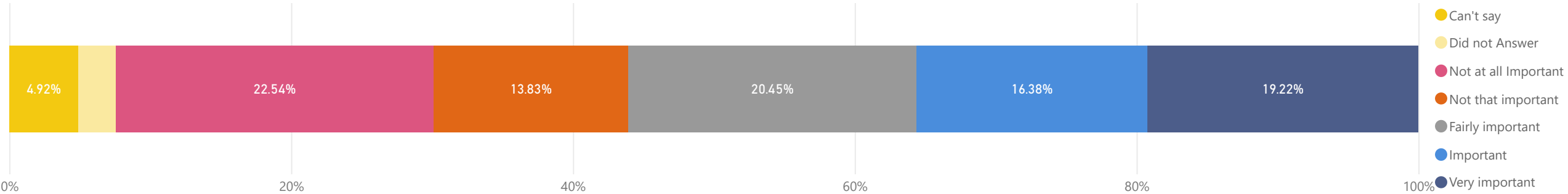
Due to an error Q6 to Q15 did not provide respondents the "Can't Say" response option

Q16

132
Respondents
1056
Responses

Potential Services

Please rate the following potential services based on importance to you.



	σ	Avg.	Avg. %	Opt out	Opt out %	Not at all Important	Not that important	Fairly important	Important	Very important
All Service Areas	1.36	3.0	59.1	80	7.6	238	146	216	173	203
More stormwater runoff controls	1.16	3.8	76.2	7	5.3	6	9	35	28	47
More parking near transit	1.24	3.7	74.4	10	7.5	11	8	25	38	40
More secure storage facilities	1.45	3.1	61.7	11	8.4	28	12	30	24	27
More bike racks	1.43	3.0	60.2	12	9.1	28	14	32	21	25
More electric vehicle charging stations	1.45	2.6	52.2	12	9.1	38	25	22	16	19
Increase fees for environmental sustainable changes	1.37	2.5	50.2	4	3.1	40	31	26	14	17
Increase monthly parking fees to prioiritize transit	1.44	2.5	49.2	12	9.1	43	27	20	12	18
Time of Use Pricing	1.35	2.4	48.7	12	9.1	44	20	26	20	10

Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

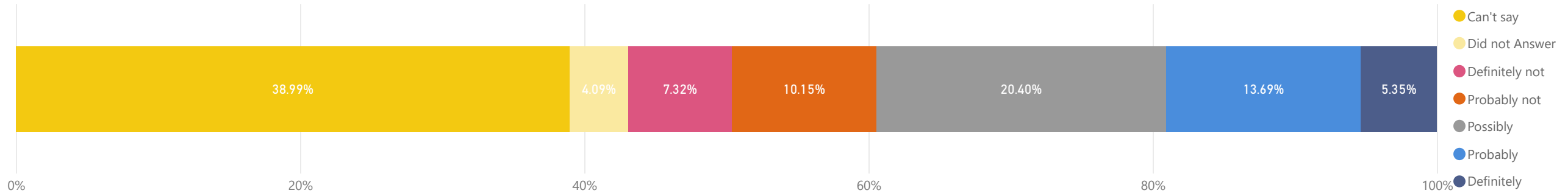
Q18

132
Respondents

1980
Responses

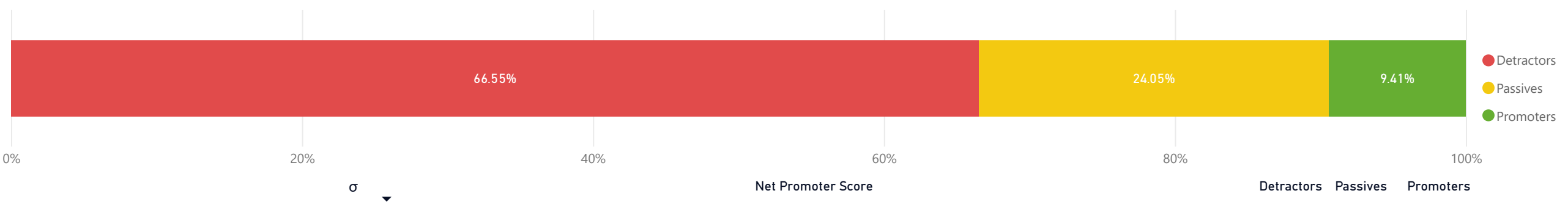
Recommend to Others

How likely would you be to recommend Parking Services to others?



	σ	Avg.	Avg. %	Opt out	Opt out %	Definitely not	Probably not	Possibly	Probably	Definitely
All Service Areas	1.15	3.0	59.9	853	43.1	145	201	404	271	106
“Passport Parking” Mobile APP	1.35	3.3	65.9	64	48.5	11	5	22	13	17
Accessible Parking Permit Exemptions	1.22	3.1	62.7	81	61.4	8	5	16	16	6
Car Park Accessibility	1.00	3.1	62.0	51	38.6	5	14	38	16	8
Car Park Condition and Appearance	1.07	2.8	55.6	31	23.4	13	26	38	18	6
Car Park Lighting	1.10	3.0	59.1	38	28.7	10	19	40	15	10
Car Park Locations	0.95	3.1	61.7	28	21.2	6	17	51	22	8
Municipal Car Parks and Parking Structures	1.07	3.1	62.7	22	16.6	9	20	38	33	10
On Street Parking	1.18	3.0	60.5	20	15.2	16	19	32	36	9
Parking Meters and Pay Machines	1.15	3.1	61.4	20	15.2	13	20	36	32	11
Parking Penalty Dispute Options	1.25	2.7	54.5	70	53.0	14	12	18	13	5
Parking Penalty Payment Options	1.15	2.9	57.6	66	50.0	10	13	23	15	5
Residential Boulevard Parking	1.18	2.8	55.6	73	55.3	12	11	16	18	2
Residential Driveway Access Permit	1.22	2.9	57.1	97	73.4	7	5	12	8	3
Special Event Parking Permit for Residents	1.11	3.0	59.4	97	73.5	4	7	13	8	3
Temporary Regulation Enforcement Request	1.21	2.8	55.7	95	72.0	7	8	11	8	3

Q18 is used to build a customer loyalty metric, Net Promoter Score. Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.



All Service Areas	22.9			-57.22	750	271	106
“Passport Parking” Mobile APP	27.0			-30.88	38	13	17
Accessible Parking Permit Exemptions	24.4			-45.10	29	16	6
On Street Parking	23.5			-51.79	67	36	9
Parking Meters and Pay Machines	22.9			-51.79	69	32	11
Municipal Car Parks and Parking Structures	21.5			-51.82	67	33	10
Residential Driveway Access Permit	24.4			-60.00	24	8	3
Special Event Parking Permit for Residents	22.2			-60.00	24	8	3
Car Park Accessibility	20.0			-60.49	57	16	8
Parking Penalty Payment Options	23.0			-62.12	46	15	5
Temporary Regulation Enforcement Request	24.2			-62.16	26	8	3
Residential Boulevard Parking	23.6			-62.71	39	18	2
Car Park Lighting	22.0			-62.77	69	15	10
Parking Penalty Dispute Options	24.9			-62.90	44	13	5
Car Park Locations	19.0			-63.46	74	22	8
Car Park Condition and Appearance	21.4			-70.30	77	18	6

Likert choices less than 4 are considered 'Detractors' while 5s are considered 'Promoters' and 4s are 'Passive'. Respondents who opted out by not answering or selecting 'Can't Say' were removed from the sample. Net Promoter score is calculated by subtracting (% Detractors) from (% Promoters). σ (Standard Deviation) is calculated in percent, the same units as the Net Promoter Score.

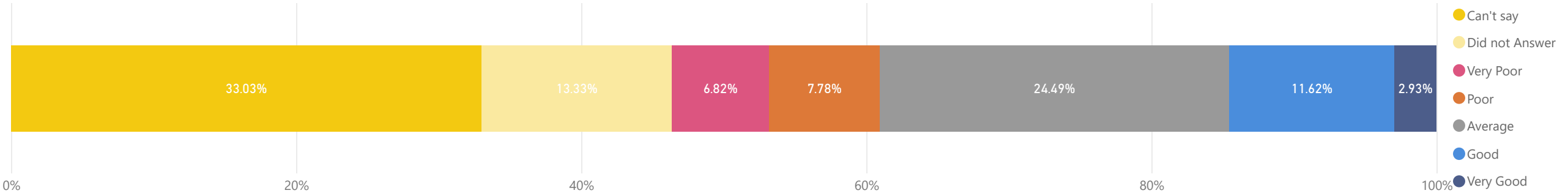
Q19

132
Respondents

1980
Responses

Value for Money

How would you rate the Parking Services Division for providing good value for money in the infrastructure and services provided to your community?



	σ	Avg.	Avg. %	Opt out	Opt out %	Very Poor	Poor	Average	Good	Very Good
All Service Areas	1.05	2.9	58.5	654	38.1	135	154	485	230	58
“Passport Parking” Mobile APP	1.28	3.1	62.5	69	52.3	12	3	22	17	9
Accessible Parking Permit Exemptions	1.06	3.1	62.4	83	62.9	5	5	23	11	5
Car Park Accessibility	0.95	3.0	60.5	47	35.6	6	14	42	18	5
Car Park Condition and Appearance	0.93	2.7	55.0	25	18.9	11	27	50	16	3
Car Park Lighting	0.93	3.0	59.0	30	22.7	7	21	49	20	5
Car Park Locations	0.89	3.0	59.4	25	18.9	10	11	61	22	3
Municipal Car Parks and Parking Structures	0.97	2.9	57.9	17	12.9	14	17	53	29	2
On Street Parking	1.13	2.9	57.9	8	6.1	20	19	46	32	7
Parking Meters and Pay Machines	1.04	3.0	59.7	12	9.1	15	16	50	34	5
Parking Penalty Dispute Options	1.16	2.6	52.9	76	57.6	13	9	22	9	3
Parking Penalty Payment Options	1.09	3.0	60.3	69	52.3	8	7	30	12	6
Special Event Parking Permit for Residents	1.13	2.9	58.8	99	75.0	6	1	18	5	3
Temporary Regulation Enforcement Request	1.10	2.7	54.2	94	71.2	8	4	19	5	2

Due to an error Q19 and Q20 are missing the Service Area Questions for 'Residential Boulevard Parking' and 'Residential Driveway Access Permit'. Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Q20

132

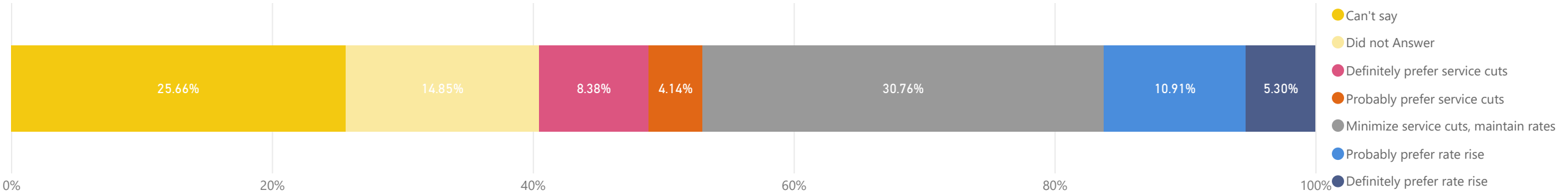
Respondents

1980

Responses

Reasonable Fees

Are the current fees reasonable for the Parking service provided? Would you prefer to see rates rise to increase or maintain service, or would you rather see services reduced to maintain current rates?



	σ	Avg.	Avg. %	Opt out	Opt out %	Definitely prefer service cuts	Probably prefer service cuts	Minimize service cuts, maintain rates	Probably prefer rate rise	Definitely prefer rate rise
All Service Areas	1.08	3.0	60.2	538	31.4	166	82	609	216	105
Car Park Lighting	1.00	3.3	65.8	25	18.9	9	3	55	28	12
Car Park Condition and Appearance	0.93	3.3	65.5	22	16.7	6	9	54	31	10
Car Park Accessibility	1.06	3.1	62.1	37	28.0	11	6	50	18	10
On Street Parking	1.09	3.1	61.9	16	12.1	15	6	61	21	13
Municipal Car Parks and Parking Structures	1.05	3.1	61.5	15	11.4	13	11	57	26	10
Car Park Locations	1.03	3.1	61.4	29	22.0	12	6	57	19	9
Temporary Regulation Enforcement Request	1.22	3.0	59.7	70	53.1	11	5	29	8	9
Parking Meters and Pay Machines	1.04	3.0	59.5	15	11.4	15	12	59	23	8
Accessible Parking Permit Exemptions	1.17	2.9	58.1	59	44.7	15	3	35	14	6
Special Event Parking Permit for Residents	1.16	2.8	55.9	74	56.0	12	5	29	7	5
Parking Penalty Dispute Options	1.09	2.7	54.7	60	45.5	14	8	38	7	5
Parking Penalty Payment Options	1.02	2.7	54.3	58	43.9	14	6	45	5	4
“Passport Parking” Mobile APP	1.14	2.7	53.8	58	43.9	19	2	40	9	4

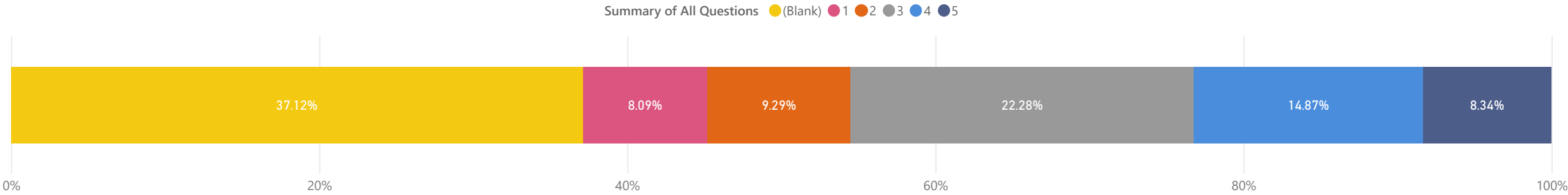
Due to an error Q19 and Q20 are missing the Service Area Questions for 'Residential Boulevard Parking' and 'Residential Driveway Access Permit'. Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.

Service Area	Reasonable Fees (index score)		Value for Money (index score)		Net Differential
Average	60		59		-1
"Passport Parking" Mobile APP	<div></div>	54	<div></div>	63	9
Parking Penalty Payment Options	<div></div>	54	<div></div>	60	6
Accessible Parking Permit Exemptions	<div></div>	58	<div></div>	62	4
Special Event Parking Permit for Residents	<div></div>	56	<div></div>	59	3
Parking Meters and Pay Machines	<div></div>	59	<div></div>	60	0
Car Park Accessibility	<div></div>	62	<div></div>	60	-2
Parking Penalty Dispute Options	<div></div>	55	<div></div>	53	-2
Car Park Locations	<div></div>	61	<div></div>	59	-2
Municipal Car Parks and Parking Structures	<div></div>	62	<div></div>	58	-4
On Street Parking	<div></div>	62	<div></div>	58	-4
Temporary Regulation Enforcement Request	<div></div>	60	<div></div>	54	-5
Car Park Lighting	<div></div>	66	<div></div>	59	-7
Car Park Condition and Appearance	<div></div>	65	<div></div>	55	-11

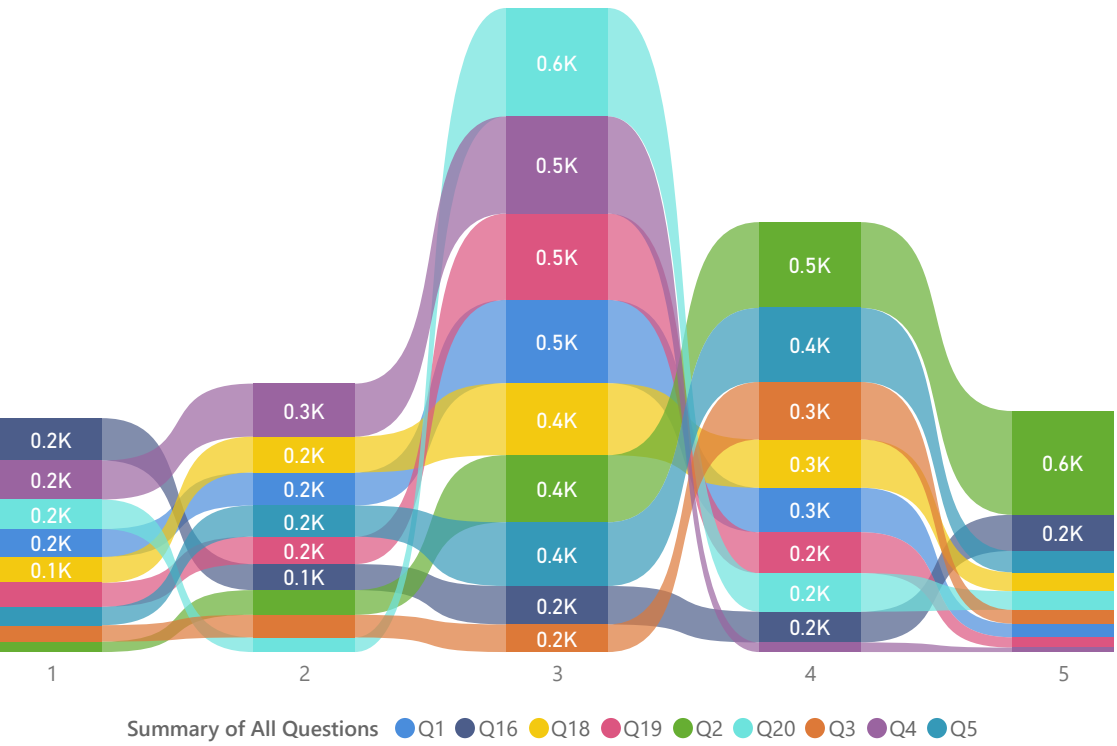
Positive Net Differential values indicate that 'Value for Money' was greater than 'Reasonable Fees'. All values were calculated and then rounded to the nearest whole number. Due to an error Q19 and Q20 are missing the Dimensions "Residential Boulevard Parking" and "Residential Driveway Access Permit"

Value for Money *Q19 How would you rate the Parking Services Division for providing good value for money in the infrastructure and services provided to your community?*

Reasonable Fees *Q20 Are the current fees reasonable for the Parking service provided? Would you prefer to see rates rise to increase or maintain service, or would you rather see services reduced to maintain current rates?*



	σ		Avg.	Avg. %	Opt Out	Opt out %
All Service Areas	1.21		3.1	61.9	6027	37.1
Q2 Importance	1.09		3.8	77.0	340	17.2
Q3 Access, last 24 mo	1.14		3.3	64.3	546	41.4
Q5 Comfortable and Safe	1.09		3.2	64.7	808	40.8
Q20 Reasonable Fees	1.08		3.0	60.2	802	40.5
Q18 Recommend to Others	1.15		3.0	59.9	853	43.1
Q16 Potential Services	1.36		3.0	59.1	80	7.6
Q19 Value for Money	1.05		2.9	58.5	918	46.4
Q1 Performance, last 24mo	1.08		2.8	58.3	842	42.5
Q4 Meet Needs	0.93		2.5	48.9	838	42.3



Due to an error Q19 and Q20 are missing the Dimensions "Residential Boulevard Parking" and "Residential Driveway Access Permit". Respondents who opted out by not answering or selecting 'Can't Say' are included in Opt out.



hamiltoninternationalvillage.ca

2024 International Village Business Improvement Area Budget.

BIA Administration (\$161,000)

Office Expenses (\$33,600)

Promotions/Marketing (\$41,000)

Beautification & Maintenance (\$4,000)

Member Events & Contact (\$8,500)

Contingency (\$5,000)

Contribution from BIA Reserve Fund: -\$25,000

2024 BIA Levy: \$228,100

Parking Revenue: \$13,400 (*Based on 2023*)

CIP Operating Funds: \$7,300 (*Based on 2023*)

Total Budget: \$248,800

195 Main St, East, Suite 100 Hamilton, ON L8N 1H2

info@hamiltoninternationalvillage.ca • (905) 522-1778

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2024 Concession Street Business Improvement Area Budget.

EXPENSE	BUDGET 2023	EXPENSES 2024	GRANTS/REVENUES
<u>OPERATIONS</u>			
ADMIN, OFFICE SUPPLIES	\$ 1,200.00	\$ 1,600.00	
WEBSITE/TECH/CELL PHONE	\$ 2,200.00	\$ 2,500.00	
RENT	\$ 8,000.00	\$ 9,000.00	
INSURANCE (DIRECTORS LIABILITY)	\$ 5,100.00	\$ 5,600.00	
AUDITOR	\$ 450.00	\$ 450.00	
UTILITIES	\$ 1,200.00	\$ 2,000.00	
BOOK KEEPER	\$ 4,000.00	\$ 4,200.00	
HAMILTON CHAMBER OF COMMERCE FEE	\$ -	\$ 500.00	
OBIAA MEMBERSHIP FEE & CONFERENCE	\$ -	\$ 4,000.00	
CONTINGENCY	\$ -	\$ 6,000.00	
SUBTOTAL	\$ 22,150.00	\$ 35,850.00	
<u>PAYROLL</u>			
EXECUTIVE DIRECTOR SALARY	\$ 52,000.00	\$ 50,000.00	
CPP + EI	\$ 7,800.00	\$ 7,800.00	
HEALTH BENEFITS	\$ -	\$ 2,000.00	
SUBTOTAL	\$ 59,800.00	\$ 59,800.00	
<u>MARKETING & EVENTS</u>			
ADVERTISING *see page 2*	\$ 31,000.00	\$ 28,200.00	\$ -
SIDEWALK SOUNDS	\$ 12,500.00	\$ 10,000.00	-\$ 4,000.00
STREETFEST	\$ 37,271.77	\$ 30,000.00	-\$ 8,000.00
WINTER EVENTS	\$ -	\$ 1,000.00	\$ -
FALL EVENTS	\$ 500.00	\$ 1,000.00	\$ -
EASTER	\$ -	\$ 600.00	\$ -
FARMERS MARKET STARTUP	\$ -	\$ 3,000.00	\$ -
ADDITIONAL ACTIVATIONS	\$ -	\$ 1,000.00	\$ -
REBRANDING + WEBSITE *one time budget item*	\$ -	\$ 20,000.00	\$ -
SUBTOTAL	\$ 81,271.77	\$ 94,800.00	-\$ 12,000.00
EXPENSES TOTAL LESS GRANTS/REVENUES			\$ 82,800.00
<u>BEAUTIFICATION</u>			
SUMMER FLOWERS *see pg 2*	\$ 15,000.00	\$ 19,000.00	-\$ 8,200.00
BANNERS/POLE WRAPS (MAINTENANCE/INSTALL/REMOVAL)	\$ 5,000.00	\$ 5,000.00	\$ -
STREET CLEANING/WINDOW CLEANING	\$ -	\$ 300.00	\$ -
ONSTREET PATIO/OVERFLOW PARKING	\$ 5,000.00	\$ -	\$ -
WINTER PLANTERS *see pg 2*	\$ 4,000.00	\$ 6,000.00	-\$ 2,000.00
SUBTOTAL	\$ 29,000.00	\$ 30,300.00	-\$ 10,200.00
EXPENSES TOTAL LESS GRANTS/REVENUES			\$ 20,100.00
BIA EXPENSES TOTAL	\$ 192,221.77	\$ 220,750.00	
GRANTS/REVENUES TOTAL			-\$ 22,200.00
TOTAL LEVY REQUIRED			\$ 198,550.00
	\$ 130,000.00	\$ 198,550.00	
	2023 LEVY	2024 LEVY	
	BASED ON 9.27%+	BASED ON 52.7%+	

ADVERTISING BREAKDOWN	
DIGITAL MARKETING CAMPAIGN	\$ 6,000.00
MARKETING CAMPAIGN	\$ 13,000.00
SOCIAL MEDIA MANAGEMENT (THE GENERATOR)	\$ 8,200.00
PRINT MATERIALS/POSTERS	\$ 1,000.00
<u>TOTAL BIA BUDGET TO ADVERTISING 2023</u>	<u>\$ 28,200.00</u>

SUMMER FLOWERS BREAKDOWN	
SIDEWALK FLOWERS, HANGING BASKETS,	
WATERING, BIA GATEWAY MAINTENANCE	\$ 19,000.00
<u>TOTAL BIA BUDGET TO SUMMER FLOWERS</u>	<u>\$ 19,000.00</u>

WINTER PLANTERS BREAKDOWN	
CEDAR TREES, SNOWFLAKES & SNOWGLOBES	\$ 6,000.00
<u>TOTAL BIA BUDGET TO WINTER PLANTERS</u>	<u>\$ 6,000.00</u>

**Term Sheet for Forgivable Loan from Ontario Priorities Housing Initiative funding,
City of Hamilton's Poverty Reduction Fund and Affordable Housing Property
Reserve**

1540 Upper Wentworth Street, Hamilton (Intensification on existing site with 126-unit purpose-built rental (111 net new units))

Proponent: Hamilton East Kiwanis Non-Profit Corporation

Type of Loan: \$2,559,040 Forgivable Loan resulting from Ontario Priorities Housing Initiative funding received from the Province of Ontario, \$631,005 from City of Hamilton's Poverty Reduction Fund and \$309,955 from City of Hamilton's Affordable Housing Property Reserve that will bear interest that can be forgiven after a period of 50 years. The combined forgivable loan amount is \$3,500,000.

Loan Conditions:

1. The recipient enter into a contribution agreement (the "Agreement") with the City containing such terms and conditions as set out in this term sheet.
2. The amount of the Loan shall be up to a maximum of \$3,500,000. The Loan shall be used for capital construction costs as permitted by the Ontario Priorities Housing Initiative Rental Housing Component program guidelines, the City of Hamilton's Poverty Reduction Fund and City of Hamilton's Affordable Housing Property Reserve.
3. The Loan shall only be used to construct a 126-unit purpose-built rental located at 1540 Upper Wentworth Street, Hamilton ("the project").
4. Construction must commence within 120 days of the date of execution of the Agreement.
5. Construction must be complete within 4 years of the date of execution of the Agreement.
6. The "Effective Date" of the Loan shall be the date of execution of the agreement.
7. The term of the Loan shall be 50 years commencing on the Effective Date.
8. No assignment of the Loan, other than to the City will be permitted unless consented to by the General Manager of the Healthy and Safe Communities Department (GM) in their sole discretion and only in the following circumstance:

- a. the property is sold to another provider of "non-profit housing" as agreed to by the GM; and,
 - b. any other circumstance as agreed upon by the GM in their sole unfettered discretion.
9. Requirement to provide the City with insurance certificates for "Property All Risks" insurance and other insurance as requested by the GM, to the satisfaction of the GM in consultation with Risk Management.
10. As continuing collateral security for the principal amount of the Loan and any amount that may become payable pursuant to the Agreement for any reason whatsoever hereunder, the Kiwanis Homes shall execute and/or deliver to the City in a form and content satisfactory to the City, the following (collectively referred to as the "Security"):
 - a. a collateral charge/mortgage of land which can be lesser in priority only to a CMHC registered mortgage or at the sole, absolute and unfettered discretion of the GM a long-term (greater than 20 years) third party financing, payable on demand in the Principal Amount of \$3,500,000 which shall be registered against title to 1540 Upper Wentworth Street, Hamilton ("Secured Property") and the mortgage shall state that it is security for the indebtedness of the Kiwanis Homes incurred pursuant to the Agreement;
 - b. an assignment of rents registered against title to the Secured Property and registered pursuant to the PPSA and in priority to any other assignment of rents provided by Kiwanis Homes;
 - c. assignment of any proceeds of insurance required pursuant to Article 7 and in priority to any other assignment of insurance provided by the Kiwanis Homes that relates to the Secured Property;
 - d. a general security agreement registered pursuant to the PPSA in priority any other general security agreement entered into by the Kiwanis Homes and registered pursuant to the PPSA which may be site specific to the Property at the sole discretion of the GM; and,
 - e. any and all such other and further documents, agreements and other instruments, and do such other and further things, as the City may require to give effect to the Agreement and cause the City to hold valid and enforceable security for the Principal Amount together with any amount that may become payable for any reason hereunder.

No additional financing will be permitted to be secured on the Secured Property that would exceed 100% of the value of the Property. At the sole discretion of the GM the

Security required in subsections (b), (c) and (d) and secured against the Secured Property above can be replaced by the same security secured against the Project once completed if the City's priority is maintained.

Postponements

11. During the Term of the Agreement, postponements of the City's Mortgage will be considered only under the following conditions and at the sole absolute and subjective discretion of the GM:
 - a. mortgage renewal;
 - b. to permit refinancing of a prior mortgage(s) to obtain a more favorable term in respect of interest rate, monthly payments, or other reasons agreed to by the City;
 - c. to finance, at rates of no greater than the current market, cost overrun or the cost of repairs;
 - d. to facilitate the making of such advances on a prior registered mortgage which was not fully advanced at the time of registration of the mortgage provided such mortgage has not been increased; and
 - e. to permit a forgivable loan from the Canada Mortgage and Housing Corporation.
12. Approval will be subject to a review to ensure the continued viability of the Project and to ensure monthly payments after additional financing does not result in rent increases greater than those permitted in the Agreement. Postponements will not be approved where equity is being withdrawn. No postponement of the City's Mortgage will be permitted if the total amount secured by all Encumbrances on the Property exceed 100% of the value of Property on date of the request of the postponement.
13. A request for postponement must be made in compliance with any requirements in the Agreement and at least thirty (30) days prior to the closing date of the financing for which the postponement is being requested. The City makes no representation, warranty or covenant that it will be able to respond to the request prior to the closing date of the financing for which the postponement is being requested. The request for postponement must include all the information identified in the Postponement Checklist attached to the Agreement and the request will not be considered or processed until the information identified therein is provided in a form and content satisfactory to the GM in their sole, absolute and unfettered discretion. The City will only provide a postponement in its form and will not enter into postponements or postponement agreements in a form requested by the financing entity which requires the postponement. The City will not enter into standstill agreements or subordination agreements.

Rental Requirements and Maximum Allowable Rents

14. At all times during the term of the loan, the rents of at least 20 of the units will at no time be above 80% Average Market Rent (AMR) for the City of Hamilton, to be determined by the GM in their sole discretion when the final construction and operating budgets are produced, but prior to signing of the construction contract.
15. Rents for the affordable units may only be increased annually by the Provincial Rent Increase Guideline during a tenancy. Rents may be increased to the maximum allowable percentage of AMR (80%) at turnover. Service Manager should be notified 90 (ninety) days prior to the effective date of a rent increase of more than the current Provincial Rent Increase Guideline.

Events of Default

16. Events of default shall include but not be limited to:
 - a. Within the term of the Agreement the housing is no longer "non-profit housing" as determined by the GM's sole discretion;
 - b. Failure to observe any of the conditions for advance of a Loan payment;
 - c. Breach of any provisions of the Agreement;
 - d. Any disposition of the property not consented to by the GM in their sole discretion which consent may include such conditions as the GM determines in their sole discretion;
 - e. Failure to acquire Service Manager Consent as it relates to encumbrances to 1540 Upper Wentworth Street;
 - f. Failure to successfully obtain a Building Permit and commence construction within 120 days of signing the Agreement, to the GM's sole discretion;
 - g. Failure to obtain occupancy within 4 years of the signing of the Agreement;
 - h. Failure to notify the City about any default of the Agreement within 30 days;
 - i. Where a mortgage, charge, lien, execution or other Encumbrance affecting the Property becomes enforceable against the Property;
 - j. Where Kiwanis Homes becomes bankrupt, whether voluntary or involuntary, or becomes insolvent or a receiver/manager is appointed with respect to the Property;
 - k. Where Kiwanis Homes certificate of incorporation is cancelled, or Kiwanis Homes is otherwise wound up or dissolved as a corporation or there is any other change in the ownership or corporate status of Kiwanis Homes not approved by the City in advance; and,
 - l. Where Kiwanis Homes ceases to be a Non-profit housing provider
 - m. Such further events as the City Solicitor deems appropriate in their sole discretion.
17. Consequences of an event of default, unless permitted to be remedied in such time and manner as the GM determines in their sole discretion, will include, but

not limited to: immediate repayment of all amounts advanced pursuant to the Loan, together with accrued interest thereon calculated, and no further Loan payments shall be made. Additional consequences and remedies shall be determined by the GM deems appropriate in their sole discretion.

Loan Payment and Interest

18. Repayment of the Loan shall occur on the 50th annual anniversary of the Effective Date term together with accrued interest unless forgiven in accordance with the requirements of paragraph 22. Interest shall accrue from the date of the First Advance on the total of the amounts advanced under the Loan. Advanced amounts outstanding from time to time shall bear interest both before and after default, maturity or judgment at a variable rate per annum of 2% above the prime rate established by the Royal Bank of Canada calculated and payable monthly (the "Interest Rate"). The Interest Rate shall be determined as per the date of the First Advance. The Proponent shall be advised of the Interest Rate by letter from the City. Interest as aforesaid shall be accrued from day to day and shall be calculated and payable on the 50th annunal anniversary of the Effective Date term unless forgiven in accordance with the requirements of paragraph 22. Interest at the Interest Rate shall accrue on overdue interest and shall be payable on demand.

Advance Provisions

19. The Loan shall be advanced, with such holdbacks as determined necessary by the City Solicitor, in 3 installments being:

Advance	Milestone	Percentage of Loan
1 st	Execution of the Agreement	50%
2 nd	Completion of structural framing of the project.	40%
Final	Occupancy and 60 day construction lien period has passed	10%

20. Prior to the issuance of any advance of the Loan to Kiwanis Homes, the following must be confirmed:
- There are no actions, suits, executions, liens or proceedings pending or threatened against or affecting the Property or Project, that if successful, would adversely affect the Property or the financial condition of the Proponent or the priority of the Security, as determined by the City in its sole absolute and unfettered discretion;
 - There are no liens, executions, or other instruments registered on title to the Property that would adversely the Property, the financial condition of the Proponent or the Security, as determined by the City in its sole, absolute and unfettered discretion;

- c. The Proponent has applied for and received all required regulatory and building approvals;
 - d. The Proponent has ensured that all municipal real property taxes, applicable development charges and any other applicable municipal charges, if any, have been paid and are in good standing;
 - e. The Proponent has made a written request for an Advance and has complied with the requirements for an Advance as set out in the Agreement;
 - f. The City is satisfied, in its sole, absolute and unfettered discretion that there are no Violations of Applicable Law including but not limited to the Building Code, Canadian Environment Assessment Act, 2012, S.C. 2012 c. 19, s. 52, the Ontario Fire Code, any City zoning by-law or any City property standards by-law in respect of the Property or Project whether or not the Violation results in or could result in a Material Adverse Effect;
 - g. The Proponent has discharged any Encumbrance, other than Permitted Encumbrances, against the title of the Property and Project;
 - h. The Proponent is in good standing under all Permitted Encumbrances;
 - i. Third Party Project Monitor Report submitted demonstrating at a minimum that the Project budget is sufficient to complete the project in accordance with the Project's development schedule; and,
 - j. Such other conditions as the GM determines appropriate.
21. Prior to issuance of the Final Advance, the following must be confirmed:
- a. That all the Units in the Project can be occupied to the satisfaction of the GM in their sole discretion;
 - b. That the Program Units in the Project meet the Rental Requirements and Maximum Allowable Rents;
 - c. Sixty (60) days have passed since the publication of the Certificate of Substantial Performance; and
 - d. An updated capital cost statement in a form acceptable to the GM in their sole, absolute and unfettered discretion.

22. Loan Forgiveness

- a. The Loan and interest accrued shall be forgiven at the end of the affordability period when the Proponent has demonstrated that they have fulfilled all the obligations of the Agreement.

Accountability Provisions

23. The Agreement shall remain in force and in effect until the affordability period has ended and Kiwanis Homes has performed all of its obligations under the Agreement and no Security shall be discharged until the affordability period has ended and Kiwanis Homes has performed all of its obligations under the Agreement.

24. During the term of the Agreement and the loan period, Kiwanis Homes will monitor the respective Project annually to ensure the obligations under the Agreement have been met for the previous year. During the term of the payment period, Kiwanis Homes will submit required documentation to the Housing Services Division annually to confirm the affordability requirements are being met;
25. The loan recipient must without any prejudice to any rights of inspection the City has pursuant to any Applicable Law, Kiwanis Homes shall, during normal business hours and from time to time upon 24 hours' notice to permit representatives of the City to inspect any real property owned or occupied by Kiwanis Homes including the Property and the Project and to examine and take extracts from Kiwanis Home's financial books, accounts and records including but not limited to accounts and records stored electronically for the purpose of verifying compliance with the Agreement, and use of the Funds;
26. At any time during the term of the Loan, the City may conduct an operational review of the Project on terms and conditions set by the GM in their sole, absolute and unfettered discretion. Kiwanis Homes shall at all times cooperate with the operational review and provide documentation, access to staff and such other information as may be requested by the GM or other City staff.
27. Kiwanis Homes shall ensure that there are adequate financial controls in place to ensure the accuracy, completeness and auditability of Kiwanis Home's financial reporting;
28. Kiwanis Homes shall, on forty-eight (48) hours prior written notice, give the City free and unrestricted access to the Project and to such staff, documents, books, records and accounts as may be required by the City, for the purpose of verifying compliance with the Agreement, and use of the Funds.
29. At any time, the City, the Minister or any representative of the City or the Minister may conduct an audit, investigation or inquiry in relation to the Project, the Funds or any larger development or project of which the Project is a part and Kiwanis Homes shall co-operate with the City and the Minister and provide free and unrestricted access to the Project and to such staff, documents, books, records and accounts as may be requested by the City or the Minister.
30. Within sixty (60) days of the written request of the City, Kiwanis Homes shall provide an audited financial statement respecting the expenditure of all Funds provided pursuant to the Agreement.
31. The audited financial statements required to be produced by Kiwanis Homes pursuant to Section 24 shall:

- a. be completed in a form and content to the satisfaction of the GM;
- b. be signed by an authorized signing officer of Kiwanis Homes; and;
- c. be submitted to the City at the following address;

71 Main Street, W, Hamilton ON L8P 4Y5

To the attention of;

The General Manager,

Healthy and Safe Communities Department

32. Kiwanis Homes shall keep and maintain:

- a. all financial records (including invoices) relating to the Funds advanced to it in a manner consistent with generally accepted accounting principles; and,
- b. all non-financial documents and records relating to the Funds advanced to it.

33. For the purpose of ensuring compliance with the terms of the Agreement, the City, the Minister or their authorized agents or representatives or an independent auditor identified by the City or Province (collectively the "Inspectors") may, at their own expense, upon on 24 hours' notice and during regular business hours, enter upon Kiwanis Homes' premises and/or the Project, and Kiwanis Homes shall provide free and unrestricted access to its premises, the Project and to such staff, documents, books, records and accounts as may be requested by the Inspectors and cooperate fully with the Inspector in order to permit them:

- a. inspect and take extracts from the accounts, records including financial records and invoices, and books and data, whether such aforesaid accounts and records are stored in any format whatsoever including but not limited to paper or electronic format; and
- b. conduct and audit, investigation or inquiry of Kiwanis Homes in relation to the Project, the Funds or any larger development or project of which the Project is a part and Kiwanis Homes. The City or the Ministry shall provide the results of their audit to Kiwanis Homes within a reasonable time of its completion. Any audit performed by the City under this Section shall be at the sole expense of the City. Any audit performed by the Ministry under this Section shall be at the sole expense of the Ministry.

34. To assist in respect of the rights set out in this loan term sheet, Kiwanis Homes shall promptly disclose and provide, without limitation, any information requested by the Inspectors and shall do so in a form requested by the City, its authorized representatives or an independent auditor identified by the City, as the case may be.

35. During the Term of the Agreement, Kiwanis Homes shall:

- a. operate and maintain the Project in a good state of repair and fit for occupancy in the same manner as a prudent owner would and in compliance with all applicable law; and,

- b. Manage the Project in a fiscally responsible manner and ensure that a deficit is not incurred in any year without the approval of the City, which shall not be unreasonably withheld, and that no expenditure is made which is of a material and excessive nature having regard to the normal practice for a similar housing project.

Other Provisions

- 36. The City of Hamilton and Province of Ontario must be recognized on project marketing and promotional material (ie. City of Hamilton logo), at Kiwanis Homes expense.
- 37. Any out of pocket expenses (ie. Appraisal costs) incurred in the provision of the Loan, the preparation of the Agreement or in respect of the Security for the Loan, over and above staff costs, are the responsibility of Kiwanis Homes.
- 38. The Loan recipient must provide full disclosure, at all times, with respect to issues repay the Loan.
- 39. Any other terms and conditions deemed appropriate by the City Solicitor and GM, at their sole discretion.
- 40. Any other terms and condition as required by the Ministry of Municipal Affairs and Housing to utilize the Ontario Housing Priorities Initiative Rental Housing Component Year 5 funding.